

Facilitators' Perceptions of Technology-Enhanced Teaching and Learning in Basic Schools in the Post-COVID-19 Era

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How to cite this paper: Okine, S. A. (2026). Facilitators' Perceptions of Technology-Enhanced Teaching and Learning in Basic Schools in the Post-COVID-19 Era. *Open Journal of Social Sciences*, 14, 647-661.

<https://doi.org/10.4236/jss.2026.1410030>

Received: August 28, 2026

Accepted: October 25, 2026

Published: October 28, 2026

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Abstract

Digital and online teaching and learning have become a permanent aspect of the education system following the COVID-19 pandemic. As quality education is a key component of the Sustainable Development Goals (SDGs), digital teaching and learning in public primary schools may help achieve educational objectives by 2030. Despite the enhancement of teaching and learning through technology in Ghanaian schools, resource allocation remains insufficient in some context. Targeted policy interventions are therefore required to provide schools with adequate Information and Communication Technology (ICT) resources and training to support digital and virtual instructions. In this study, 76 participants were recruited voluntarily. Drawing on behaviorist, resilience, and digital theories as theoretical lenses. The study found that digital teaching and learning equipped stakeholders with technological competencies. Nonetheless, its implementation was constrained by poor collaboration, inadequate digital infrastructure, limited internet access, and insufficient digital literacy.

Keywords

Facilitator, Digital Teaching and Learning, Stakeholders, Education, Contemporary, Qualitative, COVID-19 Pandemic, Technology

1. Background

Digital and distance learning are integral to contemporary teaching and learning in the technological age, helping public primary school children in schools gain technological knowledge and skills. School leaders and facilitators integrate digital devices into classrooms to enhance student learning. Contemporary teachers are

regarded as facilitators who employ engagement strategies to encourage student participation in discussions and experiments that foster problem-solving. These approaches promote the development of innovative and creative teaching and learning skills. The head facilitator embodies school leadership and is responsible for coordination at the school level.

Policy-makers in Ghana's education sector, such as the Ministry of Education (MoE), are responsible for establishing policy direction, mobilizing resources, and ensuring alignment with national education objectives. These policy-makers define regulations for policy implementers, notably the Ghana Education Service (GES), which manages school operations and ensures adherence to standards. The district or local office represents the GES and supervises policy implementation within schools.

In Ghana's education system, digital policy (Education Policy 2015 and the Draft National EdTech Strategy 2030) has been introduced across public primary schools to enable children to use digital devices and apps to obtain teaching information and learning materials in mathematics, English, and other subjects. The conceptual framework that supports the Sustainable Development Goals (SDGs). Integration of Information and Communication Technology (ICT) in Primary Schools, as stated by (Azman et al., 2025). This approach allows facilitators to access and use information for classroom work by simply pressing a button. Panchal et al. (2023) and Di Pietro (2023) explained that these apps contain the instructional models and schedules. As a result, globally, education systems are embracing the use of ICT in public primary schools and following curricula developed using new methods of learning (Ilic, 2022). Dubey & Bhardwaj (2025) explained that the skill and manner of easily using the apps assist teaching and learning to be carried out smoothly. It also helps guide and enhance school leaders' and facilitators' knowledge and skills for effective classroom interactions.

Related research by Ilic (2024); Gómez-Gómez et al. (2022) and McLean et al. (2024) has shown that digital and distance teaching and learning build knowledge and skills in technology within educational systems worldwide. According to Azman et al. (2025); Zhang & Wu (2025), the extensive amount of manual teaching activities had been a great burden. The use of apps has decreased the amount of paperwork in educational systems. Yet there are still gaps in digital readiness and in the inclusion of stakeholders with regard to quality teaching and learning in schools that hinder policy implementation. For this reason, the study seeks to explore stakeholders' experiences and perceptions of digital teaching and learning in public primary schools following the COVID-19 pandemic. Specifically, the study examined differences in policy implementation across schools, stakeholders' experiences with the use and usability of available digital technologies, and stakeholder involvement in the design and development of digital teaching and learning policies.

Basic school education in Ghana consists of 2 years of kindergarten, 6 years of primary school, and 3 years of junior secondary school. The following research questions define the scope of this study: 1) How do stakeholders describe differ-

ences in the implementation of digital teaching and learning in primary schools? 2) How do teachers describe their experiences with available digital technologies in teaching and learning? 3) How do stakeholders describe their involvement in the design and development of digital teaching and learning policies for primary schools?

Open-ended questions address the specific adjustments stakeholders have made to support digital instruction, the support or resources they consider to improve the digital experience, and the emphasis that should be placed on future professional development for digital teaching and learning. Additional questions examine the priority assigned to enhancing digital infrastructure in primary schools during policy planning and the effectiveness of collaboration between the government and technology providers in improving educational delivery.

2. Theoretical Framework

This study draws on three theories—Behaviorist Theory, Resilience Theory, and Digital Divide Theory—to explain the policy design. Theme three (3) identifies a policy-process issue concerning whose knowledge is incorporated into decisions about inequalities.

Behaviorist Theory, grounded in the works of B.F. Skinner and John B. Watson posits that environmental stimuli and reinforcement mechanisms shape behavior. In this context, Theme Three (3) emerged as an empirical policy process finding and is interpreted in relation to the contextual implications of the selected theories. The theory provides conceptual insights into engagement patterns, motivation, performance levels, and reinforcement structures, including monitoring tools and teacher feedback on digital instruction. The theory enables an assessment of how the participants respond to the new instructions.

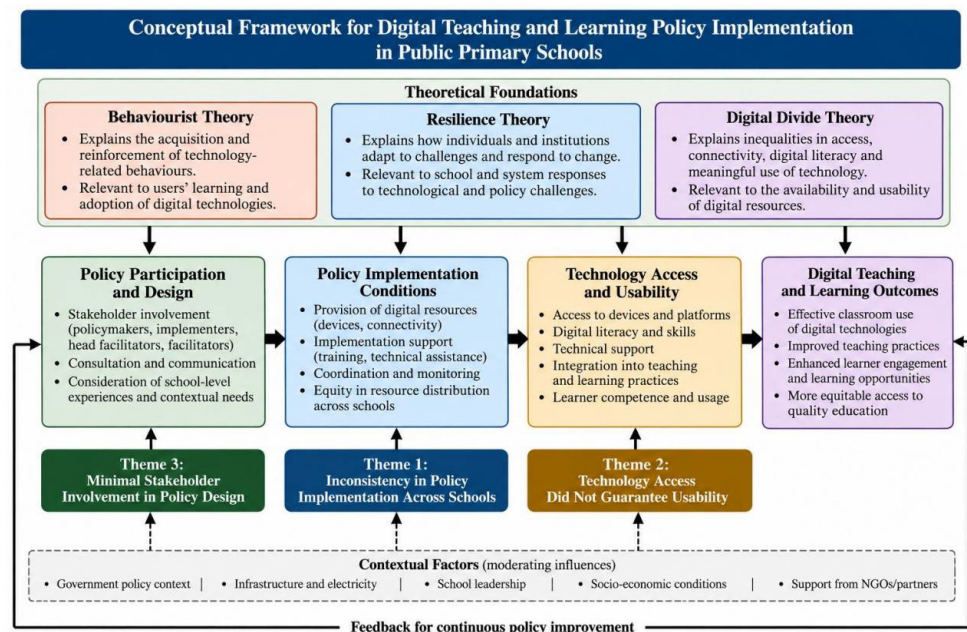
Stoet and Geary (2018) explained that Resilience Theory helps explain the importance of institutional adaptation, while Theme 3 shows that opportunities for stakeholders to contribute to that adaptation through policy design were perceived as limited. It provides a conceptual foundation for understanding how educational institutions and individuals adapt to change. The digital theory posits that the findings reveal that meaningful digital inclusion requires attention not only to whether technologies are provided, but also to providing access to technology infrastructure and training (Selwyn, 2021). According to the findings, Resilience Theory provides effective adaptation to technology and educational change, requiring institutions and people to respond to the change. The findings suggest that the Behaviorist Theory has a limited relationship with themes one and three. Because its focus is on stakeholders' behavioral adaptation to digital teaching and learning, the acquisition and reinforcement of technology-related practices described in theme two. Theme Three indicates that digital teaching and learning decision-making is a participatory policy-design issue. Together, these three theories provide a robust framework for evaluating stakeholder behavior, institutional response, and equity in educational access.

3. Conceptual Framework

The conceptual framework was developed to illustrate the relationships among policy participation and design, policy implementation conditions, technology access and usability, and digital teaching and learning outcomes. The framework is informed by the study findings and the three theoretical perspectives underpinning the study: Behaviourist Theory, Resilience Theory, and Digital Divide Theory. Consistent with Jabareen (2009) conceptualization, the framework presents interconnected concepts that provide an interpretive understanding of the phenomenon rather than a deterministic causal model.

The framework begins with policy participation and design, represented empirically by Theme Three, Minimal Stakeholder Involvement in Policy Design. This is followed by policy implementation conditions, represented by Theme One, Inconsistency in Policy Implementation Across Schools. The next component is technology access and usability, represented by Theme Two: Technology Access Did Not Guarantee Usability. These processes collectively influence the conditions under which digital teaching and learning can occur in public primary schools.

Behaviorist theory provides a lens for understanding technology-related behaviours and learning practices (Skinner, 1953). Resilience Theory provides a lens for examining how individuals and institutions adapt to technological and policy-related challenges (Masten, 2001). Digital Divide Theory provides a lens for examining inequalities in technological access, digital skills, and meaningful technology use (van Dijk, 2005). The framework therefore integrates the three perspectives while recognizing that Theme 3 represents an empirical finding concerning policy participation rather than a direct proposition of any one of the three theories.



Sarah Ayikai Okine has developed the above concept, using the conceptual framework based on Jabareen's (2009) conceptual basis.

4. Literature Perceptions

Extensive research on digital and online education has investigated the effects of digital teaching and learning across higher education institutions, high schools, and elementary schools worldwide. Researchers have utilized quantitative, mixed-method, and qualitative methodologies to explore the advantages and challenges associated with digital teaching and learning in educational settings. Nevertheless, there remains a gap in the literature regarding facilitators' perspectives on technology-enhanced teaching and learning in the post-COVID-19 era in Ghana.

He and Hak-soon (2025) emphasized that policymakers must ensure that introducing digital and virtual teaching and learning practices supports strong student outcomes and equity rather than creating knowledge and skill gaps in rural and urban schools. The participants described how digital teaching and learning improved teachers' pedagogical skills. According to Pan et al. (2025), there should be digital inclusion and equal resources for facilitators to curb pedagogical stagnation, to benefit rural and urban schoolchildren, by believing that leadership promotes sustainability. Power et al. (2023) explained that inconsiderate reliance on digital platforms, which does not highlight the importance of appropriate teaching and organizing systems, will prevent achieving purposeful objectives for children's engagement and system sustainability.

Hamasha et al. (2024) explained that 2.9 billion children remained unconnected to the digital world; therefore, schools should embrace digital and virtual teaching and learning. However, stakeholders should ensure the quality of virtual learning. Knaut et al. (2024) explained the emergence of digital and virtual teaching and learning as a digital transformation in education in the contemporary era. It enhances self-discipline in higher education. Students must take advantage of this transformation to increase their digital literacy and reduce existing gaps. According to the United Nations Development Programme (2022), remote teaching and learning is a pedagogical shift that relies on institutional readiness and students' centeredness.

Promoting an interactive environment for flexibility and accessibility, rather than teaching isolation, digital fatigue, and reduced engagement of stakeholders. Gayret and Gökçay (2024) explained that remote teaching and learning were introduced from a strategic point of view; rather, digital teaching and learning are emerging as a reactive response to the COVID-19 pandemic. Therefore, the education system has not been fully prepared for the change. Digital transformation benefits stakeholders by equipping them with knowledge and skills; however, the literature suggests that virtual and digital methods cannot entirely replace face-to-face and blackboard teaching and learning. Blended teaching and learning will benefit stakeholders more than a single way of teaching and learning in classrooms.

Persistent challenges include digitising instructional content and coordinating diverse stakeholders, which often results in inadequate metrics for accurate quantitative policy assessment. Facilitators struggle to manage classwork and home-

work submissions to conduct assessments. Additionally, the ongoing lack of stakeholder feedback impedes efforts to improve virtual and digital education delivery and complicates efforts to maintain learner engagement. [Andrade-Arenas et al. \(2021\)](#) and [Gaddas et al. \(2025\)](#) emphasized the difficulty of harmonizing remote and distance learning strategies, as this requires coordination among all stakeholders to address each school's unique circumstances. [Gayret and Gökçay \(2024\)](#) noted that neglecting strategies may affect the quality of learning.

5. Method

The study employed a qualitative research approach to explore stakeholders' experiences and perceptions of digital teaching and learning in public primary schools in Ghana following the COVID-19 pandemic. Specifically, the study examined differences in policy implementation across the schools, stakeholders' experiences with the use and usability of available digital technologies, and stakeholders' involvement in the design and development of digital and learning policies. Purposive and snowball sampling techniques were used to select participants with substantial knowledge and experience in basic school policy. Prior to data collection, the MoE and GES granted permission for data collection in the letter referenced: KoKMED, the SISO's KoKMED, the GES/GAR/PL1/8/SF1/76 and GES/GAR/KoKMED/2025/AF.34/01. Allowing the research to be conducted in the schools located in Osu and Adabraka within the Osu Korley Klotey constituency in the Greater Accra Region, twenty-six schools under the jurisdiction. Conceptually, this study offers a distinct perspective on digital teaching and learning in public basic schools compared with previous research on distance learning.

6. Participants

Participants were purposively selected according to their roles and direct involvement in digital teaching and learning policy formulation, implementation, school-level coordination, and classroom practice. The sample comprised 4 policymakers, 8 policy implementers, 26 head facilitators, and 38 facilitators. Policymakers provided perspectives on policy translation and implementation; head facilitators provided school-level leadership and an implementation perspective; and facilitators provided classroom-level accounts of digital technology use and usability.

7. Data Collection

The data were collected from the participants using open-ended questions. These questions were carefully designed to examine and assess the stakeholders' experiences and perceptions of digital teaching and learning in public primary schools following the COVID-19 pandemic. Specifically, the study examined differences in policy implementation across schools, stakeholders' experiences with the use and usability of available digital technologies, and stakeholder involvement in the design and development of digital teaching and learning policies.

The questions were framed to elicit responses. The time spent on data collection

was one hour, and the conversation was in English. All the participants completed the interview questions. All the transcripts were quality-checked through telephone calls and in-person visits to confirm the participants' responses.

8. Data Analysis

The data analysis followed a thematic analysis, employing Saldana's qualitative manual coding strategies for first- and second-cycle coding (Saldana, 2016). The aim of the cycles was to enable the breakdown of the participants' responses into specific groupings and classifications in order to ascribe meaning to the answers line by line of the interview transcripts. Meaningful segments of participants' responses were assigned descriptive codes that remained closely connected to participants' words and experience. The researcher recorded, compared, and organized the codes according to their relevance to the research questions. The second-cycle coding involved reviewing, comparing, and grouping related first-cycle codes into broader categories and patterns. Similar codes were clustered to identify relationships, recurring meanings, and conceptual similarities across participants' accounts. The categories were subsequently examined in relation to the research questions and theoretical framework and were refined into the study's primary and secondary themes, enabling the development of themes through the labeling and classification of the responses. The themes were sorted from the most frequent statement occurrences, presenting greater consideration as the themes.

The iterative thematic analysis began by transcribing individual participant accounts. Within the scope of the research questions, objectives, and theoretical framework, the researcher created meaningful groupings and labels and generated codes. The researcher matched categories using deductive reasoning. Category labelling: The researcher compared the groupings and labels with the completed coding to establish internal coherence among the responses. The analysis proceeded through four distinct stages.

1) Initial coding was conducted line by line, with codes remaining closely aligned to participants' responses. 2) Codes were clustered into conceptually related groups, forming broader categories. 3) These codes were then transformed into themes following careful examination of underlying patterns in participants' experiences. 4) Themes were reviewed to extract the central meaning of the transcripts. Higher-order interpretations were developed by analyzing relationships among multiple codes to determine broader meanings and experiences. Member checking was employed to ensure that participants confirmed the interpretations derived from their responses. Triangulation was used to compare participants' accounts with additional data sources related to similar phenomena.

Systematic documentation throughout the coding cycles ensured that responses were segmented and labeled appropriately. Salient points and phrases from the transcripts were grouped using a codebook to generate descriptive codes, which were then mapped and patterned to facilitate theme development. Themes were subsequently checked against the original data through peer debriefing and ana-

lytical memo writing for each theme. Reflexivity was maintained by keeping a journal throughout the process to minimize bias.

9. Evidence of Trustworthiness

Credibility, transferability, dependability, and confirmability were ensured in the data collection (Rashid & Rasheed, 2026). The credibility of the study was established by performing member checking with the participants. The individual participants reviewed their written transcripts to confirm the meanings and interpretations of the statements. Transferability ensured that the data collected from the participants represented the study as intended and that the transfer of the data could be guaranteed to apply to the same data collection in another research study. Dependability occurred through reporting to participants, changes over time as a result of the researcher's resource limitations, and the participants' availability. The continued member checking encouraged deep insight and in-depth data discovery, maximizing the data. The final element was data confirmability, which was done to ensure that the findings represented participants' perceptions and ideas, to establish the objectivity of the study, and to certify the internal process.

10. Study Results

The participants' distribution percentages

- Facilitators: 50.0%
- Head facilitators: 34.2%
- Policy implementers: 10.5%
- Policymakers: 5.3%

A total of seventy-six participants were recruited from an initial pool of seventy-nine invited volunteers. The final sample comprised twenty-six head facilitators, four policymakers, eight policy implementers, and thirty-eight facilitators.

Research question: How do stakeholders describe differences in the implementation of digital teaching and learning in primary school?

Theme 1: Inconsistency in Policy Implementation across Schools

Stakeholders acknowledged that policies were introduced to promote digital teaching and learning. However, there were notable challenges in how the policy was implemented.

58 participants explained

"Our school received no tablets or support to implement the digital teaching and learning system".

46 participants shared

"The stakeholders disseminated the information to the school through the head facilitator. There has not been a holistic approach to include all stakeholders."

67 Participants admitted that this was an oversight, with one stating.

"We underestimated how much support facilitators and the school children would need to use the tools provided effectively."

This theme highlights a gap in resource provision, communication, and tech-

nical support, as well as stakeholders' coordination. Thereby showing disagreement between policy intention and implementation, where it is not experienced uniformly across participating schools.

Research question: How do teachers describe their experiences of using available digital technologies in teaching and learning?

Theme 2: Technology Access Did Not Guarantee Usability

Another recurring insight was that, despite the introduction of technological tools such as online portals, WhatsApp-based assignments, and digital libraries, the children and facilitators faced challenges using them interactively. This theme highlights the distinction between access to tools and the ability to utilize them effectively.

47 participants shared

"The concept sounded great, but in practice, it is as if we are forgotten, even though we have an ICT laboratory".

61 participants candidly shared

"Links have been provided to connect and use the platforms, but we had no idea how to download and install the apps to log in or complete assignments".

This concern was echoed by participants, who noted that technical issues and low digital literacy limited the practical use of the resources made available.

52 participants remarked

"Though some children had smartphones or tablets, they did not know how to use learning apps. We spent more time teaching them how to use the tools than actually teaching lessons".

69 Participants expressed

"We receive instructions through district secretaries. If they had asked us, we could have told them what would work better on the ground".

Technology provision is a necessary condition, but the participants' accounts suggest that it is not sufficient for meaningful digital teaching and learning.

Research question: How do stakeholders describe their involvement in the design and development of digital teaching and learning policies for primary schools?

Theme 3: Minimal Stakeholder Involvement in Policy Design

The third theme that emerged strongly was the **limited consultation of key stakeholders**—especially facilitators—during the planning and formulation of interventions.

9 participants noted

"We issued directives to all districts to implement digital learning." However, implementation depended on the initiative of facilitators and the availability of local infrastructure.

53 participants stated

"We have not been involved in the policies framework".

Participants echoed these concerns, pointing out that while the policy framework is in place, there is no standardized enforcement or monitoring, which has resulted in a "patchy" rollout of digital teaching and learning.

The data indicate that while technology distribution occurred in some areas, its effectiveness was compromised by inadequate training and support, thereby reducing the overall impact of virtual teaching and learning strategies.

71 participants made a common statement among the participants.

“There is a request from policy implementers to act quickly; therefore, consultations among stakeholders have not happened yet. However, in hindsight, more involvement from the facilitators would have improved uptake and ownership. We can introduce blended teaching and learning over time”.

Although rapid, centrally coordinated decision-making may facilitate emergency policy responses, the participants’ accounts suggest that limited consultation may reduce opportunities to incorporate school-level implementation realities into policy design.

According to the findings, taken together, the three themes indicate an interconnected policy-to-practice challenge. Participants’ accounts suggest that limited stakeholder involvement, variations in implementation support, and constraints on technology usability are not isolated concerns but interconnected dimensions of digital teaching and learning in the participating schools.

11. Discussion of Results

Following the verbatim transcription of the data, thematic analysis was conducted in accordance with Braun and Clarke’s six-step procedure, which includes familiarisation, coding, defining and naming themes, and report production (Braun & Clarke, 2006). Themes were identified based on recurring meanings and patterns relevant to the study’s topic. Independent coding facilitated a transparent process for data sorting and labeling. Inter-coder reliability was evaluated to address disagreements. Reflexivity was maintained throughout the research process to enhance trustworthiness and ensure compliance with the ethical guidelines established by the Accra Institute of Technology University Institutional Review Board, thereby safeguarding stakeholders’ privacy.

The findings reveal that seventy-one (71) participants shared the complexity of introducing digital teaching and learning. According to sixty-one (61) participants, there was a general challenge in readiness among the stakeholders. According to sixty-nine (69) participants, the unavailability of digital devices and internet access contributes to technology infrastructure challenges. Conversely, nine (9) participants offered more positive assessments. This discrepancy aligns with findings by Blundell (2025), who highlighted that educational policymakers often overestimate the effects of interventions when they are not directly involved in classroom realities. Gaddas et al. (2025) observed that although digital learning policies have been introduced globally, after the COVID-19 pandemic, the unclear chain of instructions affects the use and performance of the stakeholders.

The finding highlights the resource accessibility challenges that stakeholders face in the classroom for digital teaching and learning. These barriers continue to affect the implementation of the intervention. The findings align with the schol-

arly argument that remote learning policies disproportionately affect regular teaching and learning due to infrastructural limitations (Wati et al., 2025). The findings suggest that the schools face challenges with technological adaptation, echoing Newton (2021), who stated that digital competency training for stakeholders has been inadequate in public schools. Al-Mughrabi (2025) emphasized the importance of providing digital learning resources in the current teaching and learning environment, suggesting that an inclusive stakeholder analysis will contribute to ensuring holistic solutions to enhance digital teaching and learning infrastructure in schools. The findings indicate nuance, showing that digital teaching and learning frameworks have not been practiced or integrated into public schools systematically.

The themes highlight concerns about the effectiveness of policy and technological solutions, as well as their impact on stakeholders' performance in schools. The findings suggest that policy implementation and consistency are essential—echoing earlier critiques by Andrade-Arenas et al. (2021), who argued that implementation without adequate support structures results in fragmented digital education delivery. The findings indicate that policymakers and implementers believe that the introduction of digital platforms provides reliably accessible teaching and learning tools, enabling users and stakeholders to deliver clear instructions for teaching and learning. However, seventy-one (71) participants described challenges with internet infrastructure and inadequate resource provision, frustrations because they have not been stakeholders in the decision-making. ***We have not been involved in the policies framework.*** Accessibility continues to mar the concept, as the gap between policy and practice in the participants' experiences aligns with Gómez-Gómez et al. (2022), who emphasized that without stakeholders' collaboration and holistic, consistent monitoring and evaluation for localized customization, centrally driven education technology policies will continue to experience challenges.

The findings relate to the gap between access and usability and support the argument of Knaut et al. (2024), who noted that meaningful access involves more than just distributing devices; providing guidance and tutorials is crucial for engagement. Power et al. (2023) emphasized that remote learning depends on supporting stakeholders. Dubey and Bhardwaj (2025) discovery stated that community networks and groups play a pivotal role in overcoming community challenges.

The theme of minimal stakeholder involvement in policy design raises questions about inclusivity and consultation in education strategic planning to achieve SDGs 2030. This aligns with the criticisms raised by Azman et al. (2025) and Portillo et al. (2020), who noted that rapid policy formulation often sidelines grassroots actors, resulting in low buy-in and resistance to implementation. He and Hak-soon (2025) and Pan et al. (2025) argued that a holistic and stakeholders' collaboration approach is necessary to ensure coordination. Zhang & Wu (2025); Blundell (2025); Constantinou & Carroll (2023) noted that the digital teaching

and learning support technologies environment in schools is a meaningful decision-making factor that intends to curb ambiguous instruction that creates unfamiliar, challenging steps to follow associated with manual instructions and processes. Therefore, stakeholders have opportunities to continue navigating the uncertainty of digital teaching and learning decision-making to encourage future guidelines for monitoring and evaluation.

12. Limitations of the Study

The interpretation of the findings should be considered in light of several limitations arising from the study design, the participants' composition, the data collection procedures, and the contextual nature of the findings.

The study was conducted in 26 public primary schools in Osu and Adabraka within the Greater Accra Region. The findings, therefore, reflect the implementation conditions experienced within these schools. Differences in infrastructure, connectivity, school leadership, resource availability, and institutional support across districts or regions may produce different experiences of digital teaching and learning. Consequently, the findings should be transferred to other contexts, with attention to similarities and differences in local conditions.

The study collected qualitative data through open-ended questions and interviews. Consequently, the findings concerning technology access, digital literacy, and usability were based primarily on participants' descriptions of their experiences. The study did not rely on systematic classroom observation to independently verify every reported instance of technology use. The findings should therefore be understood as participants' reported experiences rather than as direct measures of the actual frequency or quality of classroom technology use.

The seventy-six (76) participants comprised 26 head facilitators, 38 facilitators, 8 policy implementers, and 4 policymakers. The larger representation of facilitators and head facilitators provided substantial school- and classroom-level evidence, while the smaller number of policymakers provided a narrower range of policy-level perspectives. The findings concerning policy design and participation should therefore be interpreted as the perspectives of the policymakers and other stakeholders who participated, rather than as a comprehensive representation of all policymakers involved in digital education policy.

The participants occupied different positions within the education policy and implementation structure. Policymakers and policy implementers were positioned differently from head facilitators and facilitators, and these differences may have influenced how participants described policy decisions, implementation challenges, and stakeholder involvement. In particular, participants working within the education system may have exercised caution when discussing institutional practices or limitations. The findings should therefore be interpreted with awareness of the potential influence of participants' institutional positions on their accounts.

A notable finding was the difference between policy-level perceptions of digital

teaching and learning. Policymakers and implementers provided relatively more positive assessments of policy interventions, whereas school leadership and facilitators described greater difficulties involving infrastructure, internet access, resources, and digital literacy. This divergence means that the study does not provide a single, uniform account of policy effectiveness. Rather, the findings represent different stakeholders' perspectives on the same policy process.

Data collection extended over six months, and digital technology, infrastructure, training opportunities, and implementation arrangements may change over time. Consequently, the findings represent participants' experiences during the period in which the study was conducted and may not capture subsequent changes in technology provision, policy implementation, or institutional support.

The study identified limited stakeholder involvement in policy design through participants' accounts. However, interview evidence alone cannot establish the precise extent to which individual stakeholder contributions were incorporated into particular policy documents or decisions. The findings are therefore interpreted as participants' perceptions and experiences of participation rather than as a documentary assessment of every stage of the policy-development process.

13. Recommendation and Conclusion

The findings indicate that digital teaching and learning in the participating public primary schools represents more than a technological transition. It involves changes in policy processes, institutional implementation, and classroom practices. The three themes demonstrate that policy design, implementation conditions, and technological usability are interconnected dimensions of digital education transformation.

The study therefore contributes a policy-to-practice perspective by showing that the effectiveness of digital teaching and learning depends not only on the introduction of technology but also on the participation of stakeholders in policy development, the consistency of implementation across schools, and the capacity of facilitators and learners to use digital resources meaningfully.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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