

**LEVERAGING HIGH-IMPACT DIGITAL DEVICES TO FACILITATE THE  
LEARNING AND SUSTAINABLE DEVELOPMENT OF INDIGENOUS NIGERIAN  
LANGUAGES**

**Aturamu, Olayinka Omolayo (Ph.D)**

Department of Languages and Linguistics, Bamidele Olumilua University of Education  
Science and Technology, Ikere – Ekiti, Ekiti-State  
Email: aturamu.olayinka@bouesti.edu.ng

**Abstract**

*This study explored high-impact digital devices to facilitate learning and sustainable development of indigenous Nigerian languages. Given the swift progress in technology and the growing gap between those with access to digital resources and those without, it is imperative to analyse how digital tools might aid in maintaining linguistic diversity and cultural preservation. The study utilised a descriptive research design of the survey type, focusing on educators, students, and language experts. The study encompassed a group of 150 individuals, comprising language instructors, students, and specialists in linguistics and educational technology. The participants were chosen using the stratified random sampling technique from different regions of Nigeria to guarantee a wide range of representation. A self-structured questionnaire tagged "Digital Devices and Sustainable Development of Indigenous Nigerian Languages (DDSDINL)" was used to collect numerical data on participants' experiences and opinions regarding using digital devices for language learning. The study's findings indicate that digital devices significantly improve the efficiency and engagement of language acquisition. Additionally, they offer a platform for documenting and revitalising endangered languages. Policy ideas are proposed to include digital technologies in language instruction and preservation activities. The study suggests enhancing internet connectivity and offering essential technological assistance at educational institutions. Furthermore, the Government must formulate policies that endorse the utilisation of digital technology to preserve languages and allocate financial resources for these initiatives.*

**Keywords:** Indigenous language; digital devices; Learning; sustainable development.

**Introduction**

Indigenous cultures globally hold a diverse array of cultural knowledge, traditions, and languages. There are almost 7000 languages spoken around the globe, but many are indigenous and at risk of disappearing. As indigenous populations adjust to modern society, their languages and knowledge systems become more marginalised. Indigenous knowledge systems, frequently transmitted across generations, are crucial in preserving distinct identities and effectively managing ecosystems. Unfortunately, numerous indigenous languages are presently at risk of extinction, threatening the disappearance of valuable knowledge (Eze, 2019). Utilising digital media technology in the current period presents a potential opportunity to revive and safeguard indigenous knowledge systems and languages.

Nigeria harbours a plethora of more than 500 languages, many of which face the threat of becoming extinct due to globalisation, urbanisation, and the prevalence of the English language. The extinction of these languages reduces cultural diversity and eradicates priceless indigenous information. Recently, there has been an increasing fascination with utilising digital technologies to facilitate language learning and conservation. These technologies are causing a significant transformation in our culture by facilitating the conservation and advancement of indigenous knowledge through the creation of physical artefacts using cutting-edge materials. Digital media technologies have brought about significant technological developments transforming communities and industries worldwide. It is crucial to recognise their significance (Oosthuizen, Ungerer, & Volschenk, 2023; Smith & Okechukwu, 2021). Amid this extensive technological change, the conservation and rejuvenation of indigenous knowledge through digital media technologies arise as an essential and urgent matter. Indigenous languages play a vital role in preserving cultural history, as they contain distinct methods of communication, knowledge, and identity for many people (Gwerevende & Mthombeni, 2023).

In the context of globalisation and the digital revolution, it is crucial to recognise indigenous languages' profound cultural, historical, and ecological importance. These languages are collections of different languages and containers of distinct knowledge systems and cultural identities. Therefore, understanding the significance of safeguarding indigenous knowledge is crucial for successful conservation efforts. Recognising the importance of preserving indigenous knowledge, it is equally important to identify and tackle the various complex challenges they encounter. These challenges arise from historical factors, social dynamics, limited resources, and insufficient institutional support. Another difficulty arises from the necessity to investigate the changing function of digital media technology in preserving indigenous languages (Onyenankeya, 2022).

### **Research Problem Statement**

Despite Nigeria's abundant linguistic heritage, indigenous languages risk becoming extinct due to globalisation, urbanisation, and the prevalence of major international languages. The waning utilisation of native languages presents a peril to cultural identity, heritage, and the conveyance of customary information. Utilising influential digital gadgets in this situation offers a hopeful chance to support the education and long-term growth of indigenous Nigerian languages. Nevertheless, more empirical studies are needed regarding the efficacy of digital devices in fostering the

acquisition of these languages across various demographic cohorts. This research aims to fill the existing vacuum by investigating the potential of high-impact digital devices to improve the teaching, learning, and preservation of indigenous Nigerian languages. The goal is to ensure these languages' continuous vitality and relevance in an ever-changing digital world.

### **Research Questions**

The following research questions were raised to guide the study.

1. What is the current state of indigenous Nigerian languages?
2. What are the roles of digital devices in language learning and preservation?
3. How does integrating digital solutions into language enhance sustainability efforts?

### **Significance of the Study**

This study contributes to educational technology and linguistics by providing empirical evidence on the effectiveness of digital devices in language preservation. It also offers practical insights for policymakers, educators, and technologists working to sustain linguistic diversity.

### **Literature Review**

#### **Indigenous Languages in Nigeria**

Nigeria exhibits a complex linguistic landscape, characterised by prominent languages such as Hausa, Yoruba, and Igbo, as well as a multitude of more minor languages. Several of these languages encounter obstacles such as limited written materials, declining speaker populations, and inadequate support in educational institutions. Indigenous languages offer valuable insights into the histories and experiences of indigenous cultures from a historical standpoint. Efforts are underway to revive and safeguard indigenous languages, acknowledging their significance. The United Nations Declaration on the Rights of Indigenous Peoples (UNESCO, 2020) highlights the rights of indigenous communities to uphold, rejuvenate, and pass on their languages (Hohmann & Weller, 2018). Indigenous familiarity, sometimes known as traditional or local knowledge, encompasses the accumulated wisdom and comprehension that Indigenous societies have cultivated across multiple generations. It includes various abilities, methods, convictions, and understandings associated with the natural world, farming, well-being, spirituality, and social structure. Indigenous knowledge is firmly embedded in the cultures and traditions of these communities and has been transmitted orally from one generation to another.

Preserving indigenous languages is crucial for both these groups' cultural continuity and significance in the contemporary world (Masenya, 2024). Preserving indigenous languages is essential in safeguarding indigenous groups' cultures and identities. Indigenous knowledge is closely connected to rituals, language, and spiritual beliefs that shape a community's cultural identity. As globalisation and modernisation threaten indigenous languages and traditions, it is crucial to preserve indigenous knowledge to protect these cultures. It functions as a method of cultural defiance against the homogenising influences that can undermine distinct identities.

### **Digital Technology and Language Learning**

The advent of digital gadgets, such as smartphones, tablets, and computers, has revolutionised the process of acquiring language skills. They provide interactive and captivating platforms for learners, allowing them to access various materials and tools, including language applications, online dictionaries, and multimedia content. Studies suggest that digital technologies can potentially enhance language proficiency, mainly when there is a need for more traditional learning resources.

Digital media technology is crucial in aiding indigenous languages' conservation, recording, and rejuvenation. It provides a wide range of tools and platforms that can significantly improve language acquisition, simplify documentation and archiving endeavours, and expand the availability of indigenous languages. Digital media technology provides powerful tools for documenting and preserving indigenous languages. This includes using audio and video recording devices and digital storage and preservation systems to capture and preserve oral traditions, songs, stories, and other linguistic resources in high-quality formats (Hinton, 2019). Creating digital archives guarantees the enduring conservation and availability of indigenous language materials for future generations, reducing the possibility of their disappearance caused by physical decay or cultural upheaval.

Furthermore, digital platforms, especially in the context of social media, provide chances to promote language and interaction within communities. Indigenous language speakers can create virtual communities, social media groups, and specialised websites to exchange language resources, participate in conversations about language-related subjects, and assist individuals in learning the language (Molnar & Chartrand, 2021). These platforms efficiently facilitate relationships among speakers, learners, and language lovers, fostering a sense of belonging and promoting collaborative efforts towards revitalising indigenous languages.

Digital media technology facilitates collaborative knowledge documenting initiatives by providing online venues that enable the fusion of language competence, cultural wisdom, and community contributions. A multitude of applications and software tools specifically designed for the revitalisation of indigenous knowledge have emerged. These resources often include features such as pronunciation guides, language-based games, flashcards, and interactive exercises, which actively involve learners in acquiring language skills (Harmon, 2019). Linguistic revitalisation applications provide easily navigable interfaces that are guaranteed to be accessible to those interested in Indigenous languages, irrespective of their geographical location or level of linguistic skill.

### **Sustainable Development and Language Preservation**

Sustainable development encompasses the conservation of cultural heritage, which encompasses the preservation of languages. The United Nations Sustainable Development Goals (UN, 2015) highlight the significance of education and the preservation of cultural variety. The utilisation of digital technology can be pivotal in attaining these objectives by facilitating the process of documenting, instructing, and reviving endangered languages. The partnership between indigenous people and technological professionals is crucial in conserving knowledge. By adopting this cooperative approach, a synthesis of varied expertise and understanding is attained, leading to the triumph of conservation endeavours. The active participation of Indigenous groups is crucial to ensuring the accurate preservation of information, as their rich traditional and cultural wisdom provides vital insights and views that are fundamental to this endeavour. Technology professionals play a crucial role in supporting indigenous communities by utilising their experience to create digital tools and applications that aid in preserving knowledge. Their contributions span a broad range of activities, including designing user-friendly interfaces, constructing mobile apps, and developing online platforms specifically focused on language instruction and documentation (Liu et al., 2019).

### **Methodology**

A descriptive research design of survey type was employed to gather comprehensive data on the use of digital devices in learning and preserving Indigenous Nigerian languages. The study involved 150 participants, including language teachers, students, linguistics, and educational technology experts. Participants were selected using a stratified random sampling technique from various regions of Nigeria to ensure diverse representation.

A self-structured questionnaire tagged “Digital Devices and Sustainable Development of Indigenous Nigerian Languages (DDSDINL)” was administered to gather quantitative data on participants' experiences and perceptions of using digital devices for language learning. The instrument was tested for validity and reliability. The Spearman-Brown split-half method yielded an internal consistency coefficient of 0.79. Quantitative data were analysed using descriptive statistics of simple frequency count, percentage, mean, and Standard Deviation to answer the four research questions posed in the study. Mean less than 2.50 is Disagreed, and mean greater than or equal to 2.50 is Agreed.

## Results and Discussion

**Research Question 1:** What is the current state of indigenous Nigerian languages?

**Table 1: Responses to the current state of Indigenous Nigerian languages**

S/N	Item	SA (%)	A (%)	D (%)	SD (%)	Mean	Remark
1	The current efforts to preserve Indigenous Nigerian languages in my community are very encouraging	98 (65.3)	33 (22.0)	12 (8.0)	7 (4.7)	3.16	Agreed
2	I frequently use my Indigenous Nigerian language in my daily life	47 (31.3)	80 (53.3)	19 (12.7)	4 (2.7)	3.11	Agreed
3	Indigenous Nigerian languages are well integrated into the educational curriculum in my region	55 (36.7)	54 (36.0)	35 (23.3)	6 (4.0)	3.07	Agreed
4	Indigenous Nigerian languages are effectively being passed down to younger generations in my family and community	52 (34.7)	58 (38.7)	28 (18.7)	12 (8.0)	2.82	Agreed
5	The representation of Indigenous Nigerian languages in local media (TV, radio, newspapers) is very encouraging	57 (38.0)	50 (33.3)	29 (19.3)	14 (9.3)	2.91	Agreed
6	The Government are doing enough sensitisation in promoting and preserving	47 (31.3)	54 (36.0)	34 (22.7)	15 (10.0)	3.08	Agreed

	Indigenous languages	Nigerian						
7	My community is very active in propagating initiatives aimed at preserving and promoting Indigenous Nigerian languages		64 (42.7)	50 (33.3)	28 (18.7)	8 (5.3)	3.17	Agreed
							<b>3.05</b>	<b>Agreed</b>

The result in Table 1 reveals the current state of indigenous Nigerian languages. The respondents consistently agreed to all the items in the table. The mean score of the items is above the fixed decision value of 2.50. It was shown that item 7 was at the forefront with a mean score of 3.17, revealing that communities actively propagate initiatives to preserve and promote Indigenous Nigerian languages. This was followed by item 1 with a mean score of 3.16, indicating that the current efforts to preserve indigenous Nigerian languages in Nigerian communities are encouraging. It was followed by item 2 with a mean score of 3.11, indicating that Nigerians frequently use their indigenous Nigerian language in their daily lives. This was followed by item 6 with a mean score of 3.08, indicating that the Government is doing enough sensitisation in promoting and preserving Indigenous Nigerian languages. Item 3, with a mean score of 3.07, indicated that indigenous Nigerian languages are well integrated into the educational curriculum in the regions. Also, item 5, with a mean score of 2.91, indicated that the representation of indigenous Nigerian languages in local media (TV, radio, newspapers) is encouraging. Lastly, item 4, with a mean score of 2.82, indicated that Indigenous Nigerian languages are effectively being passed down to younger generations in families and communities.

The weighted mean of 3.05 showed that the respondents agreed that conscious and concerted efforts are being geared towards preserving Indigenous Nigerian languages by the Government, individuals, community and media.

**Research Question 2:** What are the roles of digital devices in language learning and preservation?

**Table 2: Responses to the roles of digital devices in language learning and preservation**

S/N	Items	SA (%)	A (%)	D (%)	SA (%)	Mean	Remark
1	Digital devices (e.g., smartphones, tablets, computers) are very effective in learning Indigenous languages	37 (24.7)	61 (40.7)	34 (22.7)	18 (12.0)	3.61	Agrees
2	Language learning resources (e.g., apps, online courses, e-books) are accessible on digital devices for learning Indigenous languages	47 (31.3)	61 (40.7)	28 (18.7)	14 (9.3)	3.55	Agreed
3	Digital devices increase engagement and motivation to learn Indigenous languages	41 (27.3)	43 (28.7)	43 (28.7)	23 (15.3)	2.87	Agreed
4	Digital devices contribute to the preservation of Indigenous languages through documentation and dissemination	43 (28.7)	56 (37.3)	33 (22.0)	18 (12.0)	2.91	Agreed
5	Digital devices are effective in enhancing connection to the culture associated with the indigenous language	57 (38.0)	45 (30.0)	34 (22.7)	14 (9.3)	3.04	Agreed
6	Digital devices are very effective in providing interactive and practical opportunities (e.g., language games, virtual conversations) for practising Indigenous languages	38 (25.3)	50 (33.3)	43 (28.7)	19 (12.7)	2.79	Agreed
<b>Weighted Mean</b>						<b>3.01</b>	<b>Agreed</b>

Table 2 above reveals the roles of digital devices in language learning and preservation. Digital devices (e.g., smartphones, tablets, computers) and language learning resources (e.g., apps, online courses, e-books) were considered practical and accessible in learning indigenous languages, with mean scores of 3.61 and 3.55, respectively. Digital devices were equally believed to be effective in enhancing connection to the culture associated with the indigenous language, with a mean score

rating of 3.04. Digital devices were believed to contribute to preserving Indigenous languages through documentation and dissemination. They increased engagement and motivation to learn Indigenous languages, with mean scores of 2.91 and 2.87, respectively. In contrast, digital devices were believed to effectively provide interactive and practical opportunities (e.g., language games virtual conversations) for practising Indigenous languages, with a mean score of 2.79.

Summarily, the table revealed that the weighted mean was 3.01, which indicated that digital devices (e.g., smartphones, tablets, computers) and language learning resources (e.g., apps, online courses, e-books) play significant roles in increasing engagement and motivation to learn Indigenous languages, as well as preservation of Indigenous languages through documentation and dissemination, and in providing interactive and practical opportunities (e.g., language games, virtual conversations) for practising Indigenous languages.

**Research Question 3:** How does integrating digital solutions into language enhance sustainability efforts?

**Table 3: Responses to how integrating digital solutions into language can enhance sustainability efforts**

S/N	Item	SA (%)	A (%)	D (%)	SA (%)	Mean	Remark
1	Digital solutions (e.g., apps, online platforms) effectively reduce the need for physical resources (e.g., paper, printed materials) in language learning and preservation	54 (36.0)	48 (32.0)	32 (21.3)	16 (10.7)	3.22	Agreed
2	Digital solutions improve access to information and educational resources on language sustainability	38 (25.3)	60 (40.0)	32 (21.3)	20 (13.3)	3.41	Agreed
3	Digital platforms promote sustainable practices and awareness through language education and preservation programs	38 (25.3)	53 (35.3)	43 (28.7)	16 (10.7)	2.69	Agreed
4	Digital solutions facilitate community engagement and collaboration in	55 (36.7)	50 (33.3)	28 (18.7)	17 (11.3)	2.85	Agreed

	sustainability through initiatives	efforts language						
5	Digital tools contribute to the preservation of cultural heritage and traditions through language sustainability efforts	54 (36.0)	55 (36.7)	25 (16.7)	16 (10.7)	3.37	Agreed	
6	Digital solutions in ensuring the long-term sustainability of language preservation and education initiatives	56 (37.3)	49 (32.7)	31 (20.7)	14 (9.3)	2.72	Agreed	
<b>Weighted Mean</b>						<b>3.04 Agreed</b>		

Table 3 above reveals the responses to how integrating digital solutions into language can enhance sustainability efforts. Digital solutions were believed to improve access to information and educational resources on language sustainability and that digital tools contribute to preserving cultural heritage and traditions through language sustainability efforts, with mean scores of 3.41 and 3.37, respectively. Following the above, digital solutions (e.g., apps and online platforms) were believed to effectively reduce the need for physical resources (e.g., paper, printed materials) in language learning and preservation, with a mean score of 3.22. Digital solutions were believed to facilitate community engagement and collaboration in sustainability efforts through language initiatives. Digital platforms were believed to promote sustainable practices and awareness through language education and preservation programs, with mean scores of 2.85 and 2.69, respectively. In contrast, digital solutions were believed to be significant in ensuring the long-term sustainability of language preservation and education initiatives, with a mean score of 2.72. Summarily, the table revealed that the weighted mean was 3.04, indicating that integrating digital solutions into language is significant in enhancing sustainability efforts.

### **Discussion**

The descriptive analysis of the study revealed that digital devices offer significant potential for enhancing language learning by providing interactive and accessible resources. The positive feedback from participants underscores the importance of integrating technology into language education. The positive feedback from participants underscores the importance of integrating technology into language education. It was revealed that conscious and concerted efforts are being

geared towards preserving indigenous Nigerian languages by the Government, individuals, community and media. The findings are consistent with the position of Hohmann & Weller (2018), who posited that recognising the importance of indigenous languages, there are ongoing efforts to revitalise and preserve them, such as the United Nations Declaration on the Rights of Indigenous Peoples emphasising the rights of Indigenous peoples to maintain, revitalise, and transmit their languages. Also, preserving indigenous languages is essential for the cultural continuity of these communities. It holds significant relevance in our modern world, as opined by Masenya (2024), which equally corroborated the study's findings.

It was further revealed that digital devices (e.g., smartphones, tablets, computers) and language learning resources (e.g., apps, online courses, e-books) played significant roles in increasing engagement and motivation to learn Indigenous languages, as well as preservation of Indigenous languages through documentation and dissemination, and in providing interactive and practical opportunities (e.g., language games, virtual conversations) for practising Indigenous languages. In supporting the findings of this study, Harmon (2019) submitted that various apps and software tools dedicated to revitalisation have emerged to bolster the preservation of indigenous knowledge; these resources frequently encompass elements like pronunciation guides, language-based games, flashcards, and interactive exercises, which actively engage learners in language acquisition.

Lastly, the descriptive analysis of the study revealed that integrating digital solutions into language is very significant in enhancing sustainability efforts. This implies that digital solutions (e.g., apps, online platforms) effectively reduce the need for physical resources (e.g., paper, printed materials) in language learning and preservation, as digital solutions were believed to improve access to information and educational resources, promote sustainable practices and awareness, facilitate community engagement and collaboration in sustainability efforts, contribute to the preservation of cultural heritage and traditions, and ensure the long-term sustainability of language preservation and education initiatives.

Corroborating the findings of this study, Liu et al. (2019) posited that Indigenous communities and technology experts play a pivotal role by harnessing their expertise to craft digital tools and applications that facilitate knowledge preservation. Their contributions encompass various activities, from creating user-friendly interfaces to developing mobile apps and online platforms dedicated to language learning and documentation.

## **Conclusion**

The study demonstrates that high-impact digital devices can play a crucial role in the learning and sustainable development of indigenous Nigerian languages. While challenges remain, the benefits of digital technology in promoting linguistic diversity and cultural preservation are clear and must always be considered. Future research should explore long-term impacts and develop strategies to overcome existing barriers.

## **Recommendations**

To fully leverage digital devices for language preservation, addressing the technical and infrastructural challenges is essential. This includes improving internet connectivity, providing technical support, and developing user-friendly applications tailored to indigenous languages. Policymakers should consider incorporating digital solutions into national language preservation strategies. This could involve funding for digital infrastructure, training for educators, and partnerships with tech companies to develop language-specific applications. Also, digital tools should be incorporated into language curricula, and educators should be provided with training on the effective use of technology.

## **References**

- Eze, E. (2019). Language endangerment and revitalisation in Nigeria: The role of digital technology. *Journal of African Languages*, 28(2), 123–140.
- Gwervevende, S., and Z. M. Mthombeni. (2023). “Safeguarding Intangible Cultural Heritage: Exploring the Synergies in the Transmission of Indigenous Languages, Dance and Music Practices in Southern Africa.” *International Journal of Heritage Studies*, 29 (5): 398–412
- Harmon, D. (2019). “Language Revitalization and Mobile App Development: Opportunities and Challenges.” *Language Documentation & Conservation* 13: 546–71.
- Hinton, L. (2019). “Language Revitalization and New Technologies: Cultures of Electronic Mediation and the Refiguring of Communities.” In *Language Ideologies and the Globalization of ‘Standard’ Languages*, edited by J. Jaffe, D. Morita, N. D. Vogel, and G. Spolsky, 244–64. Routledge
- Hohmann, J., and M. Weller, eds. (2018). *The UN Declaration on the Rights of Indigenous Peoples: A Commentary*. Oxford: Oxford University Press.  
[https://books.google.com.ng/books?hl=en&lr=&id=zBFQDwAAQBAJ&oi=fnd&pg=PP1&dq=related:uuljCY6H8dIJ:scholar.google.com/&ots=z1zb2FYFM-&sig=4gNBCGJOYvXMD114KJxu4\\_g8Goo&redir\\_esc=y#v=onepage&q&f=false](https://books.google.com.ng/books?hl=en&lr=&id=zBFQDwAAQBAJ&oi=fnd&pg=PP1&dq=related:uuljCY6H8dIJ:scholar.google.com/&ots=z1zb2FYFM-&sig=4gNBCGJOYvXMD114KJxu4_g8Goo&redir_esc=y#v=onepage&q&f=false)

- Liu, Y., C. Weng, H. Li, and G. Sanga. (2019). "Social Media-based Digital Storytelling for Preserving Oral Tradition: A Case Study in Tibetan Culture." *Digital Scholarship in the Humanities*. 34 (1): 165–79.
- Masenya, T. M. (2024). "Revitalisation and Digital Preservation of Indigenous Knowledge Systems for Sustainable Development of Indigenous Communities in South Africa." *The Serials Librarian* 1–17. <https://doi.org/10.1080/0361526X.2023.2277962>
- Molnar, R., and S. Chartrand. (2021). "Decolonising through Twitter: Indigenous Language Communities, Social Media, and Language Revitalization." *Journal of Sociolinguistics*, 25 (1): 21–45.
- Onyenankeya, K. (2022). "Indigenous Language Newspapers and the Digital Media Conundrum in Africa." *Information Development* 38 (1): 83–96.
- Oosthuizen, J. H., M. Ungerer, and J. Volschenk. (2023). "A Fourth Industrial Revolution Integrated Intelligence Taxonomy for Top Management." *J Contemp Manage* 20 (1): 404–43
- Smith, J., & Okechukwu, A. (2021). Digital solutions for language learning in sub-Saharan Africa. *International Journal of Educational Technology*, 15(4), 205-220.
- UNESCO. (2020). The role of digital technology in the preservation and promotion of indigenous languages. Retrieved from [UNESCO Website](<https://en.unesco.org/>)
- United Nations. (2015). Sustainable Development Goals. Retrieved from [UN SDGs](<https://sdgs.un.org/goals/>)