

INTRODUCTION OF ARTIFICIAL INTELLIGENCE (AI) IN ADMINISTRATION OF SECONDARY EDUCATION FOR SUSTAINABLE DEVELOPMENT

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Abstract - The introduction of Artificial Intelligence (AI) in administration of secondary education is a transformative force which brings new trends in teaching and learning for sustainable development. AI has become a vital instrument for carrying out complex tasks and understanding of social behaviors. AI is an aspect of Information, Communication and Technology (ICT) that focus on creating intelligent machines that process human intelligence, reasoning, learning and problem solving. This article unfolds the significance of using AI in transforming and improving the administration of secondary schools, the importance of AI in secondary education, challenges of using AI in secondary schools and proposed solutions to the identified challenges. In conclusion, introduction and acceptance of AI in secondary education will offer transformative development, enhance effective teaching and learning which promotes quality administration and innovation in secondary schools. Among others, recommendations were made that to successfully introduce AI in secondary schools, several steps have to be followed which include that priority should be given to provisions of digital infrastructure. There should be comprehensive skill acquisition programmes on ICT for both school administrators and the students. Curriculum development should reflect the rapid growing benefits of AI across all areas of disciplines.

Keywords: Introduction, artificial intelligence, administration, secondary education, sustainable development

Introduction

Artificial Intelligence (AI) is a teaching assistant encouraging educational administrators to create more dynamic and enhanced learning experiences for the achievement of effective teaching and learning. Ibezim and Asogwa (2020) viewed AI as a field of study that involves creating machines that can learn, reason and act like humans. AI has brought a continuous advancement in technology which resulted in great transformation in the education sector. AI functions include the ability to see, understand and translate spoken and written languages, analyze data and make recommendations. Chukwuma, Omale and Obaji (2025) observed that AI is a machine which has 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 and solving problems. This also involves combining these with other capabilities to perform human might tasks such as planning and delivering lessons. Operationally, AI is the use of machines or computers to carry out both teaching and administrative tasks in secondary schools to maximize effective teaching and learning for sustainable development.

The duties carried out in administration of secondary education is enormous and introducing AI can significantly contribute to sustainable development by streamlining administrative tasks, lesson delivery, personalized instructions, integration of content update in the curriculum, creation of interactive content engagement in the AI, among

others. According to Chukwuma, Ezeaku and Eneh (2023) administration is overseeing an organization with the optimum use of all the available resources for achievement of goals and objectives. AI can automate routine administrative tasks like grading of students' assignments, scheduling classes, generating reports and managing attendance, freeing up teachers' time to focus on students' interactions and creating teaching methods. This article delves in to the transformative process of AI when introduced in administration of secondary schools for sustainable development. Firstly, this article unveils the uses of AI in lesson delivery if accepted in secondary schools. According to Boh (2025) AI is a branch of computers that focus on creating intelligent gadgets that stimulate human intelligence processes involving learning, reasoning and proffering solutions to problems.

Generally, educational sectors are using AI to solve pressing needs such as the need for more inclusive, personalized and effective learning experiences. Holmes, Bialik and Fadel (2019) asserted that AI is used to provide unparalleled opportunities. Luckin and Holmes (2020) acknowledged that AI technologies like intelligent tutoring systems, adaptive learning platforms and automated feedback mechanisms give personalized learning experience, designed according to the individual students' unique ways, preferences and speed of learning. Rafferty (2022) opined that unlike the teachers' old teaching methods of the same style for different topics and one style of lesson note, introduction of AI in administration of secondary schools empowers educational administrators to focus on higher order skills which foster critical thinking, creativity and problem solving for sustainable development.

AI can be used to extend beyond classroom instruction to administrative and operational tasks. According to Baker and Inventado (2014) this can be made feasible by first of all enabling cross- language communication and learning, breaking barriers for students in multilingual regions. This will encourage automating routine activities such as grading students, staff attendance and data analysis. Baker and Yacef (2020) observed that introduction of AI in administration of secondary schools will enable educational administrators to re-direct their energy towards enhancing the quality of teaching. Nkemjirika (2025) argued that the use of AI creates opportunities for teachers to mentor and guide the students well by cultivating a more interactive and interesting learning environment.

AI can also be used to prepare students for a rapidly evolving digital world. According to Cukurova, Luckin and Ainsworth (2019) this tool equip learners with vital skills and knowledge for future workplaces. If the introduction of AI in administration of secondary schools gains approval, this will support lifelong learning by offering flexible and accessible learning solutions to diverse learning needs. Wang and Wu (2022) agreed that this will not only address personal or individual learners' challenges but will also enable an unimaginable approach to effective teaching and learning. This implies that AI technologies are specialized gadgets that can use artificial intelligence principles to perform tasks in innovative ways. Furthermore, the importance and uses of AI in administration of our secondary education sector cannot be overemphasized. Despite all these benefits of AI in our institutions, there are still challenges facing the installation and uses which are discussed below;

Challenges of using AI in secondary schools

Limited number of skilled and competent tutors: lack of knowledgeable and skilled tutors is a very significant challenge to the introduction of AI in secondary schools. Boh (2024) observed that many instructors are not deep in the knowledge of AI technologies

and are not ready to include AI as one of their teaching methods. Adeleke and Adebayo (2023) supported this opinion that this lack of skilled tutors may lead to resistance to the acceptance of AI in administration of secondary schools. This is due to the fact that the tutors may feel threatened by the technological changes and the effective use of AI gadgets. This implies that this could come from lack of awareness and unpreparedness of teaching staff on the use of AI in secondary schools.

Lack of infrastructure: lack of reliable and many infrastructures can be a major challenge to the installation and acceptance of AI in secondary schools. Ogunleye and Ogunleye (2022) asserted that many higher institutions where this AI has been in existence still lack the necessary technological infrastructures. The same could be the case when AI is formally introduced in secondary schools. The implication of this according to the World Economic Forum (2020) is that without sufficient technological material resources, learners in insufficient resourced schools cannot benefit from AI enhanced learning experiences thereby creating some gaps between them and those learners in the places where modern AI tools are installed.

Political instability: currently, there is no national policy guiding the installation of AI in institutions. Oni and Okunade (2024) observed that the absence of this policy makes it difficult for institutions to accept and implement AI technologies across secondary schools in the nation. This could further limit the standardization of AI applications in schools where they are installed. Also, each government that comes to power comes with their own rules and policies. The incumbent government may consider the idea of bringing in AI in secondary schools while their successor may divert the attention to the project thereby leading to the collapse of AI technological know-how. According to Ajayi and Alabi (2023) the implication of this lack of policy to guide the introduction of AI technologies in institutions might lead to inconsistency in its acceptance by any government in power thereby creating disparities between schools in areas such as AI capabilities, resources and teaching methods.

Insecurity: AI-powered packages require significant amounts of data to effectively function, considering the issue of data privacy and insecurity. If the introduction of AI in secondary schools is formally approved by the government, students' personal information, performance data and other sensitive materials may be tampered with (Eze, 2023). In Nigeria, as the author further argued that regulations on data protection are still evolving and this serves as a significant challenge to security of student's bio-data and other relevant information. Cyber security threats also known as Hackers potentially access students' data stored in AI platforms leading to identity theft or other malicious activities. This may make students and educators reluctant to trust AI system in areas of data collection and storage without proper guidelines of safeguarding the information. Currently, in Nigeria, insecurity has been a great challenge to education generally. This might hinder the acceptance and adoption of AI due to destruction of AI tools when installed.

Reliance on traditional or old method of teaching: many in Nigerian institutions may prefer to teach the same topics given to them year after year. This is due to the fact that they have mastered the teaching method and written comprehensive lesson notes on them which the teachers may not like to loose. This will aid the tutors to continue to rely on the traditional teaching methods to resist any change and adoption of AI technologies in the schools. According to Ilesanmi and Olubajo (2022), teachers may perceive the introduction of AI as a threat to the traditional face to face learning methods. Resistance to

change together with unfamiliarity with AI new technologies can be a significant challenge to AI acceptance in secondary schools.

Lack of power supply: lack or poor power supply can be a great challenge to the introduction and adoption of AI technologies in administration of secondary education. According to Graesser (2020) AI gadgets are all powered tools that use electricity to function. To ensure that students are provided with the opportunity to enjoy enhanced learning experience, power is needed. This incessant power outage or lack of energy (electricity) can destruct the acceptance and installation of AI technologies in secondary schools.

Solutions to the challenges of using AI in secondary schools

Training and professional development: there is a dire need to organize professional development programmes to help teaching staff acquire skills and knowledge to be competent on their jobs. Chinwe (2023) argued that institutions can create professional development programmes focusing on AI technologies to help teaching staff acquire AI skills to integrate AI into the school curriculum.

Infrastructural development can be improved: this can be done by encouraging both private and public partnership who can fund such projects so as to make provisions for financial human and material resources and close the gap. Oluwaseun and Akinola (2022) opined that such collaboration can lead to creation of AI packages and technological tools for use in the institutions.

Policies and Insecurity: Government and policy makers can develop rules and regulations guiding the consistency, equity and transparency in the introduction and acceptance of AI in secondary administration of schools. These rules can also extend to how to safeguard the installed AI tools to avoid vandalization by hoodlums (Chen & Zhang, 2022).

Change from the traditional teaching method: The introduction and acceptance of AI in the administration of secondary education can stimulate research and innovation in the schools. According to Babalola and Adebayo (2023) this will integrate new trends in educational research leading to new teaching methodologies which will enhance quality teaching and learning.

Information communication and technology, particularly AI are revolutionizing modern education. This has now provided AI algorithms and educational robots which are now integral to learning, administration and training systems, providing support for a wide array of teaching and learning activities (Costa & Garcial, 2017). According to Gadanidis (2017), AI offers tutor harnessing package delivering personalized learning support and intelligent feedback across various subjects including mathematics, computer programming and language learning. Vieriu observed that the use of AI in administration of schools is not without its challenges. This requires a thorough understanding of both the technology and the learning process. Qadir (2023) argued that the risk of students' misuse of AI tools in dishonest or unauthorized ways such as using AI generated content to complete assignment without proper attribution can undermine trust and autonomy in educational settings. Therefore, this article summarizes that the educational institutions administration have to clearly define the role and extent of AI usage in students education to overcome these challenges effectively.

Conclusion

The introduction of AI in the administration of secondary education offers a transformative move leading to enhanced learning, administration and innovations in the schools. Apart from the challenges facing the installation and use of AI in schools which include; poor infrastructure, unskilled tutors, insecurity, unclear policies and lack of energy, among others, AI tools can personalize learning, carry out administrative tasks and move research forward with the new trends in education. This will help to produce students who will be productive members of the society.

Suggestions

1. Government and educational institutions should prioritize investment on AI infrastructure to provide access to necessary AI tools and technologies.
2. Government can organize training and professional development for all the educational administrators in secondary schools to equip them with the skills and knowledge to effectively use AI powered tools.
3. Curriculum development should reflect the rapid growing benefits of AI cross all areas of disciplines.

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