ARTIFICIAL INTELLIGENCE AND EDUCATIONAL MANAGEMENT INFORMATION SYSTEM IN NIGERIA

Dr. Emegwa Tina Uzoamaka
Department of Educational Management and Policy,
Nnamdi Azikiwe University, Awka, Anambra State, Nigeria
emegwauzuamaka@gmail.com

Abstract

The use of emerging technologies in education and the rapid invading of Artificial Intelligence in the educational system is currently trending and managers in education are embracing the innovation. The paper titled "ArtificialIntelligence (AI) and Educational Management Information System (EMIS) in Nigeria " x-rayed the integration of artificial intelligence by managers of education in administration, data analysis and prompt decision making. This approach creates a form of easy task administrative process and coordination of the system. The paper examines the concept of artificial intelligence, the educational management information system, impact of artificial intelligence in educational Management Information System in Nigeria and the challenges of artificial intelligence in educational management information systems. It also provides supports that emphasize the need to apply caution in the use of artificial intelligence to save the future generation from intellectual laziness.

Keywords: Artificial Intelligence, Educational Management, Information System.

Introduction

With the rapid advancement in technology around today's world, the use of artificial intelligence is gradually becoming a part of the administrative process. It can be employed to assist in managerial functions of planning and decision making as well as in analysis of data to enhance efficiency and productivity. In educational management, Artificial Intelligence (AI) with its current features has the potential to revolutionize Educational Management Information Systems (EMIS). However, the extent to which the use of artificial intelligence can be employed in managerial activities in the future ought to be controlled to avoid unconscious and spontaneous human intellectual dormancy. According to Kumar (2018), human beings are the most intelligent of all the created animals in the world. This can be perceived in the way man exercises authority over other creatures. Thus, human cognitive abilities remain natural and rational.

The Concept of Artificial Intelligence (AI)

Artificial Intelligence (AI) is a programmed instruction of a machine which contains the essential features of a human being hence thinks like a human. Artificial intelligence (AI), sometimes called machine intelligence, is intelligence demonstrated by machines in contrast to natural intelligence displayed by humans and other animals (McCorduck in Reagan 2018). This means that artificial intelligence (AI) is machine intelligence. It is commonly implemented in computer systems using programs through appropriate electronic circuits (Smith in Reagan 2018). In view of this artificial intelligence (AI) is a machine intelligence that performs like humans but are not human beings.

Artificial Intelligence (AI) is designed with varying complexity to suit purpose. Some are educationally designed for programmed instructions, data analysis and support for educational programs. According to Schueller et al (2017) Artificial Intelligence (AI) in education is the application of sophisticated technology, namely machine learning algorithms and computational models, to enhance the learning process, boost educational results, and customize instruction to meet the unique requirements of each student.

The Concept of Education Management Information System (EMIS)

Educational management information systems (EMIS) is computerized to help manage data analysis related to education. It is design to help educational institutions at different levels to manage the administrative, accounting, reporting and academic activities. The Educational Management Information

System (EMIS) is being revolutionized by the integration of Artificial Intelligence (AI) and it makes work easier and faster. Okunade (2024) stated that the application of Artificial intelligence in education encompasses adaptive learning platforms, intelligent tutoring systems, and virtual simulations. Stressing that through the use of artificial intelligence, educators have the ability to construct dynamic and interactive learning environments that accommodate the various learning styles and capabilities of students. This means that education managers through assisted technological involvement provide enhanced learning environments and administration. The use of Artificial Intelligence and Educational Management Information System(EMIS) are closely related considering their technological applications and operations, hence the former complementing the other for efficient usage and productivity. Althobeti (2013) opined that Education Management Information System plays a role in increasing transparency and accountability in budgeting and financial management, revenue mobilization and expenditure academic institutions.

According to Ejimofor and Okonkwo (2022) the use of Education Management Information System (EMIS) in educational management has rapidly increased due to its efficiency and effectiveness as the world is now turning into a global village through information communication technology. The integration of the new technological development of artificial intelligence into management of education cuts across every level of educational planning whether primary, secondary or tertiary education. Abiahu(2014) asserts that an educational management information system (EMIS) is a processing procedure developed within an institution and integrated for the purpose of providing timely and effective information to support management decision making in education. This means that educational management information systems are often designed for educational purposes.

Odhiambo (2017) pointed out the use of education management information system modules for curriculum and instruction, human resource, school community relations and finance as it positively influenced the management of secondary schools. Stressing that it reduced the time to do routine tasks thus freeing up time for other school engagements by management.

The Concept of Information System

Information gives clarifications on issues and are properly managed for efficient usage. When information flows from one end to another and revolves in a system for feedback, it shows an effective management information system. The same occurs in education, the application of relevant processed data for accomplishing various managerial functions such as planning, controlling, organizing and coordinating operational activities of education referred to as education management information system. Ejimofor and Okonkwo (2022) emphasized that education management information systems (EMIS) facilitate the decentralization of work tasks and their coordination in an interactive network of communication. EMIS gathers data from various sources and processes it to provide information disseminated to managers and staff.

Impact of Artificial Intelligence on Educational Management Information System.

Artificial Intelligence (AI) can impact Educational Management Information System (EMIS) in various ways. Stoykova and Shakev (2023) opined that an assessment of the current state of artificial intelligence technology in management information systems (MIS) can provide valuable insight to researchers and developers for next level. It means that Artificial Intelligence offers an improved Educational management information system with proper usage and creates gap for further studies.

According to Siminto, Akib, Hasmirati, Danang Sigit and Widianto (2023) the educational environment is full of data and information, hence effective and efficient management is vital to achieving educational goals. Thus, the development of artificial intelligence technology has opened up new opportunities in information processing, data analysis, and the provision of more adaptive and personalized learning experiences for managers and learners; thus, highlighted the following impacts of artificial intelligence in educational management information system (EMIS).

1. **Education Data Management System:** Development of an educational information system that uses artificial intelligence to efficiently manage student, lecturer, curriculum, and academic administration data.
2. **Administrative Management:** Administrative processes, such as financial management, receipt and expenditure of funds, and inventory management, utilize artificial intelligence based systems to improve efficiency.
3. **Automated Data Analysis:** Artificial Intelligence can quickly process large datasets, providing

insights on student performance, attendance, and learning patterns, enabling data driven decision making.

4. **Personalized Learning:** Artificial Intelligence powered adaptive learning systems adjust curricula to individual students' needs, abilities, and learning styles.

5. **Intelligent Tutoring Systems:** Artificial Intelligence based virtual tutors offer one-on-one support, real time feedback, and targeted interventions.

6. **Predictive Analytics:** Artificial intelligence algorithms identify at-risk students, enabling early interventions and targets to revolutionize Education Management Information Systems (EMIS) by enhancing efficiency, productivity, and decision-making.

7. **Academic guidance:** The use of chatbots or artificial intelligence based virtual assistants to provide academic counseling services to students and helping them in the selection of course programs.

8. **Decentralized Recruitment or selection:** This is the application of artificial intelligence technology in the selection and recruitment process by analyzing data from various sources to improve accuracy in assessment.

Challenges of Artificial Intelligence in Educational Management Information System in Nigeria.

Change and innovations usually experience resistance and it is observable in every nation including Nigeria. Reagan (2018) opined that despite the innovative importance and growth of artificial intelligence technology, significant challenges especially in developing nations like Nigeria are being experienced. Stressing that Nigeria as a nation should endeavor to overcome these challenges in order to improve on artificial intelligence. In other words Nigerians should set differences aside and embrace technological innovations like other developing nations.

The following were some of the challenges of Artificial Intelligence in the Educational Management Information System in Nigeria. Thus:

1. **ComplexAlgorithms:** The complexity of the technical aspect of artificial intelligence algorithms makes it difficult for users to fully understand the concept hence seems discouraging to many.

2. **Artificial Intelligence Human Interface:** Artificial Intelligence technology involves highly human advanced skills in scientific knowledge to get maximum output. Those managers lacking the skills cannot be involved in the usage.

3. **Decline of investment:** Investing in artificial intelligence involves huge funds. In Nigeria there are very few institutions that will be willing to invest in artificial Intelligence.

4. **Software malfunction:** The idea of software malfunction can also be discouraging. Artificial Intelligence is developed by man and the certainty of human error poses a challenge to proposed users.

5. **Cultural barriers:** The biased mind of Nigerians as a result of cultural beliefs and traditions can discourage the use of artificial intelligence in education.

6. **Religious affinity:** Strong attachment to religious practices and sentiments usually disconnect mutual and cooperative development in Nigeria. This misconception will become a huge challenge to the use of artificial intelligence in our various institutions of learning.

7. **Over reliance Artificial Intelligence:** The regular use of artificial intelligence and automation of routine tasks might rob humans of their cognitive reasoning due to over reliance.

Suggestions

Artificial Intelligence is helpful, it makes work faster and easier. However, the following suggestions were made:

1. Educational Managers and other users of artificial intelligence should not be discouraged with the complexity of the algorithm rather employ expertise with full understanding of the concept.

2. Engaging in proper training for managers on the use of artificial intelligence to become conversant with the techniques and skills for usage.

3. Manufacturers should consider designing artificial intelligences that are cost friendly to encourage patronage.

4. Designing of Software programs or instructions devoid of malfunctions.

5. Those concerned should set cultural beliefs aside and embrace technology for faster and easier operation of tasks.

6. There should be proper awareness on the benefits of artificial intelligence on educational management

information systems to avoid interference by religious beliefs and practices.

7. Automation of routine tasks should be discouraged and limitations placed on its accessibilities to avoid human intellectual laziness due to over reliance.

Conclusion

Technological advancement in education invent new ideas and innovations that assists to a great extent in facilitating educational management activities and operations. Artificial Intelligence is one such innovation and thus, plays a significant role in management of educational administrative functions of planning, decision making, reporting, data analysis, storing, retrieving and dissemination of information to enhance coordination of operational activities of education for efficiency and productivity. Artificial Intelligence assists education managers in quick decision making and reporting.

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