

Educational Management and Artificial Intelligence in Nigerian Schools

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Annotation

This paper examined at the impact of Artificial intelligence on educational management in Nigerian' schools. The paper is a position that depends on secondary data to establish its facts. The secondary data were collected from government documents, print resources and online publication. Inclusion and exclusion criteria were used to narrow the literature to the theme of the study. The paper concluded that Artificial intelligence has aided transformation of educational sector in Nigeria. Specifically, the paper discovered that Artificial intelligence has aided the effective educational management, educational planning, teaching and learning processes and educational supervision. Based on this findings, the paper recommends that government should increase funding of education in Nigeria. Government and private institutions should provide artificial intelligence infrastructure facilities in all schools. Government should ensure constant training and retraining programme for teachers and schools administrators on digital skills. Government should subsidize digital facilities for teachers and students to enable them access the facilities for the implementation of teaching and learning in schools.

Keywords: Artificial Intelligence, Education, Management, Educational Management.



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Introduction

Management in education implies the management of human and material resources available in education and using them systematically for the achievement of educational objectives (Obi 2004). Educational management as a social or interactional process involving a sequence of coordinated events such as planning, organizing, coordinating and controlling human and material resources in order to achieve desired outcomes in the fastest and most efficient ways. Management of education consists of planning, organizing, coordinating, procuring and maintaining the available educational resources with the sole aim of achieving educational objectives (Peretomode (1991).

Educational management as the various approaches used to provide educational resources, facilities and other related services in schools to make teaching and learning effective (Agun 1988). Educational management is the ability of educational managers to judiciously use human, material, time and financial resources towards achieving the goals of education (Akpakwu 2012).

The educational goals of any nation can be attained through congenial school management which includes proper planning, organizing, coordinating, staffing, budgeting, controlling, maintenance of sound school discipline among staff and students in the secondary schools, administrators are charged with the management of finance, time human and material resources in order to achieve the aims and objectives of their institutions (Elujekwute, Shehu, Oigoche, & Nnome, 2021). From the above definitions, one can see that management in education culminates in attainment of goals through coordination of human and material resources. Scientifically, management can be defined as the coordination of all the resources of an organization through the process of planning, organizing, directing and controlling activities in the organization in order to attain organizational.

Concept of Artificial Intelligence

Artificial Intelligence technologies encompass various techniques and approaches, such as machine learning, deep learning, natural language processing, computer vision and robotics. These technologies enable computers to analyze vast amounts of data, recognize patterns, make predictions and automate complex processes. Artificial Intelligence has applications across numerous fields, including health care, finance, transportation, customer service and education. It has the potential to transform industries, improve efficiency and create new opportunities (AFSA 2022). Frankenfield (2023) defined Artificial intelligence (AI) as simulation of human intelligence by software-coded heuristics. Artificial Intelligence is a branch of science producing and studying the machines aimed at the stimulation of human intelligence processes.

AI as the ability of a computer or machine to mimic the capabilities of the human mind – learning from examples and experience, recognizing objects, understanding and responding to language, making decisions, solving problems – and combining these and other capabilities to perform functions a human might perform, such as greeting a hotel guest or driving a car (Alagbe 2023). Ogunode & Ukozor (2023) defined AI as programs designed with human-like intelligence and structured in the forms of computers, robots, or other machines to aid in the provision of any kind of service or tasks to improve the social economic and political development of the society. Artificial Intelligence is an application or program constructed to carry out tasks with human-like intelligence. 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. Artificial intelligence (AI), according to Copeland (2023) is the ability of a digital computer or computer controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience.

Table1: Data on Impact of AI on Educational Management

S/N	Name	Findings
1	Ogunode, Idoko, & ThankGod, (2024)	Concluded that research unequivocally demonstrate that artificial intelligence (AI) significantly contributes to the successful implementation of educational administration and planning programs in Nigerian tertiary institutions. Specifically, the study reveals that AI plays a pivotal role in enhancing the implementation of teaching and research within these programs, leading to more effective student learning experiences in educational administration and planning at the tertiary level.
2	Olusegun, & Honmane, (2024).	They concluded that deployment of Artificial

		Intelligence for teaching and learning of mathematics programme in tertiary institutions aid presentation of mathematics lectures, preparation of mathematics students result report, construct instructional resources of mathematics (Smart Content), mapping, modelling, method for automated simulation, implementation of the method for automated modelling, mathematics research development, effective conduct of mathematics examinations, improved mathematics student engagement and motivation and enhanced personalized learning.
3	Ogunode, Okolie, and Chinedu (2023)	Highlighted the pivotal role of Artificial Intelligence (AI) in tertiary institution management, emphasizing its contribution to effective administration, implementation of teaching programs, enhancement of student learning, and facilitation of examination processes. AI is identified as a valuable tool for supporting virtual learning, refining research program development, optimizing community service programs, managing data effectively, enhancing security, and improving staff attendance in tertiary institutions.
4	Borbajo, Malbas, & Dacanay, (2023)	Discovered that AI technologies facilitate collaborative learning experiences among students. Virtual collaborative platforms, intelligent chatbots, and AI-based discussion forums enable students to engage in collaborative problem-solving, peer feedback, and knowledge sharing. AI tools can also assist in the formation of student groups based on complementary skills or learning needs. This integration of AI promotes collaboration, communication, and critical thinking skills, enhancing the overall learning experience. The integration of AI technologies in education facilitates personalized instruction and differentiated learning. AI-powered adaptive learning platforms and intelligent tutoring systems analyze student data and provide tailored learning experiences. These technologies adapt instructional content, pacing, and feedback based on individual student needs and learning styles. As a result, teachers can better address the diverse needs of their students, offering customized instruction and support.
5	Ogunode & Ukozor, (2023).	AI can aid effective tertiary institution administration, effective implementation of teaching programmes, enhance effective learning in tertiary institution students, aid effective conduct of examination, support virtual learning in tertiary institutions, improve research programme

		development, improve the provision of community service programme, effective management of data, improve security in tertiary institutions and improve the attendance of staff in tertiary institutions.
6	Thomas & Gambari (2021)	Reveled that AI technologies that can ease the demanding tasks of Nigerian lecturers.
7	Zarrouqi and Falta's (2020)	The findings underscore that academic programs leveraging AI not only expand opportunities for self-education among students but also empower them to actively participate in the educational process, moving beyond the traditional role of passive information recipients in conventional classroom settings.
8	Samsonova (2018)	Interactive Whiteboards enhances interactions in combination with a remote device, support collaborative learnings, facilitate learnings, save teacher's time, promote idea sharing, and enhance class management and class preparation. IWB enables teachers to integrate computer applications like graphic design tools, spreadsheet tools, database tools, and use social networking technologies such as YouTube, Wiki, Facebook, and Twitter, to create profiles and share information with the entire class.
9	Mamudu and Lamido (2017)	Presentation translator can draw students into a conversation and enhance full class participation. In classes where all the learners speak and understand English as the only language spoken, deaf or hard-of-hearing students can follow along with the real-time display, either on the teacher's display or by joining the conversation on their smartphone. With the use of PT, students who speak and understand different languages can learn and participate in a class at the same time.
10	Anbar and Muhammad's (2016)	The study introduces an electronic program designed to conduct electronic audit tasks, encompassing planning, sample collection and selection, and culminating in the generation of draft reports. The aim is to positively influence the audit profession and assess the expected impact of AI technology in enhancing audit quality.

Discussion of findings on the Impact of Artificial Intelligence on Educational Management

Artificial intelligence has led to transformation of education in Nigeria. The introduction of AI into the educational management and administration has led to an improved decision making, policy making and improved outcome. Namboodiri, (2022) submitted that the integration of AI in the classroom holds significant implications for educational reform. AI technologies have the potential to transform traditional education systems from a one-size-fits-all approach to personalized and adaptive learning environments. The above agrees with the findings of Olatunde-Aiyedun and Hamma (2023), that the impact of AI can lead to improved learning outcomes,

increased teachers proficiency, and greater equity in education. Ogunode and Ejike (2023); Ogunode, and Gregory (2023); Igbokwe, (2023) and Usuma, Uzoma, & Naggere, (2013) established that AI has improved educational budgeting, supervision, data management, teaching and learning and quality education.

Educational managers is saddled with some core functions such as educational management. AI has assisted school managers to plan the schools activities with easy. Educational management also handled policy making and decision taking to realize the objectives of education. Bordia (2023) contended that AI tools can automate repetitive tasks essential for the smooth functioning of schools. AI can be used to aid effective tertiary effective educational management. The use of AI in education in Nigeria can be to make school management tasks effortless for admins and teachers. By automating school activities according to Chan & Tsi, (2023) like fee collection, admission enquiries management, tracking the circulation of books in the library, helping admins plan the entire academic year and more, AI can improve the efficiency of school administration. AI can facilitate the automation of administrative tasks, allowing educators to allocate more time for student interaction and personalized instruction.

Educational managers look at the educational planning in education. Ogunode (2021) asserted that one of the major function of education administration is planning of educational programme and projects. Planning is very vital to the realization of the objectives of secondary school education. Educational institutions must be planned to be able to achieve its objectives and education must be planned too to be able to realize its goals. Data is what is needed to plan and take decisions. Data is very important for planning educational programme. Without current educational data, planning is impossible. AI can give school management insights into their operations they might not have been aware of. The rapidly expanding population of generative AI can play these roles in schools data management: classification of data by obtaining, extracting, and structuring data from documents, photos, handwriting, and other media. Cataloging by helping to locate schools data. Improve quality of data collected by reducing errors in the data management process. Data security in school by keeping data safe from bad actors and making sure it's used in accordance with relevant laws, policies, and customs and ensuring data integration by helping to build "Management databank of schools. Westagilelabs (2022) stated that AI support educational planning by AI tools can perform various functions like ending truancy alerts, report cards and other correspondence to the parents automatically, Plan and schedule meetings, Automate routine, student forms, enrollments, and other paperwork to the correct department, Shorten the time spent on progress reports AI, Streamline any other record-keeping tasks. It can enable teachers and professors to focus primarily on improving educational quality instead of manual paperwork and reducing work pressure (Chen, Chen, & Lin 2020; Ogunode, Abdullahi, & Sani, 2024).

Educational managers look at the data management in education and how to use them improve quality of education. AI can be employed in educational institutions to improve data management in the system. In education, the concept of Big Data refers to large volumes of structured and unstructured data generated within the educational ecosystem, including student information, academic records, assessments, social interactions, and more. Big Data in education encompasses the collection, analysis, and interpretation of vast amounts of data to derive meaningful insights and patterns that inform educational practices and policies. It involves leveraging technology and advanced analytic techniques to make sense of the diverse data points generated across various educational systems and platforms. Big Data in education is characterized by its immense volume, variety, velocity, and veracity. It encompasses diverse types of structured and unstructured data from various sources, including learning management systems and online platforms. The velocity of data generation requires real-time processing for timely interventions and personalized support. Ensuring data veracity is crucial to maintaining accuracy and integrity when working with educational data. With the increasing digitization of educational processes, enormous amounts of

data are generated, including student performance metrics, learning activities, assessments, and more (Anisova, 2023; Ogunode., Okolie, & Chinedu, 2023).

Educational managers are in charge of curriculum implementation in schools. Curriculum implementation refers to execution of school planned instruction in the classroom (Femi, 2022). AI has aided effective implementation of curriculum in Nigerian schools. AI can aid effective management that will aid effective implementation of curriculum in the schools. Effective management is critical for smooth curriculum implementation. Ogunode & Olowonefa (2023) and Borbajo, Malbas, & Dacanay, (2023) opined that AI has the capacity to improve data generation, distribution, storage and computation in school for effective decision and planning for effective school management. Bordia (2023) concluded that educational institutions can use AI-powered chatbots to provide uninterrupted learning to students. As chatbots are available, students can use them to resolve doubts in real time. Moreover, chatbots can also be used by school authorities to provide information to parents and students. For example, details on fees, new admissions, classes etc. can be passed on to parents and students through AI- powered chatbots. Tasks such as grading assignments, generating reports, and managing administrative paperwork can be automated, leading to increased efficiency and improved teacher-student interactions (Chen et al., 2020; Borbajo et al., 2023). AI integration empowers teachers to use AI as a tool to enhance instruction (Singh & Jain 2022; Smith, 2021; Smith, 2022; Xiaolin Xia, & Li Xiaojun 2022; Ogunode & Ehichoya, 2024).

In the area of capacity building of teachers, Borbajo et al., (2023) and Ogunode, Agbade, and Bassey (2023) discovered that the integration of Artificial Intelligence in education influences teaching practices and pedagogical approaches. It enables personalized instruction, data-driven decision making, collaborative learning, and improved assessment and feedback processes. However, attention must be given to teacher roles, ethical considerations, balancing technology with human interaction, and contextual adaptation. These findings contribute to the understanding of the effects of AI integration on teaching practices and pedagogical approaches, providing valuable insights for educators, policymakers, and researchers aiming to leverage AI technologies in education.

The paper revealed that Artificial intelligence has aided transformation of educational sector in Nigeria. Specifically, the paper discovered that Artificial intelligence has aided the effective educational management, educational planning, effective data management, effective curriculum implementation and capacity development of teachers.

Conclusion and Recommendations

This paper examined at the impact of Artificial intelligence on educational management in Nigerian' schools. The paper concluded that Artificial intelligence has aided transformation of educational sector in Nigeria. Specifically, the paper discovered that Artificial intelligence has aided the effective educational management, educational planning, effective data management, effective curriculum implementation and capacity development of teachers.

Based on this findings, the paper recommends that government should increase funding of education in Nigeria. Government and private institutions should provide artificial intelligence infrastructure facilities in all schools. Government should ensure constant training and retraining programme for teachers and schools administrators on digital skills. Government should subsidize digital facilities for teachers and students to enable them access the facilities for the implementation of teaching and learning in schools.

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