

COMPUTER TERMS IN URHOB0

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ABSTRACT

This study examines the equivalence of computer-related terms developed for the Urhobo language. Rapid advancement in technology continues to introduce terms for new concepts which are often lacking in many indigenous African languages, including Urhobo. Accordingly, indigenous scholars and researchers often undertake terminology development projects to fill such gaps. The Urhobo ICT terminology development project examined in this study sought to contribute to the modernisation of the Urhobo language by expanding its lexical resources to cover the rapidly evolving domain of computer technology. The project involved identifying corpus of frequently used computer words from textbooks and online resources and developing equivalent terms for them in Urhobo. The goal of the present study is to examine the strategies employed in creating the Urhobo equivalent terms, and show how possible equivalent terms can be developed from existing Urhobo lexical resources. The study found that strategies such as semantic extension, normalisation, and calquing were employed in developing the terms. The study also showed that loanwords can be retained in Urhobo terminology development based on three factors: frequency of usage in conversations, economy and convenience.

KEYWORDS: Terminology development, Urhobo, Equivalence, Computer term

1. INTRODUCTION

Rapid advancement in technology continues to introduce terms for new concepts which are often lacking in many indigenous African languages, including Urhobo, a Niger-Congo language spoken mainly in Delta State, Nigeria and also in Bayelsa, Edo, and Ondo States (Akpojishi & Okpan, 2022; Otite, 1979). Ethnologue describes the language as the “de facto language of provincial identity in Delta and Edo states” (Eberhard, Simons, & Fennig, 2023), owing possibly to its majority status in Delta State, and relative level of development. Following Ethnologue's record, the estimated number of speakers of the language is 1,200,000 (Eberhard et al., 2023). Although, Urhobo is a minor and low-resourced language in Nigeria, there are relative literacy and liturgical materials in the language, including dictionaries, Bible, hymns, prayer books, wordlists, primers, etc. However, the language lacks technical terms, glossaries and metalanguage (Aziza, 2019); necessitating the need for their development.

Terminology development is the process of creating new vocabulary for a language. It is an aspect of corpus planning. Corpus planning refers to all prescriptive interventions in the forms of a planning decisions are made to engineer changes in the structure of a language (Ferguson, 2006). There are three traditionally recognised types of corpus planning. These are graphization, standardization, and modernization. Graphization involves the development of a writing system for the language which will enable easy transmission of materials through generations and communication with larger numbers of people. Standardization involves one variety of a language taking precedence over other social and regional dialects of a language (Christian, 1988); while modernization (which is the concern of this study) occurs when a language needs to expand its resources to meet its functions. The main force in modernization is the expansion of the lexicon, which allows the language to discuss topics in modern semantic domains.

According to Aziza (2022, p. 40), “modernization involves the expansion of the lexicon and development of terminologies which make it possible for a language to cope with more domains of use such as in higher levels of education, science and technology, the social media, the legislature, etc. including translations of materials from other languages” She further notes that “some of the new terms may come from original creations or borrowings from other languages but they need to be standardized using terminology development strategies recognized by the language” Thus, language modernization is a deliberate effort to make a language capable of functioning effectively in new and more complex areas of life. It involves the creation of new lists and glossaries to describe new technical terms in order to meet the demands of modernity. As societies develop, especially in education, governance, science, technology, and digital communication, their languages must also expand to accommodate new concepts, objects, and processes. Also, the new terms can be original creations, that is, coined words from within the language, or borrowings (adopting words from other languages).

However, new terms cannot be developed or used randomly; they must be standardised through recognised principles of terminology development, which involve systematic research, evaluation, and approval so that everyone uses the same forms consistently (Bakari, 2012). Thus, the responsibility for deliberate efforts in modernising a language, including lexical expansion, terminological unification, and codification, is conventionally placed on trained language planners and standardising bodies, such as government agencies, national language councils, or authoritative language boards that have the mandate and technical expertise to manage corpus planning activities. Such agencies are often lacking or not empowered in many African countries, instead, ethno-cultural groups and community organisations have been reported to be responsible for the development of various aspects of their languages (Elugbe, 1994), including the development of orthographies, dictionaries, teaching materials and new vocabulary.

Although these efforts are commendable and valuable, they raise important questions about acceptability by language users. Terms and standards developed outside recognised planning frameworks may lack broad consensus which can result in competing lexical norms that may not be widely adopted by speakers or supported by educational and institutional infrastructures (Bakari, 2012; Nhongo, 2024). Thus, without structured corpus planning and institutional supports, terminology development risk limited uptake or inconsistency across speaker communities. This can potentially undermine efforts to sustain use and transmission of the language in wider domains (Gadelii, 1999). Nhongo (2024, p. 1284) argues that terminology should be created “through the use of African languages in the process of teaching and learning in andragogic spaces”. While the suggestion is instructive, it ignores the fact that developing terminology requires taking into account many factors (Lokdai, 2024), including the expertise of the developer(s), to ensure that these terms truly express the concepts, which is a major criterion for accepting the terms.

The Urhobo computer terms project is a collaborative effort by some Urhobo linguists to contribute to the modernisation of the Urhobo language. This effort can be situated within the broader development practices that seek to expand the functional domains of indigenous languages, particularly in response to the demands of rapidly evolving fields such as computer technology. Specifically, the project focuses on enriching the lexical resources of Urhobo to enable it to adequately express concepts and phenomena associated with contemporary digital environments. It involved identifying corpus of frequently used computer words and their meanings from textbooks and online resources and developing equivalent terms for them in the Urhobo language. The present study seeks to examine the strategies employed in creating the terms, with particular focus on the strategies employed in developing equivalent terms from existing Urhobo lexical resources, and by extension, suggest how the internal lexical resources of the language can

be employed in developing terminologies for the Urhobo language in subsequent projects.

2. LITERATURE REVIEW

Terminology development aims generally at modernizing a language and allowing it to be used for new concepts, especially in science, technology, and other professional fields. It involves creating terms for previously unnamed concepts and phenomena in a language through strategies like borrowing from other languages, translating borrowed terms, or building new words from existing roots. In most cases, terminology development is necessitated by the demand on the language. As noted by Hornberger (2006), beliefs regarding the suitability of a language's form to fulfil intended purposes frequently give birth to corpus planning initiatives. New words appear in a language primarily because language is a dynamic, living entity that constantly evolves to reflect changes in the world and the needs of its speakers. Implicitly, a language that does not adapt to new concepts, technology and social needs risks becoming moribund or extinct. This is because the speakers will shift to more dominant and modern languages, resulting in a decrease in the language's use across various contexts due to the language's inability to express modern concepts and phenomena.

Nigerian languages are broadly categorized into “major” and “minor” languages. The “major languages” are Hausa, Igbo and Yoruba, while the other languages are considered as minor languages (Ekiugbo & Darah, 2022; Oyetade, 2003; Ufomata, 1999). Thus, the categorisation of the linguistic resources of the country places Urhobo in the minor (or non-major language) category. Although, this categorisation is premised on the demographic size of speakers of the languages, the major languages are also often prioritised in government and educational contexts, with little-to-no institutional support for minor languages. As noted by Ufomata (1999), major languages receive more government support and patronage, while minority languages have historically been neglected.

Often than not, the development of materials in (and for) non-major Nigerian languages since the beginning of post-colonial era are funded and produced mainly through concerted efforts of natives, with a few regional/state or local government funded efforts in the 1960s-1980s (see Elugbe, 1994; Emenanjo, 1990).

Historically, the earliest efforts at developing Nigerian languages were undertaken by missionaries. They developed orthographies for most of the languages, translated texts like the Bible and other liturgical materials into these languages, and created primers, dictionaries and grammar books in some cases. According to Okolo (1981, p. 99), “the development of Nigerian linguistics is so intricately tied up with missionary activities that it scarcely possible to separate one from the other, especially if incoherence and distortion are to be avoided.” Although much of the missionaries' efforts in developing Nigerian languages were driven primary by the need to evangelise, but it also fostered literacy development in these languages. Subsequent efforts to develop Nigerian languages, particularly in the early post-colonial period, were undertaken by regional governments, while later initiatives are driven largely by indigenous groups who spearhead their own initiatives to revitalize and promote their languages. For instance, Elugbe (1994) reports that since 1990, the Otuo Union has been the driving force behind development of Ghotuo, a North-Central Edoid language spoken mostly in the Owan and Akoko-Edo areas of Edo state, Nigeria (Egbokhare, 2022).

In the case of Urhobo, ethnic organisations such as the Urhobo Progress Union, the Urhobo Historical Society and the Urhobo Studies Association among others have contributed to sustained efforts in modernising the language (Abonyi, 2016; Ekiugbo, 2025; Ivworin, 2018; Iweh, 1987). Aziza (2022), for instance, reports that the Urhobo Studies Association (USA) developed and produced a standard curriculum approved by both the Federal and Delta State governments for

teaching/learning Urhobo at the 9-year Basic Education level. The Association also organised hands-on workshops during the long vacation for serving teachers of Urhobo in both primary and secondary schools, with the aim of helping to resolve issues related to the teaching/learning of the language as well as the production of written materials for the school system (Aziza, 2022), among other things. Although much of these efforts are often focused on cultural preservation and ensuring the transmission of mother tongues to future generations, there is interest in language development in recent times, especially for non-major Nigeria languages.

The major languages in Nigeria have received considerable development through institutional support, such as government-sponsored projects on terminology development (Emenanjo, 1994a, 1994b). For example, Mbah et al (2021) report that the Nigeria Educational Research and Development Council (NERDC) sponsored the metalanguage development projects in the three major languages. They also reported that the National Assembly sponsored a legislative term project between 1980-1991, resulting in *Quadrilingual Glossary of Legislative Terms (English, Hausa, Igbo and Yoruba)*, which is made up of 18,000 terms. Earlier, the Federal Ministry of Education in 1978 sponsored a terminology Workshop, with the aim of compiling an official standardised glossary of technical and scientific terminologies for the primary school curriculum in nine Nigerian Languages, namely Edo, Efik, Fulfulde, Hausa, Igbo, Ijo, Kanuri, Yoruba and Tiv. The outputs of the project are the three volumes of A Vocabulary of Primary Science and Mathematics, each volume consisting of three languages (Mbah et al., 2021).

Following Aziza (2010), the Federal Government of Nigeria introduced the Universal Basic Education Act in 2004. The act made no provision for the use or teaching of the non-major Nigerian languages throughout the nine years of basic education. The languages approved to be taught are Arabic, English, French, Hausa, Igbo and Yoruba. Also,

Onose (1994, p. 61) observes that each of the non-major languages “suffers from some developmental disabilities, enjoys much less official patronage and is consequently much less modernized than the three major Nigerian languages.” Furthermore, Aziza (1994, p. 114) points out that the major languages have “curricula and syllabuses developed for them by various bodies such as the National Language Centre, the National Teachers' Institute, the Nigerian Educational Research Council (NERC)... and the West African Examination Council (WAEC), among others.” In contrast, the curricula and syllabuses of many non-major Nigerian languages were sponsored by the native speakers or ethnic interest group. These situations underscore a persistent asymmetry in language policy and planning in Nigeria, wherein minority languages remain marginalised in terms of educational provision, corpus development, and institutional support.

As a result of the foregoing, the three major Nigerian languages do not only have the largest number of speakers, but also “...score highest in terms of level of sociolinguistic vitality, are the most developed for literacy and numeracy and feature strongly at all levels of the educational system in the country” (Aziza, –2022, p. 33). The institutional support accorded the three major Nigerian languages has resulted in considerably more extensive research, improved digital language support and greater levels of development in these languages when compared with the non-major Nigerian languages. This possibly also underlies the increase in the number of non-state actors interested in the development of the major languages. Although non-major Nigerian languages do not enjoy huge institutional support, leveraging the efforts of non-state actor is paramount for their development. Non-state actors in language development are individuals, groups, or organisations that are not part of government structures but play significant roles in the promotion, standardisation, documentation, engineering, teaching, and revitalisation of languages.

3. THE URHOB0 COMPUTER TERMS PROJECT

As previously noted, the Urhobo computer terms project is a collaborative project by non-state actors, particularly academics, aimed at developing Urhobo versions of basic computer terms. In this section, the computer terms developed for the Urhobo language are discussed. The primary aim is to examine the strategies adopted in creating the terms. The terms consist of loanwords and non-loanwords as well as a combination of both (loan bled). In what follows, the three categories of terms are discussed.

3.1 LOANWORDS IN URHOB0 COMPUTER TERMS

Terminology development projects do not rely solely on the internal lexical resources of the target language. In most cases, loanwords are adopted. Terminology development often incorporates loanwords to bridge lexical gaps, especially when internal resources are insufficient. This is even more so where technical concepts are involved. Borrowing is a common linguistic outcome of language contact in which words are directly adopted without translation to expand the vocabulary of a language (Olaogun & Osita, 2025). Thus, borrowed terms often reflect historical, political, or technological connections (see Ojaide & Aziza, 2014 for instance). Some of the loanwords in the Urhobo computer terms are shown in Example (1) below.

- | | | |
|-----|--------------|--------------------------|
| (1) | a. Ápásàdì | - Ampersand |
| | b. Ánálògù | - Analogue |
| | c. Ìbrútútù | - Bluetooth |
| | d. Ìsídì | - compact disc (from CD) |
| | e. Ìfónú | - Phone |
| | f. Ávata | - Avata |
| | g. Ìbakòdù | - Barcode |
| | h. ídátà | - Data |
| | i. Íkònpútà | - Computer |
| | j. Ìbáyítí | - Byte |
| | k. Ìfèsìbúkù | - Facebook |
| | l. Ifasi | - Fax |

m. Ìgígàbàìtì	- Gigabyte
n. Ijipịesi	- Global Positioning System (GPS)

Loanwords were minimally adopted in the project, constituting only about 10%. Generally, language purists often express dislike for loanwords. Instead, they show preference for circumlocution or internally derived expressions in communicative contexts. This can create acceptability problem where large scale loanwords are adopted. This notwithstanding, loanwords were retained in the project, howbeit minimally, and for the following reasons.

1. Frequency of usage in conversations: One major reason for retaining loanwords in the terminology development project is their high frequency of use in everyday discourse. Loanwords that occur repeatedly in Urhobo conversations have often become entrenched in the linguistic repertoire of speakers, to the extent that they function as unmarked or default lexical items. From a usage-based perspective, frequent use of terms enhances their acceptability.
2. Economy: The principle of economy provides another strong justification for retaining loanwords in the project. Language users naturally prefer forms that allow them to convey meaning efficiently and with minimal cognitive and articulatory effort. Most of these loanwords provide concise labels for complex or technical concepts that would otherwise require lengthy paraphrases in the Urhobo language. For instance, the loanword *ifonu* 'phone' is more economical than *ukọkọghọ rẹ ota* often used by language purists, especially orators in core traditional settings. Beyond traditional settings, all speakers often use the loan form both in formal and informal communication settings. The economy principle also explains why *isidi* 'compact disc' is the loan form and not *ikọnpa diski*. In terminology development, retaining more economic forms supports communicative

efficiency and aligns with Zipf's (1949) principle of least effort, which explains speakers' tendency to select linguistically economical options. From a functional perspective, a term that achieves clarity with fewer linguistic resources is more likely to be adopted and sustained in actual usage.

3. Convenience: Closely related to economy is convenience, understood here as pragmatic ease in real-life communicative situations. Loanwords may be retained because they are readily accessible, widely understood across speech communities, and easily deployable in both formal and informal contexts. In multilingual settings such as Nigeria, speakers often operate across languages, and shared loanwords can facilitate smooth interaction without constant code negotiation. Retaining such items in a terminology project acknowledges existing communicative practices and avoids imposing forms that may disrupt natural speech patterns.

Also, the loanwords were adapted to fit the phonetic and phonological rules of the Urhobo language (Aziza & Utulu, 2006; Ekiugbo, 2025; Ekiugbo & Eme, 2023). For instance, the source form *ampersand* /æm.pə.sænd/ is rendered as *Apasandi* /a.pa.sã.di/ in the loan form, omitting the nasal coda of the initial syllable, in line with the syllable structure constraints in Urhobo. Cross-linguistic studies have shown that loanwords frequently undergo phonological and morphological nativisation, in order to make them functionally integrated into the recipient language. Implicitly, maintaining the loan form as it is in the source language may lead to resistance among speakers and reduced uptake of the proposed terminology.

3.2 NON-LOANWORDS IN URHOB0 COMPUTER TERMS

Much of the project involves using the internal lexical resources of the language to develop the terms. To achieve this, three strategies were

adopted. These are equivalence, nominalization and semantic extension.

3.2.1 EQUIVALENCE

Semantic equivalence refers to the quality of a translation in which the message of the original text has been so transported into the receptor language that the response of the receptor is essentially like that of a receptor of the original text (Nida & Taber, 1969). This occurs when two different expressions share the same, or nearly identical, meaning despite having different structures. According to Tulaboyevna & Samiqjon (2025), Semantic equivalence ensures the accurate transmission of meaning within a text. Thus, it is considered as the relationship of relevant similarity or resemblance between a source text and its translated target text. Examples of semantic equivalence in the terms developed are shown below.

(2)	Concept	Associated Meaning	Urhobo term	Meaning
a.	Abort	to cancel an action or command	Brùd'jè	to cut short
b.	Access code	codes that must be entered to identify a user before access to a computer is permitted	Ùkèrì'èrúò	Entry number
c.	Activate	to start a process or to make a device start working	Rhòvwòn	To awaken
d.	Call Centre	A department where employees receive & make high volumes of telephone calls.	é'diá'úsè	A place for call
e.	Captcha	A program used to verify that a human, rather than a computer, is entering data.	Òd'jèphíá	Proof
f.	Chatbot	An artificial intelligence program that can automate customer interactions for a company.	òtòtá'ákàbà	Artificial spokesman
g.	Dashboard	The administration area on your blog software that allows you to post, check traffic, upload files & manage comments.	Ádiárámú	Place of items

h.	Profile	The online representation	Ídjédjè'ómà	Description of self
i.	Random-Access Memory	A type of data storage (memory element) used in computers that temporarily stores programs & data.	òróriè	That which is volatile
j.	Router	A device that transfers data between computer networks to provide access to the Internet.	Òdjìdjerhè	That which shows (the) road
k.	Software		Uch'owian	An instrument which assists with work
l.	Social Media	an online medium that allows people to socially interact with one another or share information.	Àmú-ótá	A discussion group
m.	Copyright	the legal rights to a published work, whether it is published in print or electronically.	égbá'ésíó	Power to write
n.	Computer		Ékpèti-óná	Box of skills
o.	Sentiment	A level of assessment that determines the tone of an internet content.	Ìròrò'èwèn	

The main approach underlying the use of semantic equivalence in the development of technical terminology is the establishment of a close correspondence in meaning between the source lexical item and its target-language counterpart. In this process, priority is given to preserving the conceptual content of the original term, such that the meaning encoded in the source language is accurately and transparently represented in the target language. For instance, *abort* in Example (2a) means *to cancel an action or command*. Literally, this means to terminate, revoke, or discontinue something before its completion or intended execution. *Brudje* “to cut short” in Urhobo conveys the intentional cessation of a process or operation. The main aim here is to ensure that the same meaning is maintained in the target language as found in the source language.

3.2.2 NOMINALIZATION

Nominalization refers to “...the process of forming a noun from some

other word class (e.g. red-ness) or (in Classical Transformational Grammar especially) the derivation of a noun phrase from an underlying clause (e.g. His answering of the latter from he answered the latter)” (Crystal, 2008, p. 328). The main procedure employed while using nominalization involves identifying the action associated with a given concept in the first instance, usually a noun, and the Urhobo term for such action. This is followed by attaching the appropriate nominalising prefix to the stem. This is shown in Example (3) below.

(3)	Concept	Associated Action	Urhobo term	Verb Nominalized
a.	Decoder	Receive, take	Ureyó	Reyó ‘take’
b.	Access	Enter	Erọ	Ro ‘enter’
c.	Abbreviation	To shorten	Èruókřen	Rukřen ‘make short’
d.	Activation	Awaken	Èrhóvwón	rhóvwón ‘wake-up’
e.	Divider	That which divides	òhèrhiè	hèrhiè ‘divide’
f.	Converter	That which converts	òrhèriè	rhèriè ‘turn’
g.	Demodulation	Organization	èrhuèrè	rhuèrè ‘fix’
h.	Demodulator	Organizer	òrhuèrè	rhuèrè ‘fix’

The choice of prefix employed derives from the Urhobo morphology. In Urhobo, the prefixes à-, ù-, è-, è-, ò-, ì- and ò-; as well as the circumfix ẹ...ọ can be attached to verbs in a systematic way to derive nouns. The prefixes o-/ọ- are agentive prefixes in Urhobo and many Edoid languages (Adeniyi, 2010; Ekiugbo, 2018; Omoregbe, 2002). The prefix u- (and in some cases a-) denote the instrument for achieving the action or state expressed by the verb to which they are attached, while the prefix a-, and in some cases e- or ẹ- derive abstract nouns from verb stems (Ekiugbo, 2018) as shown in Example (4) below.

- (4)
- | | |
|-----------------------|---|
| a. brúche 'to advise' | - obruche 'adviser' |
| b. chuko 'to help' | - ọchuko 'helper' |
| c. yono 'to teach' | - oyono 'teacher' |
| d. mi 'wring' | - umi 'sieve' (i.e the instrument for wringing) |

e. gbe#usi 'make#starch'	- ugbusi 'spatula' (i.e. the instrument for making starch)
f. hworhe 'wash'	- awhorhe 'sponge' (i.e. the instrument for washing)
g. ghoghò 'happy'	- aghoghò 'happiness'
h. rhò 'survive'	- arhò 'salvation'
i. guonò 'to want/love'	- ẹguonò 'love'
j. vwerhẹ 'sleep'	- evwerhẹ 'dream'

(Ekiugbo, 2018, p. 476)

3.2.3 SEMANTIC EXTENSION

Semantic extension is a process in which the meaning of a word broadens, narrows, or shifts to include new concepts, often through metaphor or metonymy. Words sometimes add senses beyond their core definition or shift to entirely new domains over time. Thus, the meaning of words can become broadened over time (such as the word 'holy day', a religious break which has broadened to present day holiday, a general break from work) or narrowed (such as the word 'wife' which meant any women but has been narrowed to only married women). In the case of this project, the meanings of some of the native words were broadened, thereby increasing their functional load in the language. Some of these words are presented in Example (5) below.

(5)	Concept	Urhobo term	Gloss
a.	Browse	Hie	Search
b.	Notification	Àghwóghwò	Announcement
c.	E- (electronic)	Ukuento	Fire ball
d.	(E-)commerce	Ẹchuo (-Ukuento)	Trading
e.	(E-)mail	Ovue (-Ukeunto)	Message
f.	(E-)Bill	Osa (Ukuento)	Debt
g.	Web	Àvwẹ	Spider web
h.	Storage device	Ọkpòrhò	Fish storage
i.	Internet	Ọbriki	Net
j.	Cookie	Ìvwù	Particles

3.3 LOANBLEND IN URHOB0 COMPUTER TERMS

Loanblends are lexical items whose constituents derive partly from the indigenous language and partly from a foreign source. They are typically realised as compound words in which native morphemes combine with borrowed elements to express new or specialised concepts. Loanblends represent an intermediate strategy between direct borrowing and full lexical innovation. Examples of loanblends in the computer terms are shown below.

(6)	a. Broadband:	Ibandi ohehere
	b. Narrowband:	ibandi ohwahwa
	c. Account name:	Òdè ákántù
	d. Anti-Virus:	Òkpòfià íkònpútà
	e. Search engine	Íjìní éhiáhiè
	f. CPU	Úbiúdu Íkònpútà
	g. E-Banking	ibanki-ukuento

4. CONCLUSION

One major aspect of language modernization is lexical expansion. This entails adding new words and expressions to a language either through borrowing or by developing new terms from the internal lexical resources of the language. The new terms allow a language to be used in advanced fields such as higher education, scientific research, legislation, and the media. They also make it possible to translate materials produced in other languages without losing meaning. Thus, terminology development is important. The current study presented the report of a terminology development project for the Urhobo language which sought to create the Urhobo equivalents of popular computer-related terms. The study examined the strategies employed in creating the Urhobo equivalent

terms, and demonstrated that the internal lexical resources in the language are adequate to express advanced terms. The computer terms project contributes to enriching the Urhobo lexicon and the integration of the languages into the digital age. Thus this study recommends that these terms should be adopted, as well as disseminated and popularised in schools and digital platforms.

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