HUMAN- ARTIFICIAL INTELLIGENCE COLLABORATION: REDEFINING THE TEACHERS ROLES IN SCHOOLS IN NIGERIA

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Abstract

The rapid advancement of Artificial Intelligence (AI) is reshaping the educational landscape worldwide, and Nigeria is no exception. As AI technologies become more integrated into classrooms, there is a growing need to redefine the role of teachers in the educational process. This paper explores the potential of Human-AI collaboration in transforming the teachers' roles in schools in Nigeria. The research highlights how AI can support teachers by automating routine tasks, personalizing learning experiences, and enhancing student engagement. However, it also acknowledges that AI is not a replacement for teachers but rather a tool to augment their capabilities and effectiveness in the classroom. AI technologies, such as intelligent tutoring systems, adaptive learning platforms, and virtual classrooms, can assist teachers in delivering more personalized and effective education. It is recommended that the Nigerian government, in collaboration with educational institutions and tech companies, develop policies that facilitate AI adoption and provide ongoing training for educators to ensure they are equipped to navigate this new era of education.

Keyword: Human, Artificial intelligence (AI), Collaboration, Teachers' Roles

Introduction

Human interaction and collaboration have long been central to educational success, as teachers engage with students, foster critical thinking, and develop skills beyond academic learning. Human qualities such as empathy, adaptability, and communication are crucial for educators in navigating the complexities of diverse classrooms (Schiff et al., 2020). The term *human* refers to the unique characteristics and cognitive abilities possessed by individuals, encompassing emotional intelligence, adaptability, and creativity—attributes essential in education (Schiff 2020). According to Tadesse et al. (2021), humans bring intrinsic qualities like empathy and ethical judgment, which are critical in decision-making processes, especially in contexts such as education where nuanced understanding of student needs is essential. Holmes (2021) further describes the human element as the irreplaceable capacity to engage in complex, interpersonal relationships, a cornerstone of effective teaching. In Nigeria, these human attributes in teachers are paramount, given the challenging educational landscape, as they allow educators to better connect with students and navigate diverse classroom dynamics. As technology continues to advance, exploring how these intrinsic human qualities can be complemented by artificial intelligence (AI) tools becomes imperative, particularly in educational settings where human-AI collaboration could amplify teacher effectiveness.

Artificial intelligence, a branch of computer science focusing on creating systems that can perform tasks typically requiring human intelligence, has seen widespread adoption in many fields, including education. Artificial Intelligence (AI) is seen as the capability of machines to perform tasks that typically require human intelligence, including data processing, pattern recognition, and decision-making (Luckin, 2022). Holmes et al. (2021) highlight AI's role in augmenting educational practices, explaining that it can be used to analyse vast amounts of data to personalise learning experiences and improve

administrative efficiency. Adeniran (2022) sees AI in the educational sphere as a tool that enhances teachers' abilities by managing routine tasks, freeing them to focus on personalised, student-centric teaching. The role of AI thus complements the human aspect, establishing a framework for collaboration between teachers and intelligent systems.

AI systems are not intended to replace teachers but to augment their capabilities by handling high-volume, repetitive functions that free up teacher's time for creative, interactive, and student-centred activities (Luckin et al., 2022). In Nigeria's educational context, AI presents a unique opportunity to bridge educational gaps by ensuring efficient use of limited resources and addressing individual learning needs in real time. With increasing adoption of AI, the traditional responsibilities of teachers are gradually being redefined. However, to fully harness AI's potential, a collaborative approach that recognizes and complements the teacher's role is essential, as this alignment can redefine educational practice in Nigerian schools.

The teacher's role is undergoing a paradigm shift, particularly with the increasing integration of AI in schools. Traditionally, teachers were considered the primary sources of information, delivering content and assessing students' understanding through standardised methods. However, with AI managing many instructional and administrative tasks, the teacher's role is transitioning towards that of a facilitator and mentor who nurtures critical thinking and social-emotional skills (Korkmaz, 2020). In Nigeria, where educational challenges such as large class sizes and limited access to resources are prevalent, this shift allows teachers to focus more on student engagement, personalized learning, and higher-order skills that AI cannot replicate (Adeniran, 2022). By redefining teachers' roles through human-AI collaboration, educators can better address student's needs in a holistic manner, which is crucial for creating adaptive and resilient learning environments for schools. Schools play a pivotal role in the successful implementation of AI in education, serving as both facilitators of human-AI collaboration and as critical environments for testing its impact. Schools in Nigeria face unique challenges in integrating AI due to infrastructural constraints and varying levels of digital access across regions. To facilitate this transition, schools must prioritize investments in AI technology (Mhlanga, 2023).

Overview of AI in Education

Artificial Intelligence (AI) has profoundly transformed the educational landscape since its inception at the Dartmouth Conference in 1956, where pioneers like John McCarthy, Marvin Minsky, and Claude Shannon first envisioned intelligent machines capable of human-like thought and learning (Russell & Norvig, 2021). Initially, AI research concentrated on symbolic and rule-based systems during the 1960s and 1970s, laying the foundation for the development of expert systems in the 1980s. These expert systems marked AI's first significant application in education by enabling Intelligent Tutoring Systems (ITS) that provided personalized feedback and guidance to students (Anderson et al., 1995; Sleeman & Brown, 1982).

Today, the emergence of generative AI technologies represents the latest evolution in educational AI applications. Generative AI tools, endorsed by organizations like Microsoft (2023) and Stanford University (2023), enable more interactive and accessible learning environments by facilitating AI-powered tutoring, real-time feedback, and content creation. These advancements illustrate AI's transition from theoretical research to practical, transformative tools that support both educators and students, fostering a more personalized and efficient educational experience. AI is defined as the capability of machines to simulate aspects of human intelligence, such as learning, reasoning, and self-correction (Microsoft's AI in Education report 2023). In the context of education, AI applications are

designed to emulate and enhance cognitive processes, such as personalized learning and pattern recognition, which are critical for improving student outcomes and operational efficiency. UNESCO (2023) further defines AI in education as a collaborative tool that augments human intelligence rather than replacing it. This perspective emphasizes AI's role in assisting educators by providing real-time data analysis and insights, which enhance instructional methods. AI's role is not simply to act as an independent entity but to work alongside teachers, creating a symbiotic environment where technology complements human expertise.

As the technology evolves, educational institutions are increasingly adopting AI tools, both for instructional support and for operational tasks. AI's capacity for managing administrative processes, such as lesson planning, attendance, and communications, marks a significant shift toward data-driven school environments. By leveraging AI's predictive analytics capabilities, schools gain insights that guide decision-making, resource allocation, and student support strategies. This data-driven approach is particularly impactful in understanding and addressing the diverse needs within classrooms, as it supports educators in providing more personalized and timely interventions.

Human-AI Collaboration

Human-AI collaboration is the concept of combining human intelligence and artificial intelligence to achieve better outcomes through their complementary strengths. It refers to the integrated use of artificial intelligence tools alongside human educators to enhance teaching, learning, and administrative processes (Smith & Lister 2020). This collaboration emphasizes the strengths of both human intelligence, such as empathy, critical thinking, and context-based decision-making, and AI capabilities, such as data processing, pattern recognition, and automation. Brynjolfsson and McAfee (2014) see it as a system that enhances human abilities by automating repetitive tasks, providing real-time data analysis, and offering personalized learning pathways, thereby allowing humans to focus on complex decision-making, creativity, and emotional intelligence. AI augments human work by automating processes and tasks that would typically be time-consuming, allowing humans to focus on higher-level cognitive functions, such as strategy and relationship-building.

Davenport and Kirby (2016) define it as a partnership in which human judgment, creativity, and expertise guide AI tools, while AI supports by providing data-driven insights, predictions, and optimization. Human-AI collaboration is a model where AI doesn't replace human expertise but amplifies it by providing new insights, facilitating decision-making, and offering diverse perspectives that humans might not arrive at independently. The collaboration thus leads to more innovative and effective problem-solving strategies. AI in education offers significant potential when it works as a supportive tool rather than replacing human involvement. This collaboration benefits from the symbiotic relationship between teachers and AI systems. AI can analyze vast amounts of data to detect patterns, predict outcomes, and offer real-time feedback, all of which can inform instructional decisions. On the other hand, human educators provide essential context and emotional intelligence, ensuring that learning environments remain responsive to the social and emotional needs of students (Marr, 2021).

Current Role of Teachers in Nigerian Schools

In Nigerian schools, teachers hold a multifaceted role, balancing traditional responsibilities with emerging needs for digital literacy and inclusive education. Their core duties include instructing students, designing lesson plans, assessing students' performance, and maintaining classroom discipline. In addition to imparting academic knowledge, teachers are expected to nurture moral values, critical thinking, and life skills in students, addressing Nigeria's emphasis on holistic education. Ige (2020) highlight the role of the teacher currently as:

1. **Academic Instruction and Curriculum Delivery**: Teachers are responsible for delivering the curriculum effectively, adapting their methods to ensure that students understand key concepts. This role includes using diverse instructional strategies to cater to various learning needs, especially with large class sizes being common in Nigeria. Teachers often need to be resourceful, utilizing available materials to provide quality education, particularly in under-resourced schools.
2. **Assessment and Student Evaluation**: Assessment is a crucial part of the teacher's role, involving regular testing, exams, and continuous assessments to monitor students' progress. These evaluations help teachers identify areas where students may struggle, allowing for targeted interventions. In Nigerian schools, where standardized testing is prevalent, teachers must also prepare students for national exams like West African Examinations Council and National Examinations Council, which are essential for academic advancement.
3. **Role in Students' Well-being and Mentorship**: Beyond academics, Nigerian teachers play a significant role in students' personal development, acting as mentors and counsellors. They address students' emotional, social, and behavioural challenges, especially in regions where school counsellors may be lacking. By fostering a supportive environment, teachers contribute to students' well-being and moral education.
4. **Incorporating Technology and Digital Literacy:** With the increasing focus on integrating technology in education, teachers in Nigeria are gradually embracing digital tools for instruction, although access to technology remains limited in many areas. Recent initiatives encourage teachers to use e-learning platforms, where feasible, to enhance their teaching. This shift requires teachers to develop digital skills, often through training programs and workshops.
5. **Promoting Inclusive Education:** Teachers are also central to Nigeria's movement toward inclusive education. They are expected to support students with diverse learning needs, including those with disabilities. This role requires special training, as inclusive education practices remain underdeveloped in many Nigerian schools.

AI Tools Used in Nigerian Classrooms

The use of AI tools in Nigerian classrooms is still emerging but is steadily expanding as schools and teachers recognize the potential of technology to enhance learning and teaching. Adejumo and Olayinka (2021) list several key AI-driven tools and technologies that are gaining traction in Nigerian education:

Smart Learning Platforms

AI-powered learning management systems (LMS), such as *Classera* and *Google Classroom*, are popular in Nigerian schools. These platforms support virtual learning by enabling teachers to distribute assignments, monitor students' progress, and customize learning resources to meet the needs of individual students. They also incorporate AI algorithms to track and adapt to students' performance, providing recommendations based on learning progress and areas needing improvement.

Adaptive Learning Programs

Adaptive learning platforms like *Knewton* and *Century Tech* adjust the pace and content of lessons based on students' proficiency. By analyzing data on each student's strengths and weaknesses, these tools personalize learning experiences, making them especially helpful in larger classrooms where one-on-one instruction is limited. This technology has been particularly useful in supporting students preparing for standardized exams like West African Examinations Council and National Examinations Council.

Virtual Tutors and Chatbots

Some Nigerian schools and educational platforms are starting to use AI-powered virtual tutors, such as *Mindspark*, to provide supplementary support to students outside class hours. These AI chatbots can answer students' questions, provide explanations, and guide students through complex topics. These tools are especially beneficial in regions where access to after-school tutoring may be limited, as they can address questions in real-time and offer additional resources tailored to the student's current learning level.

Automated Assessment Tools

AI-based grading tools like *Grammarly* and *Edmentum* help teachers streamline the assessment process by automatically grading quizzes, assignments, and essays. These tools are increasingly being integrated into Nigerian classrooms to handle repetitive tasks, allowing teachers to focus on interactive teaching activities. Some tools also provide detailed feedback on grammar, syntax, and content, enhancing students' writing and critical thinking skills.

Educational Analytics Platforms

Data analytics platforms powered by AI, such as *PowerSchool* and *Tableau*, are used by some Nigerian schools to analyze students' data. These tools provide insights into attendance, performance, and behavior trends, enabling teachers and administrators to make data-driven decisions to enhance educational outcomes. By identifying students who may need additional support, AI analytics tools contribute to more targeted interventions and help schools efficiently manage resources.

While AI use in Nigerian classrooms is still in the early stages, these tools offer promising benefits, supporting teachers, personalizing students' learning, and enhancing administrative efficiency. As AI tools become more affordable and accessible, they are expected to play an increasingly important role in Nigeria's educational landscape.

Human-AI Collaboration in Teaching and Learning

Human-AI collaboration in teaching and learning is reshaping education by merging human insights with AI's analytical power. This partnership allows for more adaptive, efficient, and engaging educational experiences that benefit both students and teachers. Several areas where this collaboration is particularly impactful include:

1. **Personalized Learning Experiences:** AI tools analyze students' data to personalize learning materials, adapting the pace, content, and style to each learner's strengths and weaknesses. Human teachers use these insights to understand students' progress and customize interventions. For instance, adaptive learning platforms like DreamBox and Knewton assess students' understanding in real-time, helping teachers identify knowledge gaps and adjust lesson plans accordingly. This allows educators to focus more on high-level support while letting AI handle the ongoing assessment and content personalization (Holmes et al., 2019).

2. **Automated Administrative Tasks:** Teachers traditionally spend substantial time on repetitive administrative tasks, such as grading and tracking attendance. AI-powered tools streamline these activities, allowing teachers to focus more on students' interaction. For example, automated grading systems like Gradescope help assess assignments and provide feedback on students' work. AI systems that track attendance or analyze classroom participation also reduce manual workload, giving teachers more time to engage directly with students (Holmes et al., 2019).

3. **Enhanced Feedback and Assessment:** AI tools provide quick, data-driven feedback that teachers can use to improve instructional strategies and support students' development. Systems like Turnitin and Grammarly, not only highlight grammatical errors but also suggest improvements for students' writing, allowing for continuous learning and improvement. Teachers can then provide higher-level feedback on ideas and arguments, rather than focusing solely on technical details. This collaboration helps students receive more detailed and comprehensive feedback, accelerating learning (Adejumo & Olayinka, 2021).

4. **Supporting Students with Diverse Needs:** AI can provide additional support for students with disabilities or learning difficulties by adjusting to individual needs. For example, AI tools like Microsoft's Immersive Reader can aid students with dyslexia or visual impairments by altering text size, font, and background color to improve readability. Speech-to-text applications assist students with writing difficulties, while personalized AI tutors offer additional explanations and guidance for students who need extra help. Teachers leverage these tools to make their classrooms more inclusive and supportive (Okoro & Atayero, 2021).

5. **Data-Driven Insights for Instructional Improvement:** AI systems collect and analyze classroom data, generating insights that help teachers refine their teaching methods. By understanding patterns in students' performance and engagement, teachers can modify their approach to meet students' needs better. Platforms such as PowerSchool use AI to provide analytics on attendance, performance, and engagement, offering teachers actionable information for targeted intervention. These insights help teachers make informed, data-driven decisions, improving overall instructional quality (Umejiaku, 2023).

6. **Virtual and Remote Learning Support:** Human-AI collaboration is crucial in virtual classrooms, where AI tools facilitate learning by simulating interactive classroom experiences. AI chatbots and virtual tutors provide instant support to students outside regular school hours, answering questions and helping with assignments. Platforms like Google Classroom and Classera incorporate AI to organize materials, track assignments, and monitor students' engagement, helping teachers manage their virtual classrooms more effectively (Ibrahim & Ofoegbu, 2022).

Human-AI Collaboration in Assessment and Students' Evaluation

As AI becomes more integrated into education, the teacher's role in assessment and student's evaluation is evolving. Traditional assessment models often focus on standardized testing, which may not capture the full range of a student's skills and growth areas. With AI-driven assessment tools, teachers are now able to gather a broader and more nuanced understanding of students' performance. AI automates routine grading tasks, analyzes performance patterns, and provides real-time insights, allowing teachers to focus on holistic and personalized evaluations that extend beyond academics. Luckin et al (2016) explains how this redefined role takes shape:

i. **Facilitators of Formative Assessment:** In an AI-enhanced classroom, teachers are shifting from purely summative assessments (end-of-term tests) to formative, ongoing assessments. AI tools like *Edmodo and Classkick* provide continuous feedbacks, tracking students' progress in real time. This allows teachers to monitor learning and adjust instruction as needed, enabling them to address misunderstandings before they solidify. Teachers now play a crucial role in interpreting these AI-generated insights, using them to guide students and refine teaching strategies.

ii. **Personalized Feedback Providers:** AI systems can analyze each student's learning style, strengths, and areas for improvement, offering personalized feedback on assignments. Teachers build on these

insights by providing context, encouragement, and targeted support that AI cannot replicate. For example, tools like *Turnitin or Grammarly* highlight technical issues in writing, but teachers can delve into broader aspects, such as argumentation, creativity, and critical thinking, enhancing students' learning experiences (Adejumo & Olayinka, 2021).

iii. **Assessors of Soft Skills and Emotional Intelligence:** While AI can help assess cognitive skills and track academic performance, evaluating soft skills like communication, collaboration, and emotional intelligence remains largely the domain of human teachers. Teachers observe students' interpersonal interactions, resilience, and problem-solving skills, which are critical for holistic development. In this role, teachers conduct performance-based assessments, group projects, and peer evaluations, offering feedback on aspects of learning that AI cannot accurately capture.

iv. **Ethical Guardians in AI-Driven Evaluations:** AI-driven assessments raise concerns about data privacy, bias, and the ethics of automated decision-making. Teachers play an essential role in ensuring that AI tools are used fairly, transparently, and responsibly. They act as ethical guardians, advocating for assessment practices that prioritize students' well-being and fair treatment. Teachers ensure that AI-driven evaluations do not disadvantage any students due to algorithmic bias, maintaining their role as impartial assessors of students' potential.

v. **Guides for Self-Assessment and Reflective Learning:** AI tools encourage students to engage in self-assessment by offering instant feedback and interactive learning experiences. Teachers support this by guiding students in reflecting on their performance, setting learning goals, and developing self-assessment skills. Teachers help students understand AI-generated feedback and foster a reflective learning culture, which promotes lifelong learning skills that prepare students for future challenges.

Human-AI Collaboration in Students' Well-being and Mentorship

With AI assisting in academic tasks, teachers are increasingly free to focus on students' social, emotional, and mental health needs, guiding them in ways AI cannot. This shift emphasizes that the teacher serves as a mentor and advocate, who helps students navigate both academic challenges and life skills for holistic development. The role of teachers is being redefined as:

i. Emotional Support and Relationship Building: AI lacks the capacity to fully understand students' emotional cues or respond to complex human emotions. Teachers, however, play a crucial role in recognizing signs of stress, anxiety, or disengagement in students. By building trusting relationships, they (teachers) create a supportive learning environment where students feel valued and understood. Teachers also model empathy and kindness, which AI tools cannot provide, reinforcing a positive, emotionally safe classroom culture.

ii. Mentoring for Social and Emotional Learning: AI can support academics, but teachers foster social and emotional learning skills like empathy, resilience, and self-awareness. Teachers design activities that promote collaboration and conflict resolution and provide guidance on handling real-world situations, preparing students for interpersonal challenges beyond the classroom. Social and Emotional Learning is critical in helping students manage emotions and develop interpersonal skills—an area where AI falls short (Ibrahim & Ofoegbu, 2022).

iii. Guiding Ethical and Responsible AI Use: As AI tools become commonplace, teachers guide students in understanding the ethical considerations of using technology. They help students navigate questions about privacy, digital responsibility, and the limits of AI, fostering a critical understanding of AI's role and limitations. By teaching digital literacy and ethical technology use,

teachers mentor students in becoming responsible digital citizens, ensuring that technology serves as a tool for positive growth (Okoro & Atayero, 2021).

iv. **Creating a Safe Space for Exploration and Identity Development:** Teachers provide a stable and encouraging presence as students navigate adolescence, identity development, and self-discovery. This is particularly important in environments where AI is heavily used; teachers ensure students don't feel depersonalized or isolated by technology. They create spaces where students feel safe to express themselves, explore their interests, and develop their unique identities—an area AI cannot support directly. Teachers thus serve as mentors, helping students find a sense of belonging and purpose within the educational environment (Ibrahim & Ofoegbu, 2022).

Redefining the Teacher's Role in an AI-Integrated Classroom

The integration of AI in classrooms is redefining the role of teachers by shifting their focus from delivering content to becoming facilitators, mentors, and guides for deeper learning. As AI tools handle tasks like grading, tracking students' progress, and personalizing learning contents, teachers can devote more time to interactive and high-level teaching activities, enriching the students' experiences. This shift allows teachers to harness the data-driven insights provided by AI to address individual student's needs more effectively.

i. **Facilitators of Personalized Learning:** AI enables personalized learning by adapting content and pacing to each student's proficiency, allowing teachers to become facilitators of tailored learning experiences rather than simply instructors. Adaptive platforms like *Knewton and DreamBox* provide recommendations based on students' progress, helping teachers guide each student's unique learning path. This transition empowers teachers to focus on supporting students' critical thinking, creativity, and problem-solving skills rather than solely delivering standard content (Luckin et al., 2016)

ii. **Data-Driven Decision Makers:** With AI analyzing students' data in real-time, teachers can make informed, data-driven decisions about their instructional methods. Platforms such as *PowerSchool* give educators insights into attendance, participation, and performance trends, allowing them to identify students who may need additional support or intervention. This data-driven approach supports teachers in refining their teaching strategies, promoting a responsive and proactive educational environment (Umejiaku, 2023).

iii. **Mentors in Critical Thinking and Ethics:** As AI systems become more involved in educational content delivery, teachers play a crucial role in helping students develop critical thinking and ethical reasoning skills. Teachers can guide students on how to use AI responsibly and discern between reliable and unreliable information sources (Okoro & Atayero, 2021). They are instrumental in fostering students' ability to think independently and ethically, which is essential in an age where AI tools often generate or curate information.

iv. **Promoters of Social and Emotional Learning (SEL):** AI lacks the emotional intelligence needed to support students' social and emotional development fully, so teachers are essential in fostering a supportive and inclusive classroom environment. Teachers play a critical role in nurturing students' social skills, empathy, and emotional resilience, areas that AI cannot effectively address. In this sense, teachers are more than educators as they are mentors who support students' holistic development (Ibrahim & Ofoegbu, 2022).

v. **Guides for Lifelong Learning Skills:** AI's integration in education also places teachers in a position to prepare students for a future that will increasingly involve digital tools. Teachers can teach students how to interact with AI meaningfully, fostering digital literacy, adaptability, and an

understanding of technology's role in modern life. By embracing AI in the classroom, teachers encourage students to become lifelong learners, equipped with the skills to continue learning and adapting throughout their careers (Holmes et al., 2019).

The teacher's role in an AI-integrated classroom has evolved into one that emphasizes mentorship, facilitation, and fostering essential soft skills. Teachers bring the human element to education that AI cannot, supporting students' intellectual, social, and emotional growth in a technology-rich learning environment.

Conclusion

Human-AI collaboration in education offers transformative potential, reshaping teachers' roles and providing new pathways for enhanced teaching and learning experiences. AI's ability to manage routine tasks, offer personalized learning experiences, and support teachers in classroom management allows educators to focus on creative and impactful aspects of instruction. This synergy between AI tools and human insight addresses growing demands in education, including differentiated instruction, real-time feedback, and data-driven teaching adjustments. In Nigerian schools, where resources are often over - stretched, AI's capacity to enhance efficiency is particularly valuable, helping teachers overcome challenges associated with large class sizes and limited instructional resources. The collaboration of AI and human educators thus promises a more dynamic, responsive, and inclusive learning environment that supports both student development and teacher efficacy.

Recommendations

The following recommendations are proposed:

i. It is essential for teachers to receive ongoing training on AI tools and platforms. Professional development programs should focus on empowering educators to leverage AI effectively, not only for administrative tasks but also for instructional support and classroom management. This training should also cover ethical considerations and data privacy to ensure that teachers use AI responsibly and with students' well-being in mind.
ii. Government agencies and educational stakeholders should prioritize funding for AI technologies in schools. Such investments would make advanced AI tools accessible, especially in underserved areas, helping reduce the digital divide. Partnerships with tech companies can also provide cost-effective AI solutions that meet local educational needs.
iii. While AI can streamline processes, it's crucial that schools balance AI integration with the irreplaceable role of human educators. Policies and strategies should encourage teachers to use AI as a supplementary tool, ensuring that human insights, empathy, and cultural understanding remain at the core of teaching.
iv. To maximize AI's potential in education, ongoing research is needed to assess its impact on students' learning outcomes, teacher satisfaction, and classroom dynamics. Educational institutions and government bodies should support studies that explore the effectiveness of AI in different educational contexts, with particular focus on Nigerian schools, to continually refine AI practices and address emerging challenges.

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