

## IMPACT OF ARTIFICIAL INTELLIGENCE IN THE TEACHING AND LEARNING OF SOCIAL STUDIES EDUCATION IN JUNIOR SECONDARY SCHOOLS IN KATSINA STATE, NIGERIA

**DR. AUWALU ISHIYE**

School of General Studies, Department of Social Studies,  
Yusuf Bala Usman College of Education and Legal Studies, Daura  
auwaluishiye@gmail.com

### **Abstract**

This study examined the impact of artificial intelligence (AI) on the teaching and learning of Social Studies in junior secondary schools in Katsina State, Nigeria. Guided by two objectives and research questions, a descriptive survey design was used to gather data from 35 social studies teachers across four urban public schools out of a population of 55 teachers in seven schools. Data collection was conducted using a validated 30-item questionnaire titled "Benefits and Challenges of Artificial Intelligence (BACAI) in Teaching and Learning Social Studies," which demonstrated a reliability coefficient of 0.84. The analysis employed means and standard deviations, considering items with a mean rating of 2.50 or above as accepted. Findings indicated that AI offers significant benefits to students, enhancing the teaching and learning process. However, the study also identified challenges in integrating AI into the educational environment. The researchers concluded that AI is highly beneficial for both teachers and students in social studies education. Based on these findings, the government should train teachers in AI resources and equip junior secondary schools with smart devices, solar power, and internet services.

**Keywords:** Artificial Intelligence, Social Studies Education, Teaching and Learning, Junior Secondary Schools.

### **Introduction**

Social Studies education as a school subject in Nigeria involves the integration of various disciplines such as history, political science, economics, geography, sociology, and anthropology. Its primary aim is to equip students with practical skills and foundational knowledge to develop into informed, responsible, and active citizens. Achieving national development in Nigeria partly depends on citizens who understand their civic rights and responsibilities, social issues, and the country's history (Ogunyemi & Olatunji, 2020).

In Nigerian Junior Secondary Schools, Social Studies plays a vital role in students' holistic development. The subject is designed to foster civic values, critical thinking, and an understanding of social, political, and economic systems. It prepares students for active citizenship and responsible societal participation, emphasizing the importance of civic engagement, cultural awareness, and unity. Through exploring societal issues, students learn to analyze problems critically and engage meaningfully with their communities (Ogunyemi & Olatunji, 2020).

The teaching and learning processes in Social Studies involve diverse instructional strategies tailored to different learning styles. These include interactive methods, project-based learning, experiential activities, and the integration of artificial intelligence (AI) resources. Participatory approaches like group discussions, role-playing, and debates are common, with students engaging in activities such as mock elections to better understand democratic processes. The incorporation of AI enhances learning by providing access to extensive resources and fostering interactive environments, such as online

discussions and access to historical documents (Adebayo & Afolabi, 2020; Adeyemi & Akinpelu, 2021). Field trips and community service projects are also significant, allowing students to apply classroom knowledge in real-world settings and develop empathy (Ibrahim & Okeke, 2023).

The outcomes of Social Studies education are multifaceted, contributing to improved academic performance, civic engagement, and personal growth. Studies show that students who actively participate in interactive and AI-supported learning tend to perform better academically. Moreover, engaging in civic projects increases their knowledge and willingness to participate in community affairs. Inquiry-based learning in Social Studies enhances critical thinking and problem-solving skills, enabling students to evaluate social issues and propose solutions (Nwosu, 2022; Adetunde & Adebayo, 2021). AI-driven educational tools further support personalized learning, adaptive content delivery, and efficient assessment, thereby enriching the educational experience (Wang et al., 2020). The theoretical foundation of this approach is rooted in Constructivist Learning Theory, which emphasizes that learners build their understanding through experiences and reflection. AI facilitates this by providing immersive simulations and interactive experiences that deepen students' grasp of complex social concepts. The Technological Pedagogical Content Knowledge (TPACK) framework is used to analyze the integration of technology, pedagogy, and content, ensuring effective use of AI tools in teaching (Piaget, 1972; Mishra & Koehler, 2006; Afolabi, 2022).

Despite the benefits, there are significant challenges to integrating AI into Social Studies education in Nigeria. These include limited funding, inadequate ICT infrastructure, and a digital divide that restricts access to advanced technologies. Resistance from educators accustomed to traditional methods and insufficient teacher training further impede progress. Additionally, the curriculum often lags behind societal changes, requiring continuous updates to remain relevant. Addressing these issues necessitates government support, cost-effective AI solutions, and professional development for teachers (Ogunyemi, 2020; Abimbola, 2024; Harry & Suyudin, 2023; Afolabi & Ogunyemi, 2021). Research indicates that if properly implemented, AI can significantly improve educational outcomes and foster critical thinking. Studies from Estonia, China, the U.S., Singapore, and the UK demonstrate how AI-powered platforms and systems enhance student engagement, personalize learning, and improve academic performance across various contexts. For instance, AI tools like virtual reality simulations, intelligent tutoring systems, and adaptive learning platforms have shown promising results in deepening understanding and increasing motivation (Karpinski et al., 2020; Zhang et al., 2021; Hurley et al., 2022; Tan et al., 2023; Davies & Green, 2024).

In conclusion, AI has the potential to revolutionize Social Studies education in Nigeria by making it more engaging, personalized, and effective. However, realizing this potential requires overcoming infrastructural, financial, and pedagogical challenges through strategic investments, policy support, and capacity building among educators. With these measures, AI can significantly contribute to developing a more informed, culturally aware, and critically thinking generation of students (Bakare, 2024; Jacob, 2025; Sabo et al., 2025).

### **Statement of the Problem**

The study is on the impact of artificial intelligence in the teaching and learning of Social Studies education in junior secondary Schools in Katsina State. Despite the importance of Social Studies education and potential benefits of AI in education, its application in the Nigerian context remains underexplored. This could be attributed to persistent challenges as many educators lack the necessary training to effectively implement AI tools, and there are significant infrastructural barriers that hinder

the integration of technology in classrooms. Consequently, this study seeks to address the gap in understanding how AI can be effectively utilized to improve social studies education in Nigeria, ultimately contributing to national development.

### **Purpose of the Study**

The general the purpose of this study is to investigate the impact of artificial intelligence in the teaching and learning of Social Studies education in junior secondary Schools in Katsina State, Nigeria. Specifically, the study seeks to:

1. determine the potential benefits associated with AI integration in teaching and learning of Social Studies education in junior secondary schools in Katsina State.
2. Investigate challenges associated with AI integration in teaching and learning of Social Studies education in junior secondary schools in Katsina State.

### **Research Questions**

1. What are the potential benefits associated with AI integration in teaching and learning of Social Studies education in junior secondary schools in Katsina State.
2. What are the major challenges associated with AI integration in teaching and learning of Social Studies education in junior secondary schools in Katsina State.

### **Scope and Delimitation of the Study**

This study focuses on the impact of AI in social studies education across various educational levels in Nigeria, including primary, secondary, and tertiary institutions. It examines the perspectives of educators, students, and policymakers, considering both the opportunities and challenges associated with AI integration in the classroom. The study is contextualized within the Nigerian educational landscape and considers the socio-economic factors influencing AI adoption. The study is contextualized within the Nigerian educational landscape and considers the socio-economic factors influencing AI adoption. Additionally, the research will be limited to the perspectives of students and teachers involved in Social Studies education, without delving into administrative or policy-level analyses.

### **Methodology**

The study employed a descriptive survey research design. The population of the study comprised of all the 55 social studies teachers of seven (7) public junior secondary schools in Jibia LGA. A purposive sampling technique was used to select 35 Social Studies teachers from four (4) urban public junior secondary schools. Data for the main study was collected using a Papiro (2025) adapted 30 items structured questionnaire entitled: Benefits and Challenges of Artificial Intelligence (BACAI) in Teaching and Learning Social Studies was adapted and used as data collection instrument. The instrument was validated by three experts from Education Department of Yusuf Bala College of General Studies, Daura, in terms of face, content and construct validities in which a reliability coefficient of 0.84 was established, indicated that the instrument was valid and reliable for data collection. The instrument was subdivided into 2 section sections, section A and B respectively. Section A contains the demographic data of respondents, while section B with 30 items on a moderated four-point Likert rating scales, ranging from strongly agreed (SA) = 4, agreed (A) = 3, disagreed (D) = 2 and strongly disagreed (SD) = 1. Thus, The collected data were analyzed using mean and standard deviation, any items with the summation of all mean responses as  $4+3+2+1=10/4 = 2.5$  ting of 2.50 and above were regarded as agreed and accepted, while any item with the mean ratings less than 2.50 were regarded as disagreed rejected. Therefore, the questionnaire serves as tool

for the study to assess perceptions regarding the benefits and challenges associated with AI integration in teaching and learning. The collected data were analyzed using descriptive statistics, specifically calculating the mean and standard deviation, to effectively summarize and interpret the central tendencies and variability within the data set.

### Results

This section presented the results and interpretations in tabular form. Tables 1 and 2 present descriptive analysis of the results as follows:

**Research Question One:** What are the potential benefits associated with AI integration in teaching and learning of Social Studies education in junior secondary schools in Katsina State.

**Table 1: Benefits associated with AI integration in teaching and learning of Social Studies**

S/N	Statements	N	M	SD	Decision
	AI technologies provide personalized learning experiences tailored to individual student needs.	35	3.00	0.94	Agreed
	AI-driven tools and applications increase student engagement and interest in	35	2.83	0.92	Agreed
	AI systems can provide real-time feedback to students on their assignments and assessments.	35	2.60	0.88	Agreed
	AI integration allows students to access a wide range of educational resources and materials.	35	2.71	0.89	Agreed
	AI tools can encourage higher-order thinking by presenting complex scenarios for analysis in Social Studies.	35	2.80	0.83	Agreed
	AI can automate administrative tasks, allowing teachers to focus more on instruction.	35	2.74	0.98	Agreed
	AI platforms facilitate collaboration among students on Social Studies projects and assignments.	35	2.89	0.99	Agreed
	AI enables the creation of interactive learning environments that enhance	35	3.03	0.98	Agreed

student understanding.				
AI integration helps develop critical skills such as research, analysis, and digital literacy among students.	35	3.09	0.89	Agreed
AI provides teachers with data-driven insights into student performance and learning trends.	35	3.11	1.05	Agreed
AI tools support flexible learning environments, whether in-person or online.	35	3.26	0.82	Agreed
AI technologies can make Social Studies education more accessible to students with disabilities.	35	3.14	0.91	Agreed
AI tools can connect students with global resources and perspectives, enriching their Social Studies learning.	35	3.31	0.83	Agreed
Innovative Assessment Methods: AI can facilitate innovative assessment techniques that go beyond traditional testing.	35	3.20	0.96	Agreed
AI encourages a culture of lifelong learning by providing continuous access to educational resources.	35	3.17	0.79	Agreed
Overall Mean		2.99	0.91	

Source: Field Survey, (2025)

The result in Table 1 above on the benefits associated with AI integration in teaching and learning of Social Studies education in junior secondary schools in Katsina State, revealed that respondents agreed to all the 15 items ranged from  $M = 2.60$ ,  $SD = 0.88$  to  $M = 3.31$ ,  $SD = 0.83$  with overall mean  $M = 2.99$ ,  $SD = 0.91$ , which is greater than 2.50, indicating that AI integration in teaching and learning of Social Studies education is beneficial to junior secondary school students. It also revealed that the integration of AI in Social Studies cater the needs of all varying learning needs. Machine learning algorithms enable AI systems to analyze students' academic performance through feedback to identify gaps in knowledge among junior secondary school students in Katsina State.

**Research Question Two:** What are the major challenges associated with AI integration in teaching and learning of Social Studies education in junior secondary schools in Katsina State.

**Table 2: Challenges associated with AI integration in teaching and learning of Social Studies**

S/N	Statements	N	M	SD	Decision
	Insufficient technological infrastructure in schools hampers effective AI integration.	35	3.26	0.74	Agreed
	Many teachers lack the necessary training to effectively implement AI in their teaching.	35	3.00	1.03	Agreed
	Some educators and administrators may resist adopting AI technologies in the classroom.	35	3.03	0.95	Agreed
	The high cost of AI tools and technologies can be a barrier to integration in schools.	35	2.91	0.92	Agreed
	There are concerns about student data privacy when using AI technologies.	35	3.03	0.62	Agreed
	The quality and reliability of AI educational resources can vary significantly.	35	3.00	0.77	Agreed
	There is a risk that students may become overly reliant on AI tools for learning.	35	3.11	0.68	Agreed
	The use of AI raises ethical questions regarding bias and fairness in education.	35	3.03	0.82	Agreed
	Not all students have equal access to AI technologies, leading to disparities in education.	35	2.97	0.75	Agreed
	Difficulty in integrating AI tools with existing Social Studies curricula can pose challenges.	35	3.00	0.91	Agreed
	Frequent technical problems or malfunctions can disrupt learning and teaching.	35	3.09	0.70	Agreed
	Some students may lack the	35	3.00	0.91	Agreed

necessary skills to effectively use AI tools for learning.				
There is limited research on the long-term effects of AI integration in Social Studies education.	35	3.09	0.74	Agreed
Parents may have concerns about the use of AI in their children's education.	35	2.86	0.65	Agreed
As AI evolves, the skills required for teaching may change, leading to uncertainty among educators.	35	2.86	0.73	Agreed
Overall Mean		3.02	0.79	

Source: Field Survey, (2025)

The result in Table 2 above on the major challenges associated with AI integration in teaching and learning of Social Studies education in junior secondary schools in Katsina State, revealed that respondents agreed to all the 15 items ranged from  $M = 2.86$ ,  $SD = 0.65$  to  $M = 3.26$ ,  $SD = 0.74$  with overall mean  $M = 3.02$ ,  $SD = 0.79$ , which is greater than 2.50, indicating that AI integration in teaching and learning of Social Studies education poses some challenges in terms accessibility to junior secondary school students. It also revealed that the integration of AI in Social Studies is difficult to manage by junior secondary schools in Katsina State due to inadequate funding to provide the ICT learning resources.

### Discussion of Major Findings

Discussion was made based on the objectives raised and corresponding research questions answered. Research findings related to the first question, which explored the potential benefits of integrating AI into the teaching and learning of Social Studies in junior secondary schools in Katsina State, align with the conclusions of Nwosu (2022). Nwosu found that students engaged in civic-related projects as part of their Social Studies curriculum exhibited higher levels of civic knowledge and participation.

Similarly, Wang et al. (2020) investigated the influence of Artificial Intelligence on teaching strategies and discovered that AI tools, such as intelligent tutoring systems (ITS), can provide tailored resources based on students' understanding of topics like geography and history. Additionally, Chen et al. (2021) reported that AI tools significantly boost student engagement in Social Studies by creating interactive and immersive learning environments, as these tools offer differentiated resources and support systems that enable students to learn at their own pace. Furthermore, these findings corroborate Chukwu's (2020) research, which showed that students using AI simulations in Social Studies lessons demonstrated enhanced critical thinking skills compared to traditional teaching methods. The results also support Karpinski et al.'s (2020) study on AI's role in personalized learning in Estonia, which indicated that students in AI-enhanced classrooms exhibited improved academic performance and greater engagement.

Regarding the second research question, which examined the key challenges of integrating AI into Social Studies education in junior secondary schools in Katsina State, the findings are consistent with

those of Garcia and Lee (2024) on AI-enhanced assessments in Social Studies. The results highlight AI's potential in formative assessment processes, where timely feedback is vital to the learning cycle. For example, when students submit research papers on social issues, AI-driven platforms can evaluate their arguments, identify logical fallacies, and suggest additional research areas, thereby enabling students to improve their work iteratively. These insights align with Zhang et al. (2021), who assessed the effectiveness of AI tutors in Chinese classrooms and found that students using AI tutors improved their test scores by an average of 30% compared to their peers who did not utilize such technology. Additionally, the findings support Hurley et al.'s (2022) case study at Georgia State University, which revealed that chatbots contributed to a 30% increase in student retention rates by providing timely support and information, especially for at-risk students.

### **Conclusion**

Social Studies education in Junior Secondary Schools in Nigeria is essential for fostering informed and responsible citizens. The teaching and learning process, enhanced by interactive methods and AI, significantly impacts student outcomes, including academic performance, civic engagement, and critical thinking skills. Addressing the challenges in resources, teacher training, and curriculum relevance will be crucial for improving the effectiveness of Social Studies education in Nigeria.

### **Recommendations**

Based on the findings from the study, the researchers recommends among others that the three tiers of government should:

1. Government should conduct timely Teacher Capacity Building to scale up in-service training for Social Studies teachers focused on pedagogical integration of AI (not just technical skills), using cascade models and blended workshops.
2. Government should invest in low-cost devices, reliable electricity and affordable internet connectivity for schools prioritize rural/underserved areas to prevent widening gaps. Also, support development of culturally-relevant AI content (local history, civic issues) and mother-tongue support for comprehension.

### **References**

- Abimbola, C., Eden, C. A., Chisom, O. N., & Adeniyi, I. S. (2024). Integrating AI in education: Opportunities, challenges, and ethical considerations. *Magna Scientia*, 10(2), 45-60. <https://doi.org/10.30574/msarr.2024.10.2.0039>.
- Adebayo, A. (2019). Artificial Intelligence in Nigerian Education: Opportunities and Challenges. *Journal of Educational Technology*, 12(3), 45-60.
- Adebayo, O. E., & Afolabi, O. (2020). Interactive teaching methods in social studies: Implications for national development. *Journal of Social Sciences Research*, 6(2), 45-59. <https://doi.org/>
- Adeiwale, T. (2023). Enhancing academic performance in social studies through ICT integration. *International Journal of Educational Research*, 12(1), 101-115. <https://doi.org/>
- Adeyemi, T. O., & Akinpelu, O. A. (2021). ICT in education: Enhancing social studies teaching and learning. *African Journal of Educational Studies in Mathematics and Sciences*, 19(3), 78-92. <https://doi.org/>
- Afolabi, T. (2022). AI-Driven Learning: Transforming Social Studies Education in Nigerian Schools. *Journal of Education and Practice*, 13(4), 99-114.
- Bakare, M. I. (2024). Artificial intelligence and social studies education in Nigeria: A pathway to enhanced learning and critical thinking in Nigeria. *International Journal of Creative Research*

- Thoughts (IJCRT), 12(8). <http://www.ijcrt.org/>
- Chen, Z., Chen, J., & Zhang, S. (2021). The role of artificial intelligence in personalized learning. *Educational Research Review*, 36, 100429. <https://doi.org/10.1016/j.edurev.2021.100429>
- Chukwu, O. (2020). AI in Education: A Study of Nigerian Secondary Schools. *Teaching and Teacher Education*, 56, 45-58.
- Davies, J., & Green, H. (2024). AI in Primary Education: A Case Study of Century Tech. *British Journal of Educational Technology*, 55(2), 123-138.
- Garcia, M., & Lee, T. (2024). AI-enhanced assessments in social studies education. *Educational Assessment, Evaluation, and Accountability*, 36(1), 1–15.
- Harry, A., & Sayudin, S. (2023). Role of AI in education. *International Journal of Injury and Risk Prevention*, 2(3), 52. <https://doi.org/10.58631/injury.v2i3.52>.
- Hurley, S., & Hunsaker, M. (2022). Enhancing Student Retention with AI: A Case Study of Georgia State University. *Journal of Higher Education Policy and Management*, 44(1), 43-58.
- Ibrahim, A., & Okeke, C. (2023). Experiential learning in social studies: Field trips and community service. *Journal of Educational Practices*, 12(3), 45-60.
- Ibrahim, M., & Usman, T. (2018). AI and Student Engagement in Social Studies: Evidence from Nigerian Classrooms. *African Journal of Teacher Education*, 7(1), 75-89.
- Jones, E., & Smith, R. (2023). Use of virtual reality in secondary school education: A social studies perspective. *Journal of Educational Technology*, 45(2), 123–135.
- Karpinski, A., & Borkowski, W. (2020). The Role of Artificial Intelligence in Personalized Learning: Insights from Estonia. *International Journal of Educational Technology*, 15(3), 45-60.
- Nwosu, C. (2022). Civic engagement and social studies education in Nigeria: A case study. *Nigerian Journal of Education Studies*, 15(2), 45–60. <https://doi.org/>
- Ogunyemi, A. (2020). Challenges of teaching social studies in Nigerian secondary schools. *Journal of Social Studies Education Research*, 12(3), 78–92. <https://doi.org/>
- Ogunyemi, A., & Olatunji, O. (2020). The role of social studies in promoting citizenship education in Nigeria. *Journal of Social Studies Education Research*, 14(1), 33–50. <https://doi.org/>
- Ojo, A. O. (2022). The role of social studies in promoting citizenship education in Nigeria. *Journal of Social Studies Education Research*, 16(4), 101–115. <https://doi.org/>
- Ojo, A., & Afolabi, F. (2021). The Role of AI in Transforming Social Studies Education in Nigeria. *African Journal of Educational Research*, 7(2), 89-102.
- Osher, D., et al. (2021). Project-based learning in social studies: Engaging students in real-world issues. *Educational Research Review*, 4(1), 1–10.
- Piaget, J. (1972). *The Psychology of Intelligence*. Routledge.
- Poripo, J. (2025). Impact of artificial intelligence (AI) in the teaching and learning of skill-based education in TVET institutions in Elebele, Yenagoa, Bayelsa State, Nigeria. *Journal of Centre for Technical Vocational Education, Training and Research (JOCETVETAR)*, 7(1).
- Roberts, A. (2025). Equity and accessibility in AI-driven education. *Education and Information Technologies*, 30(2), 123–135.
- Sabo, A. U., Jacob, J., Hamza, N., Musa, J. B., Sufyan, A. S., Felix, A. D. (2025). The Use of Artificial Intelligence in the Teaching of History in Nigeria: Challenges and Way Forward. *International Journal of Research Publication and Reviews*, 6(10), pp 3076-3083. [www.ijrpr.com](http://www.ijrpr.com)
- Tan, C., & Lim, Y. (2023). Transforming education through AI: The Singapore experience. *Asian Journal of Education and Training*, 9(1), 89–98.
- Wang, X., Liu, Y., & Zhang, J. (2020). The Influence of Artificial Intelligence on Teaching Strategies. *International Journal of Educational Technology in Higher Education*.
- Zhang, Y., Li, J., & Wang, X. (2021). Evaluating the Efficacy of AI Tutors in Chinese Classrooms. *Journal of Educational Computing Research*, 58(2), 337-357.