

ARTIFICIAL INTELLIGENCE—DRIVEN PEDAGOGY IN SOCIAL SCIENCE EDUCATION AND ITS IMPLICATIONS ON STUDENTS AND LECTURERS IN TERTIARY INSTITUTIONS IN CROSS RIVER STATE, NIGERIA

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Abstract

The study examined artificial intelligence (AI)—driven pedagogy in social science education and its implications on students and lecturers in tertiary institutions in Cross River State, Nigeria. The investigation was guided by two objectives, two hypotheses and Human Capital Theory. Cross-sectional research design was adopted and data were collected through structured questionnaire. The sample size for the study was 616 respondents determined using Cochran sample size determination technique for an estimated population. Pearson's Product Moment Correlation Coefficient (r) was used to test the hypotheses at a 0.05 level of significance. Findings revealed that a significant relationship existed between AI-driven pedagogy of quality of teaching and learning in social science courses and students and lecturers in tertiary institutions and a significant relationship existed between AI-driven pedagogy of students' critical thinking, civic competence, and employability skills in social science education and students and lecturers in tertiary institutions in Cross River State, Nigeria. The study identified major challenges to effective AI adoption, including inadequate digital infrastructure, limited access to technological devices, insufficient staff training, and unequal access to digital resources. The study concludes that AI-driven pedagogy holds considerable potential for transforming social science education and strengthening the capacity of students and lecturers in Cross River State, Nigeria. It recommends increased investment in digital infrastructure, capacity building for academic staff, and the integration of AI tools into social science curricula to enhance teaching quality, student competence in tertiary institutions.

Keywords: Artificial intelligence, AI-driven pedagogy, social science education, students and lecturers, tertiary institutions.

Introduction

The education sector globally is undergoing significant transformation due to rapid advancements in digital technologies, particularly artificial intelligence (AI). Artificial intelligence is increasingly recognized as an important tool for improving teaching and learning through personalized learning systems, intelligent tutoring platforms, automated assessment, and data-

driven instructional decision-making. These innovations are gradually shifting education from traditional teacher-centered methods to more learner-centered approaches that promote critical thinking, creativity, collaboration, and problem-solving skills required for sustainable national development in the twenty-first century (Holmes et al., 2019; OECD, 2021).

AI-driven pedagogy in Social Science Education can provide opportunities for improving the teaching and learning of complex social, political, and economic issues. Through AI-powered simulations, virtual learning environments, and learning analytics, students can engage more actively with real-world societal challenges such as governance, inequality, public policy, and development planning (Luckin et al., 2016). These tools help students develop analytical reasoning, decision-making, and problem-solving skills, thereby strengthening the relevance of Social Science Education to national development goals (UNESCO, 2020).

Across Africa, the adoption of artificial intelligence in education is gradually increasing as countries seek solutions to challenges such as shortage of qualified teachers, overcrowded classrooms, and poor learning outcomes. Digital technologies, including AI, have the potential to expand access to education and improve teaching effectiveness. But the integration of AI-driven pedagogy in many African tertiary institutions remains limited due to infrastructural challenges, inadequate funding, low digital literacy among educators, and weak educational technology policies (World Bank, 2020; Adeniran & Oyeniran, 2022). Consequently, teaching in many universities still relies heavily on conventional lecture-based methods that limit students' ability to apply knowledge to real-life problem-solving.

In Nigeria, Social Science Education is recognized as a critical tool for nation-building, civic participation, and socio-economic development. Social science disciplines are expected to produce graduates who can understand societal problems, participate in governance, and contribute to national development. However, despite Nigeria's growing digital economy, teaching methods in many tertiary institutions remain largely conventional and teacher-centered, raising concerns about the preparedness of graduates to address national challenges such as unemployment, insecurity, poverty, and poor governance (Adebayo & Adigun, 2021). Although government policies have promoted the integration of information and communication technology in education, the implementation of artificial intelligence-driven pedagogy in Nigerian tertiary institutions is still at an early stage. Challenges such as inadequate digital infrastructure, unreliable electricity, poor internet connectivity, and limited lecturer training in advanced educational technologies continue to hinder effective integration (Okoye et al., 2023).

Cross River State hosts several tertiary institutions that contribute to human capital development and regional growth. Many of these institutions still face challenges related to digital infrastructure, access to AI-based learning tools, and professional development for lecturers (Eze & Olatunji, 2022). Therefore, there is a need to examine the extent to which artificial intelligence-driven pedagogy is being adopted in Social Science Education in tertiary institutions in Cross River State and its implications for students and lecturers.

Statement of the Problem

The rapid advancement of artificial intelligence (AI) has significantly transformed many sectors of society, including education. Globally, artificial intelligence is transforming education through intelligent tutoring systems, adaptive learning platforms, and learning analytics, with the potential to enhance teaching effectiveness, critical thinking, civic competence, and employability skills particularly in Social Science Education, which is intrinsically linked to national development and governance. However, the integration of AI-driven pedagogy in developing countries, including Nigeria, remains slow and uneven. In Nigeria, Social Science Education is critical for preparing students to understand societal issues, engage in civic life, and contribute to national development. Yet, teaching and learning in many tertiary institutions, including those in Cross River State, continue to rely heavily on traditional, teacher-centered, examination-oriented methods. These approaches limit active participation, critical thinking, practical problem-solving

and digital competence skills essential in a knowledge-driven economy. Concerns persist regarding the quality of learning outcomes in Social Science Education. Many graduates lack the critical thinking, civic competence, and employability skills required for the modern labour market, contributing to unemployment and diminished capacity for meaningful national contribution. A key factor may be the limited integration of AI-driven pedagogical tools into teaching and learning processes.

Although, AI offers significant benefits personalized learning, interactive environments, automated feedback, and data-driven instruction, its adoption in Cross River State tertiary institutions remains minimal. Lecturers' lack adequate training and institutions face infrastructural deficits, including insufficient digital infrastructure and internet connectivity, limiting effective AI implementation. Critically, there is a paucity of empirical research examining how AI-driven pedagogy specifically affects teaching quality, learning outcomes, critical thinking, civic competence, and employability skills within Social Science Education. Existing studies largely address general technology integration without focusing on AI's distinct role in Social Science disciplines. Given this gap, the extent to which AI-driven pedagogy influences teaching and learning quality, students' critical thinking, civic competence, and employability skills in tertiary institutions in Cross River State remains unclear, necessitating this study.

Aims/Objectives of the Study

The study evaluated artificial intelligence–driven pedagogy in Social Science Education and its implications on students and lecturers in tertiary institutions in Cross River State, Nigeria. Specifically, it assessed:

1. The impact of AI-driven pedagogy of quality of teaching and learning in Social Science courses on students and lecturers in tertiary institutions in Cross River State.
2. The impact of AI-driven pedagogy of students' critical thinking, civic competence, and employability skills in social science education on students and lecturers in tertiary institutions in Cross River State.

Research questions

The following research questions were answered in this study.

1. What is the impact AI-driven pedagogy of quality of teaching and learning in social science courses on students and lecturers in tertiary institutions?
2. What impact has AI-driven pedagogy of students' critical thinking, civic competence, and employability skills in social science education on students and lecturers in tertiary institutions?

Research hypotheses

The following null hypotheses were tested in the study.

1. There is no significant relationship between AI-driven pedagogy of quality of teaching and learning in social science courses and its implications for students and lecturers in tertiary institutions.
- 2 There is no significant relationship between AI-driven pedagogy of students' critical thinking, civic competence, employability skills in social science education and its implications for students and lecturers in tertiary institutions.

Scope of the study

The study focused on artificial intelligence–driven pedagogy in social science education and its implications on students and lecturers in tertiary institutions in Cross River State, Nigeria. It was delimited to two tertiary institutions in Cross River State (University of Calabar and Federal College of education Obudu) and variables such as AI-driven pedagogy of quality of teaching and learning in social science subjects/courses, AI-driven pedagogy in social science education on students' critical thinking, civic competence, and employability skills and national development.

Theoretically, the study was restricted to the Human Capital Theory. It was also restricted to University lecturers and students in the faculties of education.

Conceptualization of Artificial Intelligence

Artificial intelligence refers to computer-based systems capable of performing tasks that require human intelligence, such as reasoning, learning, data analysis, and decision-making (Russell & Norvig, 2021). In education, AI includes tools such as intelligent tutoring systems, learning analytics platforms, AI-assisted research tools, and adaptive learning environments. In social science education, AI supports inquiry-based learning, critical engagement with social data, and personalized learning experiences (Holmes et al., 2019).

According to Luckin et al. (2016), AI-supported learning environments help students develop higher-order cognitive skills by scaffolding complex thinking processes. In the context of social science education, this enables students to move beyond memorization toward evidence-based reasoning and social problem-solving. Digital literacy refers to the ability to effectively access, evaluate, create, and communicate information using digital technologies (UNESCO, 2018).

AI-supported digital tools expose students to online research platforms, academic databases, collaborative learning systems, and ethical technology use. In teacher education institutions, digital literacy is particularly important, as future educators are expected to integrate technology into classroom practice. Redecker (2017) notes that AI-enhanced digital environment strengthen learners' confidence, adaptability and lifelong learning capacities.

Artificial Intelligence and Social Science Education

Selwyn (2019) posited that the integration of AI into social science education improves quality of teaching and learning, student engagement and participation, research competence and innovation, employability and teaching readiness. Luckin et al. (2016) opined that AI-supported learning environments help students develop higher-order cognitive skills by scaffolding complex thinking processes. These outcomes are influenced by institutional factors such as infrastructure availability, lecturer competence, and curriculum design (Selwyn, 2019). In social science education, this enables students to go beyond memorization toward evidence-based reasoning and social problem-solving.

Digital literacy refers to the ability to effectively access, evaluate, create, and communicate information using digital technologies (UNESCO, 2018). AI-supported digital tools expose students in social science education to online research platforms, academic databases, collaborative learning systems, and ethical technology use. In Social Science Education, AI supports inquiry-based learning, critical engagement with social data, and personalized learning experiences (Holmes et al., 2019). According to Zawacki-Richter et al., (2019), Education systems particularly social science education play a central role by preparing individuals to interpret data, understand social systems, evaluate policies, and engage responsibly in digital civic spaces

AI-driven pedagogy of quality of teaching and learning in social science courses/subjects and its implications for students and lecturers

Malik et al. (2025) observed that Intelligent Tutoring Systems (ITS) led to notable improvements in student engagement and learning outcomes. Their findings revealed statistically significant gains in post-test performance, which were attributed to AI-driven personalization and continuous feedback. Khan et al. (2025) found that schools where leaders invested in teacher training, provided ethical guidance, and aligned AI use with curricular goals experienced more meaningful classroom integration of AI tools. Their study emphasizes that effective AI-supported teaching depends not only on the availability of technology but also on pedagogical alignment, institutional readiness, and supportive leadership structures. Teachers' perceptions of AI also play an important role in shaping its classroom use.

Nisar, Bashir, and Ahmad (2023) study revealed that many teachers view AI positively, particularly for its ability to support differentiated instruction and provide tailored learning assistance. However, the study also highlights notable challenges, including limited technical

competence and concerns that excessive reliance on AI could reduce human interaction in teaching if pedagogical goals are not clearly prioritized. Research focusing specifically on the social sciences reflects similar trends.

AI-driven pedagogy of students' critical thinking, civic competence, and employability skills in social science education and its implications for students and lecturers

Rusandi et al. (2023) examined the use of generative AI tools such as ChatGPT in educational and research contexts, emphasizing their potential to support learning when aligned with critical thinking and academic integrity. Their findings showed that AI can enhance students' analytical and evaluative skills by encouraging deeper engagement with information, particularly when learners are guided to question sources, detect misinformation. However, the authors stress that these benefits depend on deliberate instructional strategies that prioritize critical thinking over mere content generation. Estaphan et al. (2025) explored the challenges and opportunities associated with AI-assisted student assignments in higher education. The study revealed that AI can support idea generation and organization. Adako et al. (2025) conducted a study on AI-assisted education for children with autism spectrum disorder (ASD), emphasizing evaluation and long-term impact. Their findings showed that AI-powered tools can enhance personalized learning, social skills, and academic outcomes when supported by robust assessment frameworks. Lu et al. (2025) found that students exposed to AI-assisted learning activities demonstrated higher levels of analytical reasoning and problem-solving than those taught through conventional methods.

Adaptive learning platforms and interactive digital tools increase student engagement with civic content and improve understanding of civic institutions and responsibilities (Baihaqi et al., 2024). Alkhawaja et al. (2025) found that exposure to AI-enhanced learning environments positively influenced students' digital competence and analytical skills, both of which are essential for success in technology-driven economies. Ododo et al. (2024) observed that Social Studies teachers who were prepared to integrate AI and e-learning platforms created more engaging and interactive learning environments, which supported students' skill development. It was also observed that limited infrastructure, inadequate training, and unequal access to digital resources remain major barriers to the effective use of AI in many developing contexts (World Bank, 2020).

Human Capital Theory

Human Capital Theory, as advanced by Theodore Schultz (1961) and later expanded by Gary Becker (1964), views education not simply as a social service but as a strategic investment in people. Schultz argued that spending on education improves individuals' productive capacities in much the same way that investment in physical capital enhances industrial output. Building on this idea, Becker demonstrated that education, training, and skills acquisition directly contribute to economic productivity and long-term national growth. At the core of Human Capital Theory is the assumption that education and training are investments rather than forms of consumption. The knowledge, skills, and competencies acquired through education increase individuals' productivity, which in turn leads to higher earnings at the individual level and economic growth at the societal level. Importantly, the theory emphasizes that the quality of education not merely access to it plays a decisive role in shaping development outcomes. Societies that prioritize modern, relevant, and skills-oriented education systems are therefore better positioned to achieve sustainable development.

Human Capital Theory also maintains that teaching methods, curriculum content and instructional technologies contribute to learners' skill development. Contemporary pedagogical approaches, such as AI-driven pedagogy are viewed as powerful tools for improving learning efficiency, deepening students' understanding of complex concepts, and fostering critical, digital, and employability skills that are increasingly demanded in today's labour market. This theory is particularly relevant to the present study because the integration of AI-driven pedagogy in social

science education represents a deliberate investment in human capital development. By incorporating AI tools into teaching and learning processes in tertiary institutions in Cross River State, students and lecturers are more likely to develop critical thinking and analytical abilities, digital and technological competencies, as well as civic awareness and problem-solving skills. Collectively, these competencies can enhance graduates' productivity and employability, strengthen workforce quality, improve institutional efficiency, and ultimately contribute to broader national development outcomes.

Methodology

The cross-sectional research design was adopted for this study. This was because the design was concerned with the study of large and small populations with emphasis on the incidence, distribution, and interrelations of sociological and psychological factors, (Isangedeghi, Joshua, Asim & Ekuri, 2014). The population of this study comprise all social science students and lecturers in tertiary institutions in Cross River State, Nigeria. The sample size for this study was 616 respondents. The statistically determined sample size was adopted to ensure representativeness. The Kish Leslie (1965) formula for cross sectional studies was used to determine the sample size from an estimated population of the study. The sampling techniques adopted for this study were purposive sampling and snowball sampling techniques.

The randomly selected tertiary institutions in Cross River State were University of Calabar and Federal College of Education Obudu. Data was collected using a structured questionnaire. It was structured to reflect the four point likert-scale type of strongly agree, agree, strongly disagreed and disagreed accordingly. The instrument was validated by experts in the faculties of education and social sciences in the study area. Reliability of the research instrument was determined using Cronbach's alpha coefficient. Data was analyzed using descriptive statistics (frequency, mean, standard deviation) and inferential statistics (Pearson product moment correlation coefficient) at 0.05 level of significance. This was carried out with the help of the Statistical Package for Social Sciences (SPSS) software for analysis and results presented in tables. Informed consent was obtained from all participants. Confidentiality and anonymity was assured, and participation was voluntary.

Results:

Result of the data collected was presented and analysed based on the variables of the study.

Research Question 1: What is the impact AI-driven pedagogy of quality of teaching and learning in social science courses on students and lecturers in tertiary institutions?

Respondent's responses from the questionnaire were analysed and presented in percentages as shown in table 1. From the table, out of the 616 questionnaires retrieved, majority of the respondents 146(23.70%) which represented a higher percentage strongly agreed that AI adoption for quality teaching and learning in social science education has improved the competences of students and lecturers in tertiary institutions and 248(40.3%) agreed while 105(17%) of the respondents strongly disagreed and 117(19%) of the respondents disagreed. Also, a large proportion of the respondents 156(25.3%) strongly agreed that the use of Ai in social science education has boost the interest of students and lecturers to go for advance digital learning and teaching methods 232(37.7%) of the respondents agreed, while 116(18.8%) of the respondents strongly disagreed, 112 (18.2%) disagreed.

Table 1

Respondent's responses on the impact AI-driven pedagogy of quality of teaching and learning in Social Science courses on students and lecturers in tertiary institutions in Cross River State

Statement	Factors	Frequency	Percent (%)
AI adoption for quality	SA	146	23.7
Teaching and learning has	A	248	40..3
in social science education has	SD	105	17.0
Improved the competences of	D	117	19
students and lecturer in tertiary		616	100
institutions			
Total			
The use of Ai in social science	SA	156	25.3
Education, boost the interest of	A	232	37.7
Students and lecturer to	SD	116	18.8
to go for advance digital teaching	D	112	18.2
and learning methods		616	100
Total			

Source: Field Work, 2026

Research Question 2: What impact has AI-driven pedagogy of students' critical thinking, civic competence, and employability skills in social science education on students and lecturers in tertiary institutions?

Respondent's responses from the questionnaire were analysed and presented in percentages as shown in table 1. From the table, out of the 616 questionnaires retrieved, majority of the respondents 250(40.6%percent) which represented a higher percentage strongly agreed that AI adoption for teaching and learning in social science Education has increased students and lecturers critical thinking capacity, and 115(18.7%) of the respondents agreed while 107(17.3%) of the respondents strongly disagreed and 117(19%) of the respondents disagree. Also, a greater proportion of respondents 157(25.5%) strongly agreed that AI driven- pedagogy in Social Science Education has improved the civic competencies and employability skills of students and lecturers in tertiary institutions, 231(37.5%) of the respondents agreed, while 116(18.8%) of the respondents strongly disagreed, 112 (18.2%) of the respondents disagreed.

Table 2

Respondent's responses on the impact of AI-driven pedagogy of students' critical thinking, civic competence, and employability skills in social science education on students and lecturers in tertiary institutions in Cross River State

Statement	Factors	Frequency	Percent (%)
AI adoption for teaching and learning in social science	SA	250	40.6
	A	144	23.4
Education has increased students and lecturers critical thinking capacity	SD	115	18.7
	D	107	17.3
Total		616	100
AI driven- pedagogy in Social Science	SA	157	25.5
Education has improved the civic competencies and employability	A	231	37.5
	SD	116	18.8
Skills of students and lecturers in Tertiary institutions	D	112	18.2
		616	100
Total			

Source: Field Work, 2026

Test of Hypotheses:

Hypothesis one

There is no significant relationship between AI-driven pedagogy of quality of teaching and learning in social science subjects/courses and its implications for students and lecturers in Cross River State, Nigeria. Pearson Product Moment correlation coefficient (r) was adopted for analysis. **Result of the analysis as presented in Table 3 revealed that the calculated r-value of 0.947 is significant at 0.05 levels of significance with 614 degrees of freedom.**

With this result, the null hypothesis was rejected while the alternate hypothesis which **states that there is** a significant relationship between AI-driven pedagogy of quality of teaching and learning in social science /courses and its implications for students and lecturers in Cross River State, Nigeria **was accepted. This result implied that, AI-driven pedagogy in the quality of teaching and learning in social science subjects/courses enhances students and lecturers digital capacity. The positive r implied that the higher adoption of AI-driven pedagogy of quality of teaching and learning in social science courses, the higher the Ai competences of students and**

lecturers in tertiary institutions in Cross River State, Nigeria.

Table 3

Pearson Product Moment Correlation (PPMC) analysis of the relationship between AI-driven pedagogy of quality of teaching and learning in social science subjects/courses and its implications for students and lecturers in **tertiary institutions** in Cross River State (N=616)

Variables	Mean	SD	r-value	Sig.
AI-driven pedagogy of quality of teaching and learning in Social Science subjects/courses	29.9256	2.05412	0.947*	.05
Implications for Students and lecturers in tertiary institutions	29.5455	2.73252		

Significant at .05, r-value = 0.947*, df = 614

Source: Fieldwork, 2026

Hypothesis two

There is no significant relationship between AI-driven pedagogy of students' critical thinking, civic competence, and employability skills in social science education and its implication for students and lecturers in tertiary institutions in Cross River State, Nigeria. To test this hypothesis, Pearson Product Moment Correlation (PPMC) was adopted for analysis. Result of the analysis as presented in table 4 revealed that the calculated r-value of 0.616 is significant at 0.05 levels of significance with 614 degrees of freedom.

With this result, the null hypothesis was rejected while the alternate hypothesis which states that there is a significant relationship between AI-driven pedagogy of students' critical thinking, civic competence, and employability skills in social science education and its implications for students and lecturers in tertiary institutions was accepted. The positive r implied that higher students' critical thinking, civic competence, employability skills can improve the Ai capacity of students and lecturers in tertiary institutions in the study area.

Table 4

Pearson Product Moment Correlation Analysis of the relationship between AI-driven pedagogy of students' critical thinking, civic competence in social science education and employability skills and its implications for students and lecturers in **tertiary institutions** in Cross River State (N=616)

Variables	Mean	SD	r-value	Sig.
AI-driven pedagogy of Students' critical thinking, civic competence, and employability skills in social science education	29.6777	2.90177	0.616*	.05
Implications for Students and lecturers in tertiary institutions	29.5455	2.73252		

* Significant at .05, r-value = 0.616*, df = 614

Source: Fieldwork, 2026

Discussions

The findings of this study provide empirical evidence on the role of AI-driven pedagogy in enhancing social science education and its implications on students and lecturers in tertiary institutions in Cross River State, Nigeria. Specifically, the results of hypothesis 1, revealed a

significant relationship between AI-driven pedagogy on the quality of teaching and learning of social science courses, with clear implications for students and lecturers. This finding makes known that the integration of artificial intelligence into teaching and learning processes particularly within tertiary institutions in Cross River State has the potential to improve instructional quality, learner engagement, and educational outcomes, which are critical drivers of national development. This result corroborates the findings of Malik et al. (2025) and Khan et al. (2025), who reported that the adoption of Intelligent Tutoring Systems (ITS) significantly improved student engagement, learning outcomes, and academic performance. Their studies emphasized that institutions that invested in teacher capacity building, provided ethical and pedagogical guidance, and aligned AI applications with curricular objectives experienced more effective and sustainable integration of AI technologies. The statistically significant gains observed in post-test performance in these studies were largely attributed to AI-enabled personalization, adaptive learning pathways, and continuous feedback mechanisms. Based on this study, these findings underscore the capacity of AI-driven pedagogy to strengthen the teaching and learning of social science education, thereby contributing to improved educational quality of students and lecturers in tertiary institutions in Cross River State and Nigeria at large.

The result of Hypothesis Two further revealed a significant relationship between AI-driven pedagogy in terms of students' critical thinking, civic competence, and employability skills in social science education and its implications for students and lecturers in tertiary institutions in Cross River State, Nigeria. This finding implies that the effective use of AI tools in social science classrooms can enhance higher-order cognitive skills, foster civic awareness, and equip students with relevant employability skills necessary for active participation in socio-economic and political development. This finding aligns with the studies of Rusandi et al. (2023) and Adako et al. (2025), which demonstrated that AI-supported learning environments can enhance students' analytical and evaluative abilities by promoting deeper engagement with information. These studies highlighted that when learners are guided to cross-examine sources, detect misinformation, and reflect critically on social issues, AI becomes a powerful tool for nurturing critical thinking and civic competence among students and lecturers. Similarly, Adako et al. (2025) reported that AI-powered tools enhance personalized learning, social skills development, and academic achievement when supported by robust assessment and monitoring frameworks.

In spite of the positive outcomes, the study also revealed significant structural and institutional barriers to the effective implementation of AI-driven pedagogy, limited digital infrastructure, inadequate access to computers and mobile devices, insufficient technical training for lecturers, and unequal access to digital resources identified as major constraints in many tertiary institutions, including the University of Calabar and Federal College of Education, Obudu in Cross River State, Nigeria. These challenges limit the extent to which AI can be effectively deployed to students and lecturers to achieve its full educational and developmental potential. Addressing these challenges is essential for maximizing the benefits of AI-driven pedagogy in Social Science Education and for leveraging students and lecturers education as a strategic instrument for sustainable development in Cross River State and Nigeria as a whole.

Conclusion

This study examined artificial intelligence-driven pedagogy in Social Science Education and its implications on students and lecturers in tertiary institutions in Cross River State, Nigeria. The findings revealed that the integration of AI into teaching and learning processes significantly enhances the quality of instruction and student engagement in social science disciplines. Through personalized learning, adaptive feedback, and improved instructional delivery, AI-driven pedagogy contributes to better learning outcomes and strengthens the overall quality of students and lecturers in higher institutions of learning.

The study further established that AI-supported social science education positively

enhance students and lecturers critical thinking skills, civic competence, and employability. By encouraging analytical reasoning, informed civic participation, and practical problem-solving, AI tools help prepare students and lecturers to respond effectively to contemporary societal and labour market demands. These outcomes underscore the strategic importance of social science education, supported by AI, in building human capital particularly students and lecturers necessary for tertiary institutions in cross river state and Nigeria at large. Despite these positive outcomes, the study revealed persistent challenges limiting effective AI adoption in tertiary institutions, including inadequate digital infrastructure, insufficient access to technological devices among others. These constraints highlight the need for a coordinated and policy-driven approach to AI integration in higher education.

In conclusion, AI-driven pedagogy holds significant potential to transform Social Science Education and contribute to capacity building especially as it concerns students and lecturers in tertiary institutions in Cross River State, Nigeria. Realizing this potential requires deliberate investment in infrastructure, capacity building, and ethical, curriculum-aligned implementation of AI technologies within tertiary institutions.

Recommendations

Tertiary institutions should deliberately integrate AI-supported learning management systems, intelligent tutoring platforms, and data-driven assessment tools into Social Science instruction. Such integration supports personalized learning, timely feedback, and improved instructional quality.

Institutional leadership must prioritize continuous training and retraining programs to equip lecturers with the pedagogical competence and ethical understanding necessary for effective AI adoption. This addresses the current gaps in AI literacy among educators.

Social Science curricula should be restructured to emphasize inquiry-based, problem-solving learning enhanced by AI technologies. Incorporating real-life social issues, civic simulations, data analysis tasks, and reflective learning activities will strengthen students' analytical reasoning and responsible citizenship. Institutions must improve digital infrastructure and ensure affordable access to devices and internet services for both lecturers and students, thereby bridging the digital divide that currently constrains equitable AI adoption.

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