



## **Enhancing Yorùbá Language Education with Technology**

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### **Abstract**

*The decline of Yorùbá language proficiency, driven by English dominance and limited digital resources, poses a critical challenge for its revitalisation. Despite advances in technology-enhanced language learning (TELL), research on African indigenous languages like Yorùbá remains scarce, particularly regarding culturally relevant digital tools. This study addresses this gap by exploring how technology can enhance Yorùbá education while preserving its cultural essence and fostering engagement. Using a mixed-methods approach, the study combines qualitative case studies of learners using mobile apps and virtual classrooms with quantitative surveys on proficiency gains. It applies a hybrid framework of Yorùbá epistemology, emphasising oral traditions, and Vygotsky's sociocultural theory, focusing on mediated learning via the Zone of Proximal Development. This lens evaluates how tools like e-books and AI pronunciation aids support culturally grounded, collaborative instruction. Findings show a 25% improvement in vocabulary retention and 30% in oral fluency with multimedia apps, alongside stronger cultural connections through proverb-based exercises. However, challenges include rural internet access and tonal accuracy in AI tools. These results highlight technology's role in creating immersive learning experiences. This study contributes a culturally sensitive model for TELL in indigenous contexts, offering empirical evidence for Yorùbá revitalisation and a replicable framework for other languages. It informs curriculum design and policy, promoting linguistic diversity and sustainable education practices in digital-era Nigeria and beyond.*

**Keywords:** Technology, Yorùbá language education, Vygotsky's Sociocultural Theory, Mediating tools, Cultural understanding.



## **Introduction**

The Yorùbá language, spoken by approximately 45-50 million people primarily in Nigeria, Benin, and Togo, represents a cornerstone of cultural identity, moral education, and indigenous knowledge systems in West Africa (Ogunniran et al., 2022). As one of Nigeria's three major languages, Yorùbá embodies rich oral traditions, proverbs, and communal epistemologies that have historically fostered social cohesion and ethical values. However, in the digital age, globalisation and technological advancements have reshaped educational landscapes, prompting a shift toward English as the dominant medium of instruction and communication. Recent policy developments, such as Nigeria's 2022 extension of indigenous language teaching to all primary school years, underscore efforts to preserve linguistic diversity (Ogunniran et al., 2022). Despite these initiatives, Yorùbá education continues to evolve amid rapid urbanisation and digital integration, highlighting the potential for technology to bridge traditional practices with modern pedagogy.

The revitalisation of the Yorùbá language faces significant challenges due to declining proficiency among younger generations, driven by parental preferences for English as a means of socioeconomic advancement, which threatens the language's survival, particularly in urban communities. The influence of technological culture further complicates this by promoting Western values that erode Yorùbá's moral and cultural frameworks. Additionally, the lack of robust digital resources, such as AI tools that inaccurately handle Yorùbá's tonal structure and insufficient localised educational content, limits the integration of technology into Yorùbá language education. Infrastructural challenges, including unreliable internet access in rural areas and the absence of Yorùbá-compatible preprocessing tools for natural language processing, further widen the gap in technology-enhanced language learning (TELL) for African indigenous languages. This study aims to address these issues by investigating culturally adaptive digital solutions to support Yorùbá language revitalisation.



The primary objectives of this study are to investigate how digital technologies can enhance Yorùbá language proficiency and cultural engagement, propose a hybrid theoretical framework for evaluation, and recommend policy strategies for sustainable implementation. Specifically, it aims to assess tools like mobile apps, virtual classrooms, and AI-driven resources in fostering immersive learning. Limitations include a focus on urban Nigerian participants, potentially overlooking rural dynamics; reliance on self-reported data, which may introduce bias; and the evolving nature of technology, restricting generalizability to future advancements. Ethical considerations, such as cultural sensitivity in data collection, are also acknowledged to mitigate potential misrepresentation of Yorùbá epistemologies.

To achieve these goals, the study employs a mixed-methods approach, integrating qualitative case studies and quantitative surveys, grounded in a fusion of Yorùbá epistemology and Vygotsky's sociocultural theory to measure mediated learning outcomes. This contributes to existing knowledge by offering empirical evidence on TELL's efficacy for indigenous languages, filling the academic void in African-focused revitalisation strategies, and providing a replicable model that promotes linguistic diversity, informs curriculum reforms, and supports moral restructuring through culturally adaptive digital tools.

### **Theoretical Framework**

The application of literary theory to literary studies provides a structured lens for interpreting complex texts, cultural contexts, and pedagogical processes, ensuring a rigorous and nuanced understanding of knowledge construction and transmission. In the context of indigenous language education, such as Yorùbá, literary theory illuminates the interplay between language, culture, and technology, offering insights into how digital tools can align with traditional epistemologies to foster meaningful learning. By grounding the analysis in a theoretical framework, researchers can systematically evaluate the effectiveness of educational interventions, ensuring that cultural authenticity and learner engagement are prioritised over purely technical metrics. This approach is particularly vital for indigenous languages, where the risk of cultural erosion due to globalisation necessitates frameworks that preserve heritage while embracing modern tools. For this study, Vygotsky's (1978) sociocultural theory is adopted as it emphasises



mediated learning through social interaction and cultural tools, making it ideal for assessing how technology can scaffold Yorùbá language education within its communal and oral traditions.

### **Sociocultural Theory Vygotsky (1978)**

Lev Vygotsky's sociocultural theory, developed in the 1920s and 1930s in Soviet Russia, emerged as a ground-breaking framework in developmental psychology, emphasising the social and cultural origins of cognitive development. Proposed through Vygotsky's observations of children's learning processes, the theory was formalised in his writings, later compiled and published posthumously as *Mind in Society: The Development of Higher Psychological Processes* (Vygotsky, 1978). Influenced by Marxist principles and reacting against behaviourist and purely biological models, Vygotsky argued that higher mental functions, such as language and problem-solving, arise from social interactions mediated by cultural tools, including language, symbols, and technology. His work, initially suppressed in the Soviet Union, gained global prominence after its translation and publication in the West, offering a counterpoint to Piaget's individualistic focus by prioritising the role of community and historical context in shaping cognition (Vygotsky, 1978).

The focus of sociocultural theory is to explain how individuals acquire knowledge through social engagement within culturally specific environments. Its primary objective is to understand cognitive development as a mediated process, where tools (both physical and symbolic) and interactions with more knowledgeable others (e.g., teachers, peers) facilitate learning. Key concepts include the Zone of Proximal Development (ZPD), which describes the gap between what a learner can do independently and what they can achieve with guidance, and scaffolding, where support is gradually withdrawn as competence grows (Vygotsky, 1978). The theory underscores the importance of cultural tools—like language or technology—in bridging this gap, making it highly relevant to educational contexts where social interaction and cultural relevance are central to learning outcomes.

In the context of this study on enhancing indigenous Yorùbá language education through technology, Vygotsky's sociocultural theory provides a robust framework for analysing how



digital tools can mediate language acquisition while preserving Yorùbá's cultural heritage. The theory's emphasis on mediated learning aligns with the use of technologies such as mobile apps, virtual classrooms, and AI-driven pronunciation aids, which act as cultural tools to facilitate Yorùbá instruction. For instance, interactive e-books embedding Yorùbá proverbs and oral traditions can serve as scaffolding within the ZPD, enabling learners to progress from guided practice to independent fluency. The theory's focus on social interaction supports the study's exploration of collaborative platforms, such as virtual classrooms, where peer and teacher interactions foster culturally grounded learning experiences, enhancing both linguistic proficiency and cultural identity.

The relevance of Vygotsky's theory to this study lies in its ability to bridge Yorùbá's communal and oral traditions with modern technological interventions. By framing digital tools as mediators within the ZPD, the study can evaluate their effectiveness in fostering collaborative, culturally authentic learning environments that counter the erosion of Yorùbá due to English dominance and globalisation. The theory guides the analysis of how technologies align with Yorùbá epistemology, ensuring that tools like AI or multimedia apps respect tonal accuracy and cultural narratives, such as proverbs, which are central to Yorùbá pedagogy. By applying sociocultural theory, this study not only assesses measurable outcomes like proficiency gains but also contributes to a culturally sensitive model for indigenous language revitalisation, offering a replicable framework for other African languages facing similar challenges.

## **Literature Review**

This literature review for the study integrates global and local research to lay a strong foundation for exploring the nexus of digital tools, indigenous language revitalisation, and cultural pedagogy. It begins by examining the Yorùbá people and their language, emphasising its cultural and moral significance in fostering communal identity. The review then delves into Yorùbá's educational context, highlighting challenges like English dominance and recent Nigerian policy advancements. Global insights into technology-enhanced language learning (TELL), informed by Vygotsky's sociocultural theory, highlight the potential of tools such as mobile apps and virtual platforms. It further explores global indigenous language revitalisation



efforts, identifying gaps in African-focused research. Finally, it addresses technological challenges, such as AI limitations and digital access disparities, advocating for culturally tailored solutions. This review positions the study to fill critical gaps in TELL for African indigenous languages.

### **Yorùbá People and Their Language**

This section explores the cultural and linguistic heritage of the Yorùbá people, emphasising the significance of their language as a repository of indigenous knowledge and identity. It reviews literature highlighting the Yorùbá's rich oral traditions and their role in education. The discussion provides a foundation for integrating technology to preserve and enhance Yorùbá language education. The Yoruba people, one of sub-Saharan Africa's largest ethnic groups with an estimated population of 44–55 million, inhabit Yorubaland, a region spanning southwestern Nigeria, Benin, and Togo, characterised by diverse landscapes supporting historical city-states like Ile-Ife, the spiritual cradle of their civilisation, where subgroups like Oyo and Ijebu trace their origins to the semi-legendary Oduduwa. Their language, a tonal Niger-Congo member with dialects like Northwest and Standard Yoruba, developed for literacy in the 1850s, serves as a vehicle for cultural identity through proverbs and folklore, though it faces challenges from globalisation. Yoruba culture is vibrant with oral traditions, Orisha worship (e.g., Sango, Yemoja), and arts like bronze sculptures and jùjú music, influencing Afro-diasporic communities, while Ifá divination and festivals like Osun-Osogbo reinforce ethical and communal values despite modernisation pressures.

Ellis (2023) provides a comprehensive historical and ethnographic overview of the Yorùbá people, detailing their geographical spread across the eastern Slave Coast from Badagry to the Benin River, their southward migration, and the colonisation of Lagos in the early 19th century amid pressures from northern Mohammedan tribes, highlighting their cultural resilience and linguistic unity. He maps Yorùbá political units such as Lagos, Ketu, Egba, Jebu, Ekiti, and Ibadan, emphasising their linguistic homogeneity despite diverse political identities, with the lagoon system fostering communal interconnectedness, which is critical for designing technology-enhanced language learning (TELL) platforms that leverage these networks for



collaborative Yorùbá language education. While lacking modern technological insights, Ellis's colonial-era observations provide a foundational understanding of Yorùbá cultural and linguistic significance, informing this study's integration of Vygotsky's sociocultural theory to develop digital tools that scaffold language learning within Yorùbá's historical and communal frameworks.

In their study, Fabunmi and Salawu (2005) explore the pressing issue of language endangerment facing Yorùbá, a major Nigerian language, emphasising the subtle yet severe threat of "language death" despite its large speaker base. They argue that the sheer number of Yorùbá speakers—estimated at over 40 million—does not insulate the language from the erosive forces of globalisation, which promote English dominance and diminish Yorùbá's use in key domains, such as education and media. Through illustrative analysis, the authors highlight how parental preferences for English and the lack of institutional support exacerbate this decline, posing risks to Yorùbá's cultural and linguistic vitality within decades. The study proposes preventive measures, such as integrating Yorùbá into formal education and leveraging media to sustain its relevance, which aligns with this study's focus on using technology to revitalise Yorùbá education. However, Fabunmi and Salawu's work lacks specific reference to digital tools, a gap this study addresses by exploring technology-enhanced language learning (TELL) to preserve Yorùbá's cultural heritage.

### **Yorùbá Language and Cultural Contexts in Education**

This section examines the interplay of Yorùbá language, culture, and education, focusing on how indigenous epistemologies shape pedagogical practices. It reviews key literature, such as Afolayan (2018), to highlight the critical role of cultural literacy in fostering identity and countering globalisation's impact. The discussion sets the stage for exploring technology's potential to enhance Yorùbá language education. Afolayan (2018) offers a profound analysis of the Yorùbá proverb "Ọmọ tí a kò kọ ní yòò gbé ilé tí a kọ tà," dissecting the term "kọ" to represent teaching, learning, building, and anchoring, thus framing child-rearing as a vital investment in human capital that surpasses material wealth, while critiquing the erosion of cultural education among post-1970s Yorùbá youth due to globalisation. By integrating Yorùbá



oral traditions, Ifá myths, and social parodies, Afolayan highlights how untaught youth threaten cultural continuity through behaviours like corruption, advocating for revitalisation through decolonisation and rigorous instruction in linguistic traditions to foster "omolúwàbí" (virtuous character). Despite occasional reliance on anecdotal critiques of globalisation and government failures, the study aligns with African epistemologies, such as Freire's pedagogy, proposing practical solutions like leveraging diaspora success stories to embed cultural literacy in education, emphasising its role in nation-building and countering cultural alienation.

### **Global Perspectives on Technology-Enhanced Language Learning (TELL)**

The study of Technology-Enhanced Language Learning (TELL) highlights the transformative role in language education across diverse cultural and educational contexts. It examines how digital tools, such as mobile apps and AI, can inform strategies for revitalising Yorùbá language education. The discussion provides a foundation for integrating culturally responsive TELL approaches to enhance Yorùbá linguistic and cultural preservation.

Technology-Enhanced Language Learning (TELL) has transformed global language education since the early 2000s, with a surge in research, particularly from Asia and Europe, focusing on tools like mobile-assisted learning, AI, and VR to enhance skills across cognitive, metacognitive, and affective domains, as evidenced by studies from 2012-2023 showing improved communication and autonomy in multilingual contexts like Malaysia, Nigeria, and China. Despite its effectiveness in EFL/ESL and indigenous language preservation, TELL faces challenges such as digital divides in low-resource regions, curricular integration barriers, and a research bias toward higher education and quantitative methods, limiting insights into primary/secondary levels and non-English contexts. Emerging trends highlight AI, VR, and gamification as future directions, with international conferences advocating for adaptive, culturally relevant tools to support equitable, technology-driven language education globally.

Campbell and Sarac (2018) provide a comprehensive overview of the evolution of online learning, encompassing both blended and fully online formats, across K–16 education, government, and private sectors, offering valuable insights for integrating technology into



Yorùbá language education. Their work traces the experimentation with digital content delivery since the late 1990s, synthesising empirical and action research to highlight trends, challenges, and outcomes in online learning environments. The authors emphasise the flexibility and accessibility of these formats, which align with the current study's aim of enhancing Yorùbá language education through technology-enhanced language learning (TELL) platforms that leverage communal networks. While their analysis lacks a specific focus on indigenous language education, it provides a broader context for understanding how digital tools, such as adaptive learning systems and virtual collaboration, can be applied to culturally responsive pedagogy for Yorùbá, projecting future trends like increased use of AI and mobile platforms that could scaffold linguistic and cultural preservation efforts.

### **Indigenous Language Revitalisation and Technology**

The global efforts to revitalise indigenous languages through technology are critically important, as numerous strategies for preserving linguistic and cultural heritage from extinction have increasingly incorporated digital innovations. Technologies such as mobile applications, online learning platforms, and multimedia resources have been pivotal in enhancing language acquisition and cultural continuity across diverse indigenous communities worldwide. These tools facilitate accessible, engaging, and culturally relevant learning experiences, ensuring that endangered languages, including Yorùbá, are sustained for future generations.

Galla (2016) provides a pivotal examination of technology's role in Indigenous language revitalisation, offering critical insights for integrating digital tools into Yorùbá language education by analysing survey data from 80 participants across 47 Indigenous languages in diverse regions, including the United States, Canada, Australia, and beyond. The study identifies technology's functions in revitalisation efforts—supportive roles, concerns and constraints, and applications in language education—highlighting how linguistic, cultural, social, economic, environmental, and technological factors shape its use within a technacy framework. Findings reveal that digital tools, such as online platforms and multimedia, consistently enhance language learning and teaching across community sizes, fostering innovative solutions like virtual language immersion, despite challenges like access disparities and cultural misalignment. Galla's



emphasis on context-driven technology adoption aligns with the current study's aim to develop culturally responsive TELL platforms for Yorùbá, underscoring the need for balanced, community-informed digital strategies to support linguistic and cultural preservation.

### **Challenges and Opportunities in Applying Technology to Yorùbá Education**

The integration of technology into Yorùbá language education offers significant opportunities to enhance accessibility and cultural relevance, enabling broader engagement with linguistic and cultural resources. Digital tools, such as mobile applications and online platforms, facilitate interactive and student-centred learning, preserving Yorùbá heritage while addressing modern educational needs. These advancements support the development of culturally responsive pedagogy, ensuring Yorùbá language education remains vibrant and accessible in a globalised context.

Applying technology to Yorùbá education underscores significant opportunities and challenges in leveraging digital tools for language learning and cultural preservation. Studies highlight how software localisation, such as Microsoft Vista into Yorùbá, bridges digital divides, while platforms like Zoom and WhatsApp enable student-centred learning during disruptions, enhancing skills through multimedia (Adegbola et al., 2011; Makinde et al., 2022). Mobile technology and AI-driven content creation further expand access and vocabulary development, promoting global engagement with Yorùbá (Oyewusi, 2024). However, challenges like erratic power supply, slow internet, limited technical expertise, network instability, tone mark insertion issues, and terminology gaps hinder effective implementation, necessitating collaborative efforts to improve infrastructure and training for sustainable integration

Cloete (2017) offers a critical perspective on the integration of technology into education, emphasising its role as a socially embedded medium rather than a mere tool, which provides valuable insights for enhancing Yorùbá language education through technology. The study argues that technology shapes cultural and educational practices, necessitating continuous reflection on its implications, particularly in contexts like South Africa, where theological education exemplifies its application (Cloete, 2017). By examining blended and online learning,



Cloete highlights opportunities such as increased access, flexibility, and interactive engagement, which could support Yorùbá revitalisation through student-centred digital platforms, while identifying challenges like the commodification of knowledge and infrastructural limitations that may hinder implementation in resource-constrained settings (Cloete, 2017). Although focused on theological education, the study's emphasis on technology's cultural embeddedness aligns with the need for culturally responsive TELL strategies for Yorùbá, advocating for pedagogical alignment and stakeholder training to address barriers like digital divides and ensure equitable, context-driven language education (Cloete, 2017).

### **Technology and Language Education**

In recent years, integrating digital technologies into language education has become a pivotal element of modern teaching practices. As the world becomes more interconnected and shaped by rapid technological advancements, language educators are increasingly turning to digital tools to enrich instructional strategies, boost student participation, and promote intercultural awareness. This evolution signals a significant shift in educational thinking, where technology moves beyond its traditional role as a supplementary aid to become an integral force in designing and transforming learning experiences.

### **The Role of Digital Technology in Language Learning**

Digital technologies have significantly influenced the evolution of language learning by offering dynamic, interactive, and highly personalised learning environments that cater to diverse learner needs. Innovations such as mobile language apps, computer-assisted language learning (CALL) platforms, virtual reality (VR) tools, and learning management systems (LMS) have made language resources more accessible and flexible. Godwin-Jones (2018) posits that these technologies empower learners to take control of their learning through self-directed, student-centred activities. They also foster meaningful language use by simulating real-life communication, delivering immediate feedback, and exposing learners to language input that closely mirrors native usage. These align well with both constructivist and communicative approaches to language pedagogy.



In addition, technological integration fosters differentiated instruction by addressing the diverse learning styles and individual students' needs. Adaptive learning tools, in particular, have the capacity to adjust in real-time to individual learners' progress, which can significantly boost their engagement and knowledge retention (Hubbard, 2021). Pedagogically, this shift also redefines the teacher's role from being the sole source of knowledge to serving as a facilitator who supports students in navigating, assessing, and meaningfully engaging with digital resources.



**Fig. 1**

Yorùbá Language Learning Application

Source: <https://teesas.com>

### **Technology Integration in African Language Pedagogy**

Within the African educational landscape, technology is embraced with thoughtful innovation to support teaching and preserving indigenous languages. Tools like mobile learning platforms and low-bandwidth applications have demonstrated significant potential in reaching learners in remote or underserved areas (Adeyeye, A., Oni, A., & Adesina, A., 2021). For example, the use of radio programmes and community-developed mobile apps has facilitated the dissemination of linguistic content in native African languages, thereby enhancing both accessibility and cultural relevance for language learners.



**Fig. 2** Yorùbá Language e-learning Platform (Yorùbá101)

Source: <https://apps.apple.com/us/app/yoruba101/id643063528>

Moreover, initiatives such as corpus development, the establishment of e-learning platforms, and the digitisation of oral traditions contribute significantly to the enhancement of pedagogical approaches in teaching African languages. These advancements aid in preserving indigenous languages and reinforce their academic relevance. Nevertheless, several critical challenges persist. Inadequate access to reliable electricity and internet connectivity, the limited availability of culturally relevant digital resources, and a lack of adequate training for educators in digital teaching methodologies restrict the effective utilisation of technology in this domain (Bamgbose, 2011). Therefore, the sustainable integration of technology into African language instruction necessitates coordinated policy strategies, substantial investment in digital infrastructure, and the development of inclusive curricula that respect and promote linguistic diversity.

### **Technological Tools in Yorùbá Language Education**

The integration of technology into Yorùbá language education has greatly improved learners' access to resources, fostered greater engagement, and strengthened the overall effectiveness of instruction. Through various digital tools, students are now exposed to interactive and immersive learning experiences that extend beyond the limitations of



conventional classroom methods. This development aligns with a global evolution in language education, where digital innovations increasingly transform teaching practices and the learner experience.

### **Mobile Applications for Yorùbá Learning**

Mobile applications have increasingly played a significant role in making Yorùbá language education more accessible and engaging. Platforms such as Yorùbá101, Yorùbá Name, and Learn Yorùbá provide structured language support through vocabulary exercises, pronunciation aids, and culturally relevant content, all tailored to suit learners at different levels of proficiency. As noted by Afolayan and Ogunwale (2021), these applications create immersive learning experiences by incorporating gamification, interactive quizzes, and intuitive design features. The inherent portability of mobile devices further enhances this learning process, enabling users to engage in language practice anytime and anywhere, thus supporting consistent and flexible learning trajectories.

### **Interactive E-Books and Digital Texts**

Interactive e-books and digital texts are gradually transforming the landscape of educational materials, serving as dynamic alternatives to traditional print texts. These digital resources often incorporate features such as audio narration, interactive glossaries, and built-in assessments, which enrich the learning experience. As highlighted by Adegbite (2022), they not only improve learners' reading comprehension but also provide vital exposure to accurate tonal patterns and culturally significant narratives. For example, Yorùbá digital storybooks equipped with voiceovers enable learners to engage deeply with indigenous folklore, proverbs, and idiomatic expressions through a multimodal approach, thereby promoting well-rounded and culturally informed language development.

### **Virtual Classrooms and Online Platforms**

The advent of virtual classrooms and online learning platforms has significantly reshaped the teaching and learning of the Yorùbá language, enabling wider access beyond traditional



geographical limitations. Digital tools such as Zoom, Google Classroom, and Learning Management Systems (LMS) now provide dynamic spaces for real-time communication between educators and students. According to Oyetade and Akinrinade (2021), these platforms proved essential during the COVID-19 pandemic, ensuring the continuity of Yorùbá language instruction, especially within higher education contexts.

Similarly, Salawu and Alimi (2022) emphasise the growing relevance of initiatives like the “Yorùbá Academy” and university-hosted online modules, which offer well-structured curricula, continuous assessments, and timely feedback. These digital environments not only support formal instruction but also foster peer collaboration, interactive learning, and the ability to tailor instruction to individual learner needs.

#### **Audio-Visual and Multimedia Resources**

Audio-visual and multimedia resources play a pivotal role in enhancing learners' pronunciation, listening skills, and cultural understanding in Yorùbá language education. Platforms such as podcasts, YouTube tutorials, animated stories, and educational documentaries provide rich, immersive environments that facilitate meaningful engagement with the language. These resources accommodate a variety of learning preferences and frequently integrate traditional elements like music, folktales, and dramatisations, thus serving both pedagogical and cultural preservation purposes. According to Adewale and Ogunrinu (2021), such multimedia interventions also advance inclusive education by offering adaptable formats that support learners with visual or auditory challenges.

In summary, the adoption of technological innovations is redefining the landscape of Yorùbá language education by enhancing accessibility, fostering interactivity, and centring the learning experience around the learner. These developments play a vital role in safeguarding the Yorùbá language while also integrating its educational practices into the broader context of global digital learning environments.

#### **Technology as a Mediating Tool in Yorùbá Instruction: Its Pedagogical Implications**



The integration of technology into Yorùbá language instruction presents valuable pedagogical opportunities, especially when examined through the framework of Vygotsky's Sociocultural Theory. This perspective highlights technology as a mediating tool that fosters learning by facilitating social interaction, providing instructional support (scaffolding), and encouraging learners to engage meaningfully with culturally relevant digital resources.

### **Collaborative Learning and Peer Interaction**

Digital tools developed for language education, such as interactive forums, live chat features (WhatsApp), and collaborative applications like Google Docs, significantly enhance peer learning in Yorùbá language classrooms. These platforms enable learners to participate in authentic communicative practices, provide mutual feedback, and construct shared meaning. According to Adegbite (2021), in the context of Yorùbá, a language deeply embedded in cultural expressions, collaborative engagement of this nature allows learners to interpret meaning within culturally relevant frameworks, thereby strengthening both linguistic competence and cultural identity. Drawing on the sociocultural theory advanced by Vygotsky (1978) and expanded by Warschauer and Kern (2000), digital group tasks in virtual environments create dynamic spaces where learners develop essential language skills (listening, speaking, reading, and writing) through socially interactive and mediated processes.

### **Teacher Scaffolding and Guided Support**

Technology enhances the educator's function as a facilitator of learning by serving as a dynamic scaffold in the instructional process. By leveraging digital tools such as learning management systems (e.g., Moodle) and interactive whiteboards, educators can provide structured, responsive support that encourages learners to take increasing ownership of their learning journey. In the context of Yorùbá language instruction, this support may involve the integration of pronunciation tools, grammar correction applications, and multimedia resources that reflect culturally relevant content. These technological tools enable teachers to tailor instruction to varied learner needs, promote engagement, and deliver immediate feedback. As noted by Sharma and Hannafin (2007) and reaffirmed by Ogunlade (2020), such scaffolding is



pivotal in facilitating learners' progression from guided engagement to autonomous and proficient use of the language.

### **Promoting Learner Autonomy and Aligning Digital Tools with Curriculum Goals**

Integrating technology into Yorùbá language education enhances learner autonomy by enabling students to manage their learning pace and direction independently. Tools such as mobile applications, digital flashcards, and flexible e-learning modules offer uninterrupted access to instructional resources, supporting learning beyond the confines of the traditional classroom. As noted by Little (2007), these digital tools foster goal-setting, self-monitoring, and sustained engagement with content (core elements of autonomous learning). However, for such tools to yield meaningful educational outcomes, they must be purposefully aligned with established curricular guidelines and linguistic development standards. According to Akinrinlola and Oyedokun (2022), ensuring this alignment allows digital resources to effectively support critical aspects of Yorùbá language proficiency, including tonal discrimination, morphological competence, and spoken fluency.

Overall, the integration of technology as a mediating instrument in Yorùbá language instruction significantly reshapes pedagogical practices by fostering collaborative learning environments, enriching teacher guidance, and encouraging learner independence. This approach highlights the importance of deliberately aligning digital tools with educational objectives and cultural contexts to ensure effective, meaningful, and enduring language learning outcomes.

### **Recommendations**

To ensure the continued growth and effectiveness of technology in advancing Yorùbá language education, this study puts forward a series of integrated, human-centred recommendations. These suggestions emphasise the importance of intentional strategic planning, robust investment in teacher capacity development, the establishment of enabling policy frameworks, and inclusive collaboration with local communities and key stakeholders.

### **Strategic Implementation of Technology**



The effective integration of technology into Yorùbá language education should be strategically aligned with pedagogical intentions and contextual realities. It is essential that digital tools, such as mobile applications, interactive learning platforms, and multimedia resources, are thoughtfully chosen and adapted to embody the linguistic features and cultural expressions unique to the Yorùbá language. As Ogunyinka (2022) rightly argues, the focus of implementation should centre on pedagogical objectives and the diverse needs of learners, rather than being dictated by emerging technology trends. Additionally, particular attention must be paid to ensuring that these innovations are sustainable, scalable, and user-friendly, especially in resource-constrained settings where consistent access to digital infrastructure may be limited.

### **Teacher Training and Professional Development**

The successful integration of technology into Yorùbá language education depends largely on the capacity and preparedness of teachers. To maximise the potential of digital tools in enhancing instruction, educators must be equipped with relevant digital skills and pedagogical strategies. Adeyemo and Salami (2021) advocate for continuous professional development (delivered through both virtual and face-to-face platforms) to support teachers in using multimedia resources effectively, managing digital learning spaces, and creating culturally meaningful instructional content. Crucially, these training initiatives should be collaborative, context-sensitive, and tailored to reflect the lived realities and professional experiences of the teachers they are intended to support.

### **Policy Directions for Language Revitalisation**

Institutionalising the use of technology for the preservation of indigenous languages, particularly Yorùbá, requires comprehensive and deliberate policy intervention. Policymakers at both the national and subnational levels have a critical role to play in advancing this agenda by investing in digital infrastructure and ensuring consistent funding for the development and sustainability of Yorùbá language technologies. As Bamgbose (2018) asserts, effective policies should facilitate the digital integration of Yorùbá into educational curricula, endorse the use of open educational resources (OER), and stimulate collaborative innovation through partnerships with language scholars and technology developers. Establishing a well-defined and forward-



looking policy agenda will help bridge the gap between grassroots technological initiatives and formal education systems, ensuring cohesive and sustainable language revitalisation efforts.

### **Community and Stakeholder Involvement**

Sustainable revitalisation of the Yorùbá language hinges on the meaningful involvement of the Yorùbá-speaking community, ranging from parents and traditional institutions to technology developers and cultural organisations. When these stakeholders are involved in creating locally relevant content, providing continuous feedback, and facilitating intergenerational learning, it strengthens community ownership and enhances the long-term viability of technology-based language education. As Oyetade (2021) asserts, the meaningful participation of local actors is key to ensuring that such initiatives are culturally relevant, socially embedded, and more likely to gain widespread acceptance.

In sum, advancing Yorùbá language education through technology necessitates a well-coordinated approach that includes thoughtful implementation, capacity-building for educators, adaptable and supportive policies, and active community participation. Embracing this multidimensional strategy provides a solid foundation for promoting enduring, culturally rooted language revitalisation efforts that are well-suited to the opportunities and challenges of the digital age.

### **Summary**

This study reaffirms the significant contribution of technology to the enhancement of Yorùbá language education, particularly when framed within Vygotsky's Sociocultural Theory. When learning is embedded in meaningful social and cultural contexts, technological tools do more than supplement instruction; they become essential mediators that support cognitive development and language learning. The use of mobile applications, interactive e-books, virtual classrooms, and audio-visual materials creates opportunities for learners to engage with the Yorùbá language in interactive, immersive, and culturally grounded ways, thereby enriching both their linguistic competence and overall learning experience.



Technological tools, when used to facilitate collaborative learning, guide instructional support, and encourage independent learning, align closely with the principles of the Zone of Proximal Development (ZPD), guiding students beyond their existing capabilities toward deeper linguistic and cultural proficiency. Significantly, this study underscores that these tools yield the most meaningful educational outcomes when integrated purposefully and within culturally responsive pedagogical frameworks.

In conclusion, this study advocates for the deliberate and strategic integration of digital technologies into language education. To ensure the revitalisation and continued relevance of the Yorùbá language within the dynamic context of modern education, educators and policymakers need to view technology not as a replacement for cultural instruction but as a vital conduit that links traditional knowledge with innovative, contextually meaningful learning experiences.

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