Promoting Access to AI-Driven Educational Technologies in Public Secondary Schools in Underprivileged Communities in Lagos State

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Abstract

This paper examines strategies for promoting access to AI-driven educational technologies in public secondary schools in underprivileged communities in Lagos State. Two research questions and one hypothesis guided the paper. The research employed a mixed-methods approach, combining qualitative and quantitative data collection and analysis techniques. A total of 12 classes comprised of 25 SS2 students and 12 teachers of each class were selected in each school, which is a total of 312 of total samples. Semi-structured interviews and questionnaires serve as primary data collection for this study. The questionnaire was analyzed using chi-square while the responses to the Semi-structured interview were analyzed using thematic analysis. The instrument's content was validated by expert opinion. The instrument's reliability was validated using Cronbach's alpha; and with a reliability coefficient of 0.88. The study found significant barriers (limited access to AI-driven education, limited digital literacy, insufficient teacher training, government policy support, and access to smart devices) and challenges in accessing AI-driven educational technologies in public secondary schools in underprivileged communities in Lagos State. Also, the study found a potential negative impact of the unavailability of these AI-driven opportunities on educational outcomes in public secondary schools in underprivileged communities in Lagos State. Based on the findings of this research, it was recommended that the Lagos State government and stakeholders should prioritize the development and implementation of a comprehensive strategy that outlines a clear roadmap for the integration of AI-driven solutions across all educational levels in underprivileged communities.

Keywords: AI-driven, Educational Outcomes, Underprivileged Communities, Digital divides, Secondary Schools, and Educational Outcomes.

Introduction

Education plays a crucial role in ending global poverty. Ensuring access to education, even in the poorest nations, is a pressing issue. In sub-Saharan Africa alone, approximately 98 million children and youth aged six to 18 are not attending school, highlighting significant barriers to educational access in the region (Down to Earth, 2024). Education leads to expanded employment opportunities, increased income levels, and improved maternal and child health. Empowering women through has been education shown to uplift impoverished communities, leading to better job prospects, higher earnings, and enhanced health outcomes (Harry, 2023). Furthermore, research indicates that low socioeconomic status, often linked to limited education, correlates with reduced access to maternal healthcare services and poorer pregnancy outcomes. Countries with strong education systems experience lower crime rates, greater economic growth, and improved social services (Haruna, 2020; Eden et al., 2024). According to Yakubu (2024), education is universally recognized as a fundamental human right and a critical component of individual and societal development. In recent vears, advancements in artificial intelligence (AI) have revolutionized various sectors, including the education sector. AI-driven

educational technologies have the potential to transform learning experiences by offering personalized, adaptive, and scalable solutions. However, the benefits of these innovations are not evenly distributed, particularly in regions where access to basic educational resources remains a challenge (Harry, 2023; Adedigba & Sulaiman, 2019).

Underprivileged communities in Lagos State, Nigeria, are characterized by high levels of poverty, inadequate social infrastructure, and limited access to quality education. These communities often suffer from overcrowded classrooms. poorly equipped schools. insufficient funding, and lack а of technological resources (Adebayo, 2022). Public secondary schools in these areas struggle to keep up with modern educational advancements, including AI-driven learning tools, which are becoming increasingly essential in the global education landscape (UNESCO, 2023). Lagos State, as Nigeria's economic hub, has a vast educational divide between affluent urban schools and those in low-income areas. While elite private schools and some government-supported institutions integrate AI-based learning systems, schools in underprivileged areas lack such opportunities, further exacerbating educational inequalities (Okonkwo & Adepoju, 2021). These disparities hinder students from acquiring the digital skills necessary for future employment and higher education. Hence, this study aims to explore the digital divide in AI access among secondary schools underprivileged in communities of Lagos State. The lack of AIdriven technologies in these schools limits students' ability to develop essential 21stcentury skills, reducing their competitiveness in the digital economy (World Bank, 2023). Furthermore, teachers in these communities often lack adequate training in AI-based instructional methods, making it difficult for them to incorporate technology into their teaching (Adelakun, 2022).

In Lagos State, Nigeria, numerous public secondary schools in underprivileged communities lack sufficient access to cuttingedge AI-driven technologies. While initiatives such as the distribution of robotic kits to 10 public secondary schools have been undertaken (Punch, 2023), these efforts are limited in scope and do not encompass most schools, particularly those in less affluent areas. The state's plan to integrate AI into the school curriculum is still in its early stages (Punch, 2024), indicating that many schools currently remain without access to advanced AI technologies. This digital gap hinders students in these underserved areas from reaping the potential educational benefits that AI-powered tools can offer, such as tailored instruction, intelligent tutoring, and adaptive learning experiences. The unequal implementation of AI technologies puts students in underprivileged communities at risk of lagging behind their peers in more affluent schools, thereby worsening existing disparities. educational Students in underprivileged communities may fall further behind academically due to limited access to personalized AI-powered learning tools, education, and adaptive learning systems. This disparity can lead to lower academic performance and reduced opportunities for higher education. However, parents in underprivileged communities may feel pressured to invest in costly AI-based educational tools or tutoring to bridge the gap, further straining their financial resources. The unequal distribution of AI technologies may contribute to a greater divide between high-income and low-income communities, reinforcing systemic inequalities. Contributing factors to this issue include inadequate funding, a lack of teacher training and technical support, the absence of policy frameworks and programs to ensure fair access to AI-driven educational technologies, and limited awareness and understanding underprivileged communities among regarding the advantages of the adoption of AI technologies in education.

Statement of the Problem

Objectives of the Study

The major aim of this study is to examine strategies for ensuring equitable access to AIdriven educational technologies in underprivileged communities in Nigeria. Specifically, the study sought to

- 1. explore the impact of barriers and challenges in accessing AI-driven educational technologies in public secondary schools in underprivileged communities in Lagos state.
- 2. assessing the potential impact of the unavailability of these AI-driven educational technologies on educational outcomes in public secondary schools in underprivileged communities in Lagos state.
- 3. proposing strategies for ensuring equitable access to AI-driven educational technologies.

Research Questions

- What barriers and challenges exist in ensuring equitable access to AI-driven educational technologies in public secondary schools within underprivileged communities in Lagos state?
- How does the lack of access to AIdriven educational technologies negatively impact educational outcomes in public secondary schools in these underprivileged communities in Lagos state?
- What are the strategies for ensuring equitable access to AI-driven educational technologies

Research Hypothesis

Ho: There are no significant barriers in ensuring equitable access to AI-driven educational technologies in public secondary schools in underprivileged communities in Lagos state.

Review of literature Artificial Intelligence

Artificial intelligence is superior to natural intelligence in that it is more consistent,

durable, faster in processing and publishing, every step it takes can be documented, and it can perform certain tasks much faster and better than humans (Al-Hawamdeh & Alshaer, 2022). AI is used to simplify the management of IT processes and accelerate and automate problem-solving in modern and complex IT operating environments (Donatus et al., 2024). Artificial intelligence is a set of techniques and models that are used to build machines capable of simulating human intelligence with the help of technological devices to reproduce advanced knowledge that facilitates and accelerates the achievement of goals. Artificial intelligence is also based on the development of smart programs capable of learning, thinking, collecting, and perceiving knowledge, and these complex programs perform tasks through environmental sensing and response processes and can simulate the behaviours of individuals, thinking and acting smart decisions (Haruna, 2020).

Educational Inequality in Nigeria

Educational inequality in Nigeria is driven by factors such as socioeconomic disparities, geographic location, gender, and ethnicity. underserved Rural areas and urban communities are disproportionately affected, many lacking basic educational with resources. These challenges are compounded by socio-economic factors, including poverty and unemployment, which limit the ability of families to invest in education (EFA Global Monitoring Report, 2015; Haruna, 2020). Gender disparities are also significant, with girls in some regions being less likely to attend school due to cultural practices, early marriage, and the preference for educating boys. Additionally, ethnic minorities and children with disabilities face discrimination and a lack of tailored educational services, further exacerbating educational inequality (UNESCO, 2019). Despite efforts by the Nigerian government and international organizations to address these issues, progress has been slow. The introduction of AI-driven educational technologies presents a potential solution, but their accessibility to underprivileged communities remains a challenge.

The existing research revealed significant barriers to accessing AI-driven educational technologies in underprivileged communities in Nigeria. These barriers include:

- Infrastructural Deficits:
- Socio-Economic Challenges:
- Digital Literacy:
- Cultural and Language Barriers:

Strategies for Ensuring Equitable Access

Ensuring equitable access to digital technology requires a multifaceted approach grounded in evidence-based strategies. Research emphasizes that infrastructure development is critical for bridging the digital divide. Norris (2001) highlights that region with poor infrastructure face substantial challenges in accessing the digital world, necessitating targeted investments in broadband deployment, especially in rural and underserved areas. Similarly, Castells (1996) argues that integrating digital networks into peripheral regions can enhance participation in the global information economy.

Education and digital literacy play a crucial role in ensuring equitable access. Warschauer (2003) underscores the importance of digital literacy as a determinant of effective technology use, asserting that without adequate skills, access to devices or the internet remains underutilized. This perspective is supported by Helsper and Eynon (2010) who find that digital literacy programs tailored to specific populations significantly improve the capacity of individuals to engage meaningfully with technology. Furthermore, Robinson et al. (2015) emphasize the need for culturally sensitive training programs that address the unique barriers faced by marginalized communities.

Theoretical Framework

Digital Divide Theory

Affordability is another critical strategy highlighted in the literature. According to Mossberger et al. (2008), high costs of devices and internet services disproportionately affect low-income populations, creating a barrier to access. One solution proposed by DiMaggio and Hargittai (2001) is the implementation of governmentsubsidized internet services and affordable device distribution programs, which can significantly reduce financial barriers. Recent studies by van Deursen and van Dijk (2019) also emphasize the role of public-private partnerships in reducing costs and improving access high-speed internet to for economically disadvantaged groups.

Policy and governance reforms are central to creating an equitable digital environment. Selwyn (2004) advocates for inclusive policy frameworks that prioritize digital equity as a national development goal. This approach aligns with findings from Ragnedda and Muschert (2013), who argue that equitable access requires robust policies that address both infrastructural and socio-cultural barriers. Similarly, Fuchs (2009) stresses the importance of participatory governance in digital inclusion efforts, suggesting that involving marginalized groups in policymaking leads to more effective and sustainable outcomes.

Community-driven initiatives have also proven effective in addressing the digital divide. Koltai (2016) highlights the success of local community networks and digital hubs in empowering disadvantaged groups to access and utilize technology. These initiatives often serve as focal points for providing affordable internet, digital literacy training, and technical support. Additionally, Seong-Jae and Jaeger (2013) argue that libraries and community centers play a pivotal role in offering free access to technology and fostering digital inclusion.

The foremost theorist for the digital divide theory was Pippa Norris (2001) who propounded that the digital divide theory explores the gap between individuals, groups, or regions with access to digital technology and those without. It how disparities in access to technology, the internet, and digital literacy can reinforce and exacerbate existing social, economic, and cultural inequalities. The digital divide theory provides a relevant theoretical framework for understanding the challenges of ensuring equitable access to AI-driven educational technologies in public schools located secondary in underprivileged communities in Lagos State. The digital divide theory focuses on the disparities in access, use, and the impact of digital technologies and information and communication technologies (ICTs) between different socioeconomic, demographic, or geographic groups within a population. This theory is particularly applicable to the AI-driven context of educational technologies underprivileged in communities. This theory examines the gap between individuals, households, businesses, and geographic areas at different socioeconomic levels concerning their opportunities to access and use information and communication technologies (ICTs), including AI. It focuses on the barriers that underprivileged communities face in accessing and utilizing AI-based technologies, such as lack of infrastructure, digital literacy, and affordability.

The Social Inclusion Theory

The social inclusion theory was propounded by Jan van Dijk (1990s). The Social Inclusion Theory refers to the framework and set of ideas aimed at understanding and promoting the full participation of all individuals in society. It emphasizes creating opportunities and reducing barriers so that everyone, regardless of their background, identity, or socio-economic status, can participate in social, economic, cultural, and political life. The social inclusion theory has multiple proponents from different fields, but one of the most notable scholars associated with the development and promotion of this theory is Amartya Sen. Social inclusion theory emphasizes the importance of providing equal access and opportunities for all members of society, regardless of their social, economic, or cultural background. When it comes to the implementation of AI-driven educational initiatives in Nigeria, this theory would suggest that particular attention should be paid to ensuring that underprivileged communities, such as those living in poverty, rural areas, or with disabilities, are not left behind. One key aspect of social inclusion theory in this context would be the need to identify and address the specific barriers that may prevent underprivileged communities from accessing and benefiting from AI-driven educational technologies. This could include factors such as lack of infrastructure (e.g., reliable internet connectivity, hardware), affordability, digital literacy, and cultural or linguistic barriers. This theory emphasizes the importance of ensuring that all members of a society, including underprivileged groups, have equal access to opportunities, resources, and decision-making processes. It can be used to analyze the extent to which AI deployment in Nigeria addresses the needs and concerns of underprivileged communities and promotes their social and economic inclusion.

Methodology

This research employed a mixed-methods

approach, combining qualitative and quantitative data collection and analysis techniques. This approach allowed for a comprehensive understanding of the barriers accessing AI-driven educational to technologies in underprivileged communities in Nigeria. The population of this study comprises a selection of two public secondary schools from each of the six educational districts in Lagos State. A total of 12 classes were purposely assigned, 25 SS2 students of each class were assigned in each school, which is a total of 300 students. Furthermore, 12 class teachers of the assigned classes were selected from the schools which brings the total sample to 312. Semi-structured interviews and questionnaires serve as primary data collection for this study. The questionnaire (Accessing AI-driven Educational Underprivileged Technologies in Communities Questionnaire - AAEOMCO) for students includes Section A for Demographic Information, while Section B was guided by research questions. A 4-point Likert rating scale was employed to measure responses for section B in which Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) were assigned 4, 3, 2, and 1 point respectively.

The questionnaire was administered in person using research assistants to the students. The instrument's content was validated expert bv opinion. The instrument's reliability was validated using Cronbach's alpha and its reliability coefficient stood at 0.88. Teachers are participants in a 10-minute semi-structured interview session, guided by the research questions. However, the participants were informed of their anonymity in participating

in this interview as it was purely for research purposes. They were further informed that their responses were confidential and could withdraw at any time during the interview. The questionnaire was analyzed using chi-square while the semistructured interview was analyzed using thematic analysis, the thematic analysis was used to identify recurring themes and patterns in the interview transcripts, providing insights into the experiences and perspectives of educators. Hence, themes from the interview were generated responses, and they include learning experience, student performance, AI inequalities training support, and inadequate infrastructure. The research adhered to ethical guidelines established by relevant academic institutions and research ethics boards.

Results and Discussion

Table	1:	Demographic	information	of
respon	den	ts		

Variable	Frequency	Percentage
Age		
13 - 15 years	105	35
16 - 18 years	128	42.7
19 - 21 years	67	22.3
Gender		
Male	166	55.3
Female	134	44.7
Religion		
Christianity	83	27.6
Islam	127	42.4
Traditionalist	62	20.7
Others	28	9.3
Source: Field S	Survey (2024)	

Table 1 shows the age distribution of the students, and most of the respondents are between the ages 16 - 18 years represented by 128 (42.7%), those between 13 - 15 years are 105 (35%), 67 (22.3%) of the respondents are between the ages of 19 - 21

years. The gender distribution of respondents shown in the table indicates that out of the 300 respondents, 166 (55.3%) are male, while the remaining 134 (44.7%) are female. This implies that most of the respondents are male. The table reveals that most of the students were Islam represented by 127 (42.4%), 83 of the respondents were Christians (27.6%), traditionalists were 62 (20.7%), and others were 28 (9.3%).

Research Question 1: What barriers and challenges exist in ensuring equitable access to AI-driven educational technologies in public secondary schools within underprivileged communities in Lagos state?

 Table 2: Barriers and challenges of accessing AI-driven educational technologies in underprivileged communities.

S/N	Research Questions	Mean	Std.
1	How much do you agree that poor internet connectivity limits access to AI-driven educational tools in underprivileged communities?	1.7	.63
2	How much do you agree that limited digital literacy among underprivileged populations restricts the use of AI-driven educational tools?	1.7	.59
3	How much do you agree that insufficient teacher training on AI tools is a barrier to their use in underprivileged communities?	1.52	.72
4	How much do you agree that a lack of government policies supporting AI education in underprivileged areas is a significant barrier?	1.7	.68
5	To what extent do you believe limited access to smart devices (e.g., smartphones, tablets, computers) prevents the use of AI-driven educational tools?	1.59	.52
	Total	1.57	.59
Sour	ce: Field Survey (2024)		

Table 2 shows the mean of the responses between barriers and challenges of accessing AI-driven educational technologies and educational outcomes of public secondary schools in underprivileged communities. The items on the questionnaire were analyzed and revealed that most of the respondents strongly agreed with statements 1, 2, and 4. Furthermore, the lowest mean

 Table 3: Chi-Square Test Table

scores of 1.52 and 1.59 for statements 3 and 5.

Hypothesis One

*Ho*₁: There are no significant barriers and challenges in ensuring equitable access to AI-driven educational technologies in public secondary schools in underprivileged communities in Lagos state.

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.23 ^a	2	.00
Likelihood Ratio	12.53	2	.94
Linear-by-Linear Association	13.37	1	.00
N of Valid Cases	300		

a. 0 cells (0.0%) have an expected count of less than 5. The minimum expected count is 7.81.

The Pearson Chi-square test was performed to determine if the barriers and challenges AI-driven educational and accessing technologies are connected. According to the Chi-square coefficient (= 19.2, n = 300, df = 2, p = .000), the barriers and challenges accessing AI-driven educational in technologies are associated with public secondary schools in underprivileged communities in Lagos state. The results show a connection between barriers and accessing AI-driven challenges in educational technologies and public schools underprivileged secondary in communities in Lagos state.

Table 4: Descriptive Statistics

The responses mostly showed strong agreement, as indicated by the average scores found in tables 4.18 to 4.22, which range from 3.81 to 4.37. In essence, challenges such as limited access, low digital literacy, and inadequate teacher training all contribute to challenges and barriers in accessing educational technologies underprivileged in public secondary schools in Lagos state.

Thematic Analysis of Semi-Structured

Interview

Research Ouestion 2: How does the lack of access to AI-driven educational technologies negatively impact educational outcomes in public secondary schools in these underprivileged communities in Lagos state?

A total of 12 teachers were interviewed using semi-structured interview questions, guided by research question two. The responses of 8 male teachers and 4 female teachers were analyzed using thematic analysis.

Question 1: How do you think the use of AI-

driven tools would change the way you N. Mean interact with your students? 300 4.37

30DearnAnlgExperience (Theme 1).

300 4.19 300 ased 3.95 the feedback received, artificial 30 intelligence (AI) has the potential to 300 ansform the landscape of education by facilitating customized learning experiences. This entails adapting lessons to cater to the individual needs of students, a task that can be particularly daunting in larger class settings where providing personalized attention to each student is challenging. Some respondents expressed concerns that AI implementation might decrease direct face-to-face interactions as certain tasks become automated. However, other respondents highlighted the potential for AI

to offer an opportunity to allocate additional time and attention to students in need of extra support. By automating administrative responsibilities, AI can liberate educators' time, enabling them to concentrate on fostering meaningful discussions and nurturing students' critical thinking abilities.

Question 2: Based on your understanding, what potential effects could AI-driven tools have on students' academic performance and learning outcomes in underprivileged communities?

Student Performance (Theme 2).

Most of the respondents asked about the effect of AI-driven tools on academic performance and learning outcomes in underprivileged communities and pointed out that AI-driven tools could make a significant difference providing bv educational materials to students who may not have access to high-quality resources. However, other respondents mentioned that AI could provide personalized feedback and accommodate self-paced learning, which could enhance students' performance, even in environments with limited resources. Also, some respondents emphasized the importance of infrastructure, as they believe that without reliable access to electricity and the Internet, the potential of AI may not be fully realized underprivileged in communities.

Question 3: Do you believe AI tools could help close the educational gap in underprivileged communities, or would they create new challenges in terms of equity and access?

AI Inequalities (Theme 3).

Some of the respondents mentioned that AI tools have the potential to reduce disparities if they are tailored to the specific needs of local communities and made widely available, provided that the necessary infrastructure is established. However, there were concerns expressed some by respondents that these tools could worsen inequalities if underprivileged groups cannot afford the technology or if there isn't for utilization. sufficient support its Additionally, some respondents argued that although AI has the potential to create a more level playing field, the existing disparities in technology access could lead to new challenges related to fairness and equality.

Question 4: What kind of training and support do you think teachers would need to effectively integrate AI-driven tools into their teaching? Do you feel prepared for this shift?

Training Support (Theme 4).

Most of the survey participants expressed a strong desire for practical training, workshops, and ongoing professional development, programs that emphasize both the technical and pedagogical aspects of AI. Additionally, some respondents recommended availability the of troubleshooting support and mentorship from IT professionals as part of the necessary support. There were also concerns raised about the readiness for this shift.

Some participants believed that increased collaboration between educators and AI experts could be beneficial, while others felt that they were somewhat prepared but required more exposure to AI tools.

Question 5: What challenges do you foresee in implementing AI-driven tools in public secondary schools in Lagos' underprivileged areas? How could these be addressed?

Inadequate Infrastructure (Theme 5)

The majority of those surveyed believe that inadequate infrastructure, including unreliable electricity and the internet, will pose a significant barrier to progress. They also stressed the importance of investing in basic amenities. Some respondents highlighted the high cost of AI tools and the shortage of skilled personnel to support their use in underprivileged areas as major hurdles. They suggested that the government and NGOs could contribute to addressing these challenges by providing funding and training. Additionally, resistance to change from both educators and parents was identified as a potential obstacle to the adoption of AI technologies. To overcome this, the respondents proposed implementing awareness campaigns and training programs. Overall, these responses demonstrate a mix of optimism about the potential of AI, concerns about infrastructure and fairness, and the necessity of comprehensive teacher training.



CODE TREE

Discussion of Results

Having analyzed the questionnaires and the test of hypotheses using the Pearson Chisquare test and descriptive statistics with the aid of Statistical Package for Social Sciences (SPSS 23.0), the following findings were made:

The first hypothesis established that there are significant barriers and challenges in accessing AI-driven educational technologies schools in public secondary in underprivileged communities in Lagos state. This finding was corroborated by the findings of Eden et al. (2024) whose executive summary outlines the imperative to explore how AI-enhanced tools can serve as transformative agents in mitigating disparities arising from economic, social, and cultural factors. By leveraging AI technologies, educators and policymakers can revolutionize traditional educational practices and foster more inclusive learning environments. The summary highlights the urgent need to examine the role of AI in promoting equitable access, enhancing learning outcomes, and fostering inclusivity across diverse socioeconomic backgrounds. Through a critical analysis of existing literature, case studies, and empirical research, the conceptual analysis seeks to elucidate the potential of AI to bridge the digital divide and advance educational equity. It emphasizes the importance of identifying actionable strategies and best practices for leveraging AI technology to address systemic inequalities in education.

Also, the thematic analysis of the second research question revealed that the unavailability of AI-driven educational technologies has significant negative impacts on the educational outcomes in public secondary schools in underprivileged communities in Lagos State. This was further supported by the findings of Onyebuchi et al. (2023) who analyzed artificial intelligence's (AI's) impact on education in Africa, focusing on personalized learning, technology integration, and challenges in educational development. The review delves into various applications of AI in education, ranging from personalized learning experiences adaptive assessment to methodologies, and examines their impact on diverse learning environments. It gives an overview of the current state of education in Africa, the review highlights the disparities in access, quality, and infrastructure. It also investigates the innovative ways in which AI technologies are being integrated into educational systems. Policy recommendations and strategic initiatives are explored to guide the responsible and sustainable integration of AI in education across the diverse socio-economic and cultural contexts prevalent in Africa.

Conclusion

The introduction of AI-driven educational technologies has the potential to transform education in Lagos State, particularly in underprivileged communities where educational technology resources are scarce. However, significant barriers to accessing these technologies remain, including infrastructural deficits, socio-economic challenges, and low levels of digital literacy. ensure that AI-driven educational То technologies are accessible to all, deliberate efforts must be made to address these barriers and promote equitable access. This research project has highlighted the key challenges and opportunities associated with implementing AI-driven educational technologies in underprivileged communities in Lagos State. By investing in digital infrastructure, promoting digital literacy, ensuring affordability, developing culturally relevant content. and implementing supportive policy interventions, stakeholders can help bridge the educational divide and promote inclusive development. Ensuring equitable access to AI-driven educational technologies is not only a matter of social justice but also a crucial step toward achieving sustainable development and improving the lives of millions of Nigerians.

Recommendations

After analyzing the results of this study, five essential recommendations were formulated for the Lagos State Government, policymakers, educational administrators, teachers, and parents to guide future actions:

- The Lagos State government should prioritize the development of a comprehensive strategy that outlines a clear roadmap for the integration of AI-driven educational technologies across all educational levels in underprivileged communities of Lagos State. This strategy should address key areas such as infrastructure development, capacity building, ethical guidelines, and public-private partnerships.
- To ensure equitable access to AIdriven resources. substantial should be made in investments digital infrastructure. improving particularly in rural and underprivileged areas. This includes expanding broadband connectivity, providing affordable devices, and ensuring reliable access to electricity.
- Effective implementation of AIdriven educational technologies requires a skilled and digitally literate

teaching workforce. It is recommended to establish comprehensive teacher training and professional development programs that focus on developing competencies in using AI-driven tools, adapting pedagogical and leveraging dataapproaches, driven insights for personalized instruction.

- Collaboration between the government, educational institutions, and private sector organizations is crucial for the successful deployment of AI-driven solutions. Public-private partnerships can leverage the expertise, resources, and innovative solutions of various stakeholders, accelerating the adoption and scaling of AI-driven initiatives.
- As AI-driven solutions handle sensitive student data and involve algorithmic decision-making, it is essential to establish robust ethical governance frameworks and data protection measures. These should address concerns related to data privacy, and algorithmic bias, and ensure the responsible and equitable use of AI in education.

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