

The Role of Emerging Technologies in Teaching and Learning of English and Igbo Languages

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Abstract

The integration of emerging technologies into education has transformed the way languages are taught and learned. This paper explores the transformative potential of emerging technologies in enhancing the teaching and learning of English and Igbo languages. We highlight the current landscape of language education with regard to English language instruction and Igbo language instruction. We also examine the applications of Online Learning Platforms, Social Media and Collaboration Tools, Mobile Applications, Speech Recognition Software, Interactive Multimedia, Artificial Intelligence (AI), and Virtual and Augmented Reality (VR/AR), in addressing challenges related to language acquisition, pronunciation, vocabulary building, and cultural understanding. This paper also highlighted the benefits of emerging technologies in English and Igbo language education, enumerated the pedagogical implications and challenges and made recommendations for maximization of the benefits of emerging technologies in language teaching. While acknowledging the digital divide and potential drawbacks, we argue that strategically implemented technology can significantly improve language learning outcomes for both English and Igbo languages, fostering multilingualism and preserving cultural heritage.

.Key Words: Globalization, Language Teaching and Learning, Traditional Teaching Methods, Emerging Technologies, Digitalization.

Introduction

The globalization of communication necessitates the effective teaching and learning of multiple languages, including English and indigenous languages such as Igbo. The traditional methods of language teaching often characterized by rote learning and limited interaction, are increasingly being challenged by the rapid advancements in technology. Emerging technologies have profoundly altered the landscape of education, particularly in the realm of language learning. With the rapid digitalization of society, it has become increasingly important to integrate technology into educational practices to meet the diverse needs of learners. The teaching and learning of languages, especially those with diverse linguistic structures and cultural contexts like English and Igbo, face unique challenges. Traditional methods often struggle to cater to individual learning styles and pace, particularly in diverse classrooms.

Emerging technologies offer promising solutions by providing personalized, engaging, and interactive learning experiences. Emerging technologies, including mobile applications, online platforms,

and artificial intelligence, offer innovative methods to facilitate language learning (Blin, 2016). Language education encompassing both English and indigenous language like Igbo benefits significantly from such innovation. Emerging technologies offer innovative approaches to language acquisition, creating immersive and personalized learning experiences. The teaching and learning of spoken languages, particularly those with diverse phonetic systems like English and Igbo, present unique challenges. Traditional methods often struggle to provide sufficient opportunities for authentic practice and individualized feedback. Emerging technologies offer a powerful solution by providing interactive, personalized, and engaging learning experiences that can overcome these limitations. Recent studies highlight the increasing importance of technology in language education (Kern, 2018; Chapelle, 2019).

The Common European Framework of Reference (CEFR) emphasizes the need for innovative techniques to enhance language learning outcomes. Research indicates that technology not only promotes engagement but also supports diverse learning styles (Thorne, 2018). Additionally, in the context of indigenous language education, Leverett, (2020) emphasize the necessity of technological integration to foster an inclusive learning environment and encourage revitalization efforts.

As the demand for competency in both English and indigenous languages such as Igbo grows, integrating technology into language education becomes increasingly vital. English, a globally dominant language, requires different pedagogical strategies compared to Igbo, a minority language facing challenges of preservation and revitalization. While numerous studies have focused on English, the potential of technology in teaching indigenous languages like Igbo remains underexplored. This paper aims to fill the gap by examining the specific role of emerging technologies in the pedagogical approaches for both languages.

The Current Landscape of Language Education

Traditional approaches to language education in both English and Igbo languages often rely on textbooks, direct instruction, and rote memorization. While effective in some contexts, these methods frequently do not accommodate diverse learning styles or the realities of contemporary students' lives. Boch and Piwowar (2019) argue that the integration of digital tools can enhance engagement and transform pedagogical practices. As such, many educators are beginning to incorporate emerging technologies to create more interactive and engaging language learning environments.

English Language Instruction

As the global lingua franca, English language education has witnessed substantial technological integration. Various applications such as Duolingo and Rosetta Stone provide students with interactive

language exercises, gamified learning experiences, and resources tailored to their progression (Barata, Gouveia, and Silva, 2019). Furthermore, AI-driven tools can analyze individual performance and adapt lessons accordingly, promoting personalized learning experiences.

Igbo Language Instruction

Igbo, as one of Nigeria's primary indigenous languages, has encountered several challenges, including a lack of resources and dwindling numbers of speakers. However, technologies such as mobile applications and online platforms have the potential to revitalize interest in the language. Apps like Igbo101 and Anu Igbo focus on teaching vocabulary, pronunciation, and basic grammar, while connecting learners with native speakers for authentic practice (Uche, 2021). This technological integration is vital for engaging younger generations in their linguistic heritage.

Emerging Technologies in Language Education

Emerging technologies in language education include: Online Learning Platforms, Social Media and Collaboration Tools, Mobile Applications, Speech Recognition Software, Interactive Multimedia, Artificial Intelligence (AI), Virtual and Augmented Reality (VR/AR).

- 1. Online Learning Platforms:** The proliferation of online learning platforms like Coursera, Udemy, and edX has made it possible for learners to access high-quality language courses that were once restricted to physical classrooms. These platforms allow native speakers and experts to create courses that expand learners' exposure to English and Igbo through video lectures, interactive exercises, and community discussion forums (Hyland, 2017). Likewise, platforms such as Zoom, Skype, Google Classroom, and Google Meet have gained popularity, especially in the wake of the COVID-19 pandemic. They have reshaped the teaching landscape, allowing for real-time spoken interaction between learners and instructors, regardless of geographical boundaries. These platforms facilitate real-time interactions, promoting collaborative learning and fostering relationships between students and educators. These tools facilitate language exchanges and conversational practice, critical for mastering spoken English and Igbo (Blin, 2016). For Igbo language learners, online platforms can connect them with native speakers globally, allowing for practice and cultural exchange that enrich language learning (Nwosu, 2022). YouTube serves as an invaluable resource for learners, providing access to authentic spoken language usage through vlogs, tutorials, and language lessons.
- 2. Social Media and Collaboration Tools:** Social media platforms like Facebook, Twitter, and Instagram have emerged as popular venues for language practice and cultural exchange. They facilitate real-time communication and interaction with native speakers, enabling learners to immerse themselves in the

languages socially (Blume, 2018). Moreover, collaboration tools like Google Docs allow learners to work together in real-time, fostering a cooperative learning environment (Felder & Brent, 2016).

3. **Mobile Applications:** The proliferation of smartphones has led to an explosion of mobile applications designed for language learning. These tools are particularly valuable as they allow learners to practice language skills anywhere, anytime. Mobile technology has revolutionized language learning by providing learners with access to educational resources anytime and anywhere. Mobile applications such as Duolingo, Speechling, and HelloTalk provide learners with an interactive and engaging way to practice spoken English and Igbo. These platforms utilize gamification, which motivates learners by making language learning fun and rewarding (González-Lloret & Gunter, 2018). Additionally, applications designed specifically for Igbo learners, such as Igbo Audio Lessons, offer pronunciation guides and audio examples to improve speaking skills. Additionally, for Igbo language learners, applications like Igbo101 and Learn Igbo provide vocabulary, pronunciation guides, and cultural context, making language learning more accessible. For English learners, apps like Memrise and Busuu offer diverse learning resources, while similar applications for Igbo language education help users gain foundational knowledge through engaging and interactive features (Okafor, 2022).
4. **Speech Recognition Software:** The advent of speech recognition technology has greatly impacted language learning. Tools like Google's Voice Recognition and Rosetta Stone's speech analysis enable learners to practice pronunciation and receive immediate feedback on their spoken language skills (Heffernan & Heffernan, 2014). Such technologies can significantly help Igbo learners, whose language is tonal, by providing real-time analysis of pitch and pronunciation.
5. **Interactive Multimedia:** The integration of multimedia resources, such as videos, podcasts, and interactive games, promotes immersive learning experiences. Tools like Edpuzzle and Kahoot enable educators to create interactive lessons that can reinforce spoken language skills in an engaging manner (Felder & Brent, 2016). For both spoken English and Igbo, learners can benefit from exposure to native speakers and diverse accents, enhancing their comprehension and speaking abilities.
6. **Artificial Intelligence (AI):** AI-powered tools are revolutionizing language learning. AI-driven language learning platforms offer personalized feedback on pronunciation (using speech recognition) and grammar (using natural language processing). For example, Duolingo utilizes AI to adapt exercises based on learners' strengths and weaknesses. In the context of Igbo, AI could be crucial in developing sophisticated language processing tools for tasks such as grammatical analysis and machine translation, addressing the relative lack of digital resources for the language (Orji, and Korie, (2024). AI chatbots can simulate conversations, providing opportunities for interactive practice and fluency development

in both languages (Bousquet, D'Angelo, D., & Guadagnin, 2020). Artificial intelligence (AI) technologies, including chatbots and language learning algorithms, possess the ability to provide personalized learning experiences. AI can analyze a learner's progress and tailor content to their proficiency level, ultimately enhancing their engagement and retention rates (Heffernan & Heffernan, 2014). For both English and Igbo language learners, AI-driven tutoring systems can provide instant feedback, helping learners correct mistakes in real-time. AI tools have transformed the language learning landscape by offering personalized and adaptive learning experiences. Language learning applications embedded with AI, like Babbel, can assess user performance and adapt content in real-time to meet individual learning needs (Huang, Liu, D., & O'Rourke, 2020). In addition, conversational AI tools such as chatbots provide students with opportunities to practice speaking and improve their fluency in both English and Igbo.

7. **Virtual and Augmented Reality (VR/AR):** VR/AR technologies create immersive learning environments that foster deeper engagement and understanding. Though still in its early adoption phase, VR technology presents exciting possibilities for immersing students in linguistic environments. For English language learners, VR can create scenarios that simulate real-life interactions, promoting conversational skills and contextual learning (Fowler, 2020). Such applications could also benefit Igbo language instruction by providing immersive cultural experiences that enhance understanding and appreciation of the language. VR can simulate real-world scenarios, allowing learners to practice language skills in authentic contexts (e.g., ordering food in a restaurant, navigating a market). AR overlays digital information onto the real world, enriching the learning experience. For example, AR apps can provide instant translations or display vocabulary definitions while learners are reading or listening (Dede, 2009). In Igbo education, VR could transport learners to Igbo communities, exposing them to the culture and allowing for authentic interaction with virtual speakers (potentially employing AI-generated characters).

Benefits of Emerging Technologies in Education

The incorporation of technology in language education yields numerous benefits as highlighted below:

- i. **Increased Engagement:** Interactive technologies like VR and AR foster more engaging and immersive educational experiences, captivate students' attention, motivate them to participate actively in their learning process, and make learning more appealing (Barata et al., 2019).

- ii. **Personalized Learning:** Technologies allow for tailored learning experiences that cater to individual needs and progress, enabling students to progress at their own pace. (Huang et al., 2020).
- iii. **Accessibility:** Online resources provide greater access to quality educational materials, breaking geographical barriers and ensuring education is accessible to a broader audience and reaching underrepresented communities. (Uche, 2021).
- iv. **Cultural Integration:** Technologies can facilitate the integration of cultural context into language learning, enhancing students' understanding and appreciation of both English and Igbo languages. Technologies can immerse learners in cultural contexts, enhancing their understanding of language usage and significance.
- v. **Data-Driven Insights:** The use of analytics and data mining in education provides valuable insights into student learning patterns, helping educators make informed decisions.

Emerging technologies offer numerous benefits for English and Igbo language learners in development of the four language skills. They promote active learning, provide personalized feedback, and cater to diverse learning styles. Moreover, technology facilitates access to authentic language contexts, essential for building oral proficiency, as it engages learners in real-world language use (Hockly, 2018). The convenience of mobile apps and online platforms allows learners to practice speaking at their own pace, fostering greater confidence in their abilities. These technologies engender an interactive writing experience that promotes student engagement and participation, crucial for developing competencies in written English and Igbo (Hockly, 2018). Furthermore, they cater to different learning styles, helping educators include varied instructional methods for effective literacy development.

The integration of emerging technologies in reading instruction offers numerous advantages. These technologies provide personalized learning experiences, allowing students to progress at their own pace while accessing diverse reading materials (Hockly, 2018). Immediate feedback mechanisms improve learners' comprehension and help identify areas for improvement. Furthermore, the availability of authentic texts fosters cultural awareness and appreciation, especially in learning contexts where learners are exposed to the nuances of the English and Igbo languages. The use of emerging technologies in developing listening skills presents numerous advantages. First, they provide learners with immediate feedback, allowing for real-time adjustments in comprehension strategies (Hockly, 2018). Additionally, the variety of audio resources available caters to diverse interests and learning styles, enhancing learner motivation and engagement. These technologies also offer exposure to authentic language use, which is crucial for developing listening proficiency in both languages (Wong & O'Sullivan, 2019).

Pedagogical Implications and Challenges

The integration of emerging technologies presents both opportunities and challenges. While they enhance engagement and personalization, effective implementation requires careful pedagogical consideration and planning. Effective implementation necessitates teacher training, curriculum development aligned with technology integration, and the creation of accessible and culturally relevant digital resources (Huang et al., 2020). Challenges include the digital divide, ensuring equitable access to technology (Nwosu, 2022), addressing issues of digital literacy gaps, and maintaining a balance between technology use and human interaction are crucial for maximizing the benefits of these advancements, (Horn, 2017; Thorne, 2018). The focus should be on using technology to enhance, not replace, effective teaching practices. Teacher training and professional development are crucial for successful adoption (Warschauer, 2016). For Igbo, the limited availability of digital resources and the need to develop culturally appropriate digital materials pose significant challenges. The development of culturally relevant and pedagogically sound materials is also vital (Warschauer, 2016). For Igbo, the development of appropriate digital content requires significant investment in linguistic resources and technological infrastructure.

Conclusion

Emerging technologies offer significant potential to enhance the teaching and learning of English and Igbo language skills. They play a pivotal role in enriching the teaching and learning of English and Igbo languages. They offer innovative solutions to traditional educational challenges, foster engagement, and enhance personalized learning experiences. By addressing the challenges related to access, digital literacy, and content development, and by investing in teacher training and research, we can leverage these technologies to create more engaging, effective, and equitable learning experiences for all students. A balanced approach that merges technology with conventional teaching methods will likely yield the most effective results in promoting language proficiency and cultural understanding.

Recommendation

Emerging technologies play a significant role in the teaching and learning of both English and Igbo languages. While they present unique opportunities to engage learners and enhance language acquisition, challenges must be addressed proactively. It is essential for educators to be adequately trained and for resources to be allocated to ensure equitable access to technology. Future research should focus on best practices for integrating technology into language curricula and assessing their long-term impact on learner outcomes.

To maximize the benefits of emerging technologies in language teaching, several recommendations are proposed:

1. **Invest in infrastructure:** Governments and educational institutions should invest in providing access to technology and reliable internet connectivity in schools and communities.
2. **Establish a Task Force:** Establish a task force comprising educators, administrators, and technologists to explore the potential of emerging technologies in education.
3. **Provide Teacher Training:** Provide teachers with training on emerging technologies to ensure effective integration into their teaching practices. Comprehensive professional development programs should be implemented to equip teachers with the necessary digital literacy skills.
4. **Content development:** Efforts should be made to develop high-quality, culturally relevant digital content in various languages, including Igbo.
5. **Research and evaluation:** Further research is needed to evaluate the effectiveness of different technologies in improving listening, speaking, reading and writing skills and to identify best practices for their implementation.
6. **Develop Data Security Measures:** Develop robust data security measures to protect student data and prevent cyber threats.
7. **Prioritize Equity:** Prioritize equity by designing emerging technologies with accessibility in mind.

By embracing emerging technologies and addressing the challenges associated with their integration, educators can create innovative and impactful language education systems that prepare students for success in an increasingly complex world.

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