# Sustainable Mobile Technology in Teaching and Learning in Africa: The Case Study of Yorùbá Language in Colleges of Education in Osun State Nigeria

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*Article*

# Sustainable Mobile Technology in Teaching and Learning in Africa: The Case Study of Yorùbá Language in Colleges of Education in Osun State Nigeria

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**Abstract:** It described the use of mobile technology for learning among students of Yorùbá Language in Osun State colleges of education, including the types of devices used, frequency of mobile technology use for learning, and challenges experienced. A total of 279 students from the two colleges were assessed using a descriptive survey design and data were generated using self-designed instruments. It was found that 68.6% of the students used smartphones, while the usage of tablets, notebooks, and other devices had lower percentages. Students reportedly used mobile technology to learn frequently, as evidenced by the mean of 3.2 ± 13.95. There were no significant differences in the use of mobile technology by gender (t = 0.28, df = 248. However, students faced a number of challenges: limited Yorùbá Language resources were available at 76.8%, automatic translations were incorrect at 77.2%, erratic power supply was an issue at 73.1%, the internet connection was slow at 74.5%, and technical know-how was very low 76.9%. This study calls for attention to the technical and resource-related barriers that may enhance the integration of mobile technology into language education, as indicated by the frequent use of smartphones in learning Yorùbá Language.

**Keywords:** learning technology; language education; Yorùbá language; mobile devices

## 1. Introduction

### *1.1. Teaching indigenous languages such as Yorùbá in Africa*

The preservation and teaching of indigenous languages like Yorùbá in Africa are paramount for several reasons. Indigenous languages serve as repositories of cultural knowledge, traditions, and heritage, and play a crucial role in maintaining the identity and values of African communities (Akinyemi, 2005; Fadeyi, 2022). For instance, Yorùbá personal names and naming traditions are deeply intertwined with culture, revealing important cultural traits and linguistic features such as tonal patterns (Akinyemi, 2005). Interestingly, preserving indigenous languages extends beyond cultural aspects to practical educational and technological applications. Research has shown that developing programming languages based on African indigenous languages, such as Yorùbá, can enhance comprehension of computer-based problem-solving processes among indigenous students and teachers (Olatunji et al., 2018; Olatunji et al., 2019). This approach could potentially bridge the digital divide and promote the adoption of information and communication technology in African communities.

The African Studies Institute (2014) describes Yorùbá as a tonal indigenous language spoken by about 30 million individuals in Nigeria and some of her neighbouring countries such as Togo and the Republic of Benin. In Nigeria, Yorùbá speakers live in southwestern states, such as Osun, Ekiti, Ondo, Oyo, Ogun, and Lagos. Likewise, some of its speakers can be found in the North Central region of

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states such as Kogi and Kwara. In language classification, Yorùbá belongs to the West Congo of the Niger-Congo phylum (Williamson & Blench, 2000).

Yorùbá, an ethnic language, is historically one of the three largest ethnic groups in Nigeria, and it is taught as a language course/subject in Nigerian schools. However, studies show that it is taught by incompetent and untrained teachers (Ogunlola, 2015). Further studies by Adeniran (2015) revealed that most native Yoruba homes make matters worse by not promoting the culture of speaking the language regularly, while others consider English at the expense of Yoruba as a mark of sophistication (Awobuluyi, 2014). According to Mabayoje (2014), who revealed the Yorùbá language is facing a severe threat of extinction in Yorùbá land while it is taking root in advanced countries, where the language is considered one of the most significant languages in Africa. On 7 September 2018 Brazil adopted Yorùbá as an official language (The Nigerian Voice, 2018). Acceptance of mobile technology full of English content worsens the rivalry between English and Yorùbá. Scholars have argued that though extinction threatens Yorùbá language in Yorùbá land, the language is well recognised and considered one of the significant languages in the world (Omoregbe, Azeta, Adewumi, and Omotoso 2014; Mabayoje, 2014)

### *1.2. Mobile Technology in Education: Challenges and Potential Benefits*

Preserving and teaching Indigenous languages like Yorùbá is essential for maintaining cultural heritage, promoting sustainable development, and empowering Indigenous communities (Mawere, 2015; Ngulube, 2023). Research has shown that developing programming languages based on African indigenous languages, such as Yorùbá, can enhance comprehension of computer-based problem-solving processes among indigenous students and teachers (Olatunji et al., 2018; Olatunji et al., 2019). Today, it is noticeable that the number of individuals with mobile devices is increasing so quickly that it seems impossible to come across a student who does not have a mobile device, especially a mobile phone. The utilisation of mobile technology in instructional delivery offers new learning experiences and overall flexibility in learning by enabling learners to practice ubiquitous learning effortlessly as the mobile technology era (Darmi & Albion, 2014; Kee & Samsudin, 2014) diversifies from 2.0 to 3.0, even to more advanced technology. As such, Mobile technology provides room for multiple tasks, such as note-taking, text messaging, picture taking, music, video/audio recording, and Global Positioning System (GPS) navigation, in addition to its size and convenience (Jirsa & Korsgaard, 2024; Manikandan & Premkumar, 2019; Arrasyid et al., 2021).

Hence, the digital divide is based on gender bias. At what point do we agree that male learners are more active than female mobile users? Based on these reports, it is imperative to determine whether gender truly influences students' use of mobile technology for language learning. College of Education students who are teachers in training teach students upon graduation. Studies have shown that integrating mobile technologies into discipline-specific teacher education courses can improve future teachers' readiness to effectively use technology in their teaching (Christensen & Knezek, 2016). However, the impact of gender on technology adoption is not straightforward. For instance, it is assumed that gender influences the use of mobile technology in learning (Mitra et al., 2005; Liaw & Huang, 2011; Viberg & Grönlund, 2013). In contrast, several scholars have found no significant effects on gender in the use of a mobile device for language studies or perception of difference in usage and extent of use in mobile technology for learning (Abbasi & Hashemi, 2013; Hilao & Wichadee, 2017; Oladele & Oyewusi, 2017; Raman, Don, Khalid & Rizuan, 2014)

Omoregbe et al. (2014) stated that a major problem encountered in using mobile technology for Yorùbá language learning is that most of the resources available are written in English and require translation, and students often use translation apps, such as Google Translate. Moreover, Nino (2015) posits that inappropriate translations of words from one language to another are encountered in translation applications. Also, significant factors affecting the utilisation of mobile technology for language learning, among others factors, are low battery life, limited access to the network, usability issues, slow internet connection, and cost of internet connection are reported to be the problems encountered in the usage of mobile technology (Dashtestani, 2013; Dahlstrom et al., 2013; Molnar,

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2014; Raiskinmäki, 2017). It can be deduced that many local and foreign authors have mostly worked on mobile technology and widely studied languages such as English, French, Spanish, German, Arabic, and other languages such as Chinese, Italian, Portuguese, and Korean. However, not much has been done to use mobile technology to teach and learn languages like Yorùbá, Igbo and Hausa, which are regarded as the major languages in Nigeria.

### *1.3. Sustainability of Mobile Technology Use in Education*

Sustainability in this context refers to the long-term preservation and revitalisation of indigenous languages through the effective use of mobile technology in education. It involves balancing technological advancements and cultural preservation, ensuring that language learning efforts are maintained over time and across generations (Galla 2016). Smartphones and tablets can contribute to 21st-century skills and prerequisites for a sustainable future, including digital literacy, information literacy, and holistic learning skills (Lang & Šorgo, 2024). Interestingly, although mobile technology offers numerous benefits for language preservation, concerns and tensions must be addressed. For instance, the digital divide in remote regions and the need for culturally appropriate content must be considered to ensure sustainable implementation (Dar & Lone, 2022; Galla, 2016).

However, Puentedura (2014) proposed a technology integration model called SAMR, which spells out a spectrum for improving learning experiences with technology or making it much easier to aid sustainability in cultural preservation, such as redesigning instructional methodologies and enabling tasks that are not previously conceivable using sustainable technology. The SAMR framework describes four phases through which technology enhances learning: The initial stage, "substitution", involves replacing conventional methods with technological alternatives without altering functionality. Examples include composing essays using Google Docs rather than pen and paper, or accessing e-books instead of physical copies, where the content remains unchanged but enhances the presentation. The "augmentation" phase introduces functional improvements, such as utilising spell-check and formatting tools in word-processing applications. Students can then submit their typed essays via platforms such as Google Classroom for peer evaluation and grading, thereby enriching their learning experience. "Modification", the third stage, transforms task design, enabling real-time essay sharing amongst classmates for feedback, signalling the onset of instructional transformation. The final phase, "Redefinition", facilitates previously unimaginable tasks, such as publishing multimedia-enhanced essays on blogs for global engagement, nurturing media production, analytical thinking, and teamwork skills.

Interestingly, the sustainability of mobile learning extends beyond environmental concerns. It encompasses economic, social, political, technological, and pedagogical dimensions, as revealed in a study that evaluated the sustainability of a mobile learning framework that achieved economic and pedagogical sustainability. It requires technological, social, and political improvements (Dolawattha et al., 2022). This multidimensional approach highlights the complexity of achieving sustainable mobile learning implementation. However, some teachers believe that using mobile devices in class causes serious distractions (O'Bannon & Thomas, 2014). Many studies based on mobile-assisted language learning (MALL) have been carried out worldwide, evaluating its potential in teaching a variety of languages, such as English (Leila & Mehry, 2016; Kukulska-Hulme et al., 2015; Ogunduyile, 2013; Montero et al., 2011; Korkmaz, 2010; Stockwell, 2010; Lu, 2008; Song & Fox, 2008), French (Demouy & Kukulska-Hulme, 2010), Chinese (Edge et al., 2011; Al-Mekhlafi et al., 2009), and Korean (Cho et al., 2004). Tai and Ting (2011) report that popular mobile technologies or devices are worth exploring for possible application to language learning. Researchers have exploited by researchers in different areas of language learning, such as vocabulary (Levy & Kennedy, 2005; Chen & Chung, 2008; Lu, 2008), pronunciation (Ducate & Lomicka, 2009), reading comprehension (Chen & Hsu, 2008), English listening skills (Edirisingha et al., 2007), and writing proficiency (Morita, 2003).

Hence, this study aims to understand the role of sustainable mobile technology in teaching and learning in Africa through a case study of Yorùbá́ language learning in colleges of education. Yorùbá language is progressively moving into extinction in Yorùbá communities of Nigeria as it is presently

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being relentlessly superseded by foreign languages, most especially the English language. Language is the enclave of people's heritage; losing it is like submitting generations to cultural and mental slavery, which is a total sale of birthrights. To ensure the sustainability and accessibility of the African language, primarily the Yorùbá language, to the upcoming generation, it is imperative to explore viable media that will motivate students to learn, fostering its continuity. One such option may be mobile devices. The pervasiveness of mobile technology has encouraged researchers to apply it in education, which has paved the way for evolutionary changes in teaching and learning. Language education is one of the disciplines that can take advantage of the widespread ownership of mobile devices, as seen in the paucity of research on the extent of mobile technology's use in the teaching and learning of the Yorùbá language. Therefore, there is a need to conduct research to determine whether mobile technology is used for the teaching and learning of Yorùbá or not and its extent of its application.

## 2. Materials and Methods

The Materials and Methods section should be described with sufficient details to allow others, and this research adopted a descriptive survey research design. The design involved the use of questionnaires to solicit information from respondents with the intention of testing the following research questions and hypotheses:

### *2.1. Research Questions*

- What kind of mobile devices are used by the students of Yorùbá language in Osun State Colleges of Education?
- What is the extent of use of mobile technology for learning by the students of Yorùbá language in Osun State Colleges of Education?
- What are the problems encountered by the students in their usage of mobile technology for learning Yorùbá language in Osun State Colleges of Education?

### *2.2. Hypothesis*

Ho1: There is no significant difference in the extent of use of mobile technology for learning by male and female students of Yorùbá language in Osun State Colleges of Education.

The population consisted of all the students of Yorùbá language in Osun State Colleges of Education, Ilesa and Ila-Orangun, with a sampling of 279 respondents from the selected colleges of education. The questionnaire items (Application of Mobile Technology to Yorùbá Language Learning–AMTYLL) were self-designed instruments employed to gather data for the study. The questionnaire consisted of four sections: A, B, C, and D. Section A gathered socio-demographic information of the respondents. Section B elicited information on the kinds of mobile technology used by the students of Yorùbá language. Section C which comprised 15 items, provided information on the extent to which mobile technology is used for Yorùbá language learning by the respondents and measured on a four-point Likert scale, where 4 = very often, 3 = often, 2 = rarely, 1 = never, while Section D sourced information on the problems encountered by the students in the use of mobile technology for Yorùbá language and were also measured on a four-point Likert scale, where 4 = strongly agree, 3 = agree, 2 = disagree, 1 = strongly disagree.

Instrument validity was scrutinised by Linguists in the Department of Linguistics and African Languages, Obafemi Awolowo University, and experts in the Department of Educational Technology and Library Studies at Obafemi Awolowo University, by examining the structural fitness, language, relevance, and suitability of the instruments for the study. The reliability of the instruments resulted in a pilot study conducted on a sample of 20 respondents at the Adeniran Ogunsanya College of Education in Lagos State. The split-half reliability technique was employed to determine the reliability of the instruments at a Cronbach-Alpha co-efficient of 0.89 obtained for AMTYLL on 20 respondents who were captured in the research scope. The data collection followed respondents

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being briefed on the objectives of the study, and the researcher assured confidentiality in relation to the use of data obtained solely for research purposes. At the end of the study, 279 questionnaires were administered, 265 were retrieved, 251 were valid, and 14 were returned unfilled. The collected data were analysed using appropriate descriptive and inferential statistics (frequency count, mean, standard deviation, and t-test) to answer the research questions and hypotheses. A t-test was used to analyse the hypotheses. The hypotheses were tested at a 0.05 level of significance.3. Results

This section can be divided into subsections. A concise and precise description of the experimental results, their interpretation, and the experimental conclusions that can be drawn should be provided.

## 3. Results

### *3.1. Socio-Demographic Information of the Respondents*

**Table 1.** Distribution of Students based on Students' College.

| | | Students Frequency | Percentage (%) |
|---|---|---|---|
| **Colleges** | College of Education, Ila | 176 | 70.1 |
| | College of Education, Ilesa | 72 | 28.7 |
| | Total | 248 | |

[1]3 respondents did not specify their institutions.

From the data gathered, it can be observed that the sample comprised 251 students: 70.1% were from the Osun State College of Education, Ila-Orangun, and 28.7% were from the Osun State College of Education, Ilesa.

**Table 2.** Overall Distribution of Students based on gender.

| | Frequency (F) | Percentage (%) |
|---|---|---|
| Male | 136 | 54.2 |
| Female | 114 | 45.4 |
| Total | 250 | 99.6 |

[1]One respondent did not specify their gender.

The data based on gender revealed that 54.2% of students were male and 45.4% were female.

### *3.2. Research Question 1: What kinds of mobile devices are used by students of the Yorùbá language in colleges?*

**Table 3.** Percentage Distribution of the Kinds of Mobile Devices Used by the Students.

| Mobile Devices | Frequency (F) | Percentage (%) |
|---|---|---|
| Smartphone | 242 | 68.6 |
| Tablet | 88 | 24.9 |
| Cell phone | 14 | 3.9 |
| Palmtop | 1 | 0.3 |
| Netbook | 1 | 0.3 |
| Notebook | 6 | 1.7 |
| iPod | 1 | 0.3 |

From Table 1.3, it can be observed that 68.6% of the students used smartphones, whereas 24.9% used tablets. Cellphones were used by 3.9% of the respondents, followed by palmtops (0.3%), netbooks (0.3%), notebooks (0.8%), and iPods (0.3%). Smartphones were the most widely used device

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by the students of Yorùbá language in Osun State Colleges of Education. Some of these students had tablets, while few had cellphones, a palmtop, a netbook, a notebook, and an iPod.

*3.3. Research Question 2: What is the extent of the use of mobile technology for learning by the students of Yorùbá language in the colleges?*

Table 4 presents the descriptive statistics on the extent of mobile technology use among students of Osun State Colleges of Education in learning Yorùbá language. These findings indicate that mobile devices are often integrated into learning activities. The highest levels of reported use were for searching and downloading resources for assignments (mean = 3.57, SD = 0.75), capturing notes and other instructional resources (mean = 3.52, SD = 0.90), and downloading Yorùbá-related media such as audio, images, and videos (mean = 3.44, SD = 0.90). Similarly, frequent use was reported for replaying recorded lectures, using translation applications, and interacting with Yorùbá language groups on social media, with mean scores of above 3.3.

**Table 4.** Descriptive Statistics of Osun State Colleges of Education Students' Extent of Use.

| S/N | Statements | Very Often (%) | Often (%) | Rarely (%) | Never (%) | $\bar{x}$ | sd |
|---|---|---|---|---|---|---|---|
| 1 | I capture notes and other instructional resources with my mobile device | 186 (74.4) | 22 (8.8) | 31 (12.4) | 11 (4.4) | 3.52 | 0.90 |
| 2 | I make audio recordings of lectures using my mobile device | 133 (53.2) | 81 (32.4) | 18 (7.2) | 18 (7.2) | 3.30 | 0.91 |
| 3 | I make video recordings of lectures using my mobile device | 20 (8.0) | 17 (6.8) | 30 (12.0) | 183 (73.2) | 1.49 | 0.94 |
| 4 | I replay the recorded lectures at will to get clarity on the learning content | 149 (59.8) | 66 (26.6) | 17 (6.8) | 17 (6.8) | 3.37 | 0.93 |
| 5 | I make video recordings of performances on Yorùbá oral literature | 141 (56.6) | 47 (18.9) | 32 (12.9) | 29 (11.6) | 3.18 | 1.09 |
| 6 | I share and upload these video performances on social networking sites such as Facebook, Instagram, WhatsApp, YouTube, to mention a few | 156 (62.4) | 55 (22.0) | 20 (8.0) | 19 (7.6) | 3.38 | 0.95 |
| 7 | I download old Yorùbá books adapted into movies on my mobile device | 143 (57.6) | 57 (23.0) | 31 (12.5) | 17 (6.9) | 3.27 | 1.00 |
| 8 | I use notebook applications such as notes, and colour notes on my mobile device to write words and phrases to make learning more accessible and easier to memorise | 124 (49.6) | 71 (28.4) | 42 (16.8) | 13 (5.2) | 3.21 | 0.93 |
| 9 | I use the right tone and accent marks on words when I type in Yorùbá Language with the use of Swiftkey and other | 154 (61.4) | 56 (22.3) | 29 (11.5) | 12 (4.8) | 3.40 | 0.87 |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | functions on my mobile device | | | | | | |
| 10 | I use Yorùbá dictionary on my mobile device to find the meanings of Yorùbá words | 148 (59.0) | 57 (22.7) | 34 (13.5) | 12 (4.8) | 3.36 | 0.89 |
| 11 | I use translation applications such as Google-Translate to translate English words into Yorùbá | 148 (59.2) | 58 (23.2) | 35 (14.0) | 9 (3.6) | 3.37 | 0.88 |
| 12 | I access groups that promote Yorùbá language on social networks on my mobile device, post questions on these groups and provide answers to questions asked by other members | 146 (58.2) | 58 (23.1) | 36 (14.3) | 11 (4.4) | 3.35 | 0.88 |
| 13 | I download media such as audio, images and videos associated with Yorùbá language on my mobile device | 162 (65.1) | 56 (22.5) | 17 (6.8) | 14 (5.6) | 3.44 | 0.90 |
| 14 | I turn in my assignments online on my mobile device. | 83 (33.2) | 68 (27.2) | 50 (20.0) | 49 (19.6) | 2.73 | 1.13 |
| 15 | I search and download resources from websites on my mobile device which are used to do my assignments. | 177 (70.5) | 48 (19.1) | 19 (7.6) | 7 (2.8) | 3.57 | 0.75 |
| | | | | | | 47.94 | 13.95 |

In contrast, students reported low engagement with video recordings of lectures (mean = 1.49, SD = 0.94), indicating that this activity was rarely undertaken. Turning to assignments online on mobile devices also had a relatively lower mean (2.73, SD = 1.13). Overall, the cumulative mean extent of use was 3.2, which corresponds to the "often" category on the scale, suggesting that mobile technology plays a substantial role in students' learning of the Yorùbá language.

*3.3. Research Question 3: What are the problems encountered by the students in their usage of mobile technology for learning Yorùbá language in the colleges?*

Table 5 presents the descriptive statistics on the problems encountered by students in their use of mobile technology for learning Yorùbá language. The most frequently reported challenges included limited online resources specific to Yorùbá language (53.2% strongly agreed, 23.6% agreed), the need to translate existing resources from English (51.6% strongly agreed, 28.4% agreed), and unreliable automatic translations from apps such as Google Translate (48.8% strongly agreed, 28.4% agreed). Technical and infrastructural issues were also prominent, with erratic power supply (44.6% strongly agreed, 28.5% agreed), slow Internet connection (51.4% strongly agreed, 23.1% agreed), and low technical knowledge (55.4% strongly agreed, 18.5% agreed) identified as significant impediments. These findings highlight both content-related and infrastructural barriers to effective mobile technology use in Yorùbá language learning. Further details are provided in Table 5.

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**Table 5.** Descriptive Statistics of the Problems Encountered by the Students in their Usage of Mobile Technology for Yorùbá Language Learning.

| S/N | Statements | SA (%) | A (%) | SD (%) | D (%) |
|---|---|---|---|---|---|
| 1 | There are limited resources available online for students of Yorùbá language in higher institutions | 133 (53.2) | 59 (23.6) | 24 (9.6) | 34 (13.6) |
| 2 | These available resources are written in English and have to be translated into Yorùbá. | 129 (51.6) | 71 (28.4) | 18 (7.2) | 32 (12.8) |
| 3 | The use of translation apps such as Google-Translate for the quick automatic translation of words and phrases cannot always be trusted | 122 (48.8) | 71 (28.4) | 16 (6.4) | 41 (16.4) |
| 4 | Erratic power supply which causes low battery of device affects my use of mobile technology for learning | 111 (44.6) | 71 (28.5) | 16 (6.4) | 51 (20.5) |
| 5 | Slow internet connection affects my use of mobile technology for learning | 127 (51.4) | 57 (23.1) | 16 (6.5) | 47 (19.0) |
| 6 | Low technical know-how affects my use of mobile technology for Yorùbá language learning | 138 (55.4) | 46 (18.5) | 32 (12.9) | 33 (13.2) |

*3.4. Hypothesis One: There is no significant difference in the extent of use of mobile technology for learning by male and female students of Yorùbá language in Osun State Colleges of Education.*

**Table 6.** t-test Comparison of Difference in the Extent of Use of Mobile Technology for Learning by Male and Female Students of Yorùbá Language.

| Groups | N | $\bar{x}$ | Sd | t | df | Sig |
|---|---|---|---|---|---|---|
| Males | 136 | 47.90 | 9.05 | 0.28 | 248 | > 0.05 |
| Females | 114 | 47.94 | 10.23 | | | |

The t-test performed on the data was not significant at the 0.05 level of significance ($p>0.05$). This implied that there was no significant difference in the extent of mobile technology used for learning by male and female students of the Yorùbá language at ($t = 0.28$, $df = 248$). Thus, the hypothesis that states that there is no significant difference in the extent of mobile technology used for learning by male and female students of the Yorùbá language was accepted. Therefore, it implied that there was no significant difference in the extent of mobile technology used for learning by male and female students of the Yorùbá language at Osun State Colleges of Education.

## 4. Discussion

The investigation shows that among the abundance of mobile devices, smartphones were the most widely owned by students as seen in Ahmed (2017), who reported that smartphones were the most frequently used devices among students, similarly, Bradley (2015) opined most students owned at least two devices mostly, smartphones and tablets, while extent of us revealled the respondents often used their mobile devices for Yorùbá language learning to capture lecture notes and other instructional resources, making audio recordings of lectures, replaying the recorded lectures, making video recordings of oral performances, sharing and uploading the video of the oral performances, using translation apps; using offline or online dictionary; downloading books adapted into movies; using notebook applications such as colour note etc. to write words and phrases; assess groups on social media and provide answers to questions asked by other members of the group; download resources from websites that are used for doing their assignments; and many more. This is consistent

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with a study that showed that learners used their Internet-enabled mobile devices to access online courses and learning resources for note-taking, photo capturing and editing, audio and video playback, recording and editing, email, and text messaging, which are not limited by time and space. (Oyewusi & Adamu, 2014; Kafyulilo, 2014, 2015; Kukulska-Hulme, 2016).

However, the problems being encountered in the use of mobile technology for language teaching and learning, as seen in the case study of Yorùbá language, showed that learners had limited available materials, incorrect quick translation of the available materials by translation apps, erratic power supply, slow internet connection, and low technical know-how. Findings consistent with the report showed that mobile technology is bundled with resources written in the English language, which requires translation into Yorùbá, internet-based problems such as slow speed, and high costs and battery lifetime of mobile devices in the use of mobile technology (Dahlstrom et al., 2013; Dashtestani, 2013; Omoregbe et al., 2014; Raiskinmäki, 2017). Hence, the problems were attributed to the inappropriate translation of words from one language to another on translation applications (Nino, 2015). The hypothesis tested a significance level of 0.05, indicating that there was no difference in the extent of mobile technology use between male and female students of the Yorùbá language. The gender differences in attitude, performance, and perception regarding mobile phone usage for language learning revealed no significant difference between male and female respondents (Hilao and Wichadee, 2017). However, a report revealed that technologies were not utilised in similar ways by males and females, and as a result, some differences existed. (Mitra et al., 2005). The divergence of the findings of this study from those of other studies regarding gender differences also opens up interesting areas for further research.

## 5. Conclusions

In Conclusion, sustaining the use of language learning technologies requires technologies designed for teaching and learning. African countries need to focus on the development of technology to aid growth in the teaching and learning of language translation, mostly for mobile technology. Hence, the study recommends that language educators be trained on how to exploit technological tools for language education, and policymakers in curriculum affairs are encouraged to use mobile technology and exploit the inherent possibilities of other technological tools to improve language education and motivate students to learn. This study has certain limitations. As a result, similar studies can be carried out to expand the scope of colleges of education involved and the inclusion of tertiary institutions in other African countries with specific languages in the francophone and Anglophone Eastern African regions.

**Author Contributions:** The two authors contributed equally, specifically to the investigation and analysis, which was mainly handled by author one, with many contributions by author two. Author two worked on manuscript structuring, content curation, and writing of the manuscript, with several contributions from author one. All the authors have read and agreed to the published version of the manuscript.

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## Abbreviations

The following abbreviations are used in this manuscript:

| | |
|---|---|
| AMTYLL | Application of Mobile Technology to Yorùbá Language Learning |
| GPS | Global Positioning System |
| MALL | Mobile Assisted Language Learning |

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