

Leveraging Artificial Intelligence (AI) In Education Management and Planning in Primary Schools

OBA A G. C.

Abia State College of Education (Technical) Arochukwu, Nigeria

Abstract- The study is on leveraging Artificial Intelligence (AI) in Education Management and planning in primary schools. To achieve this, a questionnaire was formulated which was first administered to pupils and teachers of ASCETA Demonstration School to prove the suitability of the instrument and thereafter administered to teachers and pupils of other primary schools. The questionnaire was analyzed and it was found among others that personalized learning could be achieved by suggesting relevant learning materials, there would be increased efficiency through interactive simulations, there would be improved literacy by teaching the pupils about the basics of AI and its potential impact on society. It was also found that there were some negative impacts of AI on the pupils which include: Overreliance on technology, reduces human interaction by automating some aspects of teaching and learning programmes, costly and may not be affordable by all as well as leads to lack of creativity and initiative and can hamper the ability of the pupils to use their brains and as such hinder permanent numeracy and letter word. From the analysis the following suggestions among others were proffered : that the pupils from some certain ages should be taught to use more of their human brain in most studies than the AI automated programs. That government should supply all schools with equal learning facilities and finally that the teachers should be trained to be able to use responsibly and integrate the knowledge of AI effectively in the classrooms.

I. INTRODUCTION

Education in its general sense is a form of learning in which the knowledge, skills and habits of a group of people are transferred from one generation to the next through teaching, training or research. The importance of education in a socio-economic development of a country cannot be overstressed. The activity in education process leads to the development of the individual in the society. Education gives the individuals the opportunity to fulfill their potential and contribute meaningfully to societal development. Societies prepare their members for useful living through different types of

education which include; informal, non-formal and formal.

Nigeria formal education system is categorized into primary, secondary and tertiary education.

Primary education is the education given in schools for children aged 6 to 11 plus, the rest of the education system is built upon it.

Education as defined by Ogamba (2018) is a form of learning in which the knowledge, skills and habits of a group of people are transferred from one generation to the next through teaching, training and research.

Mbakwem (2019) posits that education is an act of acquisition of knowledge through many devices, methods and processes in order to form a better personality in a man. Education therefore serves as an instrument that prepares people for useful living in the society which will entail the use of modern facilities which include artificial intelligence.

What is artificial intelligence?

Artificial intelligence (AI) refers to the ability of machines to perform tasks that typically require human intelligence, such as learning, problem-solving and decision making. It includes a broad range of technologies that enable computers to mimic human –like abilities and adapt their behaviour based on data.

II. CORE CONCEPTS OF AI

Mimicking Human Intelligence: AI aims to create systems that can perform tasks that traditionally require human intelligence. These includes reasoning, learning, planning and creative problem-solving.

Learning and Adaptation: A key aspect of AI is its ability to learn from data and adapt its behaviour.

This means that AI systems can improve their performance over time without explicit programming for every task.

Data-Driven: AI systems rely on data to learn and make decisions. This data can be pre-prepared or gathered through sensors.

Wide Range of Applications: AI is used in a vast array of applications from simple tasks like recommending moves to complex ones like medical diagnosis or self-driving cars.

III. KEY COMPONENTS OF AI

Learning: This is the ability of an AI system to improve its performance over time based on data it has been exposed to. Machine learning (ML) is a core part of this, allowing systems to identify patterns and make predictions without explicit programming.

Reasoning: reasoning involves the ability of an AI to draw conclusion and make decisions based on the information it has gathered. This involves problem-solving where the AI identifies and resolves issues, and planning, where it creates a sequence of actions to achieve a specific goal.

Perception: Perception refers to the ability of an AI to acquire information from its environment through various sensors (Cameras, microphones, etc.) and interpret that information which involves computer vision and speech recognition.

Language understanding: Natural Language Processing (NLP) is the component that allows AI to understand, interpret and generate human language.

Robotics: Involves the physical embodiment of AI, enabling it interact with the physical world through robots and actuators.

Big Data Technologies: AI systems often rely on vast amounts of data to train and operate, making big data technologies essential. These components work together to enable AI to perceive its environment, learn from data, make decisions and interact with the world.

In summary, AI systems integrate various components like learning, reasoning, perception and language processing to achieve intelligent behaviour.

Components of AI are in summary:

- Natural language processing
- Machine learning
- Computer vision
- Robotics
- Problem solving
- Perception
- Data
- Neural network
- Algorithms
- Deep learning
- Expert system
- Decision-making
- Logical reasoning
- Knowledge representation
- Language understanding
- Supervised learning
- Fuzzy logic
- Artificial general intelligence
- Health care, etc.

Concept of Primary Schools: Primary education is the education given in schools for children aged 6 to 11 plus, Anyaogu R. O. (2016). It is also known as elementary school, it is the first stage of formal education typically starting around age 6 and lasting for six years. It is a crucial foundation for a child's learning journey designed to achieve the following:

1. Inculcate permanent literacy and numeracy and ability to communicate effectively.
2. Lay a sound basis for scientific and reflective thinking.
3. Give citizenship education as a basis for effective participation in and contribution to the life of the society.
4. Develop in the child the ability to adapt to the child's opportunities for developing manipulative skills that will enable the child function effectively in the society within the limit of the child's capacity.
5. Provide the child with basic tools for future educational advancement including

preparation for trades and crafts of the locality.

The prescribed curriculum shall include the following disciplines:

1. Language: Will embrace the language of the environment, English, French and Arabic
2. Mathematics
3. Science
4. Physical and health education
5. Religious knowledge
6. Agricultural / Home Economics
7. Social Studies and Citizenship Education
8. Cultural and Creative Arts
9. Computer Education.

It is stated that teaching at this stage shall be by practical exploratory and experimental methods for the realization of the goals at this primary level, the government shall provide the following educational services:

- a. School library
- b. Basic health care
- c. Counseling
- d. Educational resource centre
- e. Specialist teachers of particular subjects like Mathematics, French, Science, Computer etc. (FRN,2013).

IV. CONCEPT OF MANAGEMENT

Management is an international and economic process involving a sequence of co-ordinate events namely; planning, organizing, directing, controlling, co-ordination, reporting and budgeting in order to use available resources to achieve a desired objective in the fastest and most efficient way. Management is seen as the total system of organization- getting organization personnel to accomplish their work so as to achieve organization's objectives. (Nwaoku, 2005).

According to Peretomode (2001:1), "Management refers to a set of activities which can be classified as concerned with planning, organizing or controlling". It is the job of getting things done through people.

Management is also viewed as the process undertaken by one or more individuals to co-ordinate the activities of others to achieve results not achievable by one individual acting alone.

In the field of academics, educational management can be described as the art of working through people for the achievement of the broad educational goals. In trying to achieve the educational goals, the education manager has to map out strategies, find the people and the materials to do the job, assign different people to accomplish different jobs, ensure that these jobs are being done as planned, and report the result of his work to his boss. Anyaogu (2016). In coordinating the group activity, the manager plans, organizes, staffs, directs and controls. Management practically deals with delegation of authority or functions to subordinate. Indeed the ability to delegate authorities and still get the job effectively done is the acid test of management talent (Ike, Ihebereme and Ikwuegbu, (2006).

From this study, it was found that the use of AI in primary schools can present both significant advantages and potential draw backs. While it can personalize learning, improve engagement, and streamline administrative tasks, concerns exist about data privacy, over reliance on technology, and the potential for reduced human interaction (MDDI-<http://www.mdpi.com>)

V. CONCEPT OF ADMINISTRATION

Administration is the means by which formal goals are achieved through cooperative human efforts. Peretomole (2001) defined management generally as the process of working with and through others to efficiently accomplish organizational goals. It is the act and science of getting things efficiently done.

Nwankwo, (1987), Akpakwu (2012) considers administration as the careful and systemic arrangement and use of resources (human and material), situations and opportunities for the achievement of the specific objectives of a given organization. Specifically, administration is concerned with the performance of executive duties, the carrying out of policies or decisions to fulfill a

purpose and the controlling of the day to day running of the organization. In other words, administration is that part of management which is concerned with the installation and carrying out of the procedures by which programmes and targets are laid down and communicated and the progress of activities regulated and checked against them. Simply put, administration is the process of getting things done in an organizational setting using available human and material resources. This process involves decision-making, organizing, communicating, directing, coordinating and evaluation carried out to achieve organizational goals (Anuka M. 2006: 151)

Concept of Instructional Materials:

Institutional materials also known as teaching or learning materials are resources used by teachers to enhance the teaching and learning process. They can include a wide range of items, from traditional text books to more modern digital resources and are designed to help learners grasp concepts more effectively. For primary schools, recommended materials include a mix of traditional and non-traditional resources, such as textbooks, graphic organizers and teacher-made materials, as well as audio-visual aids and interactive digital tools.

VI. RECOMMENDED INSTITUTIONAL MATERIALS FOR PRIMARY SCHOOLS

- a. Textbooks: Foundational resources that cover the curriculum and provide structured learning.
- b. Workbooks: Offer opportunities for pupils to practice and reinforce concept learned.
- c. Charts and Diagrams: Visually represent information and concepts, making them easier to understand, especially for younger learners.
- d. Real objects (Manipulative): Concrete materials like counting blocks, geometric shapes, and other items that allow for hand-on learning and exploration.
- e. Flashcards: Useful for vocabulary building, math facts, and other learning activities.
- f. Audio-Visual Aid(e.g, videos, educational software, interactive whiteboards): Provide engaging and multi-sensory learning experience.

- g. Story books: Enhance reading comprehension, vocabulary and imagination.
- h. Teacher-made Resources: Creative materials designed by teachers to address specific learning needs or reinforce concepts.
- i. Computers and Tablets: Offer access to a wide range of educational apps and online resources.

Considerations for selecting instructional materials

- Age and Development: Materials should be appropriate for the students aged, cognitive development, and learning styles, (ACJoL Org-<https://agol.org> (Research from scribed)
- Learning objectives: Materials should align with the specific learning objectives of the lesson (study.com <https://study.com>)
- Accessibility: Ensure materials are accessible to all students, including those with special needs (study.com <http://study.com>)
- Engagement: Choose materials that will capture students' interest and motivate them to learn. (scribed: <http://www.scribd.com>)
- Variety: Offer a variety of materials to Carter to different learning preferences and styles - (study . com: <https://study.com>)
- Effectiveness: Evaluate the effectiveness of materials in helping students achieve learning goals (study.come:<http://study.come>)

By carefully selecting and utilizing a diverse range of institutional materials, teachers can create a more engaging, effective and enriching learning environment for primary school pupils. (The open university<https://www.open.edu>)

Reasons for Using AI in Primary School

- Personalize learning: AI can adapt to individual student needs and learning styles, providing customized content and pacing. (MDDI-<http://www.mdpi.com>)
- Improve learning outcomes: AI powered tools can offer targeted support and practice, potentially leading to better academic results (MDDI-<http://www.mdpi.com>)
- Increased student engagement: Interactive AI applications can make learning more fun and

engaging, capturing students' action (Schools That Lead-<http://www.schoolsthatlead.org>)

- Enhanced accessibility: AI can provide support for students with disabilities, offering features like text-to-speech and customized learning paths. (SCIRP Open Access-[http://www. Schoolsthat leads.org](http://www.Schoolsthat leads.org))
- Valuable insight: AI can analyze student data to identify areas where students are struggling and provide insights to teachers (schools that Lead-<http://www.schoolsthatlead.org>)

Reasons Against Using AI in Primary Schools

- Data privacy concerns: Protecting student data in AI system is crucial, and breaches could have serious consequences. (Schools That Lead-<http://www.schoolsthatlead.org>)
- Over-reliance on technology: Students may become too dependent on AI potentially hindering their critical thinking ((MDDI-<http://www.mdpi.com>) to the extent that pupils will not be able to spell a simple word or solve a simple mental sums without consulting AI which was not the case before this era and which leads to very low academic performance although.
- Reduced human interaction: Over use of AI could lead to less interaction between students and teachers, impacting the development of social skills and emotional intelligence (Plus AI-<http://plusai.com>)
- Potential for Bias: AI systems can perpetuate existing biases if not carefully designed and motivated, potentially leading to unfair outcomes (British Council-<http://internationalschoolsbritishcouncil.org>)
- Digital Divide: Access to AI technology and resources may not be equal for all students, exacerbating existing inequalities.
- Lack of teacher Training: Teachers may lack the necessary skills and knowledge to effectively integrate AI into their teaching practices. (Science Direct.com-<http://www.sciencedirect.com>)
- Dehumanized learning experience: Some worry that relying heavily on AI could make learning feel less personal and engaging. (CIS University-<https://www.cis-spain.com>)

VII. CONCLUSION

This study revealed a total decay in our education system which started from poor foundation. The young teachers in primary schools can hardly handle simple arithmetic in the classroom except with calculators and also insists that the pupils must have calculators or leave the class, is a bad one and not minding what consequences this might breed, a situation where pupils cannot do simple calculations without consulting a machine is also a bad one, and has its bad effects in the education of these young learners. A situation where pupils are not taught to learn how to spell a simple word or make a simple sentence without consulting AI is a bad one. The researcher therefore suggests the following:

VIII. SUGGESTION

One of the objectives of primary education is to inculcate in the pupils permanent literacy and numeracy which can carry them all through life even if formal education is stopped at this stage. If this aim is to be achieved, AI should be moderately and wisely introduced in teaching/learning at this stage , to allow the pupils learn first before elaborate involvement.

Another objective of primary education is to lay a sound basics for scientific and reflective thinking. Teaching and learning which is so much dependent on AI according to the analysis from the questionnaire is not likely to produce the best outcome as the learners are not exposed to using their human brain, so let the learners at least to a large extent be allowed to involve their brains in finding solutions to problems.

There should be adequate training for the teachers from time to time to upgrade their knowledge which will enable them to have up to date knowledge and be able to teach the pupils as they cannot give what they don't have.

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