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Revolutionizing Classroom Management: Prospect of AI Operations in Secondary School Teaching and Learning in Nigeria

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Abstract **Review Articles**

The review journal examines the transformative prospect of the operations of Artificial Intelligence (AI) in classroom management within secondary schools in Nigeria. Given the increase usage of AI technologies, education systems are exploring how these innovations can address persistent challenges such as large class sizes, limited educational resources, and the need for personalized learning. This journal provides a review of how Artificial Intelligence is revolutionizing teaching and learning, focusing on its effect on learning outcomes, teaching approaches, and the overall systems in education in Nigeria. The journal focuses on the value prospects of Artificial Intelligence in enhancing learning environments, the challenges of implementation in resource-constrained settings, and future direction for successful integration in secondary education in Nigeria.

Keywords: classroom management, personalized learning, revolutionizing, artificial intelligence, teaching and learning.

1.0 INTRODUCTION

Classroom management is a critical issue in secondary schools, especially in developing countries where teachers frequently grapple with overcrowded classrooms, inadequate resources, and diverse student needs. AI in education presents a very vital opportunity to alleviate these challenges by providing tools for personalized or individual-based learning, automating routine administrative tasks, and aiding teachers in managing classroom dynamics more efficiently and effectively. As developing countries strive to improve their education systems, AI offers a solution that can optimize the use of inadequate resources in order to enhance learning outcomes.

1.1 Artificial Intelligence

Do you know that as Artificial Intelligence is booming, the expected prospects that were once only hypothetical will soon become realistic? It has the prospects to revolutionize various aspects of society, traversing from the medical sector, business sector, construction sector, to education sector (Alawi, 2023), so then what is this Artificial Intelligence?

Artificial Intelligence (AI) that was coined by John McCarthy in 1955 means, making a machine or computer operate in ways that would be described as intelligent as if is human beings ways of carrying out operation (McCarthy et al., 1955).

Kurzweil (1990) also depicts Artificial Intelligence as the practice of developing machines/computers that can carry out jobs that typically require human being's intelligence. Whereas these early definitions of Artificial Intelligence (AI) date back many years ago, they present a very useful starting point for defining this very important concept.

Artificial Intelligence is not innately intelligent but rather has the prospect to perform jobs that are generally considered intelligent with some extent of success (Chiu et al., 2022; Mertala et al., 2022).

Notwithstanding AI's ability to distinguish between an image of a car and that of a rainbow, that does not means AI does possess an inherent understanding of the concepts of a car or rainbows. The operational core of Artificial Intelligence consists of algorithms and programs with big data as the fundamental basis (Zhang, 2023). Therefore, Artificial Intelligence is also described as a sub-field of computer science that centres on investigating the basic nature of intelligence by using a set of algorithmic process to create intelligent treasures that is similar to human intelligence (Dwivedi, 2021); on the other hand, it has grew into a novel multidisciplinary and interdisciplinary science that merges various aspect of knowledge and technologies, such as Computer Science, Statistics, Information Theory, and Mathematics (Mata et al., 2018). Thus, it is possible to give a more comprehensive definition now: Artificial Intelligence is any theory, methodology, or technique that facilitates the analysis, simulation, exploitation, and exploration of human thinking processes and behaviours by machines, particularly computers (Lu, 2019).

Artificial Intelligence is not perfect neither is any human being (OpenAI, 2023). Celebrated as an innovative technology (Dwivedi et al., 2021), its unique intelligent operations have facilitated the gradual transition of human society into the Artificial Intelligence era (Ye, 2021). The associated technologies consist of a wide range of fields such as Intelligent Robotics(IR), Natural Language Processing(NLP), Language Recognition(LR), Advanced Image Recognition(AIR), Intelligent Expert Systems, Neural Network and Machine Learning (Anweiler & Ramet, 2019; Mondal et al., 2020).

2.0 LITERATURE REVIEW

The advent of Artificial Intelligence (AI) in education system with various support for teaching and learning has been a revolutionary trend across the nation of the planet earth, and in Nigeria as one of the growing country in West Africa, the valuable effects for Artificial Intelligence to transform teaching and learning in secondary school is beginning to gather a very vital attention of educationists or teachers and school administrators or owners. Artificial Intelligence applications have been shown to improve administrative efficiency in classroom management, personalized learning, and enhanced students' academic outcomes. However, challenges such as infrastructure paucity, teacher training, and resistance to technological change remain a very bottleneck to its application. This literature review examines the state of AI applications in classroom management in Nigerian secondary schools, including the benefits, challenges, and opportunities for AI to reshape NigeriaS's educational landscape. Artificial Intelligence (AI) is rapidly revolutionizing various aspects of our lives, including education (Adıgüzel, Kaya & Cansu, 2023, Chen, et. al., 2022). In the field of education, AI is being increasingly utilized to enhance learning experiences, personalize instruction, and streamline administrative tasks. This comprehensive review explores the revolutionizing potentials of AI in education, focusing on how it enhances learning experiences for students in the senior secondary level. AI encompasses a range of technologies and applications that enable machines to perform tasks that typically require human intelligence, such as learning, problem-solving, and decision-making (Javaid, et. al., 2022, Sarker, 2022). In education, AI is used to develop intelligent tutoring systems, adaptive learning platforms, and automated grading systems, among other applications (Abatan, et. al., 2024, Biu, et. al., 2024). Enhancing learning experiences is crucial for promoting student engagement, improving academic performance, and fostering a lifelong love for learning (Sodiya, et. al., 2024, Uwaoma, et. al., 2023). Traditional one-size-fits-all approaches to education are often ineffective in meeting the diverse needs of the 21st century learners in Nigeria. Artificial Intelligence offers the prospect to adapt learning experiences to individual learners or students, making sure that they get individualised instructions that matches their distinctive learning paces and abilities. Artificial Intelligence (AI) revolutionizes teaching and learning system by improving learning experiences through individualised learning, remodeling teaching practices, and improving administrative tasks (Ayorinde, et. al., 2024, Egieya, et. al., 2024). This article review will examine how valuable effects of Artificial Intelligence is revolutionizing teaching and learning in education sector most especially in classroom management by providing individualised learning experiences, remodeling teaching methods, and improving administrative duties. AI has the prospect to revolutionize teaching and learning in educational sector by providing personalized learning experiences, reshaping teaching methodologies, and optimizing administrative processes. This review will analyze the latest advancements in AI technology and their prospects on educational sector, with a focus on enhancing teaching and learning experiences (Dada, et. al., 2024, Mhlongo, et.al. 2024). The examination of the current setting of Artificial Intelligence in teaching and learning will provide insights into the future of education and the role that AI will play in modeling it. In recent years, Artificial Intelligence (AI) has made considerable improvements in transforming many sectors, and education is not excluded (Gidiagba, et. al., 2023, Nwokediegwu, et. al., 2024). Artificial Intelligence-powered gadgets are increasingly being integrated into teaching and learning in educational settings to improve learning achievements and enhance the holistic learning experience. Artificial Intelligence is reforming how teaching is delivered and learning is received, from intelligent teaching systems that adapt to students' learning needs to automated grading systems that provide immediate results. One of the key prospects of AI in education is its capacity to provide individualised learning experiences. By analyzing data on students' learning styles, preferences, and performance, Artificial Intelligence can customize instruction to meet the individual needs of each student (Ogedengbe, et. al., 2023, Ugwuanyi, et. al., 2024). This individualised approach not only improves learning outcomes but also improves student engagement and positive motivation.

Additionally, Artificial Intelligence is redefining teaching methods by providing teachers with significant findings into students' progress and performance (Chaudhry & Kazim, 2022, Tula, et. al., 2023). Artificial Intelligence powered analytics gadgets can analyze huge amounts of data to identify insights, allowing teachers to make very enlightened decisions about their instructional methods.

Furthermore, Artificial Intelligence can digitise routine duties such as grading and lesson planning, freeing up teachers' time to concentrate on more meaningful interactions with students (Falaiye, et. al., 2024, Ogunjobi, et. al., 2023). By embracing Artificial Intelligence technology, educators/teachers can create more engaging and conducive learning environments that take care of the various needs of students. Artificial Intelligence (AI) is transforming education by offering personalized learning experiences that cater to individual student needs (Majemite, et. al., 2024, Okafor, et. al., 2023). Artificial Intelligence -powered adaptive learning systems analyze student performance data to create customized learning tracks, providing students with individualised instruction and support. This journal review explores the prospect of AI in class room management, focusing on its valuable effects on student engagement/motivation and academic performance. AI-powered adaptive learning systems are primarily designed to conform to each student's learning needs and desires (Nwokediegwu, et. al., 2024, Usman, et. al., 2024). The AI systems use algorithms to examine student performance data in the class room, such as test scores, homework accomplishment rates, and learning progression, to identify various areas where students may need extra support. Built on this analysis, the system can suggest particular learning tasks, resources or exercises to help students excel at concepts and skills at their own learning pace and styles. One of the crucial characteristics of AI-powered adaptive learning systems is the ability to create customized learning paths for students (Ihemereze, et. al., 2023, Obaigbena, et. al., 2024). These learning paths or methods are customized to each student's learning style, pace, and preferences, ensuring that they receive the appropriate level of challenge and support. For instance, if a student is grappling with a particular concept, the system can offer additional practice exercises or resources to help them upgrade (Orieno, et. al., 2024, Uwaoma, et. al., 2023). On the contrary, if a student/learner is thriving in a particular area, the system can offer augmented materials to keep the learners engaged and positive stretched.

The positive effect of Artificial Intelligence powered adaptive learning systems on student interaction and academic progress is very significant (Atadoga, et. al., 2024, Dada, et. al., 2024). Studies have shown that individualised learning experiences bring about increased student engagement, motivation, and academic outcomes. By offering students with individualized instructions and support, Artificial Intelligence powered adaptive learning systems can help the students meet up with their learning set goals and objectives.

Conclusively, Artificial Intelligence-powered adaptive learning systems render individualised learning experiences that take care of individual student/learner expectations. By reviewing student performance data and creating tailored learning tracks, these systems can enhance student engagement, motivation, and academic progress (Huang, Lu & Yang, 2023, Okogwu, et. al., 2023). As Artificial Intelligence continues to develop, individualized learning experiences will play an increasingly vital role in teaching and learning in educational sector, ensuring that all students have the option to succeed academically. Another important aspect of individualised learning through AI is its ability to provide instant and specific feedback to learners (Ambele, et. al., 2022, Olatoye, et. al., 2024). AI-powered systems can examine student responses to tests, assignments, and other continuous assessments in real-time, providing instant results on their academic progress. This immediate feedback helps learners realize their strengths and weaknesses, allowing them to work more on the areas where they need to put more efforts. Every student is unique, with their own preferred learning methods and paces. AI-powered adaptive learning systems can cater for these individual differences, providing each student with a learning experience that is tailored to their specific needs. Additionally, personalized learning through AI can help address the challenge of limited resources in education (Abatan, et. al., 2024, Ebirim, et. al., 2024). With AI, educators can create virtual learning environments that can simulate real-world scenarios, providing students with hands-on learning experiences that may not be possible otherwise. This can be particularly beneficial for students in remote or underserved areas, who may not have access to traditional educational resources.

2.2 Overview of Class room management

2.2.1 Traditional Classroom management, Strategies and Challenges

The traditional classroom management strategies in developing countries often involve methods such as teacher-centered instruction, rote memorization and disciplinary measures to maintain order in the classroom. Some common challenges faced with these traditional approaches include:

1. **Large Class Sizes:** many developing countries have overcrowded classrooms, making it difficult for teachers to effectively manage and engage with a large number of students that even have different learning paces and styles.
2. **Inadequate Resources:** Schools in developing countries often have inadequate basic learning resources such as textbooks, technology and conducive classrooms, making it challenging for teachers to create engaging and stimulating learning environments.
3. **Inadequate Teacher Training and retraining:** Teachers in developing countries may not receive adequate training in classroom management methods, leading to ineffective teaching practices and difficulty in managing diverse student needs.
4. **Language Barrier:** In multilingual environments, language barriers can create challenges in communication between teachers and students, impacting the effectiveness of classroom management strategies.
5. **Student Motivation and Engagement:** Rote memorization and standardized testing may lead to low learners engagement and motivation, affecting their overall academic performance and behavior in the classroom during teaching and learning sessions.

6. **Paucity of Support for learners with special needs**: learners with disabilities may not be able to receive the needed support and accommodations in the classroom, leading to challenges in managing their behavior and academic progress.

Addressing these challenges and more related challenges requires innovative solutions and AI technology has the potential to revolutionize classroom management in developing countries by providing tools that can help overcome these traditional barriers. By leveraging AI-Powered tools for personalized learning, automated grading, student behavior management, virtual classroom assistants and predictive analytics, teachers can enhance their teaching practices, support student learning and create more inclusive and engaging learning environments. These advancements in AI technology can help address the inadequacies of traditional classroom management strategies and improve educational outcomes for students in developing countries most especially Nigeria.

2.2.2 The goals of effective classroom management

Effective classroom management is crucial for creating a conducive and productive learning environment where students can thrive academically. The goals of effective classroom management include:

a) **Promoting Student Engagement and Motivation:** A key goal of effective classroom management is to promote student engagement and motivation by creating a learning environment that is stimulating, interactive and relevant to students' interests and needs. This includes using a variety of teaching strategies, incorporating technology and providing opportunities for student choice and autonomy.

b) **Establishing a Conducive Classroom Climate (ECC):** An effective classroom management strategy aims to create a conducive and supportive learning environment where learners feel safe and valued. This includes promoting cordial relationship between teachers and learners, fostering a sense of community and promoting a culture of mutual respect and cooperation.

c) **Maximizing Teaching Time (MTT):** Effectiveness of classroom management helps minimize disruptions and distractions of learners in the classroom, giving room for teachers to make the most of instructional time and focus on delivering quality instruction. This includes establishing clear routines and procedures, managing transitions between activities and setting behavioural objectives for the learners.

d) **Supporting Positive Behavior and Social-emotional Learning**: Effective classroom management aims to support students in developing positive social and emotional skills, such as self-regulation, empathy and conflict resolution. This includes implementing strategies for promoting positive behavior, providing clear expectations and consequences, teaching learners how to manage their emotions and interact with others in a respectful manner.

e) **Differentiating Instruction and Supporting Diverse Learners**: Effective classroom management involves recognizing and responding to the diverse needs and abilities of learners in the classroom. This includes implementing strategies for differentiating instruction, providing accommodations for students with special needs and supporting students from diverse cultural backgrounds using English language as the official language for instruction.

f) **Building a Sense of Community and Collaboration**: Effective classroom management fosters a sense of community and collaboration among students, teachers and families. This includes promoting teamwork, encouraging peer support and cooperation and involving families in the learning process to create a partnership in supporting learner's academic success.

By setting and achieving these goals of effective classroom management, teacher can create a conducive learning environment that promote academic success, social-emotional growth and raise a total child.

3. AI APPLICATIONS IN SECONDARY EDUCATION

AI in education typically manifests in three broad categories: administrative tasks, teaching and learning, and classroom management. These applications hold significant promise for improving the quality of secondary education in Nigeria, a country with a growing youth population and significant educational challenges. We will narrow this review to teaching and classroom management.

3.2 AI application in classroom management

Artificial Intelligence (AI) can be used to help manage classrooms more efficiently and effectively in various ways. Stated below are some examples of how AI can be applied to classroom management:

i. **Smart Scheduling (SS):** AI algorithms can examine learners' data, teacher availability and many other factors to optimize class schedules and assignments.

ii. **Personalized Learning (PL):** AI can provide individualised learning experiences for learners by tailoring content and resources to the learners' needs.

iii. **Learner Engagement (LE):** AI-Powered tools can track learner engagement and performance, providing valuable information to teachers on how to improve their classroom methodologies.

iv. **Behavior Management (BM):** AI tools can analyze learner behavior patterns and provide real-time feedback to teachers on how to address specific issues or concerns.

v. **Grading and Assessment:** AI can help streamline the grading process and offer more detailed and timely feedback to students and parents.

While AI has the potential to enhance classroom management, it's important to note that it is not a substitute for human teachers. AI tools should be used to support teachers in their efforts to create a conducive and productive learning environment. Teachers should also consider potential ethical and privacy concerns when implementing AI tools in classroom management.

3.3.1 Review Studies that discuss specific AI tools and technologies used for classroom management

i. D'Mello, S., & Graesser, A. (2014). AutoTutor and affective AutoTutor: Learning by talking with cognitively and emotionally intelligent computers that listen.

This study discusses the use of AutoTutor, an AI tool that provides personalized tutoring to students by engaging in conversations with them. The tool is designed to be cognitively and emotionally intelligent, allowing it to adapt to students' individual needs and provide feedback in a more engaging and effective way.

ii. Baker, R.S., & Inventado, P.S. (2019). Educational data mining and learning analytics. Analysis of real data.

This study explores the application of educational data mining and learning analytics to improve student/learners performance in the classroom. By analyzing data collected from AI tools such as intelligent tutoring systems, researchers are able to determine model that can be used to tailor instruction and support individual student needs.

iii. Wojdynski, B.W., & Nacke, L.E. (2017). Team player or attention vampire? World of warcraft's effects on the social capital and interpersonal closeness of its players.

This study examines the impact of AI-based gaming platforms, such as world of warcraft, on social interactions and collaboration among students in the classroom. By fostering teamwork and communication skills through virtual environments, these tools can help students develop important interpersonal skills that are essential for academic success.

iv. Lane, H.C.' Yacef, K., & Mosstow, J. (2020). Technology-based formative assessment: A national mixed-methods study exploring teachers' use of online formative assessment to track student learning of critical-thinking skills.

This Study explores the use of AI technology for formative assessment in the classroom, focusing on how teachers can use online tools to track and monitor students' progress in developing critical thinking skills. By using Artificial Intelligence based assessment technologies, teachers can offer more timely and targeted feedback to support student learning and growth.

Overall, these studies demonstrate the prospective benefits of using Artificial Intelligence technologies in the classroom to improve teaching and learning outcomes. From personalized tutoring systems to data analytics platforms, Artificial Intelligence has the prospect to revolutionize teaching and learning in secondary education and support learners in achieving set academic goals in Nigeria.

4.0 CHALLENGES OF IMPLEMENTING AI IN NIGERIAN SECONDARY SCHOOLS

a. Inadequate Infrastructure

The major challenge to implementing AI in Nigerian secondary schools is inadequate infrastructure. Many schools lack reliable electricity, internet connectivity, and basic computer equipment. According to Adeoye and Amusa (2019), the success of AI in education depends on strong infrastructure, which is lacking in most Nigerian public schools. Urban schools are more likely to have access to necessary technology, while rural schools are often left behind, widening the digital divide.

b. Teacher Training and Resistance (TTR)

Many Nigerian teachers lack the digital literacy needed to effectively use AI tools in the classroom. Training programs are essential for teachers to understand how to integrate AI into their instructional methods, but such programs are either unavailable or underfunded (Ogunleye & Oke, 2021). Furthermore, there is often resistance to change among educators who are unfamiliar with AI technology. Teachers may fear that AI will replace their roles or reduce the personal element of teaching (Babalola, 2020).

c. Cost of Implementation(CI)

AI technology is costly to implement, and most public schools in Nigeria lack the financial resources to afford AI tools and platforms. While private schools in urban areas may have the means to adopt AI-driven learning systems, public schools, particularly those in rural areas, are at a disadvantage. The high cost of AI platforms, training, and maintenance makes widespread adoption difficult without significant government investment or external funding (Adewale, 2022).

d. Data Privacy Concerns (DPC)

The use of AI in education requires the collection and analysis of large amounts of learners' data. In Nigeria, where data protection laws are still developing, concerns about the privacy and security of students' information are significant. Adequate safeguards must be put in place to ensure that sensitive data is protected from breaches or misuse (Oludare & Ojo, 2020).

e. Cultural and Language Barriers (CLB)

Most AI systems are designed for Western education

contexts and may not suit the curricula or cultural contexts of schools in developing countries such as Nigeria. Localization of AI tools to address language barriers and cultural differences is necessary for their successful implementation.

4.1 Strategies for Overcoming Challenges

To successfully implement AI in secondary schools in developing countries such as Nigeria, stakeholders must consider the following strategies:

a. Government and Policy Support (GPS)

Governments should create policies that prioritize investment in digital infrastructure and AI tools. Such policies can also address data privacy concerns and incentivize the use of AI technology in education.

b. Public-Private Partnerships (PPP)

Collaborations between governments, educational institutions, and tech companies can drive the adoption of AI in classrooms. Public-private partnerships allow for affordable access to AI tools while ensuring the necessary infrastructure is in place.

c. Teacher Professional Development (TPD)

Providing continuous professional development training to teachers is very vital to ensuring they can professionally make use of Artificial Intelligence technologies. Training programs should be tailored to improving teachers' digital literacy and familiarizing teachers with AI-driven classroom management tools, etc.

4.2 Future Direction for AI Application in Nigerian Secondary Education

Despite the challenges, the opportunities for AI to enhance education in Nigeria are vast. With proper investment and planning, AI can address many of the long-standing issues in the education system.

a. AI for Rural Education

AI-powered mobile learning applications present an opportunity to deliver quality education to students in remote areas or villages. These applications can operate on basic smartphones, providing access to educational contents and even enabling students to interact with AI teachers. This has the potential to significantly reduce educational inequities between urban and rural students (Emeka, 2021).

b. AI for Special Education

AI can also play a significant role in improving education for students with special needs in Nigeria. Tools such as speech-to-text software and AI-powered assistive technologies can help students with disabilities engage more fully in classroom activities. In a country where special education resources are limited, AI presents a cost-effective solution to address the needs of these students (Ibrahim & Musa, 2021).

c. Government Initiatives and Policy Support

For AI to succeed in Nigerian secondary schools, government support is crucial. Developing policies that encourage the use of AI in education, investing in digital infrastructure, and providing teacher training programs can facilitate the adoption of AI. The Nigerian government's commitment to expanding access to technology in schools, through initiatives such as the Digital Literacy Campaign, could pave the way for AI integration (Onyekwere, 2021).

5. CONCLUSION

Artificial Intelligence(AI) has positive prospect to transform teaching and learning in secondary school in Nigeria by improving methods of carrying out administrative task efficiently, personalizing learning, and enhancing student participation in the classroom and engaging students in a tailored instructional content thereby reducing distraction which in turns enable teacher to focus on other meaningful educational engagements rather than taking much time to maintain orderliness in the class room. However, challenges related to infrastructure, teacher training, and initial cost of implementing AI technologies remain significant barriers to widespread implementation. As Nigeria continues to develop its educational technology world, strategic investment in AI applications, alongside robust government support, will be very vital to seamless realization of the full benefits of Artificial Intelligence in teaching and learning in secondary schools education in Nigeria.

REFERENCES

Adeoye, A., & Amusa, O. (2019). "Challenges and Opportunities of AI in Education: A Nigerian Perspective." Journal of Educational Technology Development, 18(2), 34-45.

Adewale, T. (2022). "Cost Implications of Artificial Intelligence Adoption in Nigerian Secondary Schools." African Journal of Educational Studies, 28(1), 14-27.

Alawi F. (2023). Artificial intelligence: The future might already be here. *Oral Surgery Oral Medicine Oral Pathology Oral Radiology*, *12*, S2212-4403(23)00003-2. https://doi.org/10.1016/j.oooo.2023.01.002

Babalola, M. (2020). "Teachers' Resistance to AI in Nigerian Classrooms: Causes and Solutions." African Journal of Teacher Education, 10(2), 56-69.

Baker, R. S. J. D. (2019). "Challenges for the Future of AI in Education: How It Can Address the Needs of Students, Teachers, and Schools." Learning: Research and Practice, 5(2), 117-124.

Chiu, T. K. F., Meng, H., Chai, C. S., King, I., Wong, S., & Yeung, Y. (2022). Creation and evaluation of a pre-tertiary

Artificial Intelligence (AI) curriculum. *IEEE Transactions on Education, 65*(1), 30-39. https://doi.org/10.1109/TE.2021.3085878

Dwivedi, Y. K., Hughes, L., et al (2021). Artificial intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management, 57*, 101994. https://doi.org/10.1016/j.ijinfomgt.2019.08.002

Emeka, I. (2021). "Using AI to Bridge the Educational Gap in Rural Nigeria." Nigerian Journal of Digital Education, 7(3), 33-50.

Gómez, A., & Molina, J. (2021). "AI-driven Tools for Classroom Management: A Case Study in Latin America." International Journal of Learning Analytics and Educational Technology, 12(2), 83-101.

Ibrahim, A., & Musa, R. (2021). "AI and Assistive Technology for Special Education in Nigeria: Potential and Challenges." Journal of Inclusive Education in Africa, 4(2), 24-38.

Lu, Y. (2019) Artificial intelligence: a survey on evolution, models, applications and future trends. *Journal of Management Analytics*, *6*(1), 1-29. https://doi.org/10.1080/23270012.2019.1570365
Mata, J., de Miguel, I., Duran, R. J.,

McCarthy, J., Minsky, M. L., Rochester, N., & Shannon, C. E. (1955). A proposal for the Dartmouth summer research project on artificial intelligence. *AI Magazine, 27*(4), 12-14.

Mhlanga, D. (2020). "Artificial Intelligence in Education: A Comparison Between China and Africa." Social Sciences & Humanities Open, 2(1), 1-13.

Obi, M., & Okeke, C. (2021). "AI and Classroom Management in Nigerian Secondary Schools: Benefits and Barriers." Journal of African Educational Leadership, 11(4), 45-63.

Ogedengbe, D. E., James, O. O., Afolabi, J. O. A., Olatoye, F. O., & Eboigbe, E. O. (2023). Human resources in the era of the fourth industrial revolution (4ir): strategies and innovations in the Global South. Engineering Science & Technology Journal, 4(5), 308-322.

Ogunleye, J., & Oke, F. (2021). "Teacher Training for AI in Nigerian Schools: Gaps and Recommendations." Journal of African Teacher Education, 15(3), 22-36.

Oludare, O., & Ojo, A. (2020). "AI, Data Privacy, and Education in Nigeria." Nigerian Journal of Law and Education Policy, 8(2), 89-101.

Olumide, K. (2021). "Mobile AI Learning Applications for Nigerian Secondary Education: Opportunities and Challenges." Journal of Mobile Learning and Educational Technology, 6(4), 34-52.

Onyekwere, I. (2021). "The Nigerian Government's Role in Promoting AI in Schools." African Journal of Digital Education Policy, 5(1), 16-27.

Schleicher, A. (2019). How AI Can Transform Schools and Classrooms: The OECD Perspective. OECD Publishing.

Shapiro, D. (2020). "AI in Education: Challenges and Opportunities in Developing Countries." Journal of African Educational Studies, 20(2), 67-79.

Sodiya, E. O., Umoga, U. J., et al. (2024). Current state and prospects of edge computing within the Internet of Things (IoT) ecosystem. *International Journal of Science and Research Archive*, *11*(1),1863-1873.

Taddeo, M., & Floridi, L. (2021). AI in Education: A Global Perspective on Data Privacy and Ethics. Oxford University Press.

Uchechukwu, O. (2022). "AI in Education: Bridging the Digital Divide in Africa." Journal of African Education Research, 28(2), 45-63.

Uwaoma, P. U., Eboigbe, E. O., et al. (2023). The fourth industrial revolution and its impact on agricultural economics: preparing for the future in developing countries. *International Journal of Advanced Economics*, *5*(9), 258-270.

Zhang, T. (2023). The contributions of AI in the development of ideological and political perspectives in education, *HELIYON*, 9(3), E13403. https://doi.org/10.1016/j.heliyon.2023.e13403