

ARTIFICIAL INTELLIGENCE AND SOCIAL STUDIES EDUCATION IN NIGERIA: AWAY OUT TO ENHANCED CONCRETE LEARNING IN NIGERIA

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Abstract

Artificial Intelligence (AI) has become a transformative force across various sectors, notably education. AI encompasses systems capable of simulating human intelligence through learning, reasoning, and problem-solving. This paper explores the transformative potential of Artificial Intelligence (AI) in enhancing social studies education in Nigeria. Amidst challenges such as inadequate resources, large class sizes and a focus on rote memorization, AI offers innovative solutions to improve engagement, personalization and critical thinking among students. By leveraging AI-driven tools, educators can create adaptive learning experiences, provide real-time feedback and develop more dynamic lesson plans. This integration not only enhances student understanding of societal, cultural and historical contexts but also supports teachers in delivering more effective instruction. The paper also addresses the challenges of implementing AI in education, including access to technology, teacher training and ethical considerations. Ultimately, this study highlights how AI can revolutionize social studies education in Nigeria, fostering a more informed, culturally aware and critically thinking generation of students.

Keywords: Artificial Intelligence, Social Studies, Education, Learning, Concrete Learning

Introduction

While no one knows how AI will shape the future, we can all agree on one thing: AI is one of the most important technologies in the world today that is already at work in our everyday lives, influencing everything. In recent decades, Artificial Intelligence (AI) has become increasingly present in our lives, having a significant impact in various fields, including education. Education has undergone a series of changes and under the impact of artificial intelligence that brings with it the opportunity to transform, to adapt the way the teaching/learning process is carried out. Artificial intelligence (AI) has been a topic of growing interest and investigation in various fields, including higher education. Some studies revealed that higher education institutions need to integrate AI more extensively in their programs to prepare graduates for the future workforce, so how can that be effectively be done? NPE Abuja (2021)

Meaning of AI

Artificial intelligence refers to the development of systems and machines that can simulate intelligent human behavior, such as learning, reasoning, and problem-solving. It involves the use of algorithms and complex mathematical models to enable machines to learn and improve their performance autonomously and the fundamental purpose of AI is to enable machines to exhibit traits specific to human intelligence. Artificial intelligence (AI) is a vast branch of computer science concerned with developing intelligent computers capable of

doing tasks that typically need human intelligence. (Stanford Encyclopaedia of Philosophy, 2020)

Artificial Intelligence in Nigeria Educational system

The emergence of artificial intelligence (AI) has profoundly impacted the educational landscape in Nigeria during the 21st century, revolutionizing how learning is approached, delivered and experienced (Nwakwo and Okoye, 2022). As technology has advanced, AI has increasingly become a key player in transforming education in Nigeria, bringing both opportunities and challenges.

In the early 2000s, Nigeria's educational system faced numerous challenges, including limited resources, overcrowded classrooms, and uneven access to quality learning materials. However, the rise of AI has started to address these issues in innovative ways. AI-driven educational tools have begun to emerge, offering personalized learning experiences that adapt to individual student needs. For instance, AI-powered platforms assess a student's strengths and weaknesses in real-time, providing customized content and exercises that cater for specific learning pace and style (Adewale and Adeniyi, 2022).

One of the most significant impacts of AI has been in expanding access to education. With AI-enabled online learning platforms and virtual classrooms, students in remote and underserved areas of Nigeria now have the opportunity to access high-quality educational resources and instruction that were previously out of reach (Akinbode and Joseph, 2024). This democratization of education helps bridge the gap between urban and rural educational opportunities, fostering greater inclusivity.

Moreover, AI has facilitated the development of intelligent tutoring systems and virtual assistants that support both teachers and students. These tools in assistance with administrative tasks, provide instant feedback, and offer additional support outside of regular classroom hours. This not only enhances the efficiency of the educational process but also allows educators to focus more on interactive and engaging teaching method (Umar and Ibraheem, 2022).

In conclusion, the emergence of artificial intelligence has ushered in a new era for education in Nigeria, characterized by personalized learning, expanded access, and data-driven insights. While challenges remain, the potential of AI to transform and enhance the educational landscape is substantial, offering promising solutions to many of the traditional barriers faced by Nigeria's education system. As AI continues to evolve, its impact on education in Nigeria is likely to grow, shaping a more equitable and effective learning environment for future generations.

Impact of Artificial Intelligence on Social Studies Education

Artificial Intelligence (AI) has significantly transformed various sectors worldwide, and the realm of education in Nigeria is no exception. In Social Studies education, AI's impact has been both profound and multifaceted, reshaping how students learn, teachers instruct, and educational content is developed and delivered. Ibrahim and Ojo (2023) wrote that the integration of AI technologies in this field has brought about a revolution, enhancing educational outcomes and expanding access to knowledge.

One of the primary ways AI has impacted Social Studies education in Nigeria is through personalized learning. Ogbonna and Ugochukwu (2023) affirmed that AI-powered platforms and tools should be tailored towards educational content, individual students' needs, preferences and learning paces. For instance, adaptive learning systems analyze students' performance in real-time and adjust the difficulty level of assignments and quizzes accordingly. This personalized approach ensures that students grasp fundamental concepts at their own pace, thereby improving understanding of complex social phenomena and historical events (Adewale and Akinyemi, 2022). For example, a student struggling with the historical aspects of Nigeria's pre-colonial societies might receive additional resources and practice tailored to the needs, while another student who excels might be presented with more advanced materials.

Moreover, AI-driven educational tools have enhanced the ability of teachers to manage their classrooms and provide targeted support (Musa and Ahmed, 2023). Intelligent tutoring systems assist educators by identifying areas where students are struggling and suggesting tailored instructional strategies. In the context of Social Studies, these tools might highlight which students need more help with understanding the political structures of ancient civilizations or the socio-economic impacts of colonialism. This allows teachers to intervene more effectively and provide focused support, thereby improving overall learning outcomes.

Artificial Intelligence (AI) also revolutionized in the development and dissemination of educational content. With natural language processing and machine learning, AI generates educational materials that are both engaging and accurate. For instance, AI helps create interactive simulations that allow students to explore historical events or social structures in a virtual environment. These simulations bring to life the complexities of historical narratives, such as the impact of the Nigerian Civil War on various ethnic groups, in a way that traditional textbooks might not. Additionally, AI tools assist in the creation of multimedia resources, including videos, info graphics, and interactive maps, which make learning more dynamic and engaging.

Furthermore, AI expanded access to quality Social Studies education across Nigeria, especially in remote and underserved areas. Online learning platforms powered by AI provide students with access to a wealth of resources and educational materials that might not be available in their local schools. These platforms offer interactive lessons, virtual field trips, and access to expert instructors, bridging the educational gap between urban and rural areas. For example, a student in a remote village have to access high-quality content on Nigeria's diverse cultures and political systems through AI-enhanced platforms in order to enrich learning experience and broaden the horizons.

Artificial Intelligence (AI) has significantly impacted Social Studies education by enhancing learning experiences and fostering critical thinking skills through personalized learning platforms. AI tailors educational content to individual students' needs, ensuring that each student can engage with material at their own pace and level of understanding. This customization helps deepen comprehension of complex social and historical concepts, making learning more effective. It also supports critical thinking by providing interactive tools and simulations that encourage students to analyze and evaluate historical events and social structures (Adamu and Onyekuru, 2023). For instance, AI-driven simulations recreate historical scenarios, allowing students to explore different perspectives and consequences of

events, thereby enhancing their analytical skills. Additionally, AI powered resources can present students with diverse viewpoints and data, prompting them to question assumptions and develop well-rounded arguments. Overall, AI not only makes Social Studies more accessible and engaging but also cultivates students' abilities to think critically about social and historical issues.

Challenges of Integrating AI into Social Studies Education

Duru and Eze (2023) held the opinion that the Integration of Artificial Intelligence (AI) into Social Studies education holds great promise, but it also presents several challenges and obstacles that educators, policymakers, and technologists must navigate. These challenges range from technological and infrastructural issues to ethical concerns and the need for comprehensive training. Addressing these obstacles is crucial to ensuring that AI be effectively and equitably utilized in enhancing Social Studies education. One of the foremost challenges is the digital divide in Nigeria, as in many other countries, there is a significant disparity between urban and rural areas in terms of access to technology and high-speed internet. While urban schools might have the infrastructure to support AI-driven educational tools, many schools in rural or underserved regions may lack the necessary resources. This divide can exacerbate existing educational inequalities, leaving students in less privileged areas at a disadvantage. It is important to ensure that AI integration does not widen this gap, thus substantial investment is required in infrastructure and efforts to make technology more accessible to all students.

Data privacy and security is another critical concern. AI systems often rely on collecting and analyzing vast amounts of data to tailor educational experiences and monitor student progress. This data includes sensitive information about students' learning habits, performance, and personal details. Ensuring that this data is handled securely and ethically is paramount to maintaining trust and safeguarding students' privacy. Additionally, there must be robust measures to prevent unauthorized access and misuse of data, as well as clear policies regarding data ownership and consent.

The bias in AI algorithms presents a significant obstacle. AI systems are only as good as the data they are trained on, and if this data contains biases, the AI can perpetuate or even exacerbate these biases. In the context of Social Studies, this could mean presenting skewed perspectives on historical events or cultural issues. For instance, if an AI system is trained on biased historical texts or sources, it may provide an inaccurate or one-sided view of history. To address this, it is essential to ensure that AI systems are developed and continuously monitored for fairness, and that diverse perspectives are incorporated into educational content.

Teacher training and readiness is another significant challenge for AI to be effectively integrated into Social Studies education, educators need to be well-versed in how to use these technologies and integrate them into their teaching practices. However, many teachers may not have the necessary skills or training to effectively employ AI tools. Professional development programs must be implemented to equip teachers with the knowledge and skills needed to use AI effectively. This includes understanding how to interpret AI-generated insights and how to blend AI tools with traditional teaching methods.

Cost is also a substantial barrier to developing, implementing, and maintaining AI-driven educational tools can be expensive. Schools and educational institutions must weigh the costs against the potential benefits, and for many, this may be a significant hurdle. Funding and budget constraints can limit the ability of schools, especially in underfunded areas, to invest in AI technologies. Innovative funding models and partnerships with tech companies might be necessary to alleviate these financial pressures.

Furthermore, the ethical use of AI in education requires careful consideration as AI tools become more advanced, there is a risk of over-reliance on technology at the expense of human interaction and judgment ensure that education remains holistic and meaningful(Adeyemi and Bello, 2024). Education is not just about the transfer of knowledge but also about developing critical thinking, empathy, and social skills. Balancing AI-driven instruction with human elements is crucial to Content relevance and cultural sensitivity pose additional challenges. AI tools must be designed to accommodate the diverse cultural and historical contexts of Nigeria. Educational content should be accurate, relevant, and sensitive to local contexts and perspectives. This requires collaboration between AI developers, educators, and cultural experts to ensure that the materials are both educational and culturally appropriate.

Okafor and Aliyu (2024) concluded while AI has the potential to transform Social Studies education in Nigeria by enhancing learning and fostering critical thinking, addressing these challenges is essential. Bridging the digital divide, ensuring data privacy, mitigating algorithmic bias, investing in teacher training, managing costs, and maintaining ethical standards are all critical steps toward effective and equitable integration of AI in education (Eze and Chukwu, 2024). By navigating these obstacles thoughtfully, stakeholders can harness the power of AI to enrich Social Studies education and contribute to a more informed and engaged student body.

Conclusion

AI has had a transformative impact on Social Studies education in Nigeria, offering personalized learning experiences, enhancing teaching methodologies, and expanding access to educational resources. Integrating AI into Social Studies education offers significant potential to enhance learning and foster critical thinking. As AI technology continues to evolve, its role in education will likely become even more integral, presenting both opportunities and challenges. Embracing these advancements while addressing associated concerns will be key to harnessing AI's full potential in fostering a more informed and engaged generation of students. However, the path forward is fraught with challenges such as bridging the digital divide, ensuring data privacy, addressing AI bias, and managing costs. By proactively tackling these obstacles, stakeholders can harness AI's benefits while mitigating potential risks. The successful integration of AI can lead to a more personalized, inclusive, and Recommendations engaging educational experience, ultimately contributing to a more informed and critically adept student body

Recommendations

Prioritize efforts to improve technology access and internet connectivity, especially in underserved areas, to ensure equitable access to AI tools. There is a need to implement

stringent data protection measures and establish clear policies for data use, with regular audits to ensure compliance. Equally, the use of diverse datasets to train AI systems and involve educators and cultural experts in developing and reviewing content to minimize bias.

There is an urgent need to develop and support comprehensive professional development programs to equip educators with the skills needed to effectively integrate AI tools into teaching – learning process. Equally the need to seek for innovative funding solutions that include partnerships and grants needed to support the implementation and maintenance of AI technologies. Measures to ensure that AI tools complement traditional teaching methods and uphold ethical practices should be put into place. Emphasis on cultural sensitivity and collaboration with local experts to ensure AI-generated content is relevant and sensitive to Nigeria’s diverse cultural and historical contexts. By implementing these recommendations, Nigeria can optimize the integration of AI into Social Studies education, enhancing both teaching and learning outcomes.

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