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IMPACT OF ARTIFICIAL INTELLIGENCE (AI) ON TEACHERS' LEADERSHIP IN NIGERIAN SCHOOLS.

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Abstract
This phenomenological study investigates the transformative impact of Artificial Intelligence (AI) on teacher leadership in Nigerian schools. Addressing a critical gap in the literature, the research explores two questions: the perceived effect of AI on expanding or regressing teacher leadership roles, and the new competencies required to sustain these roles. Data from semi-structured interviews with 30 teachers across five states revealed a significant polarization. One cohort viewed AI as a threat to leadership, fearing the regression of autonomy, collaboration, and professional judgment, reducing teachers to mere facilitators of technology. Conversely, another cohort perceived AI as an empowering tool that automates administrative tasks, provides data-driven insights, and frees time to focus on instructional leadership, mentoring, and expanding their role as coaches and resource providers for colleagues. The study concludes by identifying five essential competencies for teacher leaders in the AI era: technological literacy, adaptability and continuous learning, collaborative and coaching skills, data-informed decision making, and, most notably, a human-centered approach that prioritizes relationships and social-emotional development to ensure technology augments rather than replaces human connection.

Key Words: Impact, Artificial Intelligence, Teachers' Leadership

Introduction

The classroom of the 21st century is no longer a static entity but a dynamic, data-rich environment increasingly mediated by Artificial Intelligence. From algorithms that tailor learning pathways to individual student needs (Hwang et al., 2020) to chatbots that manage administrative queries in real-time (Bates,2020), AI is fundamentally reshaping educational praxis. School leaders leverage predictive analytics to identify at-risk students (Robinson, 2019), while natural language processing tools provide instantaneous feedback on student writing (Fang, 2021). This technological infusion promises unprecedented efficiency and personalization.

However, this seismic shift has created a palpable tension within the teaching profession. As institutions race to adopt AI tools for learning, administration, and communication, a critical question emerges: what becomes of the teacher? While existing scholarship has begun to explore the role of formal school leadership in the AI era (Hejres, 2022; Tyson & Sauers, 2021), a significant gap exists regarding its impact on teacher leadership the distributed, often informal influence teachers exert beyond their classrooms to drive instructional excellence and school-wide innovation (Crawford, Cowling, Allen 2023).

This study positions itself at this critical juncture. It moves beyond the simplistic debate of AI as a replacement for teachers—a notion widely critiqued for overlooking the irreplaceable human elements of mentorship, empathy, and adaptive critical thinking (Borenstein & Howard, 2021; Ouyang & Jiao, 2021)—and instead probes a more nuanced reality: the transformation of the teacher's leadership function.

Research Question

This research seeks to understand how AI is redefining the scope, authority, and very nature of teacher leadership by asking:

1. To what extent is AI perceived to expand or regress teacher leadership roles in schools?
2. What new competencies are required for teacher-leaders to not only sustain but also enhance their roles in an AI-augmented educational environment?

Theoretical Framework

Leadership is conceptualized here not as a formal title but as a function a dynamic set of behaviors and influences where teachers act as agents of change (Ghamrawi, 2023). Educational leadership plays an essential role in shaping and improving the educational process, particularly in the context of integrating advanced technologies such as artificial intelligence (AI). The importance of AI in education has grown due to its capacity to enhance learning across diverse contexts (Hwang et al., 2020). This encompasses mentoring colleagues, driving curriculum development, advocating for policy, and engaging in action research (Bond, 2022; Lumpkin, 2016 in Ghamrawi et al 2023). Its core value lies in empowering the professional expertise of educators to catalyze school improvement and enrich student outcomes (Harris & Jones, 2019; Shen et al., 2020).

The integration of AI disrupts this traditional model. It introduces a new, non-human actor capable of tasks once central to a teacher's leadership capital: analyzing student data, curating resources, and even providing instructional feedback. This study examines whether this disruption is a form of empowerment, freeing teachers to focus on higher-order leadership functions, or a form of displacement, narrowing their role and autonomy.

Research Methodology

The study used a phenomenological research approach where the researcher explored the lived experiences of interviewee. 30 Teachers across 5 states in Nigeria (Abuja, Imo, Kaduna, Lagos and Rivers) were interviewed using a semi-structured interview schedule through Google meet. This was developed for the purpose of this study, allowing the interviewer to delve into unexpected or important areas that may arise during the interview while ensuring that key topics are covered. The semi-structured format also facilitates comparability across different interviews by ensuring some consistency in the questions asked. It underwent iterative refinement and revision through pilot testing and feedback from experts to enhance its effectiveness and relevance to the research study experiences of some teachers through in-depth interviews and other secondary data such as texts, reports, articles, and case studies, to identify themes, patterns or narratives.

This type of research often focuses on understanding deeper meanings, contexts, and experiences. Qualitative data were analyzed thematically and presented in narrative form. Ethical considerations, such as acknowledging the source of data, are critical. This research method is cost-effective and time-efficient, providing valuable insights without the need for direct interaction with participants or fieldwork.

Data analysis followed open coding, axial coding, and selective coding, as suggested by Williams and Moser (2019). To ensure the validity of the codes and themes, peer debriefing was employed, whereby two of the researchers autonomously coded the data and subsequently cross-referenced and harmonized the codes and themes as suggested by Scharp and Sanders (2019).

In the process of analysis, the transcripts of the interviews were segmented into smaller units and assigned labels (codes), which were constantly compared and contrasted for similarities and differences. The next stage involved axial coding, whereby the codes were categorized into groups and connections were forged between them. The final stage involved selective coding, affording the researchers the opportunity to amplify and formulate the narrative of the instance by extending the central coding to a more abstract level (Flick, 2009 in Ghamrawi et al 2023). This method provided reinforcement in constructing signification and narrating a tale employing the amassed data (Charmaz, 2014).

Table 1: Interview Schedule

Introduction	Welcoming, self-introductions, overview of the topic, informed consent, and ground rules. Why do you identify as a teacher leader? Give examples of roles you have taken up in your school
Enhancing	Drawing from your current understanding with AI in education, how do you perceive its influence on teacher leadership? In your view, does AI have the potential to strengthen or diminish the leadership roles of teachers—and why? Additionally, could you highlight specific aspects of your teaching practice where AI might enhance or support leadership functions? For example, consider areas such as instructional planning, student assessment, professional collaboration, or school-wide decision-making
Regression	Do you have any concerns about AI in education, especially its impact on teacher leadership? Have you seen examples where AI has either supported or limited teacher leadership? If so, please describe.
Competence	What key skills and competencies do teachers need to integrate AI while sustaining their leadership roles?
Closure	Is there anything else you'd like to share or reflect on regarding AI and teacher leadership—perhaps insights, experiences, or suggestions that haven't come up yet? Your perspective is valuable and could offer new dimensions to this conversation

Research Findings

In other for ethical concerns, participants are known using the formula TNS, where
'T' stands for teacher, 'N' stands for the number given to him/her; and 'S' is the first letter of the state this participant came from. For example, T2S indicates a Lagos teacher numbered '2'.

Research question 1: to what extent will AI expand/regress teacher Leadership roles in schools?

Partakers in this study were divided, some considering AI to be enhancing (16 out of 30), while others (14out of 30) thought it was regressing to teacher leadership roles in schools. On one hand, teachers thought that teacher leadership may be regressed because teachers could become facilitators of technology, and problem- solvers around it.

‘AI’s regression of teacher roles is a valid concern. Through the integration of AI systems in classrooms, there is a possibility of teachers being reduced to mere facilitators of technology. So we our leadership role will be diminished’ (T3-l).

‘AI’s potential regression of teacher roles should not be undervalued. As technology takes on more responsibilities, teachers might face reduced command over their students and colleagues. They can no more serve as resource providers for both’ (T6-A).

‘Teachers may find themselves consigned to observing and troubleshooting technological systems rather than focusing on meaningful interactions with students. This could lead to a devaluation of teacher leadership roles in the classroom and outside it’ (T2-I).

Equally, according to participants, the encroachment of AI algorithms in education poses a major threat to teachers’ autonomy, weakening their leadership roles and turning them into mere followers of preset instructional guidelines. AI was thought to undermine teachers’ autonomy, changing them into passive conduits for pre-determined algorithms, ultimately eroding their ability to exercise leadership and tailor instruction to their students and colleagues.

‘Teachers may lose their independence in decision-making as AI algorithms dictate curriculum content and assessment methods. This degenerates their leadership roles’ (T11-K).

"The prescriptive nature of AI algorithms can compromise teachers' professional autonomy, casting them merely as executors of predetermined content rather than as educational leaders. This constrains their ability to innovate and lead within their own classrooms." (T7-R) “The increasing reliance on AI algorithms to dictate curriculum content and assessment methods undermines teachers’ autonomy, eroding their capacity to lead and make informed decisions that best serve their students’ unique needs. So teachers are no more leaders around student learning’ (T6-L).

Participants expressed contrasting views on AI's impact on collaboration. Some feared that by automating planning and providing pre-packaged content, AI would diminish the need for teachers to collaborate on curriculum design and resource sharing (T13-A, T15-L). Conversely, others argued that this very automation would free teachers from administrative burdens, granting them more time to focus on high-level collaborative leadership, mentoring, and instructional innovation.

‘In my view, AI empowers teachers to be leaders who can make informed decisions based on data and ensure each student reaches their full potential. This integration of AI technology empowers teachers to assume greater leadership in creating engaging, student-centered learning experiences’ (T28- I).

Many teachers view AI as a transformative tool for enhancing leadership. By automating routine tasks, AI liberates educators to focus on higher-impact activities like personalized instruction, critical thinking, and fostering positive classroom environments (T19-K). Furthermore, AI augments teacher expertise by providing rich educational resources and adaptive tools, amplifying their ability to improve student outcomes (T30-L). This empowerment extends beyond the classroom, enabling teachers to assume strengthened roles as mentors and coaches for their colleagues. They can leverage AI-driven insights and materials to support peer development, collaborative planning, and school-wide innovation, ultimately reclaiming time for these vital leadership functions (T22-R).

Participants posit that AI serves as a critical resource for amplifying teacher leadership. The technology provides an abundance of educational materials and analytical insights, enabling educators to assume expanded roles as mentors and instructional coaches. By leveraging these tools, teacher leaders are empowered to support their colleagues in implementing effective practices and guiding professional development, thereby enhancing their overall influence and capacity within the school community (T21-L, T14-K).

In conclusion, teachers are divided in their viewpoints concerning the impact of AI on teacher leadership roles. Although some of them believe that AI may potentially regress teacher leadership by limiting autonomy and replacing human connection; others see it as a tool that can enhance teacher leadership through expanded mentorship, coaching, and resource provision opportunities.

Research Question 2: What will be the new set of competencies required for teacher leaders to sustain their roles in an AI era?

To sustain their leadership roles in the AI era, teacher leaders must develop a new set of competencies centered on five essential themes: technological literacy, adaptability and continuous learning, collaborative and coaching skills, data-informed decision making, and human-centered approaches. These competencies reflect the evolving educational landscape shaped by the integration of artificial intelligence, which presents both opportunities and challenges for educators.

Technological literacy: Participants universally affirmed that technological literacy is a non-negotiable, core competency for teacher leaders navigating the AI era. This literacy extends far beyond basic digital skills, requiring a functional understanding of AI-powered tools, data analytics platforms, and emerging educational technologies. The primary objective is to equip these leaders to not only enhance their own instructional practices but also to effectively guide and support their colleagues in the meaningful integration of AI resources.

As one participant (T12-L) stated, this involves being "comfortable with technology" and possessing "the ability to leverage AI tools effectively," emphasizing that it is "not just about being tech savvy; it’s about understanding how AI works, analyzing data insights, and using technology as an enabler." This sentiment was echoed by another (T10-A), who highlighted the necessity for teacher leaders to be "equipped with the knowledge and skills to navigate AI-powered platforms, interpret data generated by AI systems, and leverage technology to optimize instructional practices and support their colleagues."

Adaptability and continuous learning: Adaptability and continuous learning emerged as vital competencies for teacher leaders in the AI era. All participants emphasized the need for educators to embrace new technologies, evolving pedagogical approaches, and changing professional roles. Teacher leaders must commit to ongoing professional development, stay current with AI advancements, and continuously adapt their instructional practices to effectively integrate AI tools. As one participant noted, this requires "a growth mindset and a commitment to continuous learning," being "adaptable, willing to explore new technologies, and continuously refine instructional practices" (T1-R). Another emphasized that teacher leaders must be "adaptable and

open to change," actively seeking professional development opportunities and staying informed about AI developments to ensure seamless integration that enhances student learning (T25-I).

Collaborative and coaching skills: Collaboration and coaching skills were identified as essential for teacher leaders in the AI era. Participants unanimously agreed that leaders must foster a collaborative culture, promote peer learning, and act as instructional coaches to help colleagues effectively use AI resources. As emphasized by participants, teacher leaders must "create opportunities for educators to collaborate, share best practices, and support each other" (T10-K) and "serve as coaches who help their colleagues navigate the integration of AI tools in the classroom" (T23-A). This involves facilitating peer learning and providing ongoing support to ensure successful AI implementation.

Data-informed decision making: Participants (13 out of 30) emphasized the importance of data-informed decision making as a key competency for teacher leaders in an AI era. They discussed the need for educators to be proficient in analyzing and interpreting data generated by AI systems, using insights to inform instructional strategies, personalize learning experiences, and identify areas for improvement.

'Teacher leaders must possess strong data literacy skills in an AI era. They need to be able to analyze and interpret data from AI systems to make informed decisions about instructional practices, identify student needs, and drive evidence-based decision making to improve learning outcomes' (T22- L). 'Data-informed decision making is crucial for teacher leaders in the AI era. They should be adept at analyzing data insights generated by AI tools and lever- aging that information to tailor instruction, identify learning gaps, and implement targeted interventions to meet the diverse needs of their students' (T17- I).

Human-centered approaches: Human-centered approaches emerged as a critical competency for teacher leaders, with two-thirds of participants emphasizing the need to preserve education's human element amidst AI integration. Teacher leaders must champion the irreplaceable role of human educators by prioritizing relationship-building, social-emotional development, and critical thinking skills while leveraging AI tools. As participants emphasized, AI should "complement and enrich the human experience, not replace it" (T9-K). Teacher leaders must ensure "the human element of education remains central" by using AI to enhance learning while preserving "the personal connection between teachers and students" and promoting holistic educational values like "creativity, collaboration, and critical thinking" (T27-L). This human-centered approach represents a crucial counterbalance to technological integration in education.

Conclusion

This study on AI and teacher leadership revealed a polarized view among educators regarding its impact on their roles. One group feared AI would regress their leadership, diminishing their autonomy and reducing them to passive facilitators of technology. They were concerned about losing their ability to collaborate and tailor instruction, seeing AI algorithms as a threat to their professional judgment. Conversely, another group viewed AI as a tool for enhancement. They

believed it could automate administrative tasks, provide data-driven insights, and free up time, allowing them to focus on instructional leadership, mentoring, and innovation. This group envisioned expanding their role beyond the classroom to become mentors and coaches for colleagues, using AI to support collaborative planning and professional growth.

To sustain their leadership in the AI era, the study identified five essential competencies for teachers. These are technological literacy, to understand and utilize AI tools; adaptability and continuous learning, to keep pace with new technologies; and collaborative and coaching skills, to support colleagues. Furthermore, data-informed decision making is crucial for personalizing learning and guiding instruction based on AI-generated insights. Finally, and most uniquely, the study highlights a human-centered approach as a critical competency. This novel finding specifically connects the prioritization of positive relationships and social-emotional development to the enhancement of teacher leadership itself, ensuring technology serves to augment rather than replace human connection.

Recommendations

The following are recommendations are made;.

1. Educational institutions should develop comprehensive professional development programs that build teacher leaders' competencies in technological literacy, adaptability, collaborative coaching, data-informed decision making, and human-centered approaches, ensuring these programs preserve professional autonomy and the irreplaceable human elements of education while leveraging AI's capabilities
2. School leadership should establish ethical AI frameworks that safeguard teacher autonomy, preserve collaborative practices, and strengthen human connections by positioning AI as a tool to enhance rather than to replace teacher leadership, thereby empowering educators as curriculum designers and creating opportunities for amplified roles as mentors and instructional coaches.

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