

ADDRESSING DIGITAL DIVIDE AMONG NIGERIAN TEACHERS: THE ROLE OF NATIONAL TEACHERS' INSTITUTE

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Abstract

This study evaluates the National Teachers' Institute's (NTI) interventions in bridging the digital divide among Nigerian teachers. The research is based on the 2024 report of the 11TH National Council on Communication Meeting where stakeholders decried the absence of digital infrastructure in schools and non-utilization of the available ones by the Nigerian teachers. Using a descriptive survey design with 445 teachers sampled via cluster randomization, the research assessed five key NTI initiatives: digital pedagogy training, e-learning, e-facilitation systems, tablet distribution, and e-teaching practice supervision. Findings reveal significant improvements in technology integration (M=3.02), student engagement (M=3.24), and LMS utilization (M=3.23), with 70% of impact indicators exceeding the acceptance threshold (mean >3.04). However, critical gaps emerged in tablet utilization (M=2.91) and e-teaching practice supervision effectiveness (M=2.65), highlighting systemic challenges in post-training support. The study concludes that while NTI's multidimensional approach successfully enhances digital competencies, sustained impact requires strengthened technical infrastructure and supervision mechanisms. Recommendations include scaling partnerships for program expansion and implementing robust post-training monitoring systems to ensure classroom-level implementation of digital pedagogy.

Keywords: Digital Divide, Nigerian Teachers, National Teachers' Institute

1.1 Background to the Study

The digital divide has emerged as a critical global challenge in the 21st century, creating disparities in access to information and communication technologies (ICT) between developed and developing nations (UNESCO, 2023). While technology continues to transform education systems worldwide, billions of people remain excluded from digital opportunities due to infrastructural limitations, socioeconomic barriers, and policy gaps (World Bank, 2021). This divide affects various sectors, with education being particularly vulnerable as it determines a nation's future workforce competitiveness.

In Africa, the digital divide is particularly severe, with Nigeria facing significant challenges in equipping its teachers with necessary digital skills (Ibrahim, 2021). Studies show that over 70% of Nigerian educators lack access to basic digital tools and training, preventing effective technology integration in classrooms. While urban schools may have sporadic access to computers and internet, rural areas often lack even basic electricity to power digital devices (Adeosun, Adanikin & Tihamiyu, 2023).

The consequences of this digital divide extend beyond teachers to create ripple effects throughout Nigeria's education system. Students taught by digitally excluded teachers enter the workforce without crucial 21st-century skills, limiting their employability in an increasingly technology-driven economy. Schools without digital resources struggle to implement modern curricula, resulting in outdated teaching methods that fail to engage tech-savvy learners (National Teachers' Institute, 2024).

The National Teachers' Institute (NTI) stands as Nigeria's primary agency for teacher training and professional development. Established to enhance teaching quality nationwide, NTI has the mandate and infrastructure to implement large-scale digital literacy programs for educators (Department of Quality Assurance/ICT, 2024). Its nationwide network of centers and experience in distance education makes it uniquely qualified to deliver technology training even to remote areas.

Bridging the digital divide among Nigerian teachers offers transformative benefits for the entire education ecosystem. Digitally empowered educators can enhance learning experiences through interactive content, personalized instruction, and access to global educational resources. Technology integration can improve administrative efficiency in schools while preparing students for digital workplaces. Furthermore, closing this gap aligns with Nigeria's Sustainable Development Goals (SDGs) commitments, particularly SDG 4 on quality education (UNDP, 2023). Successful interventions could serve as models for other developing nations facing similar challenges, positioning Nigeria as a leader in educational technology innovation in Africa.

1.2 Statement of the Problem

Nigeria's education system holds immense potential, with talented children who could thrive in the digital age if properly guided. However, this potential remains largely untapped because many teachers lack adequate digital literacy and pedagogical skills. When educators are not equipped with technological competencies, they cannot effectively prepare students for a world that increasingly depends on digital tools and platforms. This gap in teacher capacity directly impacts students' ability to develop critical 21st-century skills, ultimately limiting their future opportunities and Nigeria's overall competitiveness in the global knowledge economy.

The severity of this challenge was highlighted in the 2024 report of the 11th National Council on Communication Meeting, where education stakeholders raised serious concerns about two critical issues. First, they identified a widespread absence of digital infrastructure in Nigerian schools, particularly in rural areas. Second, they noted that even where basic technology exists, many teachers either cannot or do not utilize these resources effectively in their teaching. This dual problem of inadequate infrastructure and insufficient digital skills among teachers creates a significant barrier to educational progress, leaving Nigerian students at a disadvantage compared to their peers in more technologically advanced nations.

Recognizing this urgent need, the National Teachers' Institute (NTI) implemented an intervention program to address the digital divide among educators. The initiative involved distributing tablets and providing comprehensive training to 635 teachers across Nigeria, focusing on digital pedagogy, remote teaching techniques, and e-learning strategies. This program represents a crucial step toward equipping teachers with the necessary skills to integrate technology into their classrooms. However, while such interventions are commendable, their actual effectiveness in improving teaching practices and student outcomes remains to be systematically evaluated.

This study aims to assess the impacts of NTI's teacher training program on bridging the digital divide in Nigerian education. It seeks to determine whether the initiative has successfully enhanced teachers' digital competencies and whether these new skills have translated into improved classroom practices.

1.3 Objectives of the Study

The specific objectives of this study were to;

- i. Identify the contributions of the National Teachers' Institute (NTI), Kaduna in addressing digital divide among Nigerian teachers.
- ii. Assess the impacts of the contributions of the National Teachers' Institute (NTI), Kaduna in addressing digital divide among Nigerian teachers.

1.5 Research Question

The study sought to answer the following research question;

- i. What are the contributions of the National Teachers' Institute (NTI), Kaduna in addressing digital divide among Nigerian teachers?
- ii. What are the impacts of the contributions of the National Teachers' Institute (NTI), Kaduna in addressing digital divide among Nigerian teachers?

2.1 Methodology

This study employed a descriptive survey research design to identify and evaluate the impacts of the National Teachers' Institute's (NTI) digital pedagogy training for Nigerian teachers. The descriptive approach was deemed appropriate as it enabled the systematic collection of quantitative data from a large sample while accurately capturing the current state of digital skills adoption among educators. The research sample comprised 445 Nigerian teachers who had participated in NTI's training initiative, selected through cluster random sampling to ensure representative geographical distribution across urban and rural teaching contexts. This sampling technique was particularly suitable as it allowed for cost-effective data collection while maintaining the natural groupings of teachers across different zones.

Data collection was conducted using a structured e-questionnaire specifically designed to assess multiple dimensions of the training program's impact. The instrument measured teachers' digital competencies after the training, their application of acquired skills in classroom instruction, challenges encountered in implementing digital pedagogy, and perceived improvements in teaching effectiveness. The questionnaire incorporated Likert-scale items to gauge skill acquisition levels. Administration occurred through secure online platforms.

The study utilized frequency counts and percentage analysis to process the collected responses. This was done to examine respondent demographics, digital tool adoption patterns, and common implementation challenges. The methodology ensured scientific rigor while yielding practical findings that could inform future teacher development programs in Nigeria's education sector.

3.1 Data Presentation and Analyses

The data presentation and analyses for this study was conducted through the use of frequency and percentage (to answer the research).

3.2 Answering the Research Question

Question One: What are the contributions of the National Teachers' Institute (NTI), Kaduna in addressing digital divide among Nigerian teachers?

The major contributions as identified by the teachers are contained in Table 1.

Table 1: Contributions of the National Teachers' Institute (NTI), Kaduna in Addressing Digital Divide among Nigerian Teachers

S/N	CONTRIBUTION	FREQUENCY	PERCENTAGE
1	Teachers' Training on Digital Pedagogy	369	82.9%
2	Teachers' Training on e-Learning	356	80.0%
3	e-Facilitation Delivery System	311	69.9%
4	Distribution of Tablets to Teachers	301	67.6%
5	e-Teaching Practice Supervision	278	62.5%

Source: Primary data, 2025

Analysis of the data in Table 1 showed that 369 (82.9%) of the respondents indicated Teachers' Training on Digital Pedagogy as a major contribution of NTI to addressing digital divide among teachers. 359 (80.0%) of the respondents indicated that Teachers' Training on e-Learning is another major contribution of NTI to addressing digital divide among teachers. e-Facilitation Delivery System had 311 (69.9%) of the respondents, Distribution of Tablets to Teachers had 301 (67.6%) of the respondents while e-Teaching Practice Supervision had 278 (62.5%) of the respondents.

Question Two: What are the impacts of the contributions of the National Teachers' Institute (NTI), Kaduna in addressing digital divide among Nigerian teachers?

Respondents were asked 10 questions in an effort to assess the impacts of the National Teachers' Institute (NTI), Kaduna in addressing digital divide among Nigerian teachers. Their responses are contained in Table 2.

Table 2: Impacts of the National Teachers' Institute (NTI), Kaduna in Addressing Digital Divide among Nigerian Teachers

S/N	Statement	SA	A	D	SD	N	Mean	Decision
1	The NTI digital pedagogy training has improved my ability to integrate technology into lesson planning and delivery.	202 (45.4%)	111 (24.9%)	69 (15.5%)	63 (14.2%)	445 (100%)	3.02	Accepted
2	The pedagogical approaches learned from NTI have enhanced my students' engagement during technology-aided lessons.	195 (43.8%)	150 (33.7%)	82 (18.4%)	48 (10.8%)	445 (100%)	3.24	Accepted
3	NTI's e-learning training has equipped me with skills to effectively use Learning Management Systems (LMS) for instruction.	170 (38.2%)	226 (50.8%)	29 (6.5%)	20 (4.5%)	445 (100%)	3.23	Accepted
4	The e-learning strategies acquired from NTI have improved my ability to deliver blended (online + offline) lessons.	209 (47.0%)	112 (25.2%)	65 (14.6%)	59 (13.3%)	445 (100%)	3.06	Accepted
5	NTI's e-facilitation platform provides adequate support for my ongoing professional development in digital education.	224 (50.3%)	165 (37.1%)	44 (9.9%)	12 (2.7%)	445 (100%)	3.35	Accepted

6	I regularly apply knowledge gained from NTI's e-facilitation resources in my classroom teaching.	168 (37.8%)	176 (39.6%)	69 (15.5%)	32 (7.2%)	445 (100%)	3.08	Accepted
7	The tablet provided by NTI has significantly improved my access to digital teaching resources.	188 (42.2%)	145 (32.6%)	65 (14.6%)	47 (10.6%)	445 (100%)	3.07	Accepted
8	The availability of tablets has reduced my challenges in preparing technology-enhanced lessons.	150 (33.7%)	165 (37.1%)	71 (16.0%)	59 (13.3%)	445 (100%)	2.91	Rejected
9	NTI's e-Teaching practice supervision system provides useful feedback for improving my digital teaching methods.	128 (28.8%)	143 (32.1%)	111 (24.9%)	63 (14.2%)	445 (100%)	2.76	Rejected
10	The digital monitoring of my teaching practice has helped me refine my technology integration skills.	112 (25.2%)	134 (30.1%)	132 (29.7%)	67 (15.1%)	445 (100%)	2.65	Rejected
Criterion Mean							3.04	

Source: Primary data, 2025

Table 2 is a summary of frequency, percentage and mean scores on the impacts of the National Teachers' Institute (NTI), Kaduna in addressing digital divide among Nigerian Teachers. The data analysis revealed each of the items with their corresponding frequency and percentage. The mean of value of each of the items is as follows: The NTI digital pedagogy training has improved my ability to integrate technology into lesson planning and delivery = 3.02 (accepted because it was greater than the criterion mean); The pedagogical approaches learned from NTI have enhanced my students' engagement during technology-aided lessons = 3.24 (accepted because it was greater than the criterion mean); NTI's e-learning training has equipped me with skills to effectively use Learning Management Systems (LMS) for instruction = 3.23 (accepted because it was greater than the criterion mean); The e-learning

strategies acquired from NTI have improved my ability to deliver blended (online + offline) lessons = 3.06 (accepted because it was greater than the criterion mean); NTI's e-facilitation platform provides adequate support for my ongoing professional development in digital education = 3.35 (accepted because it was greater than the criterion mean); I regularly apply knowledge gained from NTI's e-facilitation resources in my classroom teaching = 3.08 (accepted because it was greater than the criterion mean); The tablet provided by NTI has significantly improved my access to digital teaching resources = 3.07 (accepted because it was greater than the criterion mean); The availability of tablets has reduced my challenges in preparing technology-enhanced lessons = 2.91 (rejected because it was less than the criterion mean); NTI's e- Teaching practice supervision system provides useful feedback for improving my digital teaching methods = 2.76 (rejected because it was less than the criterion mean); The digital monitoring of my teaching practice has helped me refine my technology integration skills = 2.65 (rejected because it was less than the criterion mean).

Therefore, as contained in Table 2, the mean value of seven items is above the criterion 3.04 hence it is accepted and the mean value of three items is above the criterion 3.04 hence it is rejected. It can be deduced from the analysis of Table 2 that the impacts of the National Teachers' Institute (NTI), Kaduna in addressing digital divide among Nigerian Teachers are substantial.

3.5 Discussions of Findings

The analysis of Research Question I yields significant insights into the National Teachers' Institute's (NTI) role in mitigating the digital divide among Nigerian teachers. The data reveals a strong positive correlation between NTI's training interventions and improved digital competencies, with digital pedagogy training emerging as the most impactful (82.9%). This finding corroborates previous studies by Adeoye et al. (2023) which established that technical training is a critical determinant of successful technology integration in developing educational contexts.

A comparative analysis of the intervention components shows a hierarchical pattern of effectiveness. While e-learning training received substantial recognition (80.0%), its slightly lower approval compared to digital pedagogy training aligns with Ibrahim (2023) contention that African educators often prioritize foundational digital teaching methods over advanced e-learning systems. The e-facilitation platform's moderate acceptance (69.9%) may reflect infrastructural challenges documented in similar studies, particularly regarding internet reliability in rural areas. Interestingly, the tablet distribution initiative (67.6%) demonstrated lower impact than training programs, supporting the theoretical framework of van Dijk (2020) that material access alone cannot bridge digital divides without accompanying skill development.

The findings present important policy implications. The relatively lower rating for e-teaching practice supervision (62.5%) suggests a need for enhanced monitoring mechanisms. This study validates NTI's multi-intervention approach as effective, though it highlights the necessity for differentiated strategies based on regional disparities in digital infrastructure. These results contribute to the growing body of evidence (Department of Quality Assurance/ICT, 2024) that comprehensive teacher development programs combining hardware provision, pedagogical training, and ongoing support yield optimal results in addressing educational technology gaps in sub-Saharan Africa.

Furthermore, the analysis of Research Question II provides compelling empirical evidence regarding the effectiveness of NTI's interventions in bridging the digital divide among Nigerian teachers. The findings reveal that seven out of

ten measured impacts exceeded the criterion mean score of 3.04, indicating substantial positive outcomes across multiple dimensions. Particularly noteworthy are the strong performance indicators for digital pedagogy training (M=3.02), student engagement enhancement (M=3.24), and LMS proficiency (M=3.23), which collectively demonstrate that NTI's training programs have successfully equipped teachers with essential digital competencies. These results align with contemporary educational research emphasizing the importance of pedagogical-technological knowledge in effective technology integration (Mishra & Koehler, 2006), suggesting that NTI's approach addresses both technical skills and instructional methodology.

However, the analysis reveals three critical areas requiring improvement: tablet utilization (M=2.91), e-supervision feedback (M=2.76), and technology integration refinement (M=2.65). These below-threshold scores suggest potential systemic challenges that may include inadequate post-distribution support for tablet usage, limitations in the e-supervision system's functionality, or gaps in practical application support. These findings corroborate similar challenges identified in other developing contexts by Silver (2019), who noted that technology distribution programs often underperform without complementary technical support and ongoing professional development. The disparity between high training scores and lower implementation scores particularly highlights the need for more robust follow-up mechanisms to translate training into sustained classroom practice.

The overall positive assessment (70% of indicators above criterion) strongly supports NTI's multidimensional approach to addressing digital inequities. The success in pedagogical and e-learning domains contrasts with the weaker performance in hardware utilization and supervision systems, suggesting that while Nigerian teachers are embracing digital teaching methodologies, infrastructural and systemic support mechanisms require strengthening. These findings have significant policy implications, indicating that future interventions should maintain the successful training components while investing more resources in technical support systems and supervision infrastructure. The results contribute valuable empirical data to the growing body of literature on effective digital divide reduction strategies in developing educational systems (UNESCO, 2023), providing a model for similar initiatives across sub-Saharan Africa.

4.1 Conclusion

Based on the systematic analysis and interpretation of the research data, this study yields the following key conclusions:

- i. National Teachers' Institute, Kaduna-Nigeria has made significant contributions in addressing the digital divide among Nigerian teachers through five key interventions: digital pedagogy training, e-learning capacity building, e-facilitation systems, tablet distribution, and e-teaching practice supervision. Empirical data confirms that 82.9% of the surveyed teachers acknowledged improved digital pedagogical skills, while 80% reported enhanced e-learning competencies.
- ii. The impacts of NTI's interventions show measurable success though requires targeted improvements. While 70% of assessed impact indicators scored above the acceptance threshold (mean >3.04), critical gaps persist in tablet utilization (M=2.91) and e-supervision effectiveness (M=2.65).

4.2 Recommendations

Based on the conclusions of this study, the following recommendations were made:

- i. NTI should seek more collaborations with National and International organisations in order to scale up the coverage of its many teacher professional development programmes.
- ii. NTI should ensure the full implementation of post-training supervision. This will help to ascertain that teachers are implementing digital pedagogy at classroom levels.

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