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Digital Storytelling as a Development Communication Tool in Promoting Literacy Among Almajiri Children in Adamawa State, Nigeria

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ABSTRACT

This study investigates digital storytelling as a development communication tool to enhance literacy among Almajiri children in Model Almajiri School, Mayo Belwa LGA, and Almajiri Model School, Song LGA, Adamawa State, Nigeria, addressing the region's literacy challenges. The objectives were to evaluate the effectiveness of digital storytelling in improving literacy skills, develop culturally relevant content, assess the feasibility of mobile-based workshops, and examine impacts on self-expression and confidence. A quasi-experimental design was employed, targeting 1.2 million Almajiri children and 15,000 teachers in Adamawa. A sample of 200 participants (180 children, 20 teachers) from two schools was selected using multi-stage sampling (purposive and simple random). The experimental group was exposed to culturally relevant digital storytelling content for a short intervention period, while the control group received traditional instruction. Data were collected via a five-point Likert scale questionnaire and semi-structured interviews, analysed using paired t-tests, with participant interviews integrated into the discussion of findings. Findings indicate that digital storytelling significantly enhances reading, writing, and comprehension, with culturally relevant Islamic and local narratives fostering engagement. Mobile workshops are feasible with low-cost devices and teacher guidance, and digital storytelling markedly improves confidence and self-expression. The study concludes that digital storytelling is a culturally resonant, scalable tool for literacy promotion in Almajiri schools, though sustained access to technology is needed. Recommendations include integrating digital storytelling into curricula, co-creating localised content, investing in teacher training and devices, and promoting narrative creation to enhance agency.

Keywords: *Digital Storytelling, Almajiri Education, Literacy Promotion, Cultural Relevance, Mobile Workshops.*

Background to the Study

Digital storytelling, an innovative blend of traditional narrative techniques with digital media such as videos, images, and audio, serves as a powerful tool in development communication to foster literacy among marginalised groups. This research explores its application in promoting literacy among Almajiri children, young boys in Northeast Nigeria who migrate to Qur'anic schools for Islamic education but often lack formal literacy skills due to the system's emphasis on rote memorisation and street begging. The choice of Northeast Nigeria stems from its high concentration of Almajiri, exacerbated by poverty, insecurity from insurgency, and cultural norms, making it a critical area for targeted interventions to bridge educational gaps.

The study is shaped by five major factors, interconnected in a chain of causality. First, the pervasive poverty in Northeast Nigeria drives parents to send children away for Almajiri schooling, viewing it as a religious duty, which in turn leads to the second factor: widespread illiteracy, as these children prioritise begging over reading and writing. This illiteracy, third, perpetuates a cycle of underdevelopment, limiting economic opportunities and

fueling social vices like child labour. Consequently, the fourth factor emerges, insufficient integration of modern education into the Almajiri system, leaving majority out of school. In addition, the fifth factor, limited access to engaging learning tools, hinders motivation and skill acquisition, as traditional methods fail to captivate digital-native youth. These factors interconnect, with poverty enabling illiteracy, which sustains underdevelopment and demands innovative communication strategies for reform.

Building on this, the work's direction investigates deeply into how digital storytelling can disrupt this cycle by embedding literacy-building narratives in culturally resonant formats, such as Hausa-language videos, to enhance comprehension and retention. The proposed solution involves deploying mobile-based digital storytelling workshops in Almajiri schools, integrating Qur'anic themes with literacy exercises to empower children as story creators, thereby boosting self-expression and digital skills. This is justified by its cost-effectiveness and scalability in resource-scarce areas, addressing the lifelong educational divide as highlighted in recent scholarship.

Yusha'u, Tsafe, Babangida and Lawal (2021) assert, "ICT enabled Almajiri education offers prospects for literacy enhancement through multimedia tools" (p. 5). Similarly, Churchill (2020) note, "digital storytelling with mobile devices develops students' digital literacy skills in resource-limited settings" (p. 275). Kim and Li (2021) emphasise, digital storytelling facilitates learning and identity development among disadvantaged learners. Furthermore, Chubko, Morris, McKinnon, Slater and Lummis (2020) observe, "it enhances disciplinary literacy for EFL students in developing contexts" (p. 3590), and also, Aguilera and Lopez (2020) highlight, "critical digital storytelling centres marginalised voices in literacy promotion" (p. 585).

In addition, the research focuses on evaluating digital storytelling's efficacy in this context. Globally, UNICEF (2024) report that only 26% of Nigerian children aged 7-14 have basic reading skills, with Northeast rates below 20%, underscoring an education crisis affecting majority of the Almajiri and out-of-school children, as per recent analyses. This demands urgent, culturally attuned solutions to align with Sustainable Development Goal 4.

Statement of the Problem

In Adama State, specifically in Model Almajiri School, Mayo Belwa Local Government Area (LGA) and Almajiri Model School, Song Local Government Area (LGA), Almajiri children, face severe literacy challenges due to the traditional Almajiri system's focus on Qur'anic memorisation over formal education. Poverty, cultural practices, and insecurity exacerbate their exclusion from mainstream schooling, with only 20% possessing basic reading skills. This illiteracy perpetuates underdevelopment, limits economic opportunities, and fuels social issues like child begging and vulnerability to radicalisation. Conventional teaching methods fail to engage these digital-native children, lacking cultural relevance and accessibility in resource-scarce settings. The potential of digital storytelling to promote literacy among marginalised groups remains underexplored in the Almajiri context. The absence of innovative, scalable interventions tailored to their socio-cultural realities hinders progress towards Sustainable Development Goal which is quality education. This study addresses the critical gap in leveraging digital storytelling as a development communication tool to enhance literacy among Almajiri children, aiming to disrupt the cycle of educational exclusion.

Objectives of the Study

This study seeks to address the following objectives,

1. To evaluate the effectiveness of digital storytelling in improving literacy skills among Almajiri children in Model Almajiri School, Mayo Belwa LGA and Almajiri Model School, Song LGA.
2. To develop culturally relevant digital storytelling content for Almajiri education in Model Almajiri School, Mayo Belwa LGA and Almajiri Model School, Song LGA.
3. To assess the feasibility of mobile-based digital storytelling workshops in Almajiri schools in Model Almajiri School, Mayo Belwa LGA and Almajiri Model School, Song LGA.
4. To examine the impact of digital storytelling on the self-expression and confidence of Almajiri children in literacy activities in Model Almajiri School, Mayo Belwa LGA and Almajiri Model School, Song LGA.

Research Questions

To guide the investigation, this study poses the following research questions:

1. How effective is digital storytelling in enhancing literacy skills among Almajiri children in Model Almajiri School, Mayo Belwa LGA and Almajiri Model School, Song LGA?
2. What are the key elements of culturally relevant digital storytelling content for Almajiri education Model Almajiri School, Mayo Belwa LGA and Almajiri Model School, Song LGA?
3. How feasible are mobile-based digital storytelling workshops in Almajiri schools in resource-constrained settings Model Almajiri School, Mayo Belwa LGA and Almajiri Model School, Song LGA?
4. What is the impact of digital storytelling on the self-expression and confidence of Almajiri children in literacy activities Model Almajiri School, Mayo Belwa LGA and Almajiri Model School, Song LGA?

Literature Review

Development Communication

Development communication involves the strategic use of communication strategies and media (e.g., radio, community theatre, digital platforms) to foster social change, empower communities, and address systemic inequalities. Srinivas (2018) posit, development communication prioritises participatory processes that amplify local voices to address systemic inequalities. This participatory ethos ensures interventions are grounded in community needs, enhancing their relevance and impact. In the Almajiri context, where literacy deficits are compounded by socio-cultural barriers, strategies like community dialogues, participatory video production, and local radio broadcasts can empower students and educators to co-create educational content. Melkote's emphasis on participation suggests that top-down approaches risk irrelevance in culturally complex settings like Almajiri schools. Instead, involving local stakeholders ensures that literacy initiatives resonate with the community's values and needs, fostering sustainability. This insight calls for a shift from generic educational models to context-specific frameworks that prioritise local agency, which is particularly critical in regions marked by poverty and limited resources.

Tufte (2019) note, community-driven media initiatives enhance social inclusion by giving marginalised groups a platform to shape their narratives. Tufte's focus on inclusion extends Melkote's argument by highlighting how participatory media can empower Almajiri students to articulate their own stories, thereby fostering both literacy and social agency. This approach challenges the traditional Almajiri system's reliance on rote learning, which often marginalises students' voices. By enabling students to shape their narratives, community-driven media can transform passive learners into active contributors, enhancing their sense of identity and purpose. This suggests

a need for interventions that integrate storytelling as a tool for both literacy and empowerment, aligning educational goals with social inclusion.

Cruz (2020) elaborate, effective development communication integrates modern technologies (e.g., mobile apps, social media platforms) with traditional practices (e.g., oral storytelling, communal gatherings) to foster sustainable change. This integration is vital in settings with limited digital infrastructure, as it leverages existing cultural practices to bridge technological gaps. In Almajiri schools, combining oral Qur'anic recitation with digital tools can create a hybrid learning environment that respects tradition while embracing innovation (e.g., participatory video, digital content creation). Cruz's insight underscores the potential of hybrid models to navigate the tension between tradition and modernity in Almajiri education. By blending familiar oral traditions with accessible technologies, such interventions can make literacy learning more engaging without alienating conservative communities. This approach suggests that development communication must be adaptable, balancing cultural preservation with technological advancement to ensure both acceptance and effectiveness.

Servaes (2021) argue, blending traditional and digital media ensures cultural continuity while promoting educational innovation. Building on Cruz's idea, Servaes highlights the importance of cultural continuity, which is critical in Almajiri schools where religious and cultural practices are central to identity. The integration of digital tools, such as mobile apps, with traditional storytelling can create a seamless learning experience that respects students' heritage while introducing modern literacy skills. This balance is essential to avoid resistance from communities wary of external influences, suggesting that development communication must prioritise cultural sensitivity to achieve sustainable outcomes. Such an approach also opens avenues for scalable interventions that can be adapted across diverse cultural contexts in Northern Nigeria.

Waisbord (2022) state, development communication fosters resilience by aligning interventions with local socio-cultural dynamics. Waisbord's emphasis on resilience extends Servaes' argument by suggesting that culturally aligned interventions not only ensure acceptance but also build community capacity to sustain educational gains. In the Almajiri context, aligning literacy initiatives with local dynamics, such as religious values and communal structures, can enhance their longevity, as communities are more likely to support initiatives that reflect their identity. This insight calls for a nuanced understanding of local socio-cultural dynamics to design interventions that are both effective and resilient, particularly in regions facing socio-economic and security challenges.

Manyozo (2023) posit, sustainable development communication requires scalable, low-cost media solutions to reach underserved populations. Manyozo's focus on scalability complements Waisbord's emphasis on resilience by highlighting the practical need for cost-effective solutions in resource-constrained settings like Nigeria's North East. Low-cost media, such as radio and mobile apps, can extend the reach of literacy initiatives to remote Almajiri schools, overcoming infrastructural barriers. This suggests that development communication must prioritise accessibility to ensure equitable impact, particularly for marginalised groups with limited resources. The focus on low-cost solutions also underscores the need for innovative financing models to sustain such interventions over time.

Tacchi (2024) found, participatory communication strengthens community cohesion, critical for long-term educational impact. Tacchi's insight builds on Manyozo's by emphasising the social benefits of participatory approaches, which can foster community cohesion in Almajiri settings. By involving local leaders, parents, and

students in communication initiatives, such as radio programmes or participatory videos, literacy efforts can become embedded in the social fabric, enhancing their sustainability. This approach suggest that development communication is not just about delivering content but also about building social networks that support education, creating a multiplier effect for literacy promotion.

Digital Storytelling

Digital storytelling involves the creation of narratives using multimedia elements, such as videos, audio, images, and interactive interfaces, to engage audiences and convey meaningful messages. Lambert (2019) assert, digital storytelling empowers individuals to craft personal narratives, fostering self-expression and critical thinking. By enabling students to create and share stories, this approach transforms passive learning into an active, creative process that enhances literacy and emotional engagement. In Almajiri schools, where rote memorisation dominates, digital storytelling can stimulate cognitive development by encouraging students to articulate their experiences, thereby fostering both literacy and self-confidence. Lambert's emphasis on empowerment highlights the transformative potential of digital storytelling to shift Almajiri students from passive recipients to active creators of knowledge. This shift is critical in a system where students are often disengaged, suggesting that digital storytelling can serve as a catalyst for both educational and personal growth. By fostering self-expression, it can also address the psychological barriers faced by marginalised learners, enhancing their confidence and motivation.

McDrury (2020) reveal digital storytelling enhances cognitive engagement by allowing learners to connect narratives with personal experiences. McDrury's focus on cognitive engagement builds on Lambert's idea by emphasising how personal narratives can make learning more relevant and meaningful. In the Almajiri context, where students' lived experiences are often shaped by poverty and social exclusion, digital storytelling can provide a platform to process these realities, making literacy learning more relatable. This approach suggests that connecting educational content to personal experiences can bridge the gap between traditional Qur'anic education and modern literacy needs, creating a more holistic learning experience. The cognitive benefits of this method also highlight its potential to develop critical thinking skills, which are often underdeveloped in memorisation-based systems.

Hull (2021) assert "digital storytelling in low-resource environments can be adapted using accessible devices like mobile phones, tablets, and low-cost laptops to democratise learning" (p. 23) (digital divide). This adaptability is critical in Nigeria's North East, where limited access to technology (digital divide) restricts educational opportunities. By leveraging widely available devices, digital storytelling can bypass infrastructural barriers, making literacy interventions feasible in underserved areas. Hull's insight underscores the democratising potential of digital storytelling, which can level the educational playing field in regions marked by inequality. In Almajiri schools, where access to technology is limited, the use of mobile phones and shared tablets can make literacy interventions accessible without requiring extensive infrastructure. This approach suggests that digital storytelling can be a practical solution for scaling educational interventions in resource-constrained settings, aligning with the broader goal of educational equity.

Ohler (2022) argue, accessible digital tools democratise education by enabling equitable participation in content creation. Ohler's argument extends Hull's by emphasising the participatory nature of digital storytelling, which allows Almajiri students to engage actively in content creation rather than passively consuming educational material. This participatory aspect is particularly relevant in a context where students are often marginalised, as

it empowers them to take ownership of their learning. The focus on equitable participation suggests that digital storytelling can address not only literacy deficits but also social exclusion, fostering a sense of agency among learners. This insight highlights the need for interventions that prioritise student involvement to ensure both educational and social impact.

Alexander (2023) claim, multimedia storytelling fosters critical thinking by engaging learners in interactive content creation. Alexander's emphasis on critical thinking builds on Ohler's idea by highlighting how the interactive nature of digital storytelling can stimulate intellectual growth. In Almajiri schools, where rote learning often stifles analytical skills, multimedia storytelling can introduce dynamic, problem-solving activities that enhance cognitive development. This suggests that digital storytelling is not just a literacy tool but also a means to develop higher-order thinking skills, preparing students for complex challenges. The interactive element also addresses disengagement, making learning more appealing and effective in traditional settings.

Robin (2024) maintain, "digital storytelling's adaptability ensures its relevance across diverse educational contexts" (p. 62). Robin's focus on adaptability complements Alexander's by underscoring the flexibility of digital storytelling in addressing diverse educational needs. In the Almajiri context, this adaptability allows for tailored interventions that respect cultural and religious sensitivities while introducing modern literacy practices. This insight suggests that digital storytelling can be customised to fit the unique constraints of non-formal education systems, ensuring its relevance and effectiveness. The scalability of this approach also makes it a viable strategy for widespread implementation across Nigeria's North East.

Hartley (2025) emphasises, creative digital narratives empower marginalised learners to articulate their identities. Hartley's emphasis on identity builds on Robin's idea by highlighting how digital storytelling can foster a sense of self among Almajiri students, who often face social marginalisation. By creating narratives that reflect their experiences, students can develop a stronger sense of identity and purpose, which is critical for their psychological and educational growth. This suggests that digital storytelling has both educational and social benefits, empowering learners to navigate their challenges while building literacy skills. The focus on identity also underscores the potential for digital storytelling to address the broader socio-cultural barriers faced by marginalised communities.

Literacy Promotion

Literacy promotion encompasses a range of strategies (e.g., interactive workshops, multimedia-based instruction, peer learning) aimed at developing reading, writing, and comprehension skills, with a particular focus on marginalised populations. Wagner (2022) argue, literacy promotion must prioritise learner-centred approaches (e.g., experiential learning, collaborative activities, contextualised curricula) to ensure relevance and retention. These approaches place learners at the heart of the educational process, ensuring that content is meaningful and applicable to their lives. In Almajiri schools, learner-centred strategies can counteract the limitations of memorisation-based learning by fostering active participation and critical thinking. Wagner's focus on learner-centred approaches highlights the need to move beyond traditional pedagogies in Almajiri schools, where rote learning often fails to equip students with functional literacy skills. By prioritising experiential and collaborative methods, literacy promotion can make learning more engaging and relevant, addressing the unique needs of marginalised learners. This insight suggests that literacy initiatives must be tailored to the socio-cultural realities of Almajiri students to ensure long-term impact.

Street (2023) acknowledge, learner-centred literacy initiatives enhance engagement by aligning content with students' cultural contexts. Street's emphasis on cultural alignment builds on Wagner's argument by underscoring the importance of grounding literacy interventions in the cultural realities of learners. In Almajiri schools, where religious and cultural practices shape education, aligning content with students' contexts, such as incorporating Islamic themes into reading materials, can enhance engagement and comprehension. This approach suggests that cultural relevance is not just a pedagogical tool but a critical factor in sustaining learner motivation. By connecting literacy to students' identities, such initiatives can foster a deeper connection to learning, making it more meaningful and effective.

The educational interventions (e.g., digital literacy programmes, teacher training, community-based reading initiatives), which are designed to enhance literacy, are particularly relevant in non-formal settings (e.g., Almajiri schools, community learning centres, religious education systems). These interventions address the structural barriers to education in marginalised communities. Purcell-Gates (2024) remark, targeted educational interventions can transform non-formal education by addressing systemic access barriers. Purcell-Gates' focus on systemic change extends Street's argument by highlighting the need for structural interventions to modernise non-formal education systems like Almajiri schools. Digital literacy programmes and teacher training can address access and quality issues, creating a more equitable educational landscape. This insight suggests that literacy promotion must go beyond individual learning to tackle systemic barriers, such as inadequate infrastructure and untrained educators, to achieve transformative impact. The diversity of these interventions underscores their potential to create comprehensive solutions tailored to local needs.

According to Luke (2025), teacher training enhances the efficacy of literacy interventions by equipping educators with modern pedagogical skills. Luke's emphasis on teacher training builds on Purcell-Gates' idea by highlighting the critical role of educators in implementing effective literacy interventions. In Almajiri schools, where teachers often rely on traditional methods, training in modern pedagogies, such as interactive and learner-centred techniques, can enhance the quality of instruction. This suggests that investing in teacher capacity is as crucial as developing student-focused interventions, as educators are the linchpin of educational reform. The focus on modern pedagogical skills also underscores the need for ongoing professional development to sustain literacy gains in non-formal settings.

Rogers (2023) indicate, technology-enhanced literacy programmes (e.g., digital storytelling platforms, e-learning modules, interactive reading apps) can significantly improve comprehension by making learning visually stimulating and culturally relevant content. In Almajiri schools, where students face socio-economic challenges and limited exposure to diverse learning materials, highlights the transformative potential of technology to make literacy learning more dynamic and accessible. By incorporating culturally relevant content, such as stories that reflect local traditions, these programmes can enhance comprehension and retention among Almajiri students. This suggests that technology-enhanced literacy initiatives must prioritise cultural resonance to ensure effectiveness in conservative settings. The use of visually stimulating content also addresses the cognitive needs of young learners, making learning more appealing and impactful.

Barton (2024) establish, culturally relevant content fosters deeper comprehension by connecting learning to students' identities. Barton's focus on cultural relevance complements Rogers' argument by emphasising how content rooted in students' identities can deepen their engagement with literacy. In the Almajiri context, incorporating Islamic narratives and local cultural elements into digital platforms can make learning more

relatable, fostering a sense of ownership. This insight suggests that literacy promotion must prioritise identity-driven content to bridge the gap between education and students' lived experiences. The focus on deeper comprehension also highlights the potential for culturally relevant content to enhance long-term retention, critical for sustainable literacy outcomes.

Gee (2025) observe, technology-enhanced literacy equips learners with skills for navigating digital ecosystems, fostering lifelong learning. Gee's emphasis on digital ecosystems extends Barton's argument by highlighting how literacy programmes can prepare Almajiri students for broader socio-economic participation. By teaching students to navigate modern information systems, such as online databases, digital libraries, and social media platforms, these programmes equip them with skills for lifelong learning and integration into a digital world. This suggests that literacy promotion must go beyond basic reading and writing to include digital literacy, which is essential for modern socio-economic contexts. The focus on lifelong learning underscores the need for forward-looking interventions that prepare students for future challenges, ensuring their relevance in an increasingly digital society.

Theoretical Framework

This study is underpinned by two complementary theories: the Diffusion of Innovations Theory, proposed by Everett Rogers in 1962, which explains how new ideas, practices, or technologies spread through social systems via stages like knowledge, persuasion, decision, implementation, and confirmation; and the Uses and Gratifications Theory, developed by Elihu Katz, Jay Blumler and Michael Gurevitch in 1973, which posits that audiences actively select media to satisfy specific needs such as information, entertainment, or social integration.

These theories link to the study by framing digital storytelling as an innovative tool (Diffusion of Innovations) that diffuses literacy-enhancing practices among Almajiri communities, while addressing users' gratifications (Uses and Gratifications) like cultural relevance and motivation in development communication. Rogers' model highlights how early adopters, such as teachers, can accelerate adoption in resource-scarce settings, disrupting the poverty-illiteracy cycle. Katz, Blumler and Gurevitch's framework explains why Almajiri children can engage with digital narratives for empowerment and identity formation, promoting sustained literacy.

Applications to the work include deploying mobile digital storytelling to facilitate diffusion through peer networks in Almajiri schools, enhancing accessibility and scalability. For instance, it gratifies needs for interactive Qur'anic-themed content, boosting retention. Recent studies support this: Brata, Larraz and Indah (2022) affirm, "digital literacy is inseparable from social needs, aligning with diffusion stages" (p. 939). Rîndaşu, Erhan and Gao (2023) note, "innovation diffusion theory aids digital skills adoption for literacy" (p. 2159). Baber, Fanea-Ivanovici, Lee and Tinmaz (2022) state, "Uses and gratifications reveal emerging themes in digital literacy during pandemics" (p. 65). Henderikx and Stoffers (2024) emphasise, "gratifications drive innovative work behaviour in education" (p. 100). Caroline, Coun, Gunawan and Stoffers (2025) highlight, "digital literacy via uses and gratifications enhances employability in HRM contexts" (p. 144), while the literature robustly identifies the systemic barriers, it underemphasises the potential of community-driven storytelling initiatives to foster local ownership, which further amplify the impact of digital interventions in this context.

Methodology

This study employed a quasi-experimental design. The research was situated in Adamawa State (Old Gongola block), selected for its large Almajiri population and active educational reforms. The exclusion of Old Bauchi (Bauchi and Gombe) and Old Borno (Borno and Yobe) is justified by the need to prioritise depth of analysis within a reform-driven state, alongside challenges of insecurity, limited accessibility, and inadequate data in those blocks. Within Adamawa, Mayo Belwa and Song LGAs were purposively chosen to represent both rural and semi-urban contexts. The target population comprises approximately 1.2 million Almajiri children and 15,000 teachers (UNICEF, 2024). From this population, a sample of 200 respondents (180 children and 20 teachers) was determined using multi-stage sampling. First, the two schools were purposively selected based on size and accessibility. Within each school, simple random sampling was used to select 90 children and 10 teachers, ensuring a fair representation of both pupils and instructors. Respondents in the experimental group were exposed to culturally relevant digital storytelling content for a short intervention period using low-cost tablets and smartphones supplied by the research team to reduce the digital divide, while the control group continued with traditional Qur'anic and basic literacy instruction.

The digital content included multimedia stories rooted in local Islamic and cultural narratives. Pre- and post-tests measured literacy skills, self-expression, and confidence. Data collection combined a five-point Likert-scale questionnaire (validated through a pilot study; Cronbach's $\alpha = 0.85$) with semi-structured interviews involving 16 participants (10 children and 6 teachers across both schools). Quantitative data were analysed using descriptive statistics (Pre- and Post-tests mean scores, SD, t-value, df, sig. and decision) and paired t-tests, with a decision rule of 3.0 as the cut-off mean: mean scores ≥ 3.0 = Accepted/Positive Decision, and mean scores < 3.0 = Rejected/Negative Decision. Qualitative data were analysed and directly integrated into the discussion of findings to provide contextual insights, ensuring triangulation and deeper interpretation of results.

Data Presentation

This section presents and analyses data on digital storytelling as a development communication tool for promoting literacy among Almajiri children in Model Almajiri School, Mayo Belwa LGA and Almajiri Model School, Song LGA of Adamawa State, Nigeria. Using a cross-sectional descriptive survey design, 200 questionnaires were distributed and all were retrieved, ensuring unbiased data.

TABLE 1

Summary of Focus Areas of Assessment (Ns = 200).

Focus Area	N	Pre-test Mean	Pre-test SD	Pre-test Mean	Post-test Mean	Post-test SD	Decision Rule ($\geq 3.0 =$ Accepted, $< 3.0 =$ Rejected)
Literacy							
Skills	180	2.15	0.44	4.12	0.39		Pre-Test=Rejected; Post-Test=Accepted
Communication							
Skills	180	2.17	0.41	4.12	0.37		Pre-Test=Rejected; Post-Test=Accepted
Engagement							
And Motivation	180	2.15	0.42	4.10	0.38		Pre-Test=Rejected; Post-Test=Accepted
Cultural							
Relevance	180	2.17	0.40	4.13	0.36		Pre-Test=Rejected; Post-Test=Accepted
Overall (Grand Mean and SD)	180	2.16	0.42	4.12	0.38		

Source: Field survey, 2025

Objective 1: To evaluate the effectiveness of digital storytelling in improving literacy skills among Almajiri children in Model Almajiri School, Mayo Belwa LGA and Almajiri Model School, Song LGA.

TABLE 2

Paired Samples t-test on the Effectiveness of Digital Storytelling in Improving Literacy Skills
(N = 200).

Statements	N	Pre-test Mean	Post-test Mean	SD	t-value	Decision
I can recognise and pronounce words after the digital storytelling lessons	180	2.14	4.12	0.89	11.34	Accepted
I am able to read and understand short passages more easily after the digital stories	180	2.09	4.15	0.91	11.0	Accepted
I concentrate more during literacy lessons when stories are told with digital devices	180	2.21	4.08	0.87	10.79	Accepted
Overall Mean	180	2.15	4.12			

Source: Field survey, 2025. Sig. (p) = 0.000; df. = 179

Table 2 reveals a clear improvement in literacy skills after the digital storytelling intervention. The mean score for recognising and pronouncing words increased from 2.14 in the pre-test to 4.12 in the post-test, with a highly significant t-value of 11.34 ($p < 0.05$). Similarly, the ability to read and understand short passages improved from 2.09 to 4.15, supported by a significant t-value of 11.02. Children's concentration during literacy lessons also rose from a pre-test mean of 2.21 to 4.08, with a significant difference ($t = 10.79$, $p < 0.05$). The overall mean rose from 2.15 to 4.12, confirming the strong positive impact of digital storytelling on literacy outcomes. These results imply that digital storytelling provides a culturally relevant and effective approach to bridging the literacy gap among Almajiri children. It shifts learning away from rote memorisation towards interactive engagement, thereby boosting both comprehension and attention. The significant gains highlight the potential of digital interventions, even in marginalised contexts with limited access to technology.

Objective 2. To develop culturally relevant digital storytelling content for Almajiri education in Model Almajiri School, Mayo Belwa LGA and Almajiri Model School, Song LGA.

TABLE 3

Paired Samples t-test on the Development of Culturally Relevant Digital Storytelling Content

(N = 200).

Statements	N	Pre-test	Post-test	SD	t-value	Decision
Mean	Mean					
I found the stories more interesting because, they were about my culture and religion	180	2.18	4.20	1.86	11.42	Accepted
I enjoyed learning literacy skills through stories that reflect my daily experiences	180	2.11	4.17	1.70	11.15	Accepted
I understood lessons better when they were presented through local cultural narratives	180	2.16	4.22	1.84	11.36	Accepted
Overall Mean	180	2.15	4.20			

Source: Field survey, 2025, Sig. (p) = 0.000; df = 179

Table 2 demonstrates the effectiveness of developing culturally relevant digital storytelling content for Almajiri education. The mean score for finding stories interesting due to cultural and religious connections rose from 2.18 in the pre-test to 4.20 in the post-test, with a significant t-value of 11.42 ($p < 0.05$). Similarly, children's enjoyment of literacy learning improved from 2.11 to 4.17, supported by a significant t-value of 11.15. Understanding lessons through local narratives also increased from 2.16 to 4.22, with a strong statistical significance ($t = 11.36$, $p < 0.05$). The overall mean improved from 2.15 to 4.20, confirming that culturally grounded stories provide a more engaging and relatable way of teaching literacy. These findings suggest that integrating local culture and religion into storytelling enhances children's interest, motivation, and

comprehension. It demonstrates that literacy interventions become more meaningful when they resonate with learners' lived realities, thereby fostering sustained participation and learning outcomes.

Objective 3. To assess the feasibility of mobile-based digital storytelling workshops in Almajiri schools in Model Almajiri School, Mayo Belwa LGA and Almajiri Model School, Song LGA.

TABLE 4

Paired Samples t-test on the Feasibility of Mobile-based Digital Storytelling Workshops

(N = 200).

Statements	N	Pre-test	Post-test	SD	t-value	Decision
Mean	Mean					
I was able to use the tablet and phones provided to learn literacy skills easily	180	2.05	4.10	1.00	10.96	Accepted
I could follow the digital lessons Without difficulty after being Guided by my teacher	180	2.12	4.13	1.30	11.08	Accepted
Learning with mobile devices is possible even in our Almajiri school	180	2.14	4.18	1.80	11.21	Accepted
Overall Mean	180	2.10	4.14			

Source:Field survey, 2025, Sig. (p) = 0.000; df. = 179

Table 4 highlights the feasibility of mobile-based digital storytelling workshops in Almajiri schools. The mean score for using tablets and phones for literacy learning increased from 2.05 in the pre-test to 4.10 in the post-test, with a significant t-value of 10.96 ($p < 0.05$). Following digital lessons with teacher guidance rose from 2.12 to 4.13, with a significant difference ($t = 11.08$, $p < 0.05$). Perceptions of the overall feasibility of mobile learning improved from 2.14 to 4.18, supported by a significant t-value of 11.21. The overall mean rose from 2.10 to 4.14, confirming that mobile-based digital storytelling is indeed a viable approach, even in resource-constrained Almajiri schools. These results imply that with adequate guidance and access to low-cost devices, digital storytelling workshops can be successfully implemented in Almajiri schools. This finding counters the assumption that technological interventions are impractical in marginalised contexts, showing that with proper support, digital learning can thrive.

Objective 4: To examine the impact of digital storytelling on the self-expression and confidence of Almajiri children in literacy activities in Model Almajiri School, Mayo Belwa LGA and Almajiri Model School, Song LGA.

TABLE 5

Paired Samples t-test on the Impact of Digital Storytelling on Self-expression and Confidence

(N = 200).

Statements	N	Pre-test	Post-test	SD	t-value	Decision
Mean Mean						
I was able to speak more confidently in class after the storytelling	180	2.08	4.16	0.88	11.27	Accepted
I could express my own ideas better when using digital stories in literacy activities	180	2.11	4.18	0.90	11.32	Accepted
I felt more motivated to participate in class discussions because of the storytelling	180	2.09	4.12	0.87	11.10	Accepted
Overall Mean	180	2.09	4.15			

Source: Field survey, 2025, Sig. (p) = 0.000; df. = 179

Table 5 shows the impact of digital storytelling on children's self-expression and confidence. The mean score for speaking confidently in class rose from 2.08 in the pre-test to 4.16 in the post-test, with a highly significant t-value of 11.27 ($p < 0.05$). Similarly, the ability to express ideas improved from 2.11 to 4.18, with a significant t-value of 11.32. Children's motivation to participate in class discussions increased from 2.09 to 4.12, supported by a t-value of 11.10. The overall mean rose from 2.09 to 4.15, demonstrating a notable improvement in self-expression and confidence. These findings imply that digital storytelling empowers children to find their voices, participate more actively, and express themselves with confidence. For Almajiri children, who are often marginalised and voiceless, this suggests that digital interventions not only enhance literacy but also promote self-worth, agency, and inclusion in educational activities.

Discussion of Findings

Research Question #1: *How effective is digital storytelling in enhancing literacy skills among Almajiri children in Model Almajiri School, Mayo Belwa LGA and Almajiri Model School, Song LGA?*

Findings from Table 2 reveal that digital storytelling significantly enhanced literacy skills, with notable improvements in recognising and pronouncing words, reading comprehension, and concentration during lessons. This transformative shift moves Almajiri education beyond rote memorisation, fostering interactive learning that addresses literacy deficits in a context marked by socio-economic challenges. A child shared during interview session that, "the tablet stories showed pictures and sounds that helped me read and understand words better, unlike just memorising verses." A teacher added, "students were more attentive and could explain texts after watching the videos, which was a big change from their usual struggles." These insights align with the Diffusion of Innovations Theory, which posits that innovations like digital storytelling diffuse effectively when they offer relative advantages, such as enhanced engagement over traditional methods (Rogers, 2003). McLoughlin (2023)

suggest, digital tools create immersive literacy experiences. The multimedia approach made learning accessible and engaging, challenging assumptions that technology is impractical in resource-scarce settings. This underscores the need for sustained integration of digital storytelling into Almajiri curricula, advocating for policies to ensure consistent access to digital tools to maintain literacy gains.

Research Question #2: *What are the key elements of culturally relevant digital storytelling content for Almajiri education Model Almajiri School, Mayo Belwa LGA and Almajiri Model School, Song LGA?*

Findings from Table 3 reveal that culturally relevant digital storytelling content significantly increased interest, enjoyment, and understanding through Islamic themes and local narratives. This success highlights the power of aligning educational content with learners' religious and cultural identities, particularly in conservative Almajiri settings where external models often face resistance. A teacher stated during an interview session that "incorporating Qur'anic stories and local traditions made lessons feel familiar, so students were eager to engage and discuss." Also, a child revealed "the stories about our village and Islamic heroes felt like they were made for us, and I wanted to learn more." This aligns with the Uses and Gratifications Theory, which suggests that media is effective when it fulfills users' cultural and social needs (Katz et al., 1973). Bennett (2024) argue, culturally resonant media fosters engagement. The findings indicate that Islamic narratives, local stories, and familiar visuals are critical for sustaining motivation and comprehension, advocating for participatory content creation with community input to ensure ongoing relevance and acceptance in Almajiri education.

Research Question #3: *How feasible are mobile-based digital storytelling workshops in Almajiri schools in resource-constrained settings Model Almajiri School, Mayo Belwa LGA and Almajiri Model School, Song LGA?*

Findings from Table 4 reveal that mobile-based digital storytelling workshops were highly feasible, with low-cost devices and teacher guidance enabling effective implementation. This counters the narrative of an insurmountable digital divide, demonstrating that technology can thrive in resource-scarce settings with targeted support. During an interview session, a child noted, "after the teacher showed us how to use the tablet, it was easy to follow the stories, even though I had never used one before." A teacher added, "with brief training, we managed the workshops smoothly, and the devices worked well despite the limited resources." This aligns with the Diffusion of Innovations Theory, which emphasises that innovations are adopted when compatible with existing systems and supported by training (Rogers, 2003). Jenkins (2023) highlight, accessible technology enables scalability. The findings suggest that device provision and teacher training are essential for sustaining feasibility, advocating for policy investments to scale mobile-based learning across non-formal education settings like Almajiri schools.

Research Question #4: *What is the impact of digital storytelling on the self-expression and confidence of Almajiri children in literacy activities Model Almajiri School, Mayo Belwa LGA and Almajiri Model School, Song LGA?*

Findings from Table 5 reveal that digital storytelling significantly enhanced self-expression and confidence, with children showing increased participation and agency in literacy activities. This outcome empowers Almajiri children, often marginalised and voiceless, to find their voice through creative expression, addressing both educational and social exclusion. In an interview session, a child shared, "creating my own story on the tablet made me feel proud, and I was not shy to talk in class anymore." A teacher observed, "students who rarely spoke started sharing ideas confidently after making their videos after the training process from the research group." This aligns with the Uses and Gratifications Theory, which posits that media use enhances agency when it fulfills expressive needs (Katz et al., 1973). Livingstone (2024) finds, digital media empowers learners to articulate identities. The findings advocate for embedding narrative creation in literacy programmes to sustain

psychological and educational benefits, highlighting digital storytelling's transformative role in fostering inclusion and confidence in non-formal education.

Conclusion

This quasi-experimental study evaluated digital storytelling as a development communication tool to enhance literacy skills, develop culturally relevant content, assess the feasibility of mobile-based workshops, and examine impacts on self-expression and confidence among Almajiri children in Model Almajiri School, Mayo Belwa LGA, and Almajiri Model School, Song LGA, Adamawa State. The findings reveal that digital storytelling significantly improved literacy outcomes by shifting from rote memorisation to interactive, multimedia-driven learning, aligning with the Diffusion of Innovations Theory's emphasis on innovations offering relative advantages (Rogers, 2003). Culturally relevant content, grounded in Islamic themes and local narratives, fostered engagement and comprehension, resonating with the Uses and Gratifications Theory's focus on meeting cultural needs (Katz et al., 1973). Mobile-based workshops proved feasible with low-cost devices and teacher guidance, challenging assumptions about technological barriers in resource-constrained settings. Furthermore, digital storytelling enhanced self-expression and confidence, empowering marginalised Almajiri children to articulate their identities. These outcomes highlight digital storytelling's transformative potential in non-formal education, addressing literacy deficits and social exclusion while advocating for its integration into Almajiri curricula to sustain educational and psychological benefits.

Recommendations

The following recommendations were derived from the findings:

1. Given the significant improvements in literacy skills, educational authorities should incorporate digital storytelling into the formal curriculum of Almajiri schools. This can be achieved by embedding multimedia lessons using low-cost tablets to enhance reading, writing, and comprehension, ensuring sustained engagement.
2. The study's success with culturally relevant content underscores the need for educational stakeholders to collaborate with local communities, religious leaders, and teachers to co-create digital storytelling content rooted in Islamic and local narratives.
3. The feasibility of mobile-based workshops highlights the importance of training teachers to facilitate digital storytelling and providing low-cost devices to bridge the digital divide. Educational authorities should implement professional development programmes and secure funding for tablets or smartphones, ensuring scalability across Almajiri schools.
4. The enhanced self-expression and confidence among Almajiri children suggest that digital storytelling should be used to foster narrative creation in literacy programmes. Schools should integrate activities that allow students to create and share personal stories, promoting agency and inclusion.

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