INTEGRATION OF DIGITAL TOOLS INTO IGBO LANGUAGE TEACHING AND L EARNING IN JUNIOR SECONDARY SCHOOLS, FCT ABUJA.

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Abstract

This study investigates the integration of digital tools into the teaching and learning of the Igbo language in junior schools within the Federal Capital Territory (FCT), Abuja. In a world wher e people have embraced technology, in a world where a popular slogan says "Data is Oxygen," in a world where even a toddler can operate an Android phone, in an era of rapid tec hnological advancement, traditional methods of language instruction face a significant challen ge in capturing students' interests and fostering proficiency; the Igbo language is not an except ion. This research explores how digital tools such as educational apps, interactive software, on line platforms, and audio-visual media can enhance the effectiveness of Igbo language instructi on. Using a mixed-methods approach, the study collects data through surveys, classroom obser vations, and interviews with Igbo language teachers and students. The findings reveal that the use of digital tools not only increases student engagement and motivation but also improves co mprehension, vocabulary development, and communication skills. However, the study also ide ntifies barriers such as limited access to digital resources, inadequate teacher training, and lac k of locally relevant digital content. It concludes by recommending strategic investments in ICT infrastructure, teacher capacity building, and the development of culturally appropriate digital learning materials to support the revitalization and sustainability of Igbo language education i n junior secondary schools across the FCT. **Keywords:** Integration, Digital tools, Teaching and learning, Igbo language, Challenges.

Introduction

When we talk about the integration of digital tools into language teaching and learning, it means bringi ng in the use of technological tools to support and promote teaching and learning process in lang uage studies. This paper looks at how and why we should and can bring in digital tools that have been made available in this era to promote the teaching and learning process of Igbo language in the basic schools especially in the FCT. It also examines the challenges facing the use of digital tools with the view of proffering solution to each of these problems. It is importa nt to note that the use of white board and marker is gradually becoming boring to the pupils and students of nowadays. That is why smart schools now use projectors and power point slides in d riving most of their lessons home. This paper explores other important digital tools essential for Igbo language studies in junior secondary school's twenty first century classrooms especially in the FCT. Igbo language studies has suff ered a great deal in FCT primary and junior secondary schools. The wide gap which exists as a r esult of the fact that FCT-Abuja is a mini Nigeria, where all the 400 and more languages that exi sts in the country are duly represented in each classroom and the case of early enrollment of chil dren in pre-primary schools has made the use of indigenous languages as medium of instruction impossible. Most of the pupils and students of Igbo decent born and brought up in Abuja have n o basic foundational knowledge of their mother tongue. This fact pose a huge problem for Igbo l anguage teachers in the FCT and there is need to bridge this gap through the use of digital tools.

The specific objective of this paper includes the following;

- To explore the role and potential of digital tools in the studies of Igbo language within th e FCT basic schools.
- To identify the types of digital tools relevant to Igbo language pupils in primary and juni or secondary school in the FCT.
- Identify challenges facing the use of digital tools in Igbo language teaching and learning in the FCT basic schools with the view towards proffering solutions.

An Overview of Igbo People: their language and nature

Igbo l anguage is a language spoken in Nigeria with a population of more than 20 million speakers (U doye, 2018). A more accurate data has estimated Igbo language speakers to be more than twice t he number above; 'Igbo language is spoken by approximately 40 million people, primarily in th e southeastern Nigeria, where it serves as the principal language of the Igbo ethnic group (CeLT 2023). According to Indiana University (IU) Center for Language Technology, 'Igbo is one of t he largest languages of west Africa and is spoken by 44 million people in Nigeria. It belongs to the Benue-Congo group of the Niger-Congo language family'. Igbo Language is predominantly spoken in the south eastern part of Nigeria and Igbo speaking states include Abia, Anambra, Eb onyi, Enugu and Imo. Igbos also occupy part of states like Bayelsa, Delta, Rivers, Cross river, B enue and Kogi states (Abanyi 2023). According to IU Center for Language Technology, Igbo la nguage speakers can be found over a wide area of southeastern Nigeria, as well as in Cameroon and Equatorial Guinea. Igbo language elements were retained by enslaved people in the Americ as – Cuba, Babados, and Jamaica. The language is now a global diasporic language, spoken in t he US, Canada, Great Britain and elsewhere across the world (IUCLT).

Igbo language has a rich history that dates back t o centuries. Historically, Igbo people have been known for their complex societal structures, tra de networks, and cultural practices. The language was primarily oral, with traditional folktales, idioms, proverbs, and songs. All these play a central role in preserving the cultural heritage and knowledge of the people. The written form of the Igbo language began to develop during the col onial period, with the effort of Christian missionaries who translated religious texts into Igbo la nguage. This period also saw the creation of the first Igbo alphabet and grammar books, which h elped standardize the language to an extent. (Nwankaegu 2024). Igbo language has also been re commended to be taught in schools (FRN 2013).

The Missing Link

Toda y, Igbo language is being used by millions of people, not only in Nigeria but also in the diaspora communities around the world. However, the language faces several challenges. The rise of En glish as the official language of Nigeria has led to a decline in the use of Igbo language, especial ly among the younger generations. Urbanization and migration have also contributed to the dim inishing prevalence of Igbo in daily communication. Furthermore, the lack of standardized teac hing materials and limited availability of Igbo in digital format pose a significant barrier to its pr eservation and growth (Nwankaegu 2024). Abanyi (2023) states that the primary a im of teaching Igbo in schools like any other language is to develop communication skills, but it is more than that, owing to the nature of Igbo language scheme of work especially of the FCT E ducational Resource Centre, for instance, there is "utoasusu" which is Igbo grammar, "omenal a" which is the culture and tradition of the Igbos and "agumagu" the oral and written literature which encompass the totality of the Igbo personality. Going by this instance, the primary aim of studying Igbo language is more than just to develop communication skills but also to inculcate t he custom, culture and tradition of the Igbos into the learners and to drive them in through the or al and written literature.

Furthermore, Ekeke (2020) describes language as an indispensable tool for communication and transmission of culture and socialization. It is a very powerful tool in the preservation of cultura

l values of the Igbo people. Today, the studies of the Igbo language in the FCT especially in the basic schools is suffering. This problem did not just start today but has been there for decades an d has degenerated to the level where we are today. According to UNESCO in 2012, Igbo langua ge was listed among the languages that are capable of becoming extinct in 50 years' time and gi ven the present state of affairs in the FCT schools, it is playing out before our eyes and if nothin g is done, this prediction will come to pass. According to Ekeke (202 0), 'Igbo people are believed to be the most westernized of Nigerians among other languages; m any of the Igbo people especially people born from year 2000 till now do not or cannot read Igb o language texts or literatures or even write or speak the Igbo language proficiently but speak an d write English language fluently. Igbo language studies is seen to only feature in curriculum wi th the students of Igbo descent showing no enthusiasm in reading Igbo literature or texts, regardl ess of Igbo people's rich written and oral literary tradition'. These and more has resulted to lack of teachers of Igbo language in the basic schools in the FCT and the few teachers available have a lot to struggle with. Arowolo (2010) posits that culture is about people's total way of life; the way the people live, eat, worship, produce, create and recreate. Culture and language are intertwined and closely related. Igbo language reflects the culture of its speakers. One canno t be separated from the other. Therefore, once a particular culture is being regarded as outdated, the language begins to decline. Since language is an important part of the society (because it) en ables the people to communicate and express themselves, when a language dies out, future gene rations lose a vital component of the culture that is necessary to complete how a culture is under stood. This makes Igbo language a susceptible aspect of cultural heritage of the Igbo people and there is need to protect it by every means possible. Ekeke (2020).

The attitude of the Igbo children towards the study of Igbo language is the motiva tion of this paper. There seems to be an awakening towards the study of Igbo language in Junior secondary schools in the FCT lately. Having taught a good number of pupils of Igbo descent in different schools in the FCT, there is a yearning to learn the language and it is obvious that with the use of digital tools and contemporary approaches, the teaching and learning of Igbo languag e will receive a fire of revival. Junior secondary students will be further motivated to learn and b e able to read Igbo language literature.

Lastly, the purpose of this study is to examine the extent, effectiveness and challenges of integra ting digital tools into the teaching and learning of Igbo language in junior secondary schools wit hin the Bwari Area Council of the Federal Capital Territory (FCT), Abuja. The study seeks to e xplore how digital technologies can be utilized to improve language teaching and learning, stud ents' engagement, and overall learning outcome in Igbo language education.

The Objectives of the Study

- To identify the types of digital tools currently being used in teaching and learning of Igb o language in junior secondary schools in the Bwari Area Council
- To access the impact of digital tools on students; interests, participation and academic p erformance in the Igbo classes
- To explore the challenges faced by teachers and students in integrating digital tools into Igbo language teaching and learning,
- To suggest strategies for improving the effective use of digital tools in Igbo language ed ucation within the Bwari Area Council

Exploring the Role of Digital Tools in Igbo Language Teaching and Learning in FCT Junior Secondary Schools

In t his era of digital transformation, there is hope for endangered languages of which Igbo language

is one. Digital tools now offer unprecedented opportunities for the development and preservatio n of Igbo language as it can facilitate the creation and dissemination of language resources maki ng them more accessible to a wider audience. Online platforms, mobile applications, and social media can be leveraged upon to promote Igbo language learning and usage. E-learning tools can provide interactive and engaging ways of learning Igbo while digital archives can help preserve and share traditional stories, songs and cultural artifacts. For proper definition and distinction, it is important to note that; digital resources are any information or media stored or transmitted digitally, with the use of a computer or the internet which includes text documents, images, audi o/video files, and data sets. While on the other hand, digital tools refer to various software, appli cations and online platforms that enhance productivity in different fields such as language learn ing, communication, multi disciplinal collaboration, learning and design (Vaia, 2023; Noor, 20 23). Therefore, integration of digital tools into Igbo language teaching and learning involves the use of digital tools as well as digital resources to promote Igbo language te aching and learning in the junior secondary schools in the FCT. Integrating digital tools into lan guage teaching and learning encompass a wide range of tools and platforms that contribute to v arious aspects of daily life, communication and so on. Some of the types of digital tools relevant in the teaching and learning of Igbo language in the junior secondary schools are as follows;

The Internet and the Social Media T he internet is defined as a global network of linked computers, servers, phones, and smart applia nces that communicate with each other using the transmission control protocol (TCP) standard t o enable the fast exchange of information and files, along with the other types of services (Basu-mallick, 2023). On the other hand, social media, a form of mass media communication on the in ternet (such as on websites for social networking and microblogging) through which users share information, ideas, personal messages and other contents (such as videos). Social networking a nd social media are overlapping concepts but social networking is usually understood as users b uilding communities among themselves while social media is more about using social networki ng sites and related platforms to build an audience (Nwankwegu 2024).

Social media platforms like Facebook, Twi tter, Tiktok and Youtube provide powerful tools for promoting and preserving languages. They enable creation of online communities where users can interact, share content in their native lan guages and access educational resources. For instance, youtube channels dedicated to Igbo lang uage lessons can lead global audience while facebook groups facilitate discussions and cultural exchanges among Igbo speakers (Britannica 2023)

Mobile applications Thes e are software programs designed to run on smartphones and tablets that offer a convenient and accessible means for users to engage with content on the go. Language learning apps like Duoli ngo, Babbel, and Memrise have revolutionized language learning making it easy through intera ctive lessons, quizzes and games. These apps can incorporate Igbo language into their lessons b y providing users with byte-sized lessons that can be completed on the go. These apps use gamif ication techniques to motivate learners. These gamification techniques include earning of point s, unlocking levels and maintaining streaks. Custom-built Igbo language apps can also focus on culturally relevant content and practical usage, enhancing the learning experience. (Nwankweg u 2024)

Interactive story telling apps also combine language learning with engaging narratives, helping learners to practice vocabulary and grammar in context. Examples include; tales2Go or FarFari a. These offer stories in various languages and can also be adapted to include Igbo folktales and stories. These apps can include interactive features such as clickable words for definitions, audi o narrations for pronunciation practice, and comprehension questions to reinforce learning. The

se apps can also help learners connect with the cultural heritage of the Igbo language by integrating cultural stories (Nwankegu 2024)

E-learning Platforms These platforms offer a wide range of causes on language learning and can be used to create comprehensive Igbo language courses that cover proficient levels, for beginners. E-learning platforms can include features such as video lectures, interactive exercises, forums for discussions, and assessments. These features make them ideal for systematic language instructions (Means et al 2013).

Artificial Intelligence and Machine Learning Artificial Intelligence (AI) and machine learning (ML) involve the development of algorithms and systems that can perform tasks that typically require human intelligence. These technologies can significantly enhance language learning and preservation efforts. AI-powered language tools, such as chatbots and virtual assistants, can provide instant translation, language practice, and personalized learning experiences. Machine learning algorithms can analyze vast amounts of linguistic data to improve speech recognition, natural language processing, and predictive text functionalities (Roselle & Norvig, 2020), and these make them valuable resources for developing sophisticated Igbo language applications. AI powered chatbots and virtual assistants can provide conversational practice and instant feedback for Igbo language learners. These tools such as Google's dialog flow or Facebook's Wit.AI, can be programmed to simulate real-life conversations helping learners to practice their speaking and listening skills. Chatbots can also provide explanations for grammar rules, vocabulary and pronunciation which make them valuable tools for both beginners and advanced learners.

Speech recognition and synthesis technologies also enable learners to practice pronunciations and improve the speaking skills. Tools like Google speech-to-text and text-to-speech can be used to develop applications that access and correct learners; pronunciation in real-time. These technologies can also be integrated into language learning apps and platforms to provide interactive speaking exercises and feedback. In addition, speech synthesis can generate audio contents like stories, dialogues, and instructions in Igbo, thus, enhancing the availability of listening practice materials.

Virtual Realities and Augmented Reality Virtual realities (VR) and augmented realities (AR) are immersive technology tools that create simulated environment or overlay digital information unto the real world, these technologies offer innovative ways to engage in language learning. VR can provide immersive language learning experiences by placing users in virtual environments where they can practice speaking and listening in contextual scenarios. AR can enhance language learning by overlaying translations, pronunciations, and cultural information unto real world objects through mobile device or AR glasses These technologies can make learning the Igbo language more interactive and contextual (Freina & Ott, 2015). VR creates immersive environments where learners can practice Igbo in realistic scenarios. VR platforms like Oculus Rift, and HTC Vive can develop language learning applications that simulate everyday situations such as shopping at a market, eating at a restaurant, or participating in cultural events. These immersive experiences can enhance learners' confidence and fluency by providing contextual practice and reducing the anxiety associated with speaking a new language. It becomes even more intriguing considering that VR can create an Igbo language immersion environment for learners who live far from the Igbo land just like the FCT Abuja. This makes travelling to an Igbo community in Nigeria or elsewhere a choice rather than necessity especially given the security challenges that Nigeria faces (Nwankwegu 2024). On the other hand, AR can overlay digital information unto the physical word, providing interactive language learning opportunities. AR a

pplications like Google lens, ARKit can develop features that display Igbo words and phrases w hen users point their devices at objects. This contextual learning approach helps learner's associ ate words with their real world counterparts and enhance vocabulary retention. Virtual tours of I gbo cultural sites such as historical landmarks and traditional villages can also be created using AR.

Online Dictionaries and Translation Tools:
Digital dictionaries and translation tools are essential for both beginners and advanced learners of Igbo language. Its prompt way of providing learners with instant meaning of words, synony ms and usage examples makes it a very important digital tool. Tools like Google translate if pro perly harnessed can also be of great importance to learners. These tools if improved to have audi o pronunciation's to aid learners in learning proper pronunciation will go a long way.
Other digital tools an d resources such as Learning Management Systems (LMS) that provide centralized space for co urse materials, assignments and communication like Moodle and canvas are not left behind. Th e use of multimedia resources like videos, anime, cartoons, podcasts, audio books, and other int eractive multimedia systems that provide authentic language materials and cultural insights can never be over emphasized. Nevertheless, there are numerous challenges to the use of these tools But before these challenges, let's look at the benefits of these tools in language teaching and lea rning.

Benefits of Integration of Digital Tools in Igbo Language Teaching and Learning in the F CT Junior Secondary Schools Back i n the days, a typical Igbo language society presents an environment, rich in cultural activities w here lullabies are used in babysitting, where children and young people look forward to moonlig ht gatherings. Story telling of folktales, commonly known as tells by moonlight, are used for m oral instruction. Wrestling and other socio-cultural activities that take place at village squares ra nging from dances, social gatherings like peer group meetings, same gender meetings and masq uerade group meetings to some popular festivals like 'Ibo uzo' celebrated in some parts of Igbo land and the new yam festival which is universal to the Igbo society are experienced by every Ig bo person; old or young. In this era, urbanization, rural to urban migration, and westernization h as robbed us of our rich cultural heritage and almost everything that made us who we are. Moder n religion even made the matter worse. The above mentioned characteristics of a typical Igbo environment are the power behind oral literature which was handed down from one genera tion to another, without being written down anywhere, survived over time, but seem to have dis appeared in our generation. Integration of digital tools into Igbo language teaching and learning in junior secondary schools offers a whole lot of prospects in bringing back the good old days th rough the use of all the digital tools mentioned above. This prospects will not only improve the t eaching and learning process in FCT basic schools, but re-enact the sense of oral literature and c ultural values. The integrating digital tools into teaching and learning of Igbo language c omes with immense benefits which can be itemized as follows:

- Improved student engagement

  Digital tools like animations, games, videos, and interactive apps make learning more a ppealing to students who are already digital natives. Engaging visuals and audio materials help hold learners' attention better than traditional text-only method s.

- Enhanced Language Retention Tools s uch as interactive quizzes, flashcards, and voice recognition software aid memory by of fering repetitive and multimodal learning opportunities. It supports the D

ual Coding Theory (Paivio, 1971), which proposes the combination of verbal and visual inputs, thereby enhancing recall.

- Access to Authentic Cultural Content Animated Igbo folktales, documentaries, and e-books allow students to experience real cultural expressions, proverbs, idioms, and traditional norms. It thereby strengthens identity and pride in Igbo heritage.
- Support for differentiated learning Digital platforms can adapt content to suit different learning styles (visual, auditory, and kinesthetic). Slow learners can replay lessons or use text-to-speech tools, while advanced students can explore extra content.

- Promote Interactive and Participatory learning Students can engage in virtual storytelling, language games, or voice-recorded dialogues. Encourage active use of Igbo instead of passive memorization.

- Resource Availability Beyond the Classroom Digital tool offer access to e-books, online dictionaries, language apps, and YouTube channels in Igbo. Students can continue learning outside school setting anytime, anywhere.

- Preservation and Revitalization of Igbo Language Digital archiving of folktales, songs, and proverbs, helps to document and preserve Igbo language and oral tradition. Support language revitalization efforts in context in contest of declining usage.
- Teacher Support and Innovation Teachers can use lesson planning apps, virtual whiteboards, and AI language tools to enhance delivery.
  It encourages professional growth and creative teaching strategies.

- Assessment and Feedback Digital assessments (e.g. quizzes, language apps) provide instant feedback and track and track student's progress. It allows teachers to identify learning gaps and adjust instruction.

- Alignment with National and Global Trends. Digital tools encourage the integration of ICT in education as promoted in Nigeria's National Policy on Education. Prepares students for global communication and digital literacy, even in local languages.
  When used effectively, digital tools can make indigenous language instruction dynamic, relevant, and future-facing (Okuley et al, 2025).

Possible Challenges of Integration of Digital Tools into Teaching and Learning of Igbo Language in The FCT Basic Schools And Possible Solutions Just as integration of digital tool presents us with prospects, there are some observed challenges. This section explores the challenges facing the integration of digital tools into Igbo language teachi

ng and learning in the FCT basic schools and possible solutions. They are sectioned as follows: Structural Issues, Technical Issues, Financial Constraints, and Societal and Cultural factors

Structural Issues T
he existing structure of FCT basic schools is not supportive to the idea of integration of digital t ools into teaching in general. The buildings are dilapidated and most of them lack electrical con nections not to talk of digital gargets like projectors and their likes. Therefore a lot of works will be needed to bring the schools to the level where this will be possible.

Technical Issues Teacher
s of Igbo language are very few in the FCT. Thus, very few basic schools have Igbo language te achers. The available teachers have little or no skill in the use of digital tools. Most of them are o ld and nearing retirement and younger generation do not have interest in studying Igbo language

Financial Constraint Creating
high-quality digital language learning tools and resources that will suit the class of learners invo lved here requires a huge financial input. This includes cost of software development, content c reation and maintenance. Furthermore, it is mostly the children of the low income earners that a re enrolled in the FCT basic school making it very difficult for parents to offer after school supp ortive roles to this idea.

Societal and Cultural factors Attitude
towards indigenous languages especially Igbo language is a disturbing one. Many people do not see the need to study Igbo language not to talk of investing into it. Many seem to prioritize the le arning or global languages like English or French seeing them as more beneficial languages for economic opportunities. Ensuring that digital resources are of cultural relevant and resonates wi th users need is very important. A situation where digital resources do not adequately reflect the cultural context and daily experience of learners will render it less efficient and the aim will be defeated.

Solutions/Recommendation Ou
r government should take the issue of infrastructure very serious, renovate the old structures and erect new ones thereby create enabling environment for digital tools to function in the FCT Basi c schools. Secondly, government should make available technological gadgets in FCT basic sch ools. Provision of low-cost or subsidized devices specifically for education and language learni ng purposes is very crucial. Conducting digital literac
y training programs targeting all age groups and focusing on the older generations is the way to go. The government should seek partnership with tech companies and educational institutions t o work out and share developmental cost. Government should secure adequ
ate funding and sponsorship for language development projects. There should be diversification of funding sources through application for grants from international organizations focusing on l anguage preservation and digital education. Lastly, the government and stakeholders s hould lunch awareness campaigns highlighting the cultural and economic benefits of preserving and learning Igbo language. There should be collaboration with local influencers, educators, an d community leaders to promote positive attitude towards the study of Igbo language. Invol vement of Igbo cultural experts and Linguists in the development of digital resources is also ver y important to ensure authenticity and cultural sensitivity.

Conclusion Integration
of digital tools into the teaching and learning of the Igbo language in FCT basic schools is worth trying. It is not going to be an easy task, but it is possible. It is not going to be a one-man task or a one-day affair. If the government, educators and stakeholders, individuals, and parents come t ogether to promote this move, it will surely be a possibility.

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