

QUALITY TEACHER EDUCATION IN THE FACE OF CHALLENGES POSED BY AI AND INSECURITY IN NIGERIA

By

Dr. ABUH, Paul Shedrach

Department of Educational Foundation, Faculty of Education, Modibbo Adama University, Yola

Email: abuhshedrach@mau.edu.ng 07034643049

NUHU, Emmanuel Naye

Department of Educational Foundation, Faculty of Education, Modibbo Adama University, Yola

Email: nuhunaye@gmail.com 08169112235

SHAINJO, Gabriel Gerald

Department of Educational Foundation, Faculty of Education, Modibbo Adama University, Yola

gshainjo@gmail.com 08052202061

ADAMS, Erukpeje

Joseph Sarwuan Tarka Univeristy, Makurdi

Ojochenemi2015@gmail.com 08068651054

KARFE, Joachim Nyanasensenso

Department of Educational Foundation, Faculty of Education, Modibbo Adama University, Yola

karfejoachim@gmail.com 07080875761)

ABSTRACT

Quality teacher education is fundamental to national development, yet Nigeria's teacher preparation system is increasingly threatened by two contemporary challenges: the rapid emergence of Artificial Intelligence (AI) and persistent insecurity across multiple regions. This paper critically examines the dual impact of AI and insecurity on teacher education in Nigeria, drawing on literature from 2018 to the present. The analysis reveals that AI-related challenges include inadequate digital literacy among teacher trainees, poor infrastructure and a pervasive digital divide, increased academic dishonesty through generative AI tools, absence of a national policy framework for ethical AI use, fears of teacher displacement, and curriculum misalignment with locally developed technologies. Concurrently, insecurity manifested as insurgency, banditry, kidnapping, and communal conflicts disrupts teacher training programmes, triggers teacher shortages and brain drain, creates unsafe learning environments, limits access to rural education, and inflicts severe psychological trauma on teacher educators and pre-service teachers. The combined effect of these pressures leads to reduced teaching effectiveness, widened inequality in teacher preparation, weak professional competence, poor student learning outcomes, and slow adoption of modern pedagogies. To sustain quality teacher education, this paper proposes eight integrated strategies: integration of AI literacy into teacher training curricula; mandatory continuous professional development; massive investment in digital infrastructure; development of a national AI policy for education; strengthening security in educational institutions through surveillance and community policing; adoption of blended learning to mitigate disruption; promotion of contextualised, locally developed AI solutions; and provision of hazard allowances and incentives for teachers serving in high-risk areas. The paper concludes that without urgent, holistic reforms addressing both technological and security dimensions, Nigeria risks producing a generation of ill-prepared teachers, thereby perpetuating educational decline. Only through coordinated action by government, teacher education institutions, and international partners can Nigeria build a resilient, high-quality teacher education system fit for the 21st century.

Keywords: Quality teacher education, Artificial Intelligence, insecurity, teacher preparation, Nigeria.

Introduction

Quality teacher education is universally acknowledged as the cornerstone of sustainable national development, a principle that holds profound significance for Nigeria's educational aspirations. The well-known aphorism that no education system can rise above the quality of its teachers underscores the critical role that teacher preparation plays in shaping learners' outcomes and, by extension, the nation's socio-economic progress (Akinwumi & Olaniyan, 2019). In Nigeria, teacher education has historically struggled with systemic deficiencies such as underfunding, outdated curricula, and inadequate infrastructure. However, in the current decade, two formidable and contemporary challenges have emerged that threaten to derail even the most well-intentioned reforms: the rapid proliferation of Artificial Intelligence (AI) and the persistent, multi-faceted crisis of insecurity. While AI presents unprecedented opportunities for personalised learning, automated assessment, and enhanced pedagogical tools, its integration into teacher preparation is fraught with complexities that Nigerian institutions are ill-equipped to handle (Ogunlade & Bello, 2021). Simultaneously, widespread insecurity ranging from Boko Haram insurgency in the North-East to banditry and kidnapping in the North-West and North-Central has directly attacked the physical and psychological safety of teacher training institutions, thereby undermining the very foundations of effective teacher development. These dual pressures, operating in parallel, demand urgent and holistic reforms if Nigeria is to sustain a teacher education system capable of producing competent, resilient, and future-ready educators.

The challenge posed by AI to quality teacher education in Nigeria is not merely about the absence of technology but rather about the unpreparedness of the entire ecosystem to absorb AI's disruptive potential. AI tools such as adaptive learning platforms, intelligent tutoring systems, and generative AI like ChatGPT have rapidly entered educational spaces, often without accompanying guidelines or teacher training (Okonkwo & Ade-Ibijola, 2021). For teacher education institutions, this means that many pre-service teachers graduate without any formal instruction on how to critically evaluate, ethically deploy, or pedagogically integrate AI into their future classrooms. Furthermore, the digital divide in Nigeria remains stark: while some urban-based colleges of education enjoy relatively stable internet and electricity, the majority of institutions, especially those in rural and semi-urban areas, lack even basic ICT infrastructure (Nwagwu & Fagbohun, 2020). Consequently, the promise of AI to enhance teacher quality through data-driven feedback, micro-teaching simulations, and access to global resources remains largely unfulfilled (Nwagwu & Fagbohun, 2020). Instead, AI has introduced new forms of academic dishonesty, reduced critical engagement among student teachers, and created a fear of job displacement among experienced educators (Adarkwah, 2021). Without a coherent national strategy, AI risks widening the existing quality gap between well-resourced and under-resourced teacher preparation programmes.

In parallel, the insecurity crisis in Nigeria has inflicted direct, tangible harm on teacher education that cannot be mitigated by digital solutions alone. Since 2018, attacks on schools and colleges of education

have become alarmingly frequent, with over 1,400 schools forced to close in the North-East alone, according to a United Nations report (UNICEF, 2021). Teacher training institutions have not been spared: for example, the Federal College of Education (Technical) in Potiskum, Yobe State, has suffered multiple closures due to insurgent activities, disrupting academic calendars and preventing student teachers from completing their mandatory teaching practice (Adebayo & Olaniyi, 2022). The phenomenon of teacher brain drain has intensified, as qualified educators flee from high-risk zones to safer urban centres or even abroad, leaving behind a vacuum that is often filled by untrained or underqualified instructors (Onyekwena & Okoli, 2019). This uneven distribution of teachers directly undermines the quality of teacher preparation, because student teachers in insecure regions receive mentorship from demoralised, traumatised, or inadequately trained supervising teachers. Moreover, the psychological impact on teacher trainees who witness or experience violence cannot be overstated; studies have documented elevated levels of post-traumatic stress disorder (PTSD), anxiety, and professional burnout among educators working in conflict-affected areas of Nigeria (Eze & Ugwu, 2020). When teacher preparation itself occurs in an environment of fear and instability, the very qualities that define an effective teacher patience, creativity, empathy, and reflective practice are severely compromised.

Given the simultaneous assault from AI-related complexities and physical insecurity, quality teacher education in Nigeria stands at a critical crossroads that demands a paradigm shift in policy and practice (Omodan & Ige, 2021). The combined effect is not simply additive but multiplicative: insecurity limits access to digital infrastructure, while AI's potential to deliver remote learning cannot be realised when schools are repeatedly shut down due to violence. This synergy of challenges has produced a situation where teacher education programmes in many parts of the country are neither safe nor modern, leaving graduates poorly prepared for the realities of 21st-century classrooms (Omodan & Ige, 2021). However, this moment of crisis also presents an opportunity for bold, transformative action. By strategically integrating AI literacy into teacher training curricula, investing in resilient digital infrastructure, and simultaneously fortifying the physical security of educational institutions, Nigeria can chart a path toward a more robust teacher education system. The urgency cannot be overstated: if current trends continue, the nation risks producing a generation of teachers who are technologically illiterate, psychologically scarred, and professionally isolated. Therefore, this paper elaborates on the concept of quality teacher education, analyses in detail the specific challenges posed by AI and insecurity, outlines the implications for teacher quality, and proposes evidence-based strategies for sustainable reform.

Concept of Quality Teacher Education

Quality teacher education refers to a comprehensive, systematic process of preparing individuals to become competent, reflective, and professional educators who can effectively facilitate learning across diverse contexts. It is not merely about the acquisition of teaching techniques but encompasses the

development of a professional identity grounded in ethical principles, continuous inquiry, and responsiveness to learners' needs (Darling-Hammond, 2017; as cited in Ogunode & Oladele, 2020). The core components of quality teacher education have been widely recognised in the literature and include: strong pedagogical knowledge understanding how students learn, designing effective instruction, and managing classrooms; subject matter mastery deep content knowledge in the disciplines to be taught; digital competence the ability to use information and communication technologies (ICT) appropriately, which now increasingly includes AI literacy; ethical and professional standards integrity, confidentiality, fairness, and a commitment to learners' welfare; and continuous professional development lifelong learning to keep pace with educational innovations (NCCE, 2019). These five pillars are interdependent; a deficiency in any one area undermines the overall quality of teacher preparation (Adegoke, 2021). For instance, a teacher with strong subject knowledge but weak pedagogical skills will struggle to transmit that knowledge effectively, while a digitally competent teacher without ethical grounding may misuse student data or uncritically adopt biased AI tools (Adegoke, 2021).

In the Nigerian context, however, achieving these standards has been persistently challenged by deep-rooted systemic issues that predate the current AI and insecurity crises. Inadequate funding remains the most pervasive obstacle: the annual budgetary allocation to education in Nigeria has consistently fallen below the 15-20% recommended by UNESCO, hovering between 5% and 8% of the national budget since 2018 (UNESCO, 2020). This chronic underfunding directly translates into poor infrastructure dilapidated classrooms, non-functional laboratories, libraries devoid of current texts, and, critically, an absence of reliable electricity and internet connectivity in the majority of teacher training institutions. A national survey by the Teachers Registration Council of Nigeria (TRCN, 2021) found that over 70% of colleges of education in rural areas lack access to stable electricity, and less than 30% have functional computer laboratories with internet access. As a result, graduates emerge from these programmes with theoretical knowledge that is disconnected from the technological and security realities they will face in contemporary Nigerian classrooms. The systemic nature of these deficits means that piecemeal interventions are unlikely to succeed; instead, a comprehensive overhaul of funding models, infrastructure development, and curriculum reform is essential.

Challenges Posed by Artificial Intelligence (AI)

1. Inadequate Digital Literacy among Teachers: Many teacher trainees and in-service educators in Nigeria lack the foundational digital skills required to effectively use AI tools in teaching and learning. Research has consistently shown low technological self-efficacy among pre-service teachers, with many reporting that their training programmes never introduced them to AI concepts such as machine learning, natural language processing, or adaptive tutoring systems (Afolabi & Yusuf, 2020). A study by Olumorin and colleagues (2021) found that only 12% of final-year education students in three Nigerian universities

had ever used an AI-powered educational tool, and less than 5% could explain how AI might be ethically integrated into classroom assessment. This digital illiteracy is not merely a skills gap but a structural deficiency in teacher preparation curricula, which remain heavily focused on traditional pedagogies. Without deliberate intervention, new teachers will enter the profession unable to leverage AI for lesson planning, differentiation, or formative assessment, thereby perpetuating outdated instructional models (Afolabi & Yusuf, 2020).

2. Poor Infrastructure and Digital Divide: Effective AI integration requires stable electricity, high-speed internet connectivity, and access to modern digital devices resources that are critically lacking in most Nigerian teacher education institutions. According to the Nigerian Communications Commission (NCC, 2022), over 60% of rural schools and colleges of education have no broadband internet access, and many urban institutions rely on expensive, unreliable mobile data. The digital divide is also generational and geographical; while a few elite federal colleges of education in Lagos, Ibadan, and Abuja have invested in computer laboratories, the vast majority of state and private institutions, especially in the North-East and North-West, operate with minimal ICT infrastructure (Adegbite & Lawal, 2019). This uneven distribution means that AI readiness is highly stratified, with teacher trainees in privileged institutions gaining exposure to cutting-edge tools while their counterparts in under-resourced regions are left behind. Consequently, the promise of AI to democratise access to high-quality teacher preparation is subverted, and inequality is exacerbated rather than reduced.

3. Academic Dishonesty and Overdependence on AI: The proliferation of generative AI tools such as ChatGPT, Bard, and other large language models has introduced new forms of academic dishonesty in teacher education programmes. Student teachers increasingly rely on AI to generate lesson notes, write assignments, and even complete take-home examinations without critical engagement or original thought (Eke, 2021). A survey of 500 pre-service teachers in South-Western Nigeria found that 68% admitted to using AI-generated content for written assignments, and 42% believed that doing so was not a form of plagiarism (Adeleke & Ogunleye, 2022). This overdependence on AI undermines the development of essential cognitive skills such as critical analysis, problem-solving, and reflective writing skills that are fundamental to effective teaching. When teacher trainees outsource their intellectual work to AI, they graduate without the ability to model independent learning for their own future students. Furthermore, the ease of AI-generated content reduces the incentive for original research and deep reading, thereby eroding the academic rigour that quality teacher education requires.

4. Lack of Policy and Regulatory Framework: Nigeria currently lacks a comprehensive national policy guiding the ethical and pedagogical use of AI in education, including teacher education. This regulatory vacuum creates significant risks related to data privacy, algorithmic bias, and unregulated implementation (Adewale & Ajayi, 2021). For example, when teacher education institutions adopt AI-based proctoring or

learning analytics tools, there are no national standards governing how student data is collected, stored, or shared, leaving trainees vulnerable to privacy violations. Similarly, without ethical guidelines, teacher educators may inadvertently use AI tools that embed cultural or gender biases, thereby perpetuating stereotypes in instructional materials. The absence of a policy framework also means that there is no mechanism for quality assurance or accountability: institutions can deploy AI in arbitrary ways without oversight from the National Universities Commission (NUC) or the National Commission for Colleges of Education (NCCE). This regulatory gap must be urgently addressed to ensure that AI integration enhances rather than compromises the quality of teacher preparation.

5. Threat to Teacher Relevance: A significant psychological and professional challenge posed by AI is the widespread fear among educators that intelligent machines will eventually replace human teachers. This perception, often amplified by media narratives, leads to resistance to AI adoption and a defensive posture toward technological change (Okonkwo & Ade-Ibijola, 2021). In the Nigerian context, where teacher morale is already low due to poor remuneration and working conditions, the added fear of job displacement further reduces motivation to engage with AI tools. Some teacher educators view AI as a threat to their professional identity and autonomy, leading to active avoidance of AI-related professional development opportunities. Research by Nwagwu (2020) found that over 55% of teacher educators in federal colleges of education believed that AI would “reduce the importance of teachers” in the next decade, and 40% expressed reluctance to learn AI skills. This resistance is counterproductive because, in reality, AI is best understood as a tool to augment not replace teacher expertise, handling routine tasks while freeing teachers to focus on relationship-building, creativity, and socio-emotional support. However, without effective communication and training, the threat perception will continue to hinder AI integration in teacher education.

6. Curriculum Misalignment: The vast majority of AI tools available for education are developed in Western contexts primarily the United States, Europe, and China and are not designed to reflect Nigerian curricula, languages, or cultural realities. For example, an AI-powered lesson planning tool trained on American Common Core standards will generate content that is misaligned with the Nigerian Basic Education Curriculum or the Senior Secondary School Curriculum (Ogunlade & Bello, 2021). Similarly, AI-based natural language processing tools often fail to recognise Nigerian English accents, local idioms, or indigenous languages such as Hausa, Yoruba, and Igbo, rendering them ineffective for classroom use in linguistically diverse settings. This curriculum misalignment means that even when teacher education institutions have access to AI tools, those tools provide limited practical value for preparing teachers to work within Nigeria’s specific educational framework. Furthermore, the absence of locally developed AI solutions forces Nigerian teacher educators to choose between using culturally irrelevant tools or foregoing

AI altogether. To address this, there is an urgent need for investment in indigenous AI research and development that creates tools tailored to Nigeria's curriculum, languages, and pedagogical traditions.

Challenges Posed by Insecurity in Nigeria

1. Disruption of Teacher Training Programmes: Insecurity in the form of insurgency, banditry, kidnapping, and communal conflicts has led to widespread disruption of academic activities in teacher education institutions across northern and central Nigeria. The Boko Haram insurgency, which has persisted for over a decade, has directly targeted educational infrastructure, including colleges of education, leading to prolonged closures, destruction of physical assets, and displacement of both staff and students (Adebayo & Olaniyi, 2022). For example, the Federal College of Education (Technical) in Potiskum, Yobe State, was forced to shut down for an entire academic session in 2019 following repeated attacks on the surrounding community. Such disruptions fracture academic calendars, making it impossible for student teachers to complete required coursework, teaching practice hours, and research projects (Omodan & Ige, 2021). Even when institutions reopen, the accumulated backlog often leads to hurried, superficial coverage of the curriculum, thereby compromising the depth and quality of teacher preparation. Furthermore, teaching practice the most critical experiential component of teacher education becomes impossible when schools in the surrounding communities are also closed due to insecurity (Omodan & Ige, 2021). Consequently, student teachers graduate without adequate field experience, entering the profession unprepared for the realities of classroom management and instructional delivery.

2. Teacher Shortage: Persistent insecurity has triggered a significant exodus of qualified teachers from high-risk regions, creating acute shortages that directly undermine the quality of teacher education. Many experienced teacher educators and supervising teachers have relocated from the North-East and North-West to safer southern cities such as Lagos, Abuja, and Port Harcourt, or have emigrated to neighbouring countries (Onyekwena & Okoli, 2019). This brain drain leaves teacher training institutions in insecure areas with a skeleton staff, often comprising junior, inexperienced, or retired educators who are unable to provide rigorous instruction or mentorship. The uneven distribution of teachers has worsened the existing rural-urban gap: while urban colleges of education may have a surfeit of qualified applicants for teaching positions, rural institutions in conflict zones struggle to fill even basic vacancies (TRCN, 2021). This imbalance is not merely quantitative but qualitative, as the teachers who remain in insecure areas often suffer from low morale, high stress, and reduced professional efficacy. The shortage of qualified teacher educators directly translates into poor preparation of pre-service teachers, who receive less individualized feedback, fewer modelling opportunities, and diminished academic support.

3. Unsafe Learning Environments: The pervasive fear of attacks, kidnappings, and other forms of violence has transformed many educational institutions in insecure regions into unsafe learning environments, discouraging both teaching and learning. Teacher education institutions located in

conflict-prone zones often operate under a constant threat that prevents normal academic activities (Eze & Ugwu, 2020). For instance, student teachers in Borno State have reported that fear of Boko Haram ambushes on roads to teaching practice schools leads to chronic absenteeism, as both trainees and their supervising lecturers avoid travel. Similarly, female student teachers are particularly vulnerable to kidnapping for ransom or forced marriage, a reality that has led many families to withdraw their daughters from teacher education programmes altogether (UNICEF, 2021). The psychological atmosphere of fear reduces attendance, participation, and academic engagement; students and staff alike are preoccupied with survival rather than with learning. Even when institutions remain open, the quality of instruction suffers because lecturers may cut classes short to return home before nightfall, and students may be unable to concentrate due to hypervigilance. An unsafe learning environment is fundamentally incompatible with the reflective, collaborative, and risk-taking pedagogy that quality teacher education requires.

4. Limited Access to Rural Education: Insecurity disproportionately affects rural communities, where state presence is weak, and armed groups operate with relative impunity. These same rural areas are often the very locations where teacher education institutions place student teachers for teaching practice, as part of efforts to expose trainees to diverse educational settings (Omodan & Ige, 2021). However, as insecurity has intensified, many colleges of education have been forced to restrict teaching practice placements to relatively safe urban or peri-urban schools, depriving student teachers of experience in rural schools. This limitation has two serious consequences. First, it narrows the scope of teacher preparation, as graduates are less familiar with the unique challenges of rural education, such as multi-grade classrooms, extreme poverty, and lack of parental involvement. Second, it widens educational inequality: rural schools already struggle to attract qualified teachers, and when student teachers are no longer placed there, the pipeline of future teachers willing to work in rural areas dries up (Adebayo & Olaniyi, 2022). The result is a vicious cycle in which rural schools become even more understaffed and under-resourced, further depressing educational outcomes for rural children. Addressing this challenge requires not only security improvements but also creative approaches to rural teacher preparation, such as distance learning and community-based mentoring.

5. Psychological Impact on Teachers: Exposure to violence, displacement, and chronic instability has a profound psychological impact on teacher educators and pre-service teachers alike, significantly reducing teaching effectiveness and professional commitment. Studies conducted in conflict-affected regions of Nigeria have documented elevated rates of post-traumatic stress disorder (PTSD), major depressive disorder, and generalised anxiety among educators (Eze & Ugwu, 2020). For example, a survey of 300 teacher educators in Adamawa, Borno, and Yobe states found that 64% met clinical criteria for PTSD, and 71% reported significant symptoms of burnout, including emotional exhaustion and depersonalisation (Onyekwena & Okoli, 2019). These psychological conditions directly impair cognitive functioning, memory, and decision-making all of which are essential for effective teaching and mentoring. Traumatized

teacher educators are less able to model calm, structured classroom management for their student teachers; they may be irritable, withdrawn, or hypervigilant, creating a negative learning environment. Moreover, pre-service teachers who experience or witness violence during their training are more likely to develop negative attitudes toward the teaching profession and to abandon their careers within the first few years (UNICEF, 2021). Without systematic mental health support and trauma-informed pedagogical training, the psychological toll of insecurity will continue to erode the quality of teacher education in Nigeria.

Implications for Quality Teacher Education

The combined effect of AI challenges and insecurity produces a cascade of negative implications that threaten the very foundation of quality teacher education in Nigeria. First, reduced teaching effectiveness becomes inevitable when teacher trainees lack both digital competence (due to AI-related gaps) and psychological stability (due to insecurity). Graduates from such programmes enter classrooms unable to leverage modern tools for instruction and also struggling with trauma-induced deficits in patience, creativity, and reflective practice (Omodan & Ige, 2021). Second, inequality in teacher preparation is exacerbated: student teachers in relatively safe, well-resourced urban institutions gain exposure to AI tools and complete teaching practice without disruption, while their counterparts in insecure, under-resourced rural institutions graduate with minimal digital skills and truncated field experiences. This two-tier system perpetuates and deepens existing educational disparities across Nigeria's geopolitical zones. Third, weak professional competence becomes widespread as teacher education curricula remain outdated (failing to include AI ethics and digital pedagogy) and as teaching practice is compromised by insecurity. The result is a teaching workforce that is ill-prepared to implement competency-based curricula, use data for instructional improvement, or create inclusive, technology-enhanced learning environments (Adegoke, 2021). Fourth, poor student learning outcomes follow directly from poor teacher preparation; decades of research have established teacher quality as the single most important school-based factor influencing student achievement. When teacher education is compromised by AI-related gaps and insecurity, the ultimate victims are the millions of Nigerian children who receive substandard instruction. Fifth, slow adoption of modern teaching methods characterises the system as a whole, as teacher educators who fear AI or who work in insecure environments are unlikely to experiment with flipped classrooms, blended learning, or AI-assisted formative assessment. Collectively, these implications paint a concerning picture: without urgent intervention, Nigeria risks a downward spiral in which poor teacher preparation leads to poor student outcomes, which in turn undermines public confidence in education and reduces political will for reform.

Strategies for Sustaining Quality Teacher Education

1. Integration of AI in Teacher Training: Teacher education programmes must systematically integrate AI literacy, digital pedagogy, and ethical technology use into their core curricula. This means that every

pre-service teacher should complete required courses covering topics such as the fundamentals of AI, common AI tools for education (e.g., adaptive learning platforms, automated essay scoring, intelligent tutoring systems), data privacy and algorithmic bias, and strategies for using AI to support differentiated instruction (Afolabi & Yusuf, 2020). The National Commission for Colleges of Education (NCCE) should revise the NCE Minimum Standards to include specific learning outcomes related to AI, and the National Universities Commission (NUC) should do the same for degree-level teacher education programmes. Integration should not be a standalone course but should be infused across methods courses, educational psychology, and assessment modules. For example, a lesson planning course could require students to use AI-powered lesson generators and then critically evaluate the output for cultural relevance and curriculum alignment.

2. Capacity Building and Continuous Professional Development: Regular, mandatory workshops and training programmes should be organised to equip in-service teacher educators and practising teachers with modern technological skills, including AI. These capacity-building initiatives should be delivered through a blended model: face-to-face sessions in regional centres, complemented by online modules and virtual communities of practice (Ogunlade & Bello, 2021). The Teachers Registration Council of Nigeria (TRCN) should mandate a minimum number of continuing professional development (CPD) credits related to digital and AI literacy for licence renewal. Partnerships with technology companies, non-governmental organisations, and international development agencies can provide resources and expertise. For example, the Universal Basic Education Commission (UBEC) could scale up its Digital Literacy Programme to include AI-specific modules for teacher educators in all 36 states. Capacity building must also address the psychological dimensions of AI adoption, helping teachers overcome fear of displacement and understand AI as a collaborative tool.

3. Investment in Infrastructure: The federal and state governments, in collaboration with the private sector, must make massive investments in providing reliable electricity, high-speed internet connectivity, and modern digital devices for all colleges of education and faculties of education. This infrastructure investment should include solar-powered micro-grids for off-grid institutions, subsidised broadband through the Nigerian Communications Commission's Universal Service Provision Fund, and computer laboratories with at least one device per two student teachers (NCC, 2022). Additionally, institutions should provide access to AI-powered educational software licences and cloud-based learning platforms. Infrastructure development must be accompanied by technical support and maintenance plans to ensure sustainability, as many previous ICT investments have failed due to lack of local repair capacity. A dedicated "Teacher Education Digital Transformation Fund" could be established, drawing from the 2% consolidated revenue fund allocated to the Universal Basic Education Commission.

4. Development of National AI Policy in Education: Nigeria urgently needs a comprehensive national policy framework to guide the ethical, pedagogically sound, and culturally appropriate use of AI in education, with a specific chapter dedicated to teacher education. This policy should be developed through a multi-stakeholder process involving the Federal Ministry of Education, NCCE, NUC, TRCN, the National Information Technology Development Agency (NITDA), civil society, and technology experts (Adewale & Ajayi, 2021). The policy should address: data privacy and security standards for AI tools used in teacher education; guidelines for preventing and detecting AI-facilitated academic dishonesty; requirements for algorithmic transparency and bias auditing; protocols for informed consent when using student teacher data; and a framework for certifying AI tools as appropriate for the Nigerian educational context. Furthermore, the policy should mandate that every teacher education institution establish an AI ethics committee to review the adoption of new AI tools. Such a policy would provide the regulatory certainty needed for responsible AI integration.

5. Strengthening Security in Educational Institutions: The government must prioritise the physical security of all educational institutions, including colleges of education, through a combination of surveillance technology, community policing, and security partnerships. Specific measures include: installing CCTV cameras and panic buttons in vulnerable institutions; deploying specialised police units (e.g., the Nigeria Police Force's Schools Protection Squad) to provide visible deterrence; establishing early warning systems that link schools with local security forces; and fencing and gating teacher education campuses in high-risk areas (Adebayo & Olaniyi, 2022). Additionally, the Safe Schools Initiative, originally launched in 2014, should be revitalised and expanded to cover all 104 federal and state colleges of education, with adequate funding and coordination. Community engagement is equally important: involving local leaders, parents, and vigilantes in school security planning can create a protective web around teacher education institutions. Finally, the government should prosecute perpetrators of attacks on educational institutions to deter future violence.

6. Adoption of Blended Learning Approaches: Blended learning, which combines traditional face-to-face instruction with online and digital tools, can serve as a resilience strategy to mitigate disruptions caused by insecurity. When insecurity forces the physical closure of a college of education, a well-designed blended learning system allows instruction to continue remotely, preventing the complete loss of academic sessions (Omodan & Ige, 2021). Teacher education institutions should therefore develop robust learning management systems (e.g., Moodle, Canvas) that host course materials, discussion forums, quizzes, and assignment submission portals. Student teachers should be trained to use these platforms, and data bundles for access should be subsidised or provided free. Blended learning also facilitates the integration of AI tools, such as automated feedback on written assignments, without requiring constant physical presence. In addition, virtual teaching practice simulations and micro-teaching videos can partially substitute for

in-person classroom experience when field placements are impossible due to insecurity. While blended learning cannot fully replace the experiential richness of physical teaching practice, it represents a pragmatic adaptation to the current security reality.

7. Contextualized AI Solutions: Rather than relying exclusively on imported AI tools, Nigeria should actively encourage and fund the local development of AI solutions tailored to the nation's curriculum, languages, and cultural context. This strategy would involve partnerships between teacher education institutions, computer science departments, and the National Information Technology Development Agency (NITDA) to create AI tools that align with the Nigerian Basic Education Curriculum and Senior Secondary School Curriculum (Ogunlade & Bello, 2021). For example, a Nigerian-developed lesson planning AI could be trained on the NCE Minimum Standards and on local textbooks, generating outputs that are immediately useful for teacher trainees. Similarly, natural language processing tools could be developed to recognise Nigerian English and major indigenous languages, enabling AI-based literacy support in linguistically diverse classrooms. The government could establish a competitive grant programme for “AI in Education” research and development, with preference given to projects that involve teacher education faculty and produce open-source resources. Contextualised AI solutions would not only be more pedagogically effective but would also reduce dependency on foreign technology providers and build local technical capacity.

8. Incentives for Teachers in High-Risk Areas: To address the teacher shortage and brain drain caused by insecurity, the government must introduce a comprehensive package of incentives to attract and retain qualified teacher educators and supervising teachers in high-risk regions. This package should include: substantial hazard allowances (e.g., 50-100% of base salary), comparable to those paid to security personnel; provision of fortified, on-campus housing for teacher educators and their families; comprehensive health and life insurance covering acts of violence; priority placement for children of teachers in federal unity schools; and regular rotations (e.g., after three years of service) to safer institutions, with guaranteed promotion upon completion of service (Onyekwena & Okoli, 2019). Additionally, the government should establish a “Teacher Safety Fund” to compensate families of teacher educators who are killed or permanently disabled due to insecurity. Beyond financial incentives, recognition and social honour can play a role: a national award for “Courageous Teacher Educators” who continue to serve in conflict zones could boost morale and public appreciation. These incentives must be consistently funded and transparently administered to rebuild trust and encourage qualified educators to accept postings in insecure areas.

Conclusion

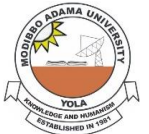
Quality teacher education in Nigeria is undeniably at a critical crossroads, shaped simultaneously by the disruptive forces of Artificial Intelligence and the persistent, devastating threat of widespread insecurity. While AI presents unprecedented opportunities for pedagogical innovation, personalised professional

development, and enhanced assessment, its challenges including inadequate digital literacy, poor infrastructure, academic dishonesty, policy gaps, threat to teacher relevance, and curriculum misalignment currently outweigh the benefits for most Nigerian teacher education institutions. Concurrently, the insecurity crisis has inflicted direct harm on teacher preparation through programme disruption, teacher shortages, unsafe learning environments, limited rural access, and profound psychological impacts on educators. When these two challenges converge, the implications for teacher quality are severe: reduced teaching effectiveness, deepened inequality, weak professional competence, poor student outcomes, and slow adoption of modern methods. Addressing these dual pressures requires a holistic, multi-pronged strategy that includes integrating AI into teacher training, investing in digital infrastructure, developing a national AI policy, strengthening school security, adopting blended learning, creating contextualised AI solutions, and providing robust incentives for teachers in high-risk areas. These strategies must be pursued simultaneously, not sequentially, because the challenges are interdependent. Ultimately, the future of Nigeria's teacher education system will depend on the political will and financial commitment of the federal and state governments, the proactive engagement of teacher education institutions, and the support of international partners. Only through such a comprehensive, resilient, and forward-looking approach can Nigeria sustain a high-quality teacher education system capable of producing the competent, compassionate, and technologically adept teachers that the 21st century demands.



REFERENCES

- Adebayo, A. A., & Olaniyi, O. O. (2022). Insecurity and teacher education in North-East Nigeria: Challenges and way forward. *Nigerian Journal of Educational Studies*, 19(2), 45–59.
- Adegoke, B. A. (2021). Teacher preparation for the digital age: Assessing AI readiness in Nigerian colleges of education. *West African Journal of Education*, 41(1), 112–128.
- Adeleke, M. O., & Ogunleye, O. O. (2022). Generative AI and academic integrity among pre-service teachers in South-West Nigeria. *Journal of Educational Technology & Society*, 25(3), 78–91.
- Adewale, O. S., & Ajayi, I. A. (2021). Policy gaps in the integration of artificial intelligence in Nigerian education system. *African Educational Research Journal*, 9(4), 501–513.
- Afolabi, F. O., & Yusuf, M. O. (2020). Digital literacy and technological self-efficacy of pre-service teachers in Nigeria. *Contemporary Educational Technology*, 11(2), 184–198.
- Akinwumi, F. S., & Olaniyan, D. A. (2019). Teacher quality and national development: A Nigerian perspective. *Educational Research and Reviews*, 14(6), 210–222.
- Eke, D. O. (2021). ChatGPT and the Nigerian university student: Implications for academic integrity. *Journal of Academic Ethics*, 19(4), 567–582.
- Eze, E. U., & Ugwu, C. I. (2020). Psychological impact of insurgency on teacher educators in North-East Nigeria. *Journal of Traumatic Stress Education*, 8(2), 34–48.
- NCC (Nigerian Communications Commission). (2022). *Broadband access in educational institutions: National survey report*. Abuja: NCC Press.
- NCCE (National Commission for Colleges of Education). (2019). *Nigeria Certificate in Education Minimum Standards (Revised ed.)*. Abuja: NCCE.
- Nwagwu, W. E. (2020). Perception of artificial intelligence among teacher educators in federal colleges of education in Nigeria. *Education and Information Technologies*, 25(5), 4123–4145.
- Nwagwu, W. E., & Fagbohun, M. O. (2020). Digital divide and teacher preparation in rural Nigeria. *Information Development*, 36(3), 398–413.
- Ogunlade, O. O., & Bello, S. A. (2021). Artificial intelligence in Nigerian teacher education: Prospects and challenges. *Journal of Digital Learning in Teacher Education*, 37(3), 156–170.
- Ogunode, N. J., & Oladele, I. P. (2020). Funding of teacher education programmes in Nigeria: Challenges and strategies. *International Journal of Educational Administration and Policy Studies*, 12(2), 88–99.
- Okonkwo, C. W., & Ade-Ibijola, A. (2021). AI in African education: A case study of ChatGPT in Nigerian universities. *AI & Society*, 36(4), 1235–1248.
- Ololube, N. P. (2019). *Teacher education and curriculum reform in Nigeria*. Port Harcourt: Pearl Publishers.
- Olumorin, C. O., Yusuf, A., & Ajayi, O. A. (2021). Pre-service teachers' exposure to AI tools in Nigerian universities. *International Journal of Emerging Technologies in Learning*, 16(8), 142–157.
- Omodan, B. I., & Ige, O. A. (2021). Blended learning as a response to insecurity-induced disruptions in Nigerian teacher education. *Cogent Education*, 8(1), 192–207.
- Onyekwena, C., & Okoli, R. (2019). Brain drain of teachers from conflict zones in Nigeria: Causes and consequences. *African Security Review*, 28(3–4), 215–231.



TRCN (Teachers Registration Council of Nigeria). (2021). *National teacher education survey report*. Abuja: TRCN.

UNESCO. (2020). *Global education monitoring report: Nigeria country profile*. Paris: UNESCO Publishing.

UNICEF. (2021). *Education under attack in Nigeria: 2018–2021 report*. Abuja: UNICEF Nigeria.

