ADOPTION OF AI IN TEACHING SOCIAL STUDIES IN JUNIOR SECONDARY SCHOOL: THE ROLES AND LIMITATIONS

By

Effiong EKPO, Ph.D.
Department of History and International Studies
Ritman University
Ikot Ekpene
Akwa Ibom State

And

Joy Uko EBENEZER
Department of Educational Foundations
Guidance and Counseling
University of Uyo
Akwa Ibom State

ABSTRACT

This study examined the adoption of artificial intelligence in teaching social studies in junior secondary school, assessing the roles and limitations. The integration of Artificial Intelligence (AI) into educational practices is no longer a futuristic concept but a present-day reality reshaping how students learn and teachers teach. In the context of carrying out this research, the following subheads were explored: concept of artificial intelligence and concept of social studies to mention but a few. Furthermore, the study highlighted the roles of artificial intelligence in teaching social studies to include: personalized learning, enhanced learning experiences and data analysis and research. The limitations in teaching social studies as mentioned in the study included: lack of qualified teachers inadequate materials and lack of student interest among many others. The mitigation strategies to the limitation of artificial intelligence in social studies as mentioned in the study included: ensuring ethical AI use, bias audits and transparency. Based on this, the study concluded that the adoption of Artificial Intelligence in teaching Social Studies at the junior secondary level presents both opportunities and challenges. One of the recommendations made was that artificial intelligence should be implemented to enhance, not replace, the teacher's role in the classroom.

KEYWORDS: Artificial Intelligence, Teaching, Social Studies and Junior Secondary School

INTRODUCTION

The integration of Artificial Intelligence (AI) into educational practices is no longer a futuristic concept but a present-day reality reshaping how students learn and teachers teach. In the realm of Social Studies education, particularly at the junior secondary level, AI offers powerful tools to personalize learning, enhance engagement, and foster critical thinking. As educators grapple with growing classroom sizes, diverse learning needs, and the demand for

digital literacy, AI has emerged as a promising ally in delivering content-rich and interactive learning experiences (Saha and Mondal, 2024).

Social Studies, a subject designed to develop informed, responsible, and culturally aware citizens, requires innovative approaches to maintain relevance and impact in a technology-driven world. AI-powered platforms can simulate historical events, support collaborative projects, and provide instant feedback—helping students grasp complex social concepts and contexts more effectively. These tools make abstract civic, economic, and geographic ideas more concrete through gamification, adaptive learning, and multimedia content (Bennani, Maalel and Ghezala, 2021).

However, while the benefits of AI in Social Studies education are substantial, they are not without limitations. A major concern lies in the ethical and pedagogical implications of relying heavily on AI. Questions regarding data privacy, algorithmic bias, and the potential erosion of the teacher-student relationship pose serious challenges to its widespread adoption (Farooqi, Amanat & Awan, 2024). Moreover, AI lacks the emotional intelligence and cultural sensitivity often required in discussions of history, citizenship, and social justice—central themes in Social Studies curricula.

The disparity in access to AI technologies also widens the digital divide among schools, particularly in under-resourced regions. While some institutions are leveraging advanced educational tools, others still struggle with basic infrastructure. This technological inequality can reinforce existing educational disparities rather than mitigate them, thereby undermining the inclusive aims of Social Studies education (Farahani and Ghasemi, 2024). Teachers, too, may face challenges in adapting to AI, requiring new forms of training and digital competence to effectively harness these tools.

Furthermore, the role of the teacher in fostering civic responsibility and ethical reasoning remains irreplaceable. AI can support, but not substitute, the human-centered practices essential for values education. As Social Studies often involves discussion, debate, and reflection on societal issues, human mediation remains critical to guide students through emotionally and morally complex content (Machost & Stains, 2023). Thus, any AI integration must be thoughtfully implemented, supporting—not supplanting—the teacher's role as a facilitator of democratic learning.

CONCEPT OF ARTIFICIAL INTELLIGENCE

Artificial intelligence (AI) is a technology that allows computers to perform tasks that typically require human intelligence. AI systems can learn from experience, adjust to new inputs, and improve over time. According to Huge and Godwin (2024) artificial intelligence (AI) is the idea and practice of creating computer systems that can do tasks like speech recognition, decision-making, and pattern recognition that traditionally needed human intelligence. Natural language processing, machine learning, deep learning, and other technologies are all included under the broad term artificial intelligence (AI) (NLP). Udo-Okon and Akpan (2024) defined artificial intelligence as a branch of computer science called artificial intelligence studies how computers learn, comprehend data, recognize characters in images, analyses pictures, and

simulate how the eyes work. In addition, artificial intelligence refers to the research and programming of computers to carry out intelligence tasks that require human intervention.

Furthermore, Hanson and Okorie (2024) explained that artificial intelligence (AI) is the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. Bassey and Owushi (2023) mentioned that artificial intelligence is the collection of technologies that enable machines to sense, comprehend, act, and perform several functions matching those of humans. Major components of the Artificial Intelligence bucket are machine learning, big data, natural language processing, decision logic, data visualization, and data analytics.

Moreover, Akpan and Clark (2024) cited in Nathan and Isuaiko (2025) mentioned that artificial intelligence (AI) is the study of how the human brain makes decisions, learns new things, and thinks through difficulties. The goal of artificial intelligence is to enhance computer abilities related to human understanding, including language intelligence, learning, reasoning, and problem solving. The term artificial intelligence (AI) describes computer programmers that are able to carry out sophisticated operations that were previously limited to human performance, such as problem solving ,thinking, and decision-making (Lion and Ekefre, 2024)

CONCEPT OF SOCIAL STUDIES

Social studies is an interdisciplinary field dedicated to exploring human society and the complex relationships that define it. Drawing upon various academic disciplines—including history, geography, and economics, and government— social studies aims to cultivate a deep understanding of societal structures and prepare students for active, informed civic participation. The subject investigates how individuals and groups interact with both their physical and social environments, and how developments in science and technology shape human experiences.

According to Spring (2023), social studies involves the study of individuals, communities, and systems, focusing on their interactions across time and place to prepare students for civic life at the local, national, and global levels. In essence, social studies serves as a foundation for democratic engagement and critical awareness in a rapidly changing world. Social studies can also be described as the study of human beings and their relationships with their environments—both natural and societal. It encompasses a wide range of school subjects, including history, geography, economics, and government, particularly in educational systems where these areas are integrated into a unified curriculum. As Ebegha (2024) notes, the purpose of social studies instruction in Nigeria is to develop good democratic citizens. He emphasizes that the subject is not only disciplinary in nature but also contributes to intellectual development.

Liberto (2024) expands this understanding by highlighting that social science—a broader category within which social studies operates—is the study of how people interact with one another. This includes disciplines such as anthropology, economics, political science, psychology, and sociology. Social studies, as a component of the social sciences, focuses more specifically on how individuals live and function within society. It is defined as an integrated course of study that draws concepts from the humanities—such as sociology, geography, and economics (the "what")—for the purpose of equipping learners with decision-making, problem-

solving, and critical thinking skills (the "why") targeted at young people (the "whom") through the use of scientific inquiry (the "process").

Social studies is a vital subject that enables students to become knowledgeable and reflective individuals. It promotes awareness in areas such as politics, citizenship, cultural diversity, and global affairs. More importantly, the discipline aims to prepare students for responsible and informed participation in a diverse, democratic society. It fosters the development of personal values, reasoned opinions, and civic competence—centered on human rights, social responsibility, and collaborative efforts to build a more just and equitable world.

THE ROLES OF ARTIFICIAL INTELLIGENCE IN TEACHING SOCIAL STUDIES

The integration of artificial intelligence (AI) into social studies education holds transformative potential, offering personalized learning, advanced data analysis, immersive learning experiences, and enhanced teacher productivity. AI can tailor content to individual student needs, automate routine administrative tasks, and create dynamic, engaging educational environments—ultimately allowing educators to focus more on instruction and student engagement.

- **Personalized Learning:** AI enables the customization of learning paths based on each student's strengths, weaknesses, and learning styles. According to Ray and Sikdar (2024), learning materials and activities can be adapted using AI algorithms that analyze student performance data, learning behaviors, and preferences. This level of personalization ensures that each learner receives appropriate challenges and targeted support, promoting deeper understanding and improved academic outcomes.
- **Enhanced Learning Experiences:** AI has the capacity to create immersive and interactive experiences that bring abstract concepts in history, geography, civics, and economics to life. Technologies such as virtual reality (VR) and simulations can be employed to offer students virtual field trips, re-creations of historical events, or real-time demographic data visualization. Doğan, Batdı, Topkaya, Özüpekçe, and Akşab (2025) emphasize that while the social sciences continue to explore human behavior through traditional approaches, the incorporation of AI is becoming increasingly vital—particularly for analyzing big data and modeling complex social dynamics.
- **Data Analysis and Research Skills:** AI tools can be used to analyze vast amounts of social, historical, and demographic data, enabling students to recognize patterns, draw evidence-based conclusions, and develop their research competencies. As Bakare (2024) highlights, the effective use of AI in education must be accompanied by robust data protection policies, encryption methods, and clear guidelines for data usage. Informed consent from students and guardians, along with regular compliance audits, is essential to uphold data security standards.
- **Developing AI Literacy:** Incorporating AI into the social studies curriculum can also foster AI literacy, equipping students with critical thinking, problem-solving, and ethical reasoning skills that are crucial in today's AI-driven world. As Chaipidech (2022) notes, AI applications now influence nearly every sector—industry, banking, healthcare, defense, and education. The last decade, in particular, has seen a surge of interest in AI within

educational contexts, emphasizing the need to prepare students for future challenges and opportunities shaped by technological advancements.

- **Increased Teacher Productivity:** AI can significantly reduce the administrative workload for teachers by automating tasks such as grading, attendance tracking, and lesson planning. This increased efficiency allows educators to dedicate more time to instructional planning and direct engagement with students. Ogunleye and Odetayo (2022) observe that AI's implementation in social studies can enhance teacher effectiveness by facilitating the development of dynamic lesson plans, identifying areas of student difficulty through performance analytics, and streamlining routine processes.

THE LIMITATIONS IN TEACHING SOCIAL STUDIES

Several limitations impact the teaching of social studies. These include inadequate resources, including qualified teachers, instructional materials, and conducive learning environments. Additionally, ineffective teaching methods, lack of student interest, and the potential for controversial issues to be avoided can also hinder effective learning.

- **Lack of Qualified Teachers:** Many social studies teachers may not be fully prepared or specialized in the subject matter, impacting the quality of instruction. Obani (2016), Adopts a historical research method and data collected were analyzed using descriptive method and reveals that social studies education is confronted with issues like lack of subject specialists, instructional materials, inappropriate method of teaching and etc.
- **Inadequate Materials:** Insufficient access to books, maps, online resources, and other learning tools can limit teaching effectiveness. Effective teaching and learning requires a proper proportion of students to a teacher, conducive classroom environment, adequate learning resources, quality of the teacher, ability of the students, class size among others are some of the many variables that affects effective teaching and learning in any ideal classroom.
- **Lack of Student Interest:** Social studies may be perceived as less engaging than other subjects, leading to disinterest and poor performance. Study by Stephen, (2024), presently, junior secondary school students' interest and academic achievement in social studies is declining. He noted that some students are losing interest in the subject. Attitudes associated with Social Studies appear to affect students' performance in the subject. Also, many Social Studies teachers teach Social Studies without instructional materials and facilities.
- **Lack of Student-Centered Instruction:** A focus on traditional teaching methods can hinder student engagement and the development of critical thinking skills. According to Donkoh & Amoakwah, (2024), the current study found four key challenges to the use of learner-centered instruction. The four challenges are inadequate teaching and learning resources, time, teachers' knowledge of learner-centered instruction, and large class sizes.
- **Inadequate Assessment Strategies:** Limited use of diverse assessment methods may not accurately reflect student understanding and progress. Mensah & Frimpong, (2020), Moreover, it indicated that lack of exposure to the real world, lack of teaching and learning materials in teaching Social Studies, and inadequate instructional time on the school timetable for teaching Social Studies affect teaching and learning

THE MITIGATION STRATEGIES TO THE LIMITATION OF ARTIFICIAL INTELLIGENCE IN SOCIAL STUDIES

To effectively mitigate the limitations of AI in social studies, educators should focus on developing digital literacy, critical thinking, and ethical considerations among students. This includes teaching students about AI biases, how to evaluate AI-generated information, and understanding the potential limitations of AI models. Furthermore, educators can leverage AI for interactive lessons, personalized learning, and to supplement traditional teaching methods, while also emphasizing the importance of human-to-human engagement and the ongoing need for critical analysis.

- **Ensuring Ethical AI Use: Bias Audits and Transparency**

To combat biases in AI systems, educational institutions should implement regular audits of AI algorithms. These audits should assess the potential for bias in data, decision-making processes, and outcomes. Schools and universities should work with AI developers to ensure that the algorithms are transparent and aligned with ethical guidelines for fairness and equity. Incorporating diverse datasets into training models can help reduce the risk of discriminatory outcomes and ensure that AI systems reflect the diversity of student populations. Additionally, schools should be transparent with students and parents about how AI is being used in education, the data being collected, and the potential consequences of AI-driven decisions. Transparency fosters trust and allows stakeholders to understand the limitations and ethical implications of AI systems (O'Neil, 2016).

- **Promoting Digital Literacy and Critical Thinking**

One of the most effective ways to mitigate AI's negative impact is to focus on developing digital literacy and critical thinking skills among students. Educational institutions should integrate AI and technology literacy into curricula, ensuring that students understand how AI systems work and how to use them responsibly. This includes teaching students about the potential biases in AI and how to evaluate the information and recommendations provided by AI systems. In addition to technical literacy, schools should encourage the development of critical thinking and problem-solving skills. By fostering an environment where students question, analyze, and engage with AI-generated content, educators can prevent over-reliance on technology and promote intellectual independence (Zawacki-Richter et al., 2019).

- **Strengthening Data Privacy and Security Measures**

To protect students' privacy and data, educational institutions must adopt strict data security measures and comply with data protection regulations such as the General Data Protection Regulation (GDPR) in the European Union. Schools should implement encryption protocols, secure data storage solutions, and ensure that only authorized individuals have access to sensitive student data. Moreover, students and parents should be fully informed about the data collection process. Consent should be obtained before collecting any personal data, and students should have the option to opt out of data collection where possible. Establishing clear and transparent data policies helps maintain students' trust and ensures that AI tools are used responsibly (West,

2019).

- **Balancing AI with Human-Centered Teaching Practices**

Balancing AI with human-centered teaching practices to prevent the erosion of the teacher-student relationship, AI should be viewed as a tool that complements, rather than replaces, human instruction. Teachers should use AI to enhance their teaching, for example, by providing personalized learning paths or automating administrative tasks, allowing more time for student interaction. It is essential that AI is not used to replace the valuable mentorship and emotional support that teachers provide. Incorporating AI into classrooms in a way that maintains a balance between human interaction and technology can help preserve the social and emotional aspects of education, which are crucial for student development (Luckin, 2016).

CONCLUSION

The adoption of Artificial Intelligence in teaching Social Studies at the junior secondary level presents both opportunities and challenges. AI enhances engagement, personalizes learning, and simplifies complex concepts through simulations and adaptive tools. However, concerns about ethical implications, teacher-student disconnect, digital inequality, and the lack of human sensitivity in civic education remain pressing. While AI can support learning, it cannot replace the vital role of teachers in guiding discussions on values and societal issues. Thoughtful integration of AI must prioritize educational equity and uphold the human-centered goals of Social Studies to ensure meaningful and inclusive learning outcomes.

RECOMMENDATIONS

- AI should be implemented to enhance, not replace, the teacher's role in the classroom. While AI can assist with personalized learning, simulations, and assessment, educators must remain central to guiding ethical discussions, contextualizing historical content, and fostering critical thinking.
- To avoid widening the digital divide, policymakers should prioritize infrastructure development and equitable distribution of AI resources, especially in under-resourced schools. This includes providing reliable internet, devices, and localized AI tools, as well as technical support.
- Clear ethical standards and oversight mechanisms should be established to govern AI use in the classroom. This includes data privacy protections, transparency in AI decision-making, and regular evaluations to identify algorithmic biases.

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