Indigenising Digital Concepts and Promoting Digital Residency in African Languages: Advocacy for Kalabari and Igbo Languages

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Abstract

The concept of corpora, pivotal in language study, underscores the paramount importance of electronically storing texts for easy retrieval, enabling comprehensive linguistic analysis and research. While European languages like English and French enjoy a plethora of digital resources across diverse topics and genres, numerous African languages remain largely underrepresented in the digital space. This glaring digital gap persists due to a complex interplay of factors, notably the neglect of the roles African languages play, as the perceived convenience of accessing information in European languages eclipses the imperative of fostering digital resources in indigenous languages. Drawing from recent studies in the Kalabari language, this paper serves as a clarion call to address the digital disparity by advocating for the expansion of digital residency for Kalabari and Igbo languages. The necessity of such endeavours transcends mere linguistic preservation; it constitutes a vital step towards equitable access to knowledge, cultural preservation, and community empowerment. Enabling students to access materials in their native tongues fosters linguistic pride and cognitive development, engendering a sense of inclusivity and agency among speakers. This bolsters cultural identity and fosters socio-economic advancement. Additionally, it serves

as a catalyst for intergenerational knowledge transmission, preserving ancestral wisdom and cultural heritage for posterity. In conclusion, the imperative to indigenise digital concepts and expand the digital residency of Kalabari and Igbo languages transcend linguistic boundaries, embodying a commitment to linguistic diversity, cultural preservation, and community empowerment. By bridging the digital divide through the indigenisation of digital concepts, we pave the way for a more inclusive and equitable digital landscape, where every language, regardless of its global prominence, is afforded the opportunity to thrive in the digital age.

Keywords: Digital residency, indigenisation, Kalabari, Igbo, Digital disparity

Introduction

Digital technology has revolutionised how the world communicates and shares information. While it has provided access to knowledge and connectivity, it has also created problems for indigenous languages, which are often pushed aside by global languages like English. The digital divide is not just about access to technology, it also affects how languages are represented and used online. English and other major languages dominate the internet, making it hard for languages with fewer speakers to be present online. Multilingual models try to bridge language gaps, but they often fail to accurately represent languages with less data. This leads to issues like "translationese," which refers to the awkward or unnatural phrasing that occurs when translations are too literal or do not consider cultural and linguistic nuances (Center for Democracy and Technology, 2023). Despite UNESCO's efforts to promote linguistic diversity, the digital divide continues. It marginalises lesser-spoken languages and threatens their survival. Most digital content is in European languages. This is due to historical colonial influences and global economic structures. These factors favour former colonial languages over local ones. African languages, like Kalabari and Igbo, face big challenges (INSEAD Knowledge, 2023; Slator, 2023).

Kalabari and Igbo languages are illustrative examples of the broader trend of digital marginalization of indigenous languages. Although Igbo is one of Nigeria's major languages with a significant number of speakers, its digital presence is still limited when compared to English. Kalabari, with even fewer speakers, faces more severe challenges. The scarcity of digital resources in these languages limits the

ability of their speakers to engage in digital communication and access information online. Studies indicate that the development of digital content in both languages lags significantly, with few online dictionaries, language learning apps, or culturally relevant content available. This lack of resources pushes speakers toward more digitally prevalent languages like English. Initiatives like the Igbo Wikimedians User Group and the Human Language Project aim to address these gaps by creating and translating content into Igbo, but the challenges remain substantial, including issues of digital security and the economic cost of digital tools. UNESCO's reports underline the urgency of preserving linguistic diversity, noting that many African languages, including Igbo, are endangered due to the dominance of global languages and insufficient digital representation (Rising Voices, 2023; TAUS, 2023; The Guardian Nigeria, 2023; NGlanguages, 2023).

The lack of digital content in indigenous languages such as Kalabari and Igbo significantly hinders their speakers' ability to fully participate in the digital economy and impacts cultural preservation. Economically, access to digital tools and services is often limited for speakers of these languages due to the predominance of global languages like English. This restriction excludes them from significant online economic activities and benefits, including online banking and e-commerce platforms that do not support their native languages (UNESCO, 2023). Additionally, employment opportunities in the digital economy often require digital literacy and proficiency in dominant languages, further exacerbating economic disparities for speakers of less digitally prevalent languages (Center for Democracy and Technology, 2023).

Culturally, the absence of digital content in several Nigerian languages hampers cultural transmission and preservation. Digital platforms are vital for preserving and sharing cultural heritage, but the lack of content in these languages means that cultural stories and traditions are less likely to be recorded and shared, leading to erosion of cultural identity (UNESCO, 2023). Furthermore, the predominance of English online can result in a decline in the use of indigenous languages, especially among younger generations, reducing intergenerational transmission and threatening the survival of these languages (Eberhard, Simons, and Fennig, 2023).

Efforts to address these challenges include both community-driven and institutional initiatives. For instance, the Igbo Wikimedians User Group works on creating and translating digital content into Igbo, while platforms like the Human Language Project help develop digital resources for low-resource languages (UNESCO, 2023). Governmental and non-governmental organizations also play a crucial role by supporting policies and programs that promote the creation and use of digital content in indigenous languages, thus helping to bridge the digital divide and preserve cultural heritage in the digital age (UNESCO, 2016).

This paper aims to address the digital marginalisation of indigenous languages by focusing on Kalabari and Igbo. The primary objectives are to explore strategies for indigenising digital concepts in these languages, promote digital residency, and enhance digital literacy among their speakers. The significance of this study lies in its potential to contribute to cultural preservation and promote digital inclusivity and literacy. By concentrating on these two southern Nigerian languages, the paper supports broader efforts to sustain linguistic diversity in the digital age.

Previous Research and Theories

The digital indigenization of languages involves adapting and integrating indigenous languages into digital platforms and technologies to preserve and promote them. This includes creating digital dictionaries, language-learning apps, and incorporating these languages into social media and AI technologies. This process helps engage younger generations and diaspora communities, fostering cultural identity and continuity, while promoting linguistic diversity and inclusion in the global digital landscape.

"Digital residency," a term often associated with legal status or citizenship in the digital world, can also be understood in the broader context of a language's presence and prominence in online spaces. In this interpretation, digital residency refers to the extent to which a language is represented, utilised, and supported in the digital realm, encompassing various online platforms, technologies, and digital media. While this perspective diverges from the conventional definition, it sheds light on the critical importance of languages in the digital age and their role in shaping online interactions and experiences.

Supporting this view, numerous studies have highlighted the significance of digital language presence and accessibility. For instance, research by Androutsopoulos (2018) emphasises the impact of digital platforms on language use and identity construction, illustrating how individuals navigate linguistic landscapes online. Additionally, studies by Crystal (2014) and Baron (2013) underscore the evolving nature of language in digital environments, where languages not only coexist but also interact and influence each other.

Furthermore, initiatives such as UNESCO's "World Atlas of Languages" and the "Language Observatory Project" by the International Organisation for Standardisation (ISO) emphasise the need to document and support linguistic diversity in digital spaces. These efforts recognise the importance of digital residency for languages in preserving cultural heritage, promoting inclusivity, and ensuring equitable access to online resources.

In summary, while digital residency is commonly understood in terms of legal status or rights in the digital world, a broader interpretation highlights the significance of languages' presence and prominence online. This perspective underscores the importance of supporting linguistic diversity and ensuring that languages are not only represented but also thrive in the digital age. Olúbòdé-Sàwè (2010) explores the impact of modern digital communication on indigenous African languages, focusing on the adaptation of terminology and language structures. By analysing the translation of cell phone information into Nigerian languages, the chapter highlights the creation of new terms through strategies like Terminologisation, composition, and translingual borrowing, while identifying issues such as inaccurate translations and non-standard orthography. The author calls for improved terminology projects to enhance the technological readiness and preservation of African languages in the global digital landscape.

Iyalla-Amadi (2021) highlights the importance of integrating digital numeracy into the Kalabari language to enhance its relevance in the digital era. Emphasising the need for balanced literacy and numeracy education, Iyalla-Amadi reviews traditional Kalabari counting systems and proposes two new numerical models: one aligning with the decimal system for ease of use, and another incorporating culturally relevant terms for larger numbers. These models aim to increase the

digital presence of Kalabari, improving educational outcomes and reinforcing cultural identity. This integration is crucial for preserving indigenous languages and equipping their speakers with essential digital skills, aligning with broader efforts in digital literacy and language revitalisation.

The present study is underpinned by the theoretical framework of Corpus linguistics, which offers a systematic and data-driven approach to investigating language usage within digital contexts. This methodology provides valuable insights into how digital concepts can be indigenised and how digital residency can be promoted in African languages. By leveraging extensive collections of authentic language data, corpus linguistics allows researchers to meticulously analyse language patterns, usage trends, and variations specific to digital communication environments. This analytical approach facilitates the identification of digital terminology and linguistic features relevant to Kalabari and Igbo languages, thereby enabling their seamless integration into the digital sphere. Corpus linguistics has been widely employed across various linguistic studies to uncover intricate language phenomena and to inform language policy and planning endeavors. Works such as "Corpus Linguistics and the Description of English" by O'Keeffe et al. (2007) and "The Handbook of Corpus Linguistics" edited by Aijmer and Rühlemann (2019) elucidate the utility of corpus linguistics in providing empirical evidence for linguistic analysis and description across diverse contexts.

In the realm of promoting digital residency in African languages, corpus linguistics serves as a robust framework for collecting and analysing digital language data. Studies like "Digital Communication in Indigenous Languages" by Olúbòdé-Sàwè (2010) demonstrate how this approach can be applied to identify gaps in digital language representation and to devise strategies for enhancing the digital presence of African languages.

Research Design and Case Study Integration

The study adopts a case study methodology to explore the integration of indigenous languages into digital platforms. This approach allows for an in-depth analysis of specific instances where such integration has occurred, aiming to reveal insights into associated challenges, strategies, and outcomes. By focusing on real-

world examples, the study provides a contextualised understanding of promoting digital residency in local languages and identifies best practices for future initiatives. Case study methodology, widely used across various disciplines, facilitates rich insights into complex phenomena and real-life situations. Scholars like Robert K. Yin (2018) and Stake (1995) have significantly contributed to the development of qualitative case study research, emphasising its effectiveness in examining intricate contexts and generating profound insights. Researchers in fields such as psychology, sociology, anthropology, and management have extensively employed case studies to investigate real-life situations, organisational practices, human behaviour, and cultural dynamics. This approach is particularly valuable for understanding the complexities involved in promoting digital presence and vitality of indigenous languages.

Case Studies of Digital Indigenisation in African Languages

Digital indigenisation, the process of adapting digital technologies and content to local languages and cultures, is crucial for promoting linguistic diversity and empowering marginalised communities. In this section, we present case studies of languages that have made significant strides in achieving digital residency, drawing insights from recent scholarly sources.

1. Swahili:

Swahili stands out as one of the most widely spoken languages in Africa, with over 100 million speakers across the continent. Efforts towards digitising Swahili have been notable, with initiatives focusing on creating digital content and tools in the language. The Kamusi Project, a collaborative effort to build an online Swahili dictionary, exemplifies the digital indigenisation of Swahili. According to Jones (2020), the project aims to provide comprehensive and accurate lexical data in Swahili, catering to both native speakers and learners of the language. By leveraging digital platforms, the Kamusi Project contributes to the preservation and promotion of Swahili in the digital sphere. Furthermore, the establishment of Swahili Wikipedia has facilitated the creation and dissemination of knowledge in Swahili. Scholars like Martin, Mswahili, Jeong, and Woo (2022) highlight the importance of Swahili Wikipedia in democratising access to information for Swahili speakers, thus enhancing their digital residency.

2. Yoruba:

Yoruba, spoken predominantly in Nigeria and neighbouring countries, has witnessed efforts towards digital empowerment. The development of digital resources and platforms in Yoruba has played a crucial role in preserving the language and fostering a sense of cultural identity among its speakers. The Yoruba Name Dictionary app is an example of utilising digital technologies to promote the language. According to Ojo (2022), the app provides comprehensive information on Yoruba names, including their meanings and cultural significance. By offering such resources in Yoruba, the app contributes to the digital indigenisation of the language, empowering Yoruba speakers to engage with their linguistic heritage in the digital realm. Additionally, social media platforms like Twitter and Facebook have emerged as spaces for Yoruba speakers to connect and communicate in their native language. Fagbolu, Alese, and Adewale (2014) developed a digital Yorùbá phrasebook for mobile platforms to enhance language accessibility and learning. This project aims to preserve and promote the Yorùbá language by detailing its design, implementation, and potential impact on learners and speakers.

3. Amharic:

Nigatu, Canny, and Chasins (2024) acknowledge the status of Amharic and other Ethiopian languages as low-resourced on online knowledge repositories like Wikipedia. Their study includes a thematic analysis of Wikipedia forum discussions and a contextual inquiry with 14 novice contributors, highlighting issues such as difficulty in finding corroborative resources and errors caused by language technology support. These findings offer insights to improve the accessibility of online knowledge repositories for low-resourced language speakers. Amharic, the official language of Ethiopia, has seen significant progress in digital indigenisation through various initiatives. Efforts to localise digital content and develop language-specific tools have enhanced the digital residency of Amharic speakers. The Ethiopian Localisation Project, for instance, aims to translate popular software and websites into Amharic, making digital technologies more accessible by providing software interfaces and online content in their native language. This project promotes the use of Amharic in the digital sphere, contributing to the empowerment of Amharic speakers and the preservation of their linguistic heritage. Additionally, the availability of Amharic

keyboard apps has facilitated communication in the language on mobile devices, promoting Amharic literacy and enabling speakers to express themselves more effectively in the digital environment. These combined efforts are crucial for overcoming the challenges identified in Nigatu et al.'s study and advancing the digital presence of low-resourced languages.

4. Zulu:

Madima and Makananise (2025) examine the transformative impact of the internet on minority South African indigenous languages, highlighting governmental support for decolonization and language promotion. They argue that the internet is crucial for disseminating indigenous knowledge and cultural practices, fostering access to diverse content, and revitalizing oral traditions. Despite South Africa's recognition of thirteen official languages, indigenous languages remain marginalized compared to English and Afrikaans, lacking equal status as mandated by the constitution. The authors explore strategies for revitalizing these languages in the Fourth Industrial Revolution era.

A notable example is the Zulu language, which has seen digital empowerment through projects like Zulu Wikipedia. This platform enhances the digital presence of Zulu by providing a repository of knowledge covering various topics and enabling speakers to contribute and access information in their native language. Additionally, software and operating system localisation into Zulu has made digital tools more accessible, highlighting the importance of bridging the digital divide and empowering marginalized communities to participate fully in the digital economy.

Madima and Makananise's study underscores the need for continued efforts to ensure equal status and digital presence for South African indigenous languages, emphasising digital empowerment and localisation as crucial strategies.

Case for Igbo and Kalabari

The comparative analysis of the digital presence of Kalabari and Igbo languages highlights significant disparities in digital resource availability, with Igbo showing more progress than Kalabari. Although Igbo has benefited from various digital tools—such as the Igbo Dictionary app and the Ndị Igbo app—which offer

comprehensive lexical databases, pronunciation guides, and learning modules, and despite the active presence on social media and dedicated educational websites (Egwuonwu-Chimezie, 2022; Eke, 2023), substantial work remains necessary to further advance the language. Despite these advancements, the endangerment of Igbo remains a critical issue, driven by political, educational, and societal factors. The urban-rural divide reveals that while rural children tend to be more proficient in Igbo, urban areas face greater challenges, indicating a need for more targeted revitalization efforts. Current recommendations to address these issues include increasing the use of Igbo within families, reinforcing supportive educational policies, and restructuring curricula to emphasize indigenous language instruction. Moreover, while digital resources for Igbo have made strides, the language's digital presence must continue to evolve. There is a need for more diverse and accessible digital content, including interactive learning tools, multimedia resources, and broader online platforms that can engage younger generations and promote deeper language use. Continued investment in these areas is crucial to maintain and expand Igbo's reach and effectiveness in the digital age.

In stark contrast to Igbo, the digital presence of the Kalabari language is minimal. Kalabari, spoken by the Kalabari people in the Niger Delta region of Nigeria, faces significant challenges in digital indigenisation. There are very few online dictionaries, language learning apps, or educational websites dedicated to the Kalabari language. This lack of digital tools makes it difficult for speakers and learners to access and engage with the language in a digital context. The absence of digital resources is a major barrier to the preservation and revitalisation of Kalabari, especially among younger generations.

Unlike Igbo, Kalabari has a very limited presence on social media. There are few, if any, dedicated groups or channels focused on promoting the language. This lack of visibility hampers efforts to create a digital community around the language. The low level of digital engagement among Kalabari speakers is a critical challenge that needs to be addressed to enhance the language's digital residency. The digital indigenisation of a language often requires strong cultural and institutional support. In the case of Kalabari, there appears to be insufficient support from both governmental and non-governmental organisations to promote the language

digitally. Therefore, increased support and investment in digital tools and platforms are necessary to preserve and promote Kalabari in the digital age. While Igbo has a relatively rich array of digital resources, including online dictionaries, language learning apps, and active social media communities, Kalabari's digital footprint is minimal. To bridge this gap, concerted efforts are needed to develop and promote digital tools for Kalabari, leveraging successful strategies from other languages like Igbo. Such efforts could involve the creation of online dictionaries, language learning apps, and social media campaigns, supported by both cultural institutions and the broader community.

The integration of these languages into digital platforms faces several challenges. One significant obstacle is the technological barrier, as limited access to technology and internet connectivity is prevalent in regions where these languages are spoken. Additionally, socio-cultural factors often prioritise English over indigenous languages in educational and professional contexts, further hindering the adoption of a number of African languages in digital environments. Economic constraints also play a critical role, with a lack of funding and investment in digital projects for these languages making it difficult to develop and maintain relevant digital content. Despite these challenges, there are several opportunities to promote digital residency for Kalabari as well as for Igbo. Community initiatives and grassroots movements have shown great potential in creating and sharing digital content in these languages. Educational programs can also play a crucial role by integrating digital language learning tools into school curriculums, thereby enhancing digital literacy among students. Collaborations with tech companies and non-governmental organisations (NGOs) can further support the development and promotion of digital content in Kalabari and Igbo, providing the necessary technical and financial backing for such projects.

Discussion

Promoting indigenisation and digital residency in Kalabari and Igbo languages has significant implications for language preservation and cultural identity. Increasing digital content and engagement ensures that these languages remain relevant and widely used in the digital age. This, in turn, helps preserve cultural heritage and strengthens the identity of the communities that speak these languages. To support these efforts, several policy recommendations are essential.

Government support at both national and local levels is crucial in developing digital content and infrastructure for indigenous languages. Educational institutions should incorporate digital literacy programs that include Kalabari and Igbo, thereby fostering a more inclusive educational environment. Additionally, providing funding and grants to support community-led digital projects can help overcome economic constraints and encourage grassroots initiatives. Looking to the future, long-term strategies are necessary for the ongoing creation and engagement of digital content in Kalabari and Igbo. Collaboration with technology companies to create platforms and tools tailored for these languages can further promote digital residency. Continuous research and development are also vital to monitor the impact of digital initiatives and explore new opportunities for language preservation.

Conclusion

This study highlights the limited digital presence of some indigenous languages and the various challenges they face in the digital landscape. It also identifies significant opportunities for promoting digital residency and offers strategic recommendations to enhance digital inclusivity and literacy. Increasing digital content in these two languages can strengthen cultural identity and ensure the survival of these languages in the digital age. Empowering speakers to fully participate in the digital economy is another crucial benefit of these efforts. A call to action is essential, urging stakeholders, including governments, educational institutions, tech companies, and community groups, to collaborate in supporting digital indigenisation efforts. By doing so, we can promote linguistic diversity and cultural preservation in the digital age, ensuring that languages like Kalabari and Igbo continue to thrive and remain relevant for future generations.

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