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ARTIFICIAL INTELLIGENCE AND THE FUTURE OF ADULT EDUCATION IN NIGERIA

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Abstract
The paper was on Artificial intelligence and the future of adult education in Nigeria. Historical developments of adult education in Nigeria were discussed. The paper highlighted the concepts of adult education and artificial intelligence and went further to discussed the relevance of artificial intelligence to adult education. The objectives of the adult education were outlined and the roles were identified which include; lifelong learning, economic empowerment, personal development as well as social inclusion. Efforts by the federal ministry of education in integrating AI into educational systems in Nigeria were enumerated which include education cloud, inspire and ignite digital learning platforms, Nigeria learning passports. The paper also discussed on the barriers to AI adoption in Adult Education which include limited digital infrastructure, low digital literacy, high cost of AI tools and devices, lack of government policy and investment. Lastly the way forward is to strengthening the digital infrastructure, adequate provision of technological resources, the use of innovative and creative financing models, invest in facilitator training programme, constant review of adult education curriculum.
Keywords: Artificial intelligence, Adult education, Personal development, Learning and Future

Introduction
The history of Adult Education is a hit-and-miss story, starting with strong rhetoric, promises, and expectations, concluding in limited success, and even neglect and disappointment in too many cases. Adult Education has been conflated into a broader agenda of education and development, more at the level of discourse than in action. However, for most governments in developing countries where financial and human resources are very scarce, Adult Education is very low when it comes to being given priority over other sub-sectors of the education system. It is fraught with many problems which pose a challenge towards the provision of quality education for adult learners (Abubakar, 2025). In this regard, Nworie, Ezugoh and Okoye (2021) observed that many Adult Education programmes have gone into extinction or closure as a result of these quality problems. All these aforementioned quality problems and challenges has created a lot of difficulties in various Adult Education programmes, making it impossible to improve quality in the teaching and learning processes for achievement of excellence.

Since the beginning of the 21st Century, there has been tremendous improvement in new technologies and digital businesses as there is hardly any facet of human life that has not been impacted by the global wave. Education as the bedrock of any meaningful growth and development in the society cannot be divorced from advancement. As society undergoes changes, so also the methods, instruments and procedures used for impacting knowledge, skills, attitudes, values and morals to the citizens needs to be in conformity with the global realities (Umar, Aliyu, & Tijjani, 2023). In the world today, system of education must undergo dramatic digital changes to meet global trends in digital development so that each person could successfully realize his/her potential. In a special way, the processes of digital transformation affect educational institutions, including Adult Education programme.

Artificial intelligence (AI) technologies have revolutionized many facets of life in the last several years, and education is no different. Today, educational institutions are increasingly utilizing AI to improve decision-making, expedite administrative duties, customize instruction, and increase overall productivity. As AI continues to evolve, its potential to transform education by making it more accessible, efficient and personalized becomes increasingly evident (IBM, 2023). This simply implies that Artificial Intelligence (AI) is becoming a vital tool for Adult Educators as education continues to change in the digital age. Although AI is rapidly changing many fields, including education, there are still significant gaps in how AI will affect the management of Adult Education

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programme (Adedeji, 2025). It was against this backdrop that this paper seeks to explore the nexus between Artificial Intelligence (AI) and the future of Adult Education in Nigeria.

Concept of Adult Education

The concept of Adult Education is difficult to define because people define it from different perspectives. However, scholars agreed that it is an education that has adults as its clientele. To lend credence to this observation, Abubakar (2025) described Adult Education as a learning endeavour in which adults engage in systematic and sustained self-educating activities to gain new form of knowledge, skills, attitude, and values. According to Hussain and Usman (2025), Adult Education refers to all learning opportunities systematically designed for individuals regarded as adults based on their age and social roles. This definition points to the fact that Adult Education is a special form of education that requires cautious and meticulous planning due to the sensitive nature of the recipients, being adult learners. Ayantunji (2023) viewed Adult Education as a practice in which adults engage in systematic and sustained self-education activities in order to gain knowledge, skills, attitudes, or values and is expected to address the socio-economic, cultural, political and environmental problems besieging humanity in their various societies.

Adult Education plays a significant role in social change, as it is now widely admitted that growth and development will not reduce poverty unless people are able to actively participate in it. In this regard, Wami (2023) noted that through Adult Education, many adults have found their way onto different paths of learning and have made up for lost time by discovering their potential and skills, achieving things they never knew they could achieve. Nworie et al (2021) also observed that Adult Education encompasses literacy, vocational, technical and other non-formal educational programmes offered to cater for various individual needs and dispositions for them to acquire requisite information, ideas, knowledge and skills which will enable them solve their problems in the society. It was in this direction that the Federal Republic of Nigeria (FRN, 2013) outlined the objectives of Adult Education as follows to:

a. provide functional basic education for adults and youths who have never had advantage of any formal education or who left school too early and did not complete their primary education, which includes the nomads, migrant families, the disable and other categories or groups, especially the disadvantaged gender;
b. provide remedial and life-long education for those youths and adults who prematurely dropped out of the formal school system or people who did not complete secondary education;
c. provide in-service and on-the-job vocational and professional training for different categories of workers and professionals in order to improve their skills;
d. provide further education for different categories of completers of the formal education system in order to improve basic knowledge and skills; and
e. give the adult citizens of the country necessary aesthetic, cultural and civic education for public enlightenment.

From the stated objectives, it is evident that Adult Education programme, when properly implemented can create opportunities for a better livelihood for all people in all ages and at any point or stage of life. Based on these objectives, Daramola (2024) identified the role of Adult Education programme to include:

1. **Lifelong Learning:** In an era where continuous learning is essential, adults expect education systems to provide opportunities for lifelong learning. This includes upskilling, reskilling, and gaining new competencies to remain relevant in a rapidly changing job market.
2. **Economic Empowerment:** Many adults look to education as a pathway to better job opportunities and economic stability. They expect adult education programs to offer practical and vocational training that can directly improve their employability and earning potential.
3. **Personal Development:** Beyond professional benefits, individuals seek personal growth through education. They expect adult education to enrich their lives, enhance their critical thinking, and provide a deeper understanding of the world.
4. **Social Inclusion:** Education is seen as a tool for social integration and cohesion. People expect adult education to bridge gaps created by socioeconomic disparities, providing marginalized groups with the skills and knowledge to participate fully in society.

Concept of Artificial Intelligence (AI)

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Artificial Intelligence (AI) are technical systems that monitor the environment, receive data (which are prepared by someone else or that they collect themselves), process it and carry out actions related to the achievement of a specific objective. In this regard, Olatunde-Aiyedun (2024) viewed Artificial Intelligence as the collections systems, packages and applications designed into digital computers or computer-controlled robots to carry out assignments and tasks with human-like intelligence. According to Ogunode and Ukozor (2023), Artificial Intelligence (AI) refers to computer systems and technologies that mimic human cognitive abilities, performing tasks like learning, reasoning, and problem-solving. He contended that these technologies, which encompass machine learning and robotics, have a wide range of applications across various sectors, including healthcare, finance, transportation, and education, and possess significant potential to transform industries and create new opportunities for advancement. Gartner (2023) defined AI is a discipline that applies advanced analytics and logic-based techniques, encompassing machine learning, deep learning, regression analysis, and more, with the goal of identifying and predicting patterns, making decisions, interpreting events, and automating actions.

From the above definitions of AI put forwards by scholars, it is evident that AI is emerging as a powerful tool for social inclusion in education, helping to reduce long-standing inequalities related to gender, disability, geographic location, and language. AI technologies ranging from adaptive learning platforms and intelligent tutoring systems to data-driven educational management tools offer unprecedented opportunities to personalize instruction, optimize resource allocation, and democratize access to high-quality learning experiences (Igbokwe, 2024). Unlike traditional systems, AI-powered platforms adapt to individual learners' strengths and pace, offering customized learning paths that improve confidence. AI technologies include machine learning, natural language processing and robotics, which can personalize learning by adapting content and pace to individual student needs (Marshal, Ekwere, & Godwin, 2025). This personalized approach helps address diverse learning styles and paces, ensuring that each student receives the attention and resources they need to succeed. By offering adaptive, accessible, and culturally relevant content, AI is breaking barriers that often limit learning opportunities for marginalized groups. When utilizing AI in the classroom, there are a few issues and problems in addition to these advantages. However, to responsibly implement AI, considerations such as algorithmic bias, data privacy, and ethical implications must be thoroughly considered. Despite numerous challenges faced in the application of Artificial Intelligence, it has a great deal of potential to alter the way educational institutions make decisions. By leveraging AI to make better decisions, customize lessons, and distribute resources more effectively, educational leaders may better meet the needs of their personnel and students' intelligence.

Relevance of Artificial Intelligence (AI) in Adult Education

AI in adult education can facilitate innovative teaching methods and interactive learning environments. The integration of AI into management of Adult Education is not a panacea, but it offers a powerful set of tools for addressing longstanding inequities. In Nigeria, Ndalu (2024) reported that AI-powered educational tools have been deployed in underserved communities to democratize access to quality education, adapt to diverse learning needs, and support teacher professional development. Also, Adedeji (2025) reported that adoption of AI positively and significantly impacted decision-making, resource management, students' learning and staff development. The study concluded that Artificial Intelligence (AI) has a revolutionary effect on school administrative duties, providing new chances to improve effectiveness and efficiency in learning outcomes, resource management, decision-making, and staff development among others.

According to Marshal et al; (2025), artificial intelligence in education refers to the use of computer systems that can perform tasks typically requiring human intelligence to enhance learning experiences, streamline administrative processes, and support educators. To maximize learning outcomes, AI-based adaptive learning systems may also customize lessons to meet the unique needs and learning preferences of each learner. AI is relevant in educational settings because technology can analyze large volumes of data, personalize learning experiences, and automate administrative work. It is redefining education by providing creative answers to enduring problems and changing how teachers instruct, students learn, and educational institutions function as well as decision making process. However, the integration of AI in Adult Education has brought about significant changes that enhance learning experiences, streamline administrative tasks and support both students and educators in various. Based on this observation, Ways Marshal et al (2025) enumerated the following as benefits of AI in education.

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1. **Personalized learning:** Artificial intelligence enables personalized learning by tailoring educational content to meet the unique needs of each student. Through adaptive learning technologies, artificial intelligence can analyze a student's strengths, weaknesses, learning pace and preferences. This data allows AI systems to provide customized lesson plans and resources, ensuring that students receive instruction that is best suited to their individual learning styles. As a result, students can progress at their own pace, which helps to improve understanding and retention of material.
2. **Improved student engagement and motivation:** AI creating immersive learning experiences also can result in boosting student engagement and motivation by making learning more interactive and personalized. Gamified learning platforms, powered by AI, incorporate game elements such as rewards, challenges and leader boards to make learning fun and competitive.
3. **Cost-effective learning:** AI can make education more cost-effective by automating administrative tasks and providing scalable learning solutions. For example, artificial intelligence can handle routine tasks such as grading assignments, scheduling and managing student records, freeing up time for educators to focus on teaching.
4. **Integrated learning and intelligent tutoring system:** AI-driven intelligent tutoring systems offer personalized guidance and support to students, mimicking one-on-one tutoring. These systems use data analytics to understand a student's learning progress and provide targeted feedback and recommendations.
5. **Continuous evaluation and improvement in the long run:** AI facilitates continuous evaluation and improvement by providing real-time insights into student learning performance and learning outcomes. Through data analytics, AI can track student progress, identify trends and highlight areas for improvement.

Efforts by the Federal Ministry of Education in Integrating AI into Educational System in Nigeria

Since the past five years (2000-2005), Nigerian Government through Federal Ministry of Education's strategic document has articulated policies towards the integration of digital tools in the management of education in the country. To lend credence to this observation, Echono (2023) enumerated the following as some of the ICT/digital project achievements recorded in the last 5 years in Nigeria:

1. **Education Cloud (e-Cloud) Project:** The e-Cloud project is designed to provide certified content accessible online from across the nation by learners covering the three tiers of the education sector. It has produced 4,000 video lessons for the basic level, 7,000 video lessons for the secondary level, 4,000 audio lessons for the secondary level, and 1,050 assorted contents on Nigeria Learning Passport.
2. **Inspire and Ignite Digital Learning Platforms:** This covers the 3 tiers of the education sector; basic, secondary and tertiary while Ignite is the component for educators to plan, author, curate and roll out lessons in text, audio and video formats. The platform includes a collaborative chat system for stakeholders.
3. **Nigeria Learning Passport:** The Nigeria Learning Passport platform includes a suite of online and offline functionalities and abilities. The platform, powered by Microsoft, will prioritize deployment in places with intermittent or no internet connectivity.
4. **Certificate Verification Portal:** The Certificate Verification Portal came online 4 years ago. This has greatly eased the logistical and financial challenges students go through, cutting down the time it takes to physically come to the Federal Ministry of Education headquarters to queue for hours waiting to get their certificates verified.
5. **Open Education Data Project:** This is a frontier for all information regarding education indices in Nigeria. The OED portal is accessible through the official FME website.
6. **Capacity Building and Content Production:** ICT hubs have been established in each of the 36 states and FCT with equipment to support content production. 148 ICT administrators across 36 states and FCT have been trained to support content production and airing of content for radio, TV and digital platforms.

Barriers to AI Adoption in Adult Education in Nigeria

The barriers to AI adoption in Adult Education can be seen in the following:

1. **Limited Digital Infrastructure:** Poor internet access in many rural and semi-urban areas in Nigeria. Unreliable electricity disrupts online and AI-powered learning tools. Low smartphone/computer penetration among adult learners in low-income communities in the country.

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2. **Low Digital Literacy:** Many adult learners lack the basic technological skills needed to interact with AI tools. Even educators and facilitators may not be well trained in digital or AI-based instruction. Fear or mistrust of technology can reduce adoption among older or less-educated adults.
3. **High Cost of AI Tools and Devices:** Subscription fees for quality platforms (like Coursera, Grammarly, etc.) are often unaffordable. Cost of data and devices (smartphones, laptops) is prohibitive for many learners. Lack of subsidized access through public education initiatives.
4. **Lack of Government Policy and Investment:** Few national or state-level policies supporting AI in Adult Education. Limited public funding for technology enhanced learning in non-formal education sectors. Fragmented efforts between ministries and the relevant agencies (Education, ICT, Labour) hinder coordinated action.
5. **Mismatch with Local Needs:** Most AI tools are developed for Western contexts and may not align with: Nigerian languages or dialects. Local curriculum or skill needs. This makes many tools feel foreign or irrelevant.

Conclusion

It is evident that to successfully use AI to meet the future demand of Adult Education programmes in Nigeria requires careful planning, facilitator training, good infrastructure and constant evaluation. It is the position of this paper that investing in digital infrastructure, affordable data and develop AI tools localized for Nigerian contexts (language, culture and curriculum). increase government-private partnerships to scale access and provide digital literacy training as part of Adult Education programs will go a long way to secure the future of Adult Education programme in the face of AI in Nigeria.

Suggestions

The following suggestions are put forward on how to integrate AI tools into Adult Education programmes in the country:

1. **Strengthening digital infrastructure and tool:** The Federal Republic of Nigeria should provide adequate digital facilities in all institutions of learning where adult education programme take place. This will help to improve accessibility and enhance digitalization of adult education programmes in the country.
2. **Adequate Provision of Technological Resources:** Adult Education centres across the country must have the right technological tools in place to support AI. These centres or institutions should use flexible AI platforms that can grow and adapt to changing needs of the education programme.
3. **The use of innovative and creative financing models:** The Federal Government of Nigeria should intensify the use of innovative and creative financing models such as Public Private Partnership. Budgeting by Federal and State Government should be improved upon by allocating at least 20% of Education annual capital budget to digital facilities/resources in Education.
4. **Invest in facilitator training programme:** Investing in facilitator training and professional development is essential. Facilitators need to learn how to use AI tools effectively and understand how AI can enhance traditional teaching methods.
5. **Constant review of Adult Education curriculum:** In order to incorporate technology into Adult Education programme, there is a need for constant review of the Adult Education curriculum to be in line with the technological pace of time.

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