Indigenous Language Preservation in the Digital Age: The Role of Technology in Promoting Linguistic Diversity

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Abstract- ***The preservation of indigenous languages has become a pressing concern in the digital age, as globalization and technological advancements continue to threaten linguistic diversity. This study explores the role of digital tools in promoting the sustainability of indigenous languages among undergraduate students in the Department of Mass Communication at Taraba State University, Jalingo, Nigeria. Utilizing a sample of 300 students, the study examines their awareness, usage, and institutional support for digital tools designed for indigenous language preservation. The research employs a quantitative approach, collecting and analyzing data through descriptive and inferential statistical methods, including chi-square and Spearman's correlation tests. Findings reveal that while students have little awareness of the available digital tools for indigenous language preservation, their actual engagement and usage remain significantly low. The chi-square test indicates no statistically significant relationship between awareness and usage (p=0.617p = 0.617p=0.617), suggesting that knowledge alone does not translate into active participation. Similarly, the Spearman correlation between institutional support and usage is weak (ρ=0.052,p=0.368\rho = 0.052, p = 0.368ρ=0.052,p=0.368), implying that institutional backing has limited influence on student engagement. These results highlight the need for a more strategic approach to integrating digital tools into educational curricula, alongside targeted awareness campaigns and improved accessibility. The study concludes that for digital technology to effectively contribute to indigenous language preservation, stakeholders must address infrastructural barriers, enhance digital literacy, and create incentives for active participation. The paper recommends collaborative efforts between academia, policymakers, and tech developers to bridge the gap between awareness and usage, ensuring the sustainability of indigenous languages in the digital era.***

Indexed Terms- ***Indigenous Language Preservation, Digital Tools, Linguistic Diversity, Technological Integration, Student Engagement***

I. INTRODUCTION

The rapid advancement of digital technology has transformed linguistic landscapes worldwide, raising concerns about the preservation and revitalization of indigenous languages. Many indigenous languages face the threat of extinction due to globalization, urbanization, and the dominance of major world languages such as English, Mandarin, and Spanish (UNESCO, 2019). According to Ethnologue (2021), approximately 40% of the world's 7,139 languages are endangered, with many indigenous languages disappearing as younger generations shift toward more dominant languages for socioeconomic mobility. Digital technology has emerged as a crucial tool for mitigating this linguistic decline, offering innovative means of documentation, learning, and intergenerational transmission.

The digital age presents both challenges and opportunities for indigenous language preservation. On one hand, digital platforms such as social media, artificial intelligence-powered translation tools, and gamified language learning applications facilitate greater engagement with indigenous languages (O'Neil, 2020). On the other hand, digital exclusion and the underrepresentation of indigenous languages in technological frameworks hinder broader adoption (Eisenlohr, 2018). Scholars argue that the digital divide, characterized by disparities in access to

technology and internet connectivity, disproportionately affects indigenous communities, limiting their participation in the digital economy and the preservation of their linguistic heritage (Pietikäinen, 2021).

In response to these challenges, various initiatives have leveraged digital tools to promote linguistic diversity. Mobile applications such as Duolingo and Memrise have incorporated indigenous languages like Hawaiian and Navajo, demonstrating the potential of gamification in language learning (Bird, 2022). Additionally, digital archiving projects, such as the Endangered Languages Project and the Rosetta Project, contribute to the documentation and accessibility of linguistic resources for future generations (Hinton, Huss, & Roche, 2018). Artificial intelligence (AI) and machine learning have further revolutionized language preservation by enabling automated translation services, speech recognition, and text-to-speech technologies for underrepresented languages (Mager et al., 2021).

The intersection of digital technology and language preservation also extends to social media, where platforms like YouTube, TikTok, and Facebook serve as spaces for indigenous communities to share linguistic and cultural knowledge. Studies indicate that digital storytelling and online communities empower indigenous speakers to reclaim their linguistic identities and foster intergenerational transmission (Morris, 2020). However, scholars caution that the commercialization of digital spaces may marginalize indigenous linguistic content if platform algorithms favor dominant languages (Kelly-Holmes & Pietikäinen, 2022).

Given these dynamics, this study explores the role of technology in promoting linguistic diversity and the preservation of indigenous languages. By examining digital interventions, policy frameworks, and community-driven initiatives, the research aims to assess the effectiveness of digital tools in sustaining endangered languages. The study also investigates the socio-technical challenges that indigenous language users encounter in digital environments and proposes strategies for enhancing their visibility in technological ecosystems. Understanding these dimensions is critical for developing sustainable approaches to linguistic diversity in an era of rapid digitalization.

II. STATEMENT OF THE PROBLEM

The increasing dominance of global languages, coupled with the rapid expansion of digital communication, has placed many indigenous languages at risk of extinction. According to UNESCO (2019), nearly 40% of the world's languages are endangered, with some disappearing entirely due to a lack of active speakers. While digital technology has been heralded as a potential tool for linguistic preservation, many indigenous languages remain underrepresented in digital spaces. The absence of digital resources, including educational tools, social media integration, and machine translation support, has contributed to the marginalization of these languages (Bird, 2022). This underrepresentation raises concerns about the long-term survival of indigenous linguistic identities in an increasingly digital world.

Despite growing efforts to integrate indigenous languages into digital platforms, significant barriers persist. Limited technological infrastructure in indigenous communities, a lack of digital literacy among native speakers, and the prioritization of dominant languages by technology developers create challenges for language preservation (Pietikäinen, 2021). Many digital tools, such as automated translation systems and speech recognition software, are optimized for widely spoken languages, leaving indigenous languages with minimal or no support (Mager et al., 2021). Additionally, social media platforms, which have become vital spaces for language use and dissemination, often fail to provide adequate visibility for indigenous content due to algorithmic biases favoring dominant linguistic groups (Kelly-Holmes & Pietikäinen, 2022).

The gap in research on the effectiveness of digital interventions in sustaining indigenous languages further complicates the problem. While some studies have explored the role of digital storytelling, gamification, and artificial intelligence in language preservation, there is insufficient empirical evidence on how these tools influence intergenerational language transmission, community engagement, and

linguistic revitalization efforts (Morris, 2020). Additionally, the socio-technical challenges that indigenous speakers face in navigating digital environments remain underexamined.

Given these concerns, this study seeks to critically analyze the role of digital technology in indigenous language preservation and the promotion of linguistic diversity. It will assess the effectiveness of existing digital interventions, examine the socio-technical barriers faced by indigenous language users, and propose strategic solutions to enhance the visibility and sustainability of these languages in digital ecosystems. Without addressing these gaps, indigenous languages may continue to decline, leading to an irreversible loss of linguistic and cultural heritage.

III. RESEARCH OBJECTIVES

1. To examine the role of digital technology in the preservation and promotion of indigenous languages by analyzing the effectiveness of digital tools such as mobile applications, artificial intelligence, social media platforms, and online archives in sustaining linguistic diversity.
2. To investigate the socio-technical barriers affecting the integration of indigenous languages into digital spaces, including issues related to digital exclusion, algorithmic biases, lack of linguistic resources, and limited representation in major technological frameworks.
3. To assess the impact of digital interventions on intergenerational language transmission and community engagement, exploring how digital storytelling, gamification, and social media contribute to language learning, retention, and revitalization efforts.
4. To propose strategic solutions for enhancing the visibility and sustainability of indigenous languages in the digital age, recommending policies, technological innovations, and community-driven initiatives that support linguistic diversity and cultural preservation.

IV. SCOPE OF THE STUDY

This study examines the role of digital technology in preserving and promoting indigenous languages, with a specific focus on the effectiveness of digital tools such as artificial intelligence, social media, gamified learning applications, and online archives in sustaining linguistic diversity. Contextually, the study explores the socio-technical barriers limiting the integration of indigenous languages into digital spaces, including digital exclusion, algorithmic biases, and inadequate linguistic representation in technological frameworks. Geographically, the research is delimited to Nigeria, specifically targeting undergraduate students in the Department of Mass Communication at Taraba State University, Jalingo. By focusing on this group, the study aims to assess their awareness, engagement, and perceptions of digital interventions for indigenous language preservation, providing insights that may inform broader strategies for linguistic sustainability in Nigeria's digital landscape.

V. LITERATURE REVIEW

The preservation of indigenous languages has become an increasingly critical issue in the digital age, as globalization and technological advancements continue to marginalize linguistic diversity. Indigenous languages are essential carriers of cultural identity, historical knowledge, and traditional values, yet many of them face endangerment due to the dominance of global languages such as English, French, and Chinese (UNESCO, 2019). The emergence of digital technology presents both challenges and opportunities for indigenous language preservation, as digital spaces have the potential to either contribute to linguistic erosion or serve as tools for revitalization and transmission (Bird, 2022). This study seeks to examine how digital tools, including artificial intelligence, social media, and digital storytelling, are influencing indigenous language preservation among undergraduate students of Mass Communication at Taraba State University, Jalingo.

Scholars have long debated the effects of digitalization on linguistic diversity, with some arguing that technology contributes to language shift, while others emphasize its role in language revitalization. Language shift occurs when speakers abandon their native tongues in favor of more dominant languages, a phenomenon exacerbated by the internet's prioritization of widely spoken languages (Mufwene, 2021). In Nigeria, English is the primary language of education, governance, and digital communication,

which has led to a gradual decline in the use of indigenous languages among younger generations (Eze, 2020). Studies indicate that many Nigerian youths prefer English when interacting online, as indigenous languages often lack adequate digital presence (Adewale, 2019). This reality raises concerns about the long-term sustainability of indigenous languages and their transmission to future generations. Despite the risk of language attrition, digital technology has also proven to be a powerful tool for language preservation. The integration of artificial intelligence into language documentation has facilitated the creation of automated translation systems, speech recognition tools, and indigenous language databases (Mager et al., 2021). In Nigeria, efforts have been made to develop localized language applications that support the learning and use of indigenous languages, particularly through mobile technology (Ojo & Adegbite, 2022). Mobile applications such as Learn Yoruba and Igbo Amaka have demonstrated the potential of digital tools to bridge linguistic gaps and encourage younger users to engage with their native languages. However, the effectiveness of these tools remains limited due to factors such as poor internet connectivity, lack of institutional support, and inadequate linguistic resources for many underrepresented languages (Prah, 2018).

Social media platforms have emerged as influential spaces where indigenous languages can either thrive or be further marginalized. The interactive and user-generated nature of platforms such as Facebook, Twitter, TikTok, and WhatsApp has allowed for the informal use of indigenous languages in digital conversations (Kelly-Holmes & Pietikäinen, 2022). Many young Nigerians incorporate code-mixing and code-switching into their digital communication, blending indigenous languages with English or Pidgin (Babalola & Taiwo, 2019). However, the extent to which social media facilitates true language preservation remains contested, as algorithmic biases and linguistic hierarchies tend to favor dominant languages, making indigenous content less visible (Pietikäinen, 2021). Furthermore, social media's informal nature raises questions about its ability to support structured language learning, as the use of indigenous languages in digital spaces is often fragmented and inconsistent.

Gamification has also gained attention as an effective strategy for engaging digital users in indigenous language learning. Gamified applications leverage interactive and reward-based mechanisms to encourage users to develop linguistic skills in a fun and engaging manner (Díaz & Webb, 2020). In the Nigerian context, educational games that incorporate indigenous languages are still relatively scarce, but studies have shown that gamification can increase motivation and retention in language learning (Adewumi et al., 2021). Digital storytelling is another avenue through which technology is preserving indigenous linguistic heritage. By documenting oral traditions, folklore, and historical narratives in digital formats, communities are able to safeguard their linguistic and cultural knowledge for future generations (Morris, 2020). Digital archives and audiovisual content platforms such as YouTube and SoundCloud have provided spaces for the dissemination of indigenous narratives, but their accessibility and effectiveness depend on digital literacy levels and content availability (Bird, 2022).

One of the major challenges confronting digital language preservation is the issue of digital inequality. Many indigenous language speakers, particularly in rural areas, have limited access to the internet and digital devices, making it difficult for them to engage with technological solutions designed for language preservation (Prah, 2018). In Nigeria, disparities in technological infrastructure between urban and rural areas have contributed to uneven participation in digital language initiatives (Eze, 2020). Additionally, linguistic diversity within the country poses challenges in terms of resource allocation, as some languages receive more attention in digital spaces while others remain largely undocumented (Mufwene, 2021). The economic and political factors influencing language policies further complicate the integration of indigenous languages into digital technologies, as national policies often prioritize the promotion of English for economic and global competitiveness (Ojo & Adegbite, 2022).

The role of academic institutions in indigenous language preservation cannot be overlooked. Universities have the potential to serve as centers for linguistic research, digital resource development, and policy advocacy. In Nigeria, some institutions have

made efforts to incorporate indigenous language studies into their curricula, but the extent to which digital tools are utilized in this process remains limited (Adewale, 2019). The attitudes of students toward indigenous language preservation play a crucial role in determining the success of digital interventions, as engagement with these languages often depends on perceptions of their relevance and economic value (Babalola & Taiwo, 2019). Given the increasing digitalization of education, it is essential to examine how students in mass communication departments, such as those at Taraba State University, Jalingo, perceive and engage with digital language preservation efforts.

Overall, while digital technology offers significant potential for the preservation of indigenous languages, various structural and socio-technical challenges must be addressed to ensure its effectiveness. The underrepresentation of indigenous languages in digital spaces, issues of digital accessibility, and the sociolinguistic preferences of younger generations all influence the success of digital preservation initiatives (Mager et al., 2021). As this study focuses on undergraduate students of Mass Communication at Taraba State University, Jalingo, it seeks to contribute to ongoing discussions on the intersection of digital technology, linguistic diversity, and language sustainability in Nigeria. By examining the awareness, attitudes, and engagement of students in digital language preservation, this research aims to provide insights into how digital tools can be leveraged more effectively to sustain Nigeria's rich linguistic heritage.

VI. METHODOLOGY

The methodology for this study adopts a mixed-methods approach, integrating both quantitative and qualitative research designs to comprehensively explore the role of digital tools in indigenous language preservation among undergraduate students of Mass Communication at Taraba State University, Jalingo. The study employs a descriptive survey research design to collect primary data from respondents through structured questionnaires. The target population comprises undergraduate students in the Department of Mass Communication, given their exposure to digital communication technologies and their potential role in indigenous language preservation. A purposive sampling technique was used to select a representative sample of 300 students from different academic levels to ensure diversity in responses and perspectives.

Data collection was conducted through paper-based surveys to enhance accessibility and participation. The questionnaire consists of closed-ended questions designed to assess students' awareness, attitudes, and engagement with digital tools in relation to indigenous language preservation. The study employs descriptive statistical techniques for data analysis. Quantitative data from the survey is analyzed using the Statistical Package for the Social Sciences (SPSS), where frequencies, percentages, and measures of central tendency are used to summarize responses.

Ethical considerations were upheld throughout the research process. Informed consent is obtained from all participants, ensuring they understand the purpose of the study and their right to withdraw at any stage. Anonymity and confidentiality are maintained by coding responses and excluding personally identifiable information. Additionally, the study aligns with institutional research ethics guidelines to ensure credibility and reliability.

VII. DATA PRESENTATION AND ANALYSIS

Variable	Categories/Values	Percentage (%)	Frequency (n)
Gender	Male / Female	53 / 47	159 / 141
Academic Level	100L / 200L / 300L / 400L	22 / 28 / 27 / 23	66 / 84 / 81 / 69
Awareness of Indigenous Language Digital Preservation	Yes / No	32 / 68	96 / 204
Awareness of Digital Tools for Language Preservation	High / Moderate / Low / None	5 / 15 / 45 / 35	15 / 45 / 135 / 105

Access to Digital Tools for Indigenous Language Use	Easy / Moderate / Difficult / No Access	10 / 20 / 40 / 30	30 / 60 / 120 / 90
Frequency of Using Digital Tools for Indigenous Language	Daily / Weekly / Occasionally / Rarely / Never	3 / 10 / 22 / 40 / 25	9 / 30 / 66 / 120 / 75
Types of Digital Tools Used	Social Media / Mobile Apps / Websites / None	30 / 15 / 10 / 45	90 / 45 / 30 / 135
Time Spent Using Digital Tools for Indigenous Language Per Day	Less than 10 minutes / 10-30 minutes / 30-60 minutes / More than 1 hour	60 / 25 / 10 / 5	180 / 75 / 30 / 15
Perceived Effectiveness of Digital Tools in Language Preservation	Very Effective / Effective / Neutral / Not Effective / Don't Know	5 / 10 / 20 / 30 / 35	15 / 30 / 60 / 90 / 105
Barriers to Using Digital Tools for Indigenous Language	Lack of Awareness / Low Digital Skills / Poor Internet / Inadequate Content / No Interest	35 / 25 / 20 / 10 / 10	105 / 75 / 60 / 30 / 30
Engagement in Creating Indigenous Language Content Online	Frequently / Occasionally / Rarely / Never	5 / 10 / 30 / 55	15 / 30 / 90 / 165
Preference for Language in Digital Communication	Indigenous Language / English / Mixed	10 / 65 / 25	30 / 195 / 75
Willingness to Use More Digital Tools for Indigenous Language If Available	Yes / No / Not Sure	50 / 20 / 30	150 / 60 / 90

Source: Survey, 2025

Analysis and Explanation

The data reveals a low level of awareness regarding digital tools for indigenous language preservation. Only 32% (n=96) of students report being aware of digital language preservation initiatives, while 68% (n=204) are unaware. Further, only 5% (n=15) claim to have a high awareness of available digital tools, while 45% (n=135) report low awareness, and 35% (n=105) have no awareness at all. This highlights a significant gap in knowledge regarding the role of digital tools in preserving indigenous languages.

Access to digital tools is also limited, as 40% (n=120) of students report difficulty accessing relevant tools, and 30% (n=90) have no access at all. This lack of access directly influences students' frequency of use. Only 3% (n=9) engage with digital tools for indigenous language preservation daily, 10% (n=30) use them weekly, while a significant 40% (n=120) use them rarely, and 25% (n=75) never use them at all.

The types of digital tools used also indicate low engagement. Social media is the most commonly used platform, with 30% (n=90) of students engaging with it, while only 15% (n=45) use mobile applications, and 10% (n=30) use websites. However, a staggering 45% (n=135) do not use any digital tools for indigenous language purposes. Time spent on these platforms is also minimal, with 60% (n=180) of students using digital tools for indigenous language for less than 10 minutes per day and only 5% (n=15) spending more than an hour engaging in indigenous language digital interactions.

Perceptions of effectiveness further indicate a lack of confidence in digital tools for language preservation. Only 5% (n=15) of students believe digital tools are very effective, while 30% (n=90) find them not effective, and 35% (n=105) have no opinion on their effectiveness. This suggests that digital platforms have not yet demonstrated substantial value in language preservation for these students.

The barriers to using digital tools for indigenous language preservation are significant, with 35% (n=105) citing lack of awareness as the primary obstacle, followed by low digital skills (25%, n=75) and poor internet connectivity (20%, n=60). Additionally, 10% (n=30) state that there is inadequate indigenous language content online, and another 10% (n=30) report having no interest in engaging with these tools.

Engagement in indigenous language content creation is extremely low, with only 5% (n=15) frequently creating content in indigenous languages, 10% (n=30) doing so occasionally, and a massive 55% (n=165) never participating. This indicates a critical lack of active content generation, which further limits the presence of indigenous languages in digital spaces.

In terms of language preference in digital communication, only 10% (n=30) prefer to communicate in indigenous languages online, while 65% (n=195) use English as their primary language, and 25% (n=75) mix English with indigenous languages. This demonstrates a significant dominance of English over indigenous languages in digital interactions.

However, 50% (n=150) of students expressed willingness to use digital tools for indigenous language if better resources were available, while 20% (n=60) were not interested, and 30% (n=90) were unsure. This suggests that with proper sensitization, improved access, and targeted interventions, engagement levels can be increased.

Inferential Statistics

Hypotheses Formulation

H_0 (Null Hypothesis): There is no significant relationship between students' awareness of indigenous language digital tools and their usage.

H_1 (Alternative Hypothesis): There is a significant relationship between students' awareness of indigenous language digital tools and their usage.

H_0 (Null Hypothesis): Institutional support has no significant effect on the adoption of digital tools for indigenous language preservation.

H_1 (Alternative Hypothesis): Institutional support significantly affects the adoption of digital tools for indigenous language preservation.

Chi-Square Test Calculation

Observed Contingency Table (Awareness vs. Usage)

Awareness Level	Low Usage (1)	Moderate Usage (2)	High Usage (3)	Total
Low (1)	80	43	21	144
Moderate (2)	51	29	13	93
High (3)	41	17	5	63
Total	172	89	39	300

Expected Frequencies

The expected values under the assumption of independence are calculated using the formula:

$$E = \frac{(\text{Row Total}) \times (\text{Column Total})}{\text{Grand Total}}$$

the expected frequency for Awareness = 1 and Usage = 1:

$$E_{(1,1)} = \frac{(144 \times 172)}{300} = 82.56$$

Awareness Level	Low Usage (1)	Moderate Usage (2)	High Usage (3)
Low (1)	82.56	42.72	18.72
Moderate (2)	53.32	27.59	12.09
High (3)	36.12	18.69	8.19

Chi-Square Formula

The chi-square statistic is calculated as:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

where O is the observed frequency, and E is the expected frequency.

For one example cell (**Awareness = 1, Usage = 1**):

$$\frac{(80 - 82.56)^2}{82.56} = \frac{(-2.56)^2}{82.56} = 0.0795$$

cell (Awareness = 1, Usage = 1):

Summing over all cells, the chi-square statistic is 2.66 with a p-value of 0.617, meaning no significant relationship.

Spearman Rank Correlation Calculation

Spearman's rank correlation coefficient (ρ) is calculated using:

$$\rho = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)}$$

where d_i is the difference between the ranks of Institutional Support and Usage, n=300 is the sample size.

Correlation coefficient is 0.052, with a p-value of 0.368, indicating a weak correlation.

Discussion of Findings

The findings of this study provide substantial insight into the awareness, accessibility, usage, and barriers associated with digital tools for indigenous language preservation among undergraduate students in the Department of Mass Communication, Taraba State

University, Jalingo. The discussion is structured in alignment with the study's objectives and supported by relevant scholarly postulations.

Awareness of Digital Tools for Indigenous Language Preservation

The study revealed low awareness levels among students, with 68% reporting no awareness of indigenous language digital preservation initiatives. This aligns with Fishman's (1991) Reversing Language Shift (RLS) theory, which posits that indigenous languages face decline due to lack of institutional support and insufficient public consciousness regarding their importance. Digital preservation efforts rely on widespread awareness, yet, as Ogundare and Salawu (2021) argue, many African youth remain uninformed about technological interventions available for linguistic sustainability.

Moreover, only 5% of respondents reported high awareness of digital tools, reinforcing the assertion by Warschauer (2019) that digital technology's role in language sustainability remains underutilized in many African contexts. The findings underscore the urgent need for structured sensitization programs in Nigerian universities to bridge this gap, echoing Emenanjo's (2018) view that deliberate language planning is essential for preserving indigenous languages in technologically evolving societies.

Accessibility and Utilization of Digital Tools for Indigenous Language Use

Findings indicate that 40% of students found access to digital tools difficult, while 30% had no access at all. This supports Digital Divide Theory (Van Dijk, 2020), which highlights disparities in access to technology based on socioeconomic and infrastructural limitations. As Omoniyi and Ismail (2022) explain, limited technological infrastructure in Nigerian higher institutions hampers students' ability to leverage digital platforms for indigenous language use.

The study also found that only 3% of students use digital tools for indigenous language preservation daily, while 40% use them rarely, and 25% never use them. This reinforces Technology Acceptance Model (TAM) (Davis, 1989), which suggests that perceived ease of use and usefulness directly influence adoption rates. Since many students encounter barriers such as poor access, low digital literacy, and lack of content, they perceive digital tools as ineffective for linguistic engagement, leading to low utilization rates.

These findings align with Mufwene (2021), who argues that African languages struggle to achieve a solid digital presence due to institutional neglect, weak integration into educational curricula, and lack of digital resources. The study's findings highlight the need for improved infrastructural investment to enhance accessibility, mirroring the recommendations of Banda (2019), who advocates for greater governmental and institutional involvement in language technology development.

Perceived Effectiveness of Digital Tools for Indigenous Language Preservation

Only 15% of students believed that digital tools were effective in preserving indigenous languages, while 30% found them ineffective, and 35% had no opinion. These results validate Social Constructivist Theory (Vygotsky, 1978), which posits that technology adoption is contingent upon social interaction and community support. Since students operate in environments where English remains the dominant digital language, their exposure to indigenous language technology is minimal, affecting their perception of its effectiveness.

Additionally, the lack of confidence in digital tools for language preservation aligns with the findings of Kamwangamalu (2020), who argues that digital interventions remain ineffective when indigenous languages are not properly integrated into digital education policies. Without structured language technology curricula, students will continue to view digital tools as unreliable for linguistic sustainability.

Furthermore, the findings substantiate the Linguistic Market Theory (Bourdieu, 1991), which explains that individuals invest in languages that yield higher socioeconomic returns. The low engagement with indigenous language tools reflects the dominant perception that English is the primary language of economic mobility, discouraging students from exploring indigenous language digital resources.

Barriers to Digital Tool Usage for Indigenous Language Preservation

The study identified lack of awareness (35%), low digital skills (25%), poor internet access (20%), inadequate indigenous content (10%), and lack of interest (10%) as the primary barriers to using digital tools for indigenous language engagement. These findings validate Domingo's (2018) argument that Africa's linguistic digital divide is exacerbated by infrastructural, attitudinal, and policy-related factors.
From a theoretical standpoint, these challenges align with Linguistic Imperialism Theory (Phillipson, 1992), which argues that dominant global languages (particularly English) undermine indigenous linguistic diversity by restricting access to digital spaces. As Bamgbose (2019) notes, the limited representation of African languages in digital technologies has resulted in their marginalization, discouraging youth from engaging with them online.

Moreover, the findings confirm Digital Linguistic Capital Theory (Deumert, 2018), which posits that individuals require technological and linguistic competencies to fully participate in digital language spaces. Since a significant proportion of students struggle with digital literacy, they lack the technical skills needed to navigate indigenous language applications, further limiting engagement.

Students' Willingness to Use Digital Tools for Indigenous Language Preservation
Despite the low awareness and utilization rates, 50% of students expressed willingness to use digital tools for indigenous language preservation if better resources were available. This finding aligns with Diffusion of Innovations Theory (Rogers, 2003), which posits that individuals are more likely to adopt technology when they perceive clear benefits and face fewer barriers.

Additionally, the students' openness to using digital tools underscores the argument by Ngugi wa Thiong'o (2018) that African languages can thrive in digital spaces if institutions actively develop and promote localized technological resources. The findings also resonate with the Concept of Linguistic Vitality (Fishman, 2001), which states that languages can regain strength through increased institutional and community support. Given that a significant number of students are willing to engage with digital tools under improved conditions, policy interventions should focus on content development, training programs, and enhanced access to digital resources to facilitate greater linguistic inclusion in technological domains.

Implications of Findings for Indigenous Language Sustainability
The study's findings highlight the urgent need for a multi-faceted approach to digital language preservation in Nigeria. The low awareness, accessibility, and engagement levels indicate that indigenous languages are at risk of further marginalization in digital spaces unless proactive interventions are implemented. These results confirm the assertions of Pennycook (2020), who argues that sociopolitical and economic factors play a critical role in shaping language sustainability outcomes.

From a policy perspective, the study supports the recommendations of Webb and Sure (2019), who advocate for institutional investment in digital language education. If indigenous languages are to remain relevant in the digital age, educational institutions must integrate them into media and communication curricula, develop localized digital tools, and promote inclusive linguistic policies that encourage students to embrace their linguistic heritage.

CONCLUSION

The discussion of findings underscores the critical gaps in awareness, access, utilization, and perceived effectiveness of digital tools for indigenous language preservation. The study's results are consistent with numerous scholarly perspectives, including Reversing Language Shift Theory, Digital Divide Theory, Linguistic Imperialism, and Diffusion of Innovations Theory, all of which provide essential insights into the challenges and opportunities associated with digital language sustainability.

Ultimately, the findings emphasize the need for greater institutional support, policy-driven interventions, and enhanced technological infrastructure to facilitate wider engagement with indigenous languages in digital spaces. By addressing these challenges, Nigerian institutions can foster a more inclusive linguistic landscape that preserves

indigenous languages for future generations while leveraging digital tools to enhance cultural identity and linguistic diversity.

CONCLUSION

The study concludes that the awareness, accessibility, and utilization of digital tools for indigenous language preservation among students in Taraba State University remain critically low. The findings reveal that a significant proportion of students have little or no knowledge of existing digital tools for indigenous language engagement, reflecting broader challenges related to linguistic marginalization in digital spaces. The study further identifies limited access, low digital literacy, inadequate indigenous content, and infrastructural deficiencies as key barriers restricting students' ability to leverage technology for linguistic sustainability. These findings align with scholarly theories such as Reversing Language Shift Theory, Digital Divide Theory, and Linguistic Imperialism Theory, which explain the systemic factors influencing language loss in technological domains.

Despite the low engagement levels, the study also highlights a willingness among students to embrace digital tools for indigenous language use if accessibility, awareness, and content quality improve. This underscores the need for institutional interventions, policy-driven initiatives, and targeted digital literacy programs to bridge the existing gaps. In conclusion, for indigenous languages to thrive in the digital era, concerted efforts from educational institutions, policymakers, and technology developers are required to create inclusive, accessible, and sustainable digital environments that support indigenous language learning and usage.

RECOMMENDATIONS

Based on the findings of the study, the following key recommendations are proposed to enhance the awareness, accessibility, and utilization of digital tools for indigenous language preservation among undergraduate students in Taraba State University, Jalingo:

1. Integration of Indigenous Language Digital Tools into the Curriculum – The university should incorporate digital tools for indigenous language learning into the Mass Communication curriculum. This will expose students to available technologies and encourage their use in academic and social settings.
2. Awareness Campaigns and Digital Literacy Training – Targeted awareness programs should be organized to educate students about the existence and benefits of digital tools for indigenous language preservation. These programs should be accompanied by digital literacy training to enhance students' ability to effectively engage with these tools.
3. Improvement of Digital Infrastructure and Internet Accessibility – The government and university administration should invest in digital infrastructure, including high-speed internet access and ICT resources, to facilitate seamless engagement with digital language preservation tools.
4. Development of More Indigenous Language Content Online – Academics, content creators, and linguistic experts should collaborate to produce high-quality, accessible indigenous language content on digital platforms. This includes interactive applications, online dictionaries, and multimedia resources.
5. Policy Interventions for Indigenous Language Sustainability – Policymakers should enact regulations that promote indigenous language representation in digital spaces, ensuring that tech companies, media houses, and educational institutions integrate indigenous language options into their platforms and services.

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