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Artificial Intelligence: Gain or Loss to Our National Philosophy of Education

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Abstract

The foundations of artificial intelligence (AI) from the early philosophical inquiries of Aristotle to the groundbreaking innovations of Alan Turing and the 1956 Dartmouth Conference have evolved into a transformative force across the educational sector. In this paper, the relevance of AI to Nigeria's educational goals is assessed through the lens of the national philosophy on education. The paper observed that AI uses technology to simulate human intelligence and is increasingly transforming education through personalized learning, automation, and inclusive tools. In Nigeria, AI holds the potential to support key educational goals such as equal access, national unity, and citizenship development. Despite these benefits, AI also presents risks including cultural erosion, algorithmic bias and job loss that could undermine the ethical and human-centered foundation of our educational system. To ensure that AI is a gain and not a loss, it must be implemented carefully, complementing rather than replacing teachers and aligning with Nigeria's values through strong policies, infrastructure, training, and ethical oversight. The paper recommends among others that government should adopt a clear AI framework in its education policy that reflects national values and development goals in line with her philosophy of education.

Introduction

Aristotle, the Greek philosopher down to the 13th century Spanish theologian Ramon Llull to the mathematician Rene Descartes and the statistician Thomas Bayes, used the tools of inanimate objects endowed with intelligence and logic of their time to describe human thought processes as symbols. Their works laid the foundation for artificial intelligence concepts such as general knowledge representation and logical reasoning¹. The late 19th and early 20th centuries brought forth foundational work that would give rise to the modern computer. Thus, in 1836, the Cambridge University mathematician Charles Babbage and Augusta Ada King, the Countess of Lovelace, invented the first design for a programmable machine known as the analytical engine. Babbage outlined the design for the first mechanical computer, while Lovelace, often considered the first computer programmer, foresaw the machine's capability to go beyond simple calculations to perform any operation that could be developed algorithmically. As the 20th century progressed, key developments in computing shaped the field that would become AI. In the 1930s, for example, the British mathematician and World War II codebreaker Alan Turing introduced the concept of a universal machine that could simulate any other machine. His theories became crucial to the development of digital computers and eventually AI. Turing in 1950 devised a method for determining whether a computer has intelligence. Thus, the modern field of AI widely began in 1956 during a summer conference at Dartmouth College. The

conference was attended by luminaries in the field of AI including AI pioneers Marvin Minsky, Oliver Selfridge, and John McCarthy, who is credited with coining the term “artificial intelligence”².

The integration of AI into education has become a subject of academic attention globally. Luckin et al³ argued that AI has the potential to personalize learning experiences and increase access to quality education. Thus, the national policy document on education of the Federal Republic of Nigeria⁴ envisioned education as a means to economic advancement, tools for cultural preservation, ethical formation, and democratic participation. Nwagwu⁵ and Okafor⁶ stressed that any innovation in education must align with these core values and in promoting the full development of the individual and the transformation of society. Olorube⁷ advised that while digital tools can enhance learning, they must not be allowed to displace the humanistic and ethical aims of Nigerian education; and that there should not be an over reliance on AI systems that prioritizes efficiency over critical thinking, empathy, and moral reasoning which are key pillars of the Nigerian educational philosophy.

What then is AI, and how does it work? Why is it important and by extension, the advantages? Is the importance a gain or loss to our national philosophy of education? These are subsequently discussed.

Artificial Intelligence and its Workability Explained

Artificial intelligence is a broad field that encompasses many different disciplines including computer science, data analytics and statistics, hardware and software engineering, linguistics, neuroscience, and even psychology and philosophy. Thus, many definitions have been given on artificial intelligence. One of such is that it is the simulation of human intelligence processes by machines, especially computer systems⁸. Another is that AI is a set of technologies that enable computers to perform a variety of advanced functions, including the ability to see, understand, and translate spoken and written language, analyse data, make recommendations, and more⁹. Yet another is that AI is a field of science concerned with building computers and machines that can reason, learn, and act in such a way that would normally require human intelligence or that involves data whose scale exceeds what humans can analyse¹⁰.

In general, artificial intelligence systems work by ingesting large amounts of labelled training data, analysing the data for correlations and patterns, and using those patterns to make predictions about the future. Thus, AI programming focuses on cognitive skills that include learning, reasoning, self-correction, and creativity¹¹. The learning aspect of AI programming focuses on acquiring data and creating rules for how to turn it into actionable information. The rules, which are called algorithms, provide computing devices with step-by-step instructions for how to complete a specific task. The reasoning aspect of AI programming focuses on choosing the right algorithms to reach a desired outcome. The self-correction aspect of AI programming is designed to continually fine-tune algorithms and ensure they provide the most accurate results possible, while the creativity aspect of AI uses neural networks, rules-based systems, statistical methods, and other AI techniques to generate new images, new text, new music, and new ideas.

Why is Artificial Intelligence Important and What are the Advantages?

Artificial intelligence is important for its potential to change how we live, work, and play. It is effectively used in business to automate tasks done by humans, including customer

servicework, lead generation, fraud detection, and quality control. In number of areas, AI can perform tasks much better than humans, particularly when it comes to repetitive, detail-oriented tasks such as analysing large numbers of legal documents to ensure that relevant fields are filled in properly. AI tools often complete jobs quickly and with relatively few errors. It can also give enterprises insights into operations they might not have been aware of. This is possible because of the massive data sets that AI can process. The rapidly expanding population of generative AI tools will be important in fields ranging from marketing and product design to education. Indeed, advances in AI techniques have not only helped fuel an expansion in efficiency but opened the door to entirely new business opportunities for some larger enterprises. Thus, AI has become central to many of today's largest and most successful companies, including Alphabet, Apple, Microsoft, and Meta, where AI technologies are used to improve operations and outpace competitors¹²

The advantages of AI are marvelling. These include excellence in detail-oriented jobs; efficiency in data-heavy tasks; time savings and productivity gains; consistency in results; customization and personalization; round-the-clock availability; scalability; accelerated research and development; sustainability and conservation; and process optimization¹³. Thus, the educational workability and advantages of AI are discussed under its gain to our national philosophy of education.

Artificial Intelligence: Gain or Loss to our National Philosophy of Education

The philosophy of Nigeria education is based on certain beliefs. Such in summary is that education is an instrument for national development and social change¹⁴. For there to be national development and social change, the individual and his environment must be involved. Nzulumike and Inusa¹⁵ citing Dewey (1969) emphasized this viable philosophy of education for a nation. According to them, such a philosophy must be based on the nature of man and of the society as conceived by that society. It must also be based on what that society considers the best type of knowledge worth having and how it is acquired. It must rest on a value system or a theory of what it considers most valuable and worth having. A genuine national philosophy of education must have these three distinct components. These goals and values are part of the goals of education in Nigeria as encapsulated in our policy document on education and no doubt, is the road map that AI should follow. Thus, to assess whether artificial intelligence is a gain or loss to Nigeria's national philosophy of education, it is essential to examine its impact vis-à-vis the five cardinal goals of Nigerian education policy. These goals include:

- a. Developing the individual into a sound and effective citizen,
- b. Integrating the individual fully into the community,
- c. Ensuring equal access to education,
- d. Inculcating national consciousness, values and unity,
- e. Developing appropriate skills for the individual¹⁶.

The answer as to whether AI is a gain or loss is not binary. Rather, it depends on how it is introduced and regulated. In assessing therefore the five goals, explanations are made via some of the potential gains of AI to our educational ideals.

There is no doubt that AI presents a transformative opportunities for improving the quality, reach and efficiency of education globally. Its integration into education supports a shift toward more personalized and adaptive learning models. In Nigeria where access to quality education

remains uneven, AI holds significant potential to bridge the digital divide and support national education goals. Hence, one of the critical benefits of AI in Nigeria will be its ability to provide quality education to remote and underserved areas through intelligent platforms. AI-driven tools such as language translation, automated tutoring and mobile learning apps allow students in rural areas to receive instruction at par with urban counterparts. This aligns with Nigeria's national objective of promoting educational equity and access. Again, AI driven tools can deliver personalized learning at scale, thereby enabling students to progress at their own pace, ensuring they stay on track, and in addressing individual needs. This individualized support enhances inclusivity and learner engagement, thus, aligning with Nigeria's emphasis on personal development and democratic access.

The intelligent tutoring systems (ITS) and adaptive assessments of AI can monitor student's learning progress and adjust content delivery accordingly. It can also increase classroom efficiency and improve learner outcomes when compared to traditional classroom method especially in STEM (i.e science, technology, engineering, mathematics) education. This individualization is particularly crucial in Nigeria where overcrowded classrooms often prevent personalized attention. It also contributes positively to the NPE goal of producing sound and effective citizens. This means that the technology (AI) can change where and how students learn and perhaps, alter the traditional role of educators.

AI can significantly reduce the workload of educators by automating administrative and repetitive tasks such as grading multiple-choice exams, managing student's data, attendance, and academic performance tracking. AI tools like Gradescope and Google's AutoML have demonstrated effectiveness in this regard. Ezeani and Akpochafo¹⁷ in support, noted that some Nigerian universities have started experimenting with AI-supported academic systems, particularly for administrative processes like students registration preparing examination results, and admissions; and that these systems have reduced clerical errors, and improved service delivery timelines. Hence, in Nigeria's education system, often characterised by bureaucratic inefficiencies, this functionality allow teachers for example to redirect their energy towards mentorship, curriculum and instructional development and student engagement which are core directives from our policy document on education. In line with the submissions of Ezeani and Akpochafo and in administrative and policy terms, AI can provide data analytics that can help school systems monitor student performance, reduce dropout rates, and enhance institutional accountability. These contribute to more equitable and effective governance in education.

Away from administrative functions, AI assistive technologies such as speech -to -text, text -to- speech, and visual recognition can help students with disabilities to learn more effectively. This aligned with UNESCO's global goal of inclusive education and Nigeria's aspiration to provide functional education for all, including persons with special needs.

The foregoing suggests that AI can offer significant gains to our educational system and can align well with our national educational philosophy. However, caution is that technological adoption of AI must be accompanied by strategic planning, teacher training, and ethical governance to realize its full potential. This takes us into the losses, disadvantages or concerns of AI to our national philosophy of education.

Despite the gains, the disadvantages of artificial intelligence are many. These include high cost, technical complexity, talent gap, algorithmic bias, difficulty with generalization, security vulnerabilities, environmental impact, job displacement, and legal issues¹⁸. Other disadvantages of AI in education include technology addiction, quality not assured, malfunctioning, vulnerable to cyber attacks, uses a lot of power, widening the media divide and educational gap, preparing teachers for an AI-powered environment, and developing comprehensive public policy¹⁹. In consonance with these, Selwyn²⁰ warned that AI adoption may pose serious ethical and pedagogical challenges as it lacks the moral compass and cultural sensitivity necessary for the kind of values-based, citizenship-oriented education envisioned in Nigeria's philosophy of education. Eke and Alonge²¹ also argued that character formation, indigenous knowledge transmission, and social interactions are crucial components of holistic education that are not replicable by AI. Another major concern is the digital divide. Olayemi and Ogunleye²² pointed out that many students and teachers in rural and low-income areas lack access to the internet and digital devices, exacerbating educational inequality rather than resolving it. This contradicts the principle of equal access. Williamson and Eyon²³ also cautioned against algorithmic bias and data privacy risks, emphasizing that AI systems can perpetuate systemic inequalities if not properly localized. Another serious concern is the observation made by Biesta²⁴ that AI's growing influence can reduce the teacher's role to that of a facilitator, eroding human connection and moral guidance in the classroom. This mechanization of education risks detaching the learning process from its social and ethical foundation.

The following losses, concerns or disadvantages exposes the fact that even with the growing human-robotic integration and technological advancements, there are certain jobs AI cannot replace. The jobs are social workers, performing arts, doctors and healthcare workers, leadership roles in an organization, spiritual and faith-based roles, politicians, skilled trades, and teachers and educators²⁵. The reasons why AI can't replace certain jobs are because it cannot show empathy, lacks emotional intelligence, does not excel at linear thinking, cannot make nuanced arguments, lacks human creativity, and lacks physical dexterity²⁶.

The submission that technology will not replace teachers, but that teachers who use technology will probably replace those who do not, becomes apt. AI is expected to complement teaching rather than replace teachers. This is mainly because the role of teachers and educators extends beyond information delivery. Teachers also serve as mentors and are often the first role models for many students. While AI can greatly improve education through personalized learning, coaching and automated grading, effective teaching goes beyond these functions. It involves building relationships with students during their formative years, helping improve their cognitive abilities, understanding their unique needs, and offering mentorship and guidance²⁷. These are human traits that AI simply cannot compete with and as well as what makes a healthy national philosophy of education.

Conclusion

Artificial intelligence is a broad field that encompasses many different disciplines such as computer science, data analytics and statistics, hardware and software engineering, linguistics, neuroscience, psychology, and philosophy. It is a set of technologies that can enable computers to perform a variety of advanced functions, including the ability to see, understand, and translate spoken and written language, analyse data, reason, and act in such a way that requires human intelligence. AI is important because of its potential to change how we live, work, and play. It

has become a pivotal force shaping global educational systems with its applications ranging from intelligent tutoring systems and personalized learning to administrative automation. It enhances access to quality education, especially in rural or underserved areas through digital learning platforms. AI enables customized learning paths that cater to individual student needs, promotes administrative efficiency, and offers real-time feedback that can improve teaching and learning outcomes. It also supports inclusive education by aiding learners with disabilities and language barriers. These benefits suggest that, when properly implemented, AI can support several goals of Nigeria's philosophy of education such as promoting access, citizenship development, and national unity. However, critical challenges also emerge. AI's emphasis on automation and data may risk eroding the humanistic and ethical foundations of education, including moral instruction, cultural values, and the teacher-student relationships. Issues such as digital divide, algorithmic bias, privacy concerns, and job displacement further complicate its integration within Nigeria's social and economic context. Without deliberate policy measures, AI may widen educational inequality, reinforce exclusivity, and undermine the moral and civic aims central to Nigeria's national educational vision.

Artificial intelligence represents both an opportunity and a challenge for the Nigerian philosophy of education. While it can serve as a powerful tool to democratize knowledge, improve learning outcomes, and bridge educational gaps, it must be implemented with caution and ethical foresight. The answer to whether AI is a gain or a loss is not binary but depends on how it is introduced and regulated. AI should not replace but rather complement human educators and traditional pedagogical values. Its integration must be ethical, inclusive, and context-sensitive, grounded in Nigeria's cultural and developmental priorities. Thus, for AI to truly be a gain, it must align with the holistic ideals of Nigeria's educational system, promoting not only technical skills but also values, citizenship, unity, and community consciousness. This calls for a balanced and inclusive policy framework, investment in digital infrastructure, teacher training, and public awareness to ensure that AI strengthens rather than dilutes the foundational goals of Nigeria's philosophy of education.

Recommendations

The following recommendations are made to enhance the effectiveness of AI in Nigerian education:

1. The Nigerian government should incorporate a clear AI framework into the national policy on education that upholds human values and aligns with national goals.
2. Investment in AI infrastructure should be made by both government and private individuals to ensure equitable digital access across urban and rural areas.
3. Teachers should be trained to ethically and effectively integrate AI tools into their pedagogical practices.
4. A national AI ethics board should be established to monitor educational AI tools for bias, data protection and cultural relevance.
5. Government should introduce AI literacy in school curricula to prepare students for the evolving digital world.

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