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Software-Mediated Public Health Information Localization as Social Justice Work

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Abstract: Using an autoethnographic approach, I discuss lessons from my role in a software-mediated localization of health information. I argue that the universalization of localization software disregards the uniqueness of languages involved in this project. The software did not recognize idiosyncratic sound sequences and syllable structure of tonal languages like Ewe—a West African language. I suggest some ways that global designers of localization software —and technical communicators in general—could redress the challenges of power in multilingual meaning-making by seeing their work as part of a vigilant *public intellectual practice* that must be liquid, iterative, and regenerative.

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Introduction

In this article, I contribute to the intersections of translation, technical and professional communication (TPC), and social justice by drawing attention to the cultural-specific issues and manifestations of power that face technical localizers working in transnational and international localization contexts. I emphasize a critical approach to software-mediated translation that rejects perceiving technology and the translation it produces as pure and objective. I do this discussion through autoethnography—an approach that uses self-interrogation of lived experience, usually through narratives about a social phenomenon, to create and critique data. It "is as personally and socially constructed as any form of research" in which the author "can respond immediately to any questions that arise from the story" (Muncey, 2005, p. 84). It helps researchers to conceive their project broadly through critical analysis as part of reflections (Shelton, 2020; Tham et al., 2020). Shelton (2020) used this approach to reflect on the affordances of Black Feminist epistemology for facilitating an undergraduate course in business writing. Likewise, Tham et al. (2020) used collaborative autoethnography to "share personal stories and interpret collective autoethnographic data" (p. 342) in their work on the significance of graduate research collaboration in TPC. I use this approach here to guide my reflection on a Wikipedia Diarrhea localization Project (WDP) and to help me think through the possibilities available for addressing the challenges I faced in the execution of the project.

The WDP sought to translate and localize public health information about diarrhea into Ewe (written as Eʋe or Eʋegbe in the language; realized in International Phonetic Alphabet transcription as [ɛβɛ] or [ɛβɛg͡bɛ]). Ewe is a member of the Gbe sub-group of the Kwa branch of the Niger-Congo language family (Ameka, 1995), spoken mainly in the Volta region of Ghana, in Togo, in Benin, and marginally spoken in the Badagry area of Nigeria —that is, "from the Greenwich meridian to 3° E and from the Atlantic coast to about 8° N" (Dorvlo, 2009, p. 206). The language has several dialects, so, the Bremen Missionary linguists from Germany developed a standard variety in the 19th century for missionary activities and this standard became the written variety of the language (Dorvlo, 2009). The standardized written Ewe is based on the southern Ghana dialects, but it is not identical with any of the dialects (Anyidoho & Kropp-Dakubu, 2008).

A Cape Town, South Africa, subsidiary company of an international localization and translation corporation—whose name I omitted in this discussion because of anonymity— initiated this localization project as a corporate social responsibility venture and the final product would be donated to Wikipedia. Before working on the WDP, I had worked with this company in 2015 to translate and localize marketing tools for building a website for an international search engine company that was coming into the African market. My goal in this reflection is not only to share my experiences of working with this software-mediated public health localization project but also to acknowledge the significance of the technical localizer as a change agent capable of initiating and promoting ways of overcoming several manifestations of power. As Gonzales (2018) admonished, the work of translators and localizers are essential because they make ethical decisions including to whom information is made available, and the kinds of information that is available to respond to emerging exigencies that impact lives. In critical sectors such as health care, communication failure could be fatal. Translators and localizers must employ utmost care in attending to projects in such critical domains. Therefore, I discuss decisions and lessons from my technical localization role and argue for overcoming two manifestations of power—"existential imperialism" and "existential totalism" (Ochieng, 2018)—as a move towards social justice in software-mediated translation and localization. This reflection is important because dependence on English language as lingua franca in multilingual and multicultural contexts is a major cause of communication failure (Bokor, 2011). Likewise, translations and localizations that are not culture-centered could further exacerbate rhetorical exigencies that they are supposed to subtend. I hope to contribute to calls for "vigilance" especially as conceived by feminist scholars as a form of both "cognitive attentiveness" and "intensity entangling sensory capacities with proximate surrounds" to recalibrate "relations among bodies, objects, affects, and spaces" such as languages, technologies, localizers, and possible users of localizations (Sotirin, 2020, p. 9).

Technology, Rewriting, and Contextual Ontology

Technological innovation is enhancing a rapid production of speech recognition and translation tools that could aid the ease of human interaction by helping to communicate with speakers of foreign languages without necessarily learning those languages. Scholars distinguish between *translation* and *localization*—where translation is generally the decoding of a text from one language into another, and localization is adapting the decoded text to fit into the linguistic environment of the user. I expand these differences later. Recently, Google launched its real time translation wireless headphones—Google Pixel Buds— supported by Android and Google Pixel Smartphones (Google, 2017). It is an assistant-optimized pod that transcribes conversations from one language into the user's selected language. Thirty-six languages are represented including Afrikaans, Arabic, Czech, Hindi, Norwegian, Swahili, and Vietnamese. Such technological deterministic projects subtend the primacy of contextual ontology in meaning making especially for target language audiences because they attempt to remove translation and localization from the cultural context of users. By contextual ontology, I mean "knowledge articulation in actually existing contexts" (Ochieng, 2018, p. 9).

Decontextualizing these technologies results in the creation of translation technologies aimed at deciding whether words have the same meaning in all languages as proposed by early translation theorists such as Oettinger, Catford, Nida & Taber. Oettinger (1960), for instance posits that translation is "the *replacement* of elements of one language, the domain of translation, by *equivalent elements* of another language" (p. 110). Likewise, Catford (1965) suggests that translation is "the *replacement* of textual material in one language (source language) by *equivalent material* in another language (target language) (p. 20). If translations are not producing exact equivalents, then they must produce the "*closest natural equivalent* of the source-language message" (Nida & Taber, 1969, p. 12). These explanations assume that there already exist expressions in all natural languages that perform the same function (cf. Gonzales, 2018; Shivers-McNair & San Deigo, 2017). Localization software like Google Pixel Buds work within these assumptions. As I shall discuss below, such universalist telos produces the danger of privileging meaning-making modes and pathways. In my localization work, therefore, I positioned myself within the cultural translation paradigm.

The cultural translation paradigm argues for complicating the rhetoric of universalism with the rhetoric of situatedness within user politics, poetics, and performance. This perspective argues that translation usually is a resistance against assimilation into source cultures. As such, translators create a new hybrid text that puts the two cultures into conversation (Levefevre, 2004; Ngũgĩ, 2018). Approached through cultural perspectives, localization has the potential to overcome practices of privileging certain ways and forms of meaning-making, and the hegemony embedded in the exhaustiveness of those privileged forms (Agboka, 2012; Agbozo, 2022; Dorpenyo, 2020; Gonzales, 2018, 2021; Shivers-McNair & San Deigo, 2017). One major cultural approach that shaped my localization practice is *rewriting*. Translation as *rewriting* attends to key constraining factors that control the "acceptance, reception and rejection" of a text— "power, ideology, institution and manipulation" (Munday, 2012, p. 193). I believe that approaching translation and localization work in this way helps to understand the process as a non-neutral exercise and one that is shaped by cultural and social burdens. The sustained presence of these cultural and social categories and how they shape meaning making are captured in Omedi Ochieng's concepts of "existential imperialism" and "existential totalism."

Existential imperialism is the practice of privileging certain ways and forms of meaning-making that have "implications of erasing experiences that cannot be articulated in the privileged medium" (Ochieng, 2018, p. 200). Existential totalism is the hegemonic idea "that experiences can be exhaustively represented through a particular artistic form" (Ochieng, 2018, p. 201). Ochieng makes these clarifications in the realm of artistic meaning-making, but they can be productively extended to my localization experiences and to how TPC theorizes and understands localization. Like artistic production, technology-mediated localization is contextual and fluid, such that it cannot be made to fit into a generalized schema. Although the source and target languages that might be involved in a particular localization project may belong to similar geographical spaces—such as Africa, in the case I discuss here—each localization context is unique in its response to real users' conceptions and worldviews (Agboka, 2014; Agbozo, 2022; Dorpenyo, 2020). So, when localization software developers attempt to create universalized language schemes that theoretically should be sufficient to meet the phonotactics (the rules of sound and syllable structure) of every African language, they are engaged in totalizing the quintessence of these languages; and when localization project managers trust this software more than the experiences of language users and technical localizers, they are erasing a plethora of meaning-making strategies that are not necessarily sanctioned by the software. Indigenous languages often have multiple variants, many of which are not mutually intelligible. It is important to realize that Indigenous languages themselves are very localized to a specific community (such as dialects), and thus not easily translatable by digital technologies (Gonzales, 2021).

Translation, and Software-Mediated Localization

Translation is "a process which begins by decoding the meaning in the source language and re-encoding it in the target language" using "a combination of art and skill" (Yousofi, 2014, p. 1953). In other words, translation is a *techne* and a result of cultural, economic, and political entanglements. Software-mediated translation employs machines and software as tools for meaning creation from one language into another. This type of translation has become an intrinsic part of our algorithmic age. Being such a key characteristic of our time, the mediation of meaning by software and technology must receive critical evaluation to improve the work of language professionals. Localization is considered as a specialized form of translation through adapting source text to the local peculiarities of the receptor space. Localization, according to Hoft (1995), is “the process of creating or adapting an information product for use in a specific target country or specific target market” (p. 11). Localization processes fit into the cultural approach to translation because they critically consider the cultural and social nuances of the target audiences for which a product is being localized. In localization, therefore, a person does not look for the equivalents of translation units in both the source and target languages but focuses on the target culture.

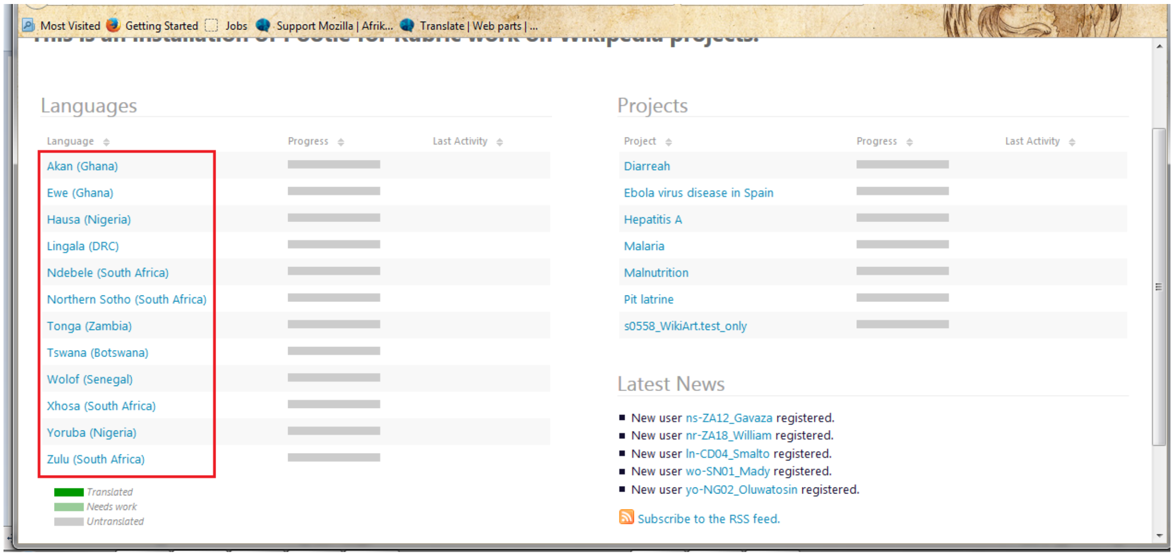
A common way to localize language products is internationalization. Internationalization encourages the omission of culture-specific features from source texts. It promotes international natural language character sets by removing locale-specific features such as translatable strings from the software code base and adds functionality or features specific to foreign languages. As we shall see later in the case of languages with smaller amounts of speakers, foreign language features are not always added to the software code base. This omission creates an artificial text that only localization engineers understand. These engineers then create versions in various languages starting from the international version. Anthony Pym recalled some translations that precede the process just described. Some of his examples are Bible translations from the Greek and Hebrew to English glosses and then to many other languages. Pre-translation editing corrects ambiguities in the process. Although localization focuses on software/web translation, this is not the only type of translation to which it was limited.

According to Pym (2010), non-linear translation arises from translating software, help files and websites, and includes translating additions to and modifications of older versions. Units from already translated files may be imported and reused in the same way or in a slightly modified version. Here, translators no longer work on a linear text but rather on modified isolated chunks of texts. Translation memory software can produce pre-translation. It can bring to the desktop the target language versions of all the completely re-used sentences of the source text in addition to fuzzy matches. These fuzzy matches are usually the target language constructions used to previously translate units from source texts.

Although technology has become an essential part of translators’ work, Cronin (2010) noted that technology is considered as an auxiliary tool to human translation that is set in isolation. Cronin questioned how technology would be adapted to cater for multilingual contexts. This challenge of multilingualism is pivotal to the WDP because the technical localizers worked on the same text for different African languages. Because the software was able to produce acceptable constructions in some of the languages, the project managers assumed that the unacceptable constructions and characters in other languages were caused by the localizers’ infidelity to the algorithm. The localizers must, therefore, *fix* these anomalous realizations. However, as TPC scholars succinctly argued, every localization, including linguistic localization, must embody “local logics, rhetorics, histories, philosophies, and politics” (Agboka, 2014, p. 298) to create a fluid nexus between the contact “culture and context of use” (Dorpenyo, 2020, p. 103). These categories that Agboka (2014) puts forward are constantly in flux, so, if a sofware works successfully in localizing one language, it might not work for other languages even if the languages belong to the same family.

The WDP

As I earlier noted, the WDP sought to translate and localize health and medical information about diarrhea into some African languages. I worked on Ewe, my mother tongue. The project was commissioned by a South African subsidiary of an international localization and translation company as a social responsibility effort and the final product was to be donated to Wikipedia. We received our task from the project manager on June 9, 2015, to use Pootle to translate 738 new words about diarrhea into the following African languages shown in figure 1: Akan (Ghana), Ewe (Ghana), Hausa (Nigeria), Lingala (Democratic Republic of Congo), Ndebele (South Africa), Northern Sotho (South Africa), Tonga (Zambia), Tswana (Botswana), Wolof (Senegal), Xhosa (South Africa), Yoruba (Nigeria), and Zulu (South Africa). Pootle is a localization software. It is a tool for translation management, and it has a translation interface. Translate.org.za developed and released it in 2004. During a localization process, Localization Engineers use Toolkit on Pootle "to convert, count, manipulate, review and debug texts" (http://toolkit.translatehouse.org).



Languages

Language	Progress	Last Activity
Akan (Ghana)	▬	
Ewe (Ghana)	▬	
Hausa (Nigeria)	▬	
Lingala (DRC)	▬	
Ndebele (South Africa)	▬	
Northern Sotho (South Africa)	▬	
Tonga (Zambia)	▬	
Tswana (Botswana)	▬	
Wolof (Senegal)	▬	
Xhosa (South Africa)	▬	
Yoruba (Nigeria)	▬	
Zulu (South Africa)	▬	

🟩 Translated
🟩 Needs work
▬ Untranslated

Projects

Project	Progress	Last Activity
Diarreah	▬	
Ebola virus disease in Spain	▬	
Hepatitis A	▬	
Malaria	▬	
Malnutrition	▬	
Pit latrine	▬	
s0558_WikiArt.test_only	▬	

Latest News

- New user ns-ZA12_Gavaza registered.
- New user nr-ZA18_William registered.
- New user ln-CD04_Smalto registered.
- New user wo-SN01_Mady registered.
- New user yo-NG02_Oluwatosin registered.

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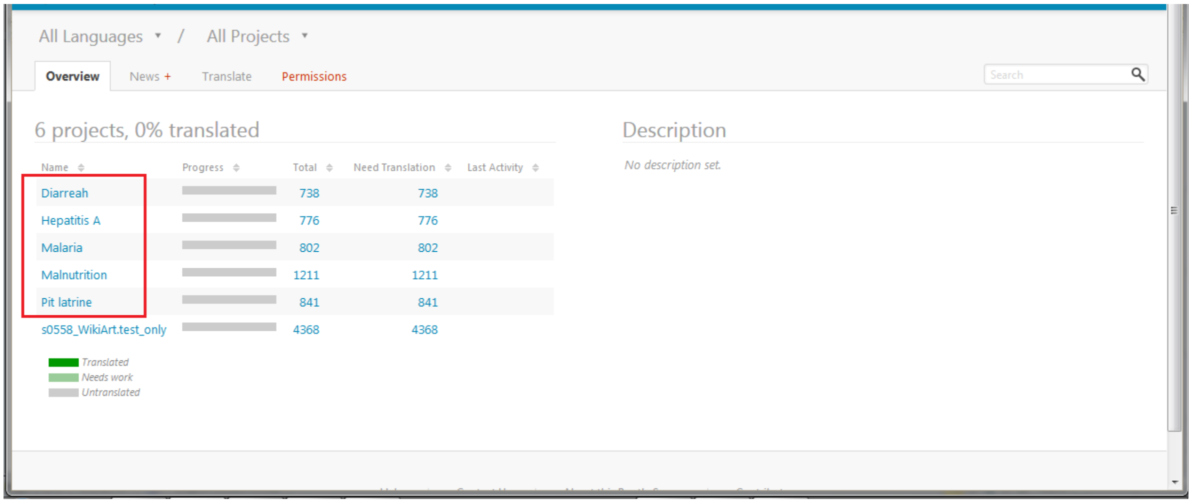
Figure 1: Interface showing the target languages of the WDP

There were other topics that the company was localizing for Wikipedia such as "Hepatitis A," "Malnutrition," and "Malaria". So, after registering an account on Pootle, we selected the topic we were assigned: diarrhea. The other topics are shown in figure 2. Once we selected the correct component, we clicked on "***Continue translation (xxx words left)***" to be directed to the translation interface for our chosen language (see figure 3).



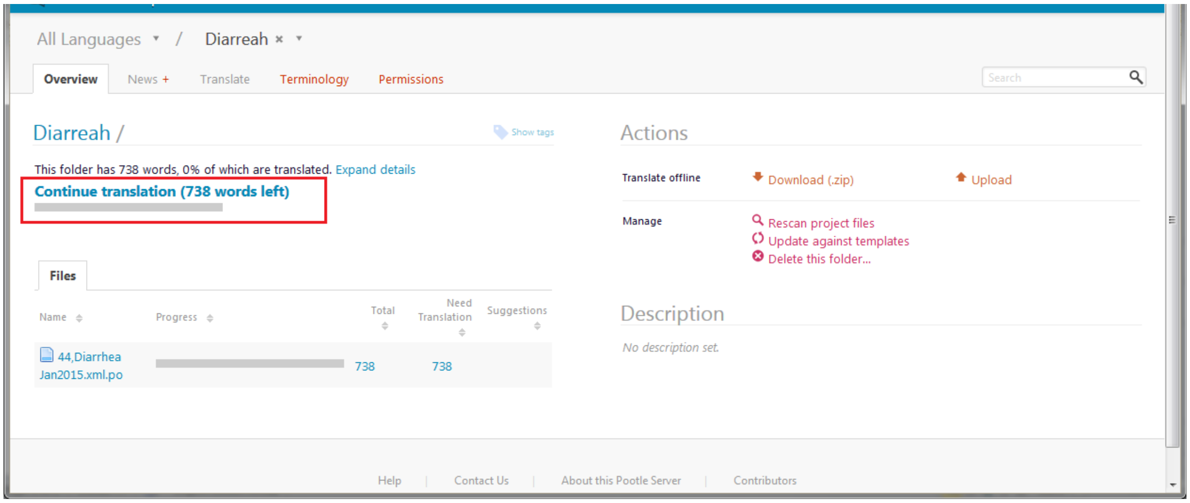
6 projects, 0% translated

Name	Progress	Total	Need Translation	Last Activity
Diarreah		738	738	
Hepatitis A		776	776	
Malaria		802	802	
Malnutrition		1211	1211	
Pit latrine		841	841	
s0558_WikiArt.test_only		4368	4368	

Description

No description set.

Figure 2: Topics and word-count



Diarreah /

This folder has 738 words, 0% of which are translated. Expand details

Continue translation (738 words left)

Name	Progress	Total	Need Translation	Suggestions
44,Diarrhea Jan2015.xml.po		738	738	

Actions

Translate offline: Download (.zip) Upload

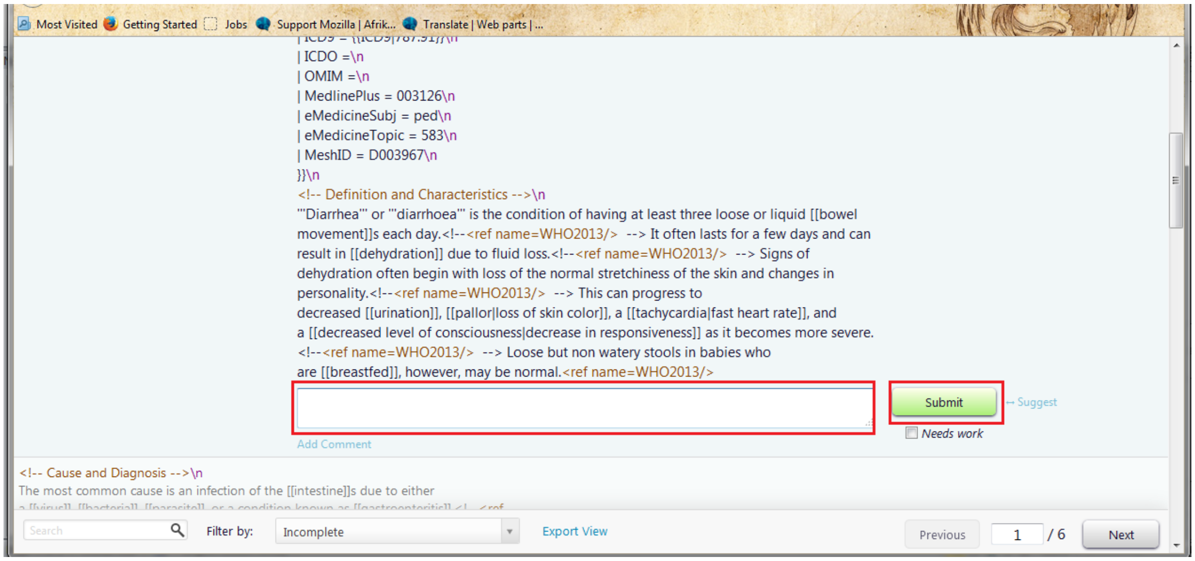
Manage: Rescan project files, Update against templates, Delete this folder...

Description

No description set.

Figure 3: Translation interface

The source (English) text document was named *44, Diarrhea Jan2015 En.docx*, (see figure 3). The translator entered their translation in the interface and clicked "***Submit.***" Once the translation had been submitted, the translator was automatically taken into the next string for translation (see figure 4).



```
| ICD9 = {{ICD9|787.91}}\n
| ICDO =\n
| OMIM =\n
| MedlinePlus = 003126\n
| eMedicineSubj = ped\n
| eMedicineTopic = 583\n
| MeshID = D003967\n
}}\n
<!-- Definition and Characteristics -->\n
'''Diarrhea''' or '''diarrhoea''' is the condition of having at least three loose or liquid [[bowel
movement]]s each day.<!--<ref name=WHO2013/>  --> It often lasts for a few days and can
result in [[dehydration]] due to fluid loss.<!--<ref name=WHO2013/>  --> Signs of
dehydration often begin with loss of the normal stretchiness of the skin and changes in
personality.<!--<ref name=WHO2013/>  --> This can progress to
decreased [[urination]], [[pallor|loss of skin color]], a [[tachycardia|fast heart rate]], and
a [[decreased level of consciousness|decrease in responsiveness]] as it becomes more severe.
<!--<ref name=WHO2013/>  --> Loose but non watery stools in babies who
are [[breastfed]], however, may be normal.<ref name=WHO2013/>
```

```
<!-- Cause and Diagnosis -->\n
The most common cause is an infection of the [[intestine]]s due to either
a [[virus]], [[bacteria]], [[parasite]], or a condition known as [[gastroenteritis]].<!--<ref
```

Figure 4: Detail of a translation interface

The translation process briefly described above is simple, direct, and user-friendly. In fact, the process looks like many web-interface processes and anyone familiar with other interfaces should be able to unproblematically navigate the Pootle interface. Theoretically, one would expect that the translation units would generate a final product that is also easy to process.

It is expected that any localization software built for use in Africa factors in phonotactic features such as tone. Most, if not all, African languages are tonal. Tonal languages are languages in which the pitch on words (usually located on vowels) cause lexical or grammatical meaning changes even if the words look the same in orthography. In Ewe, for instance, high, rising, and low tones connote different meanings for the word “to”: tó – “mountain” (high tone), tǒ “mortar” (rising tone), and tò “buffalo” (low tone). In addition to tone, most African languages use Latin alphabets in their orthography. However, there are unique characters in some African languages that are not part of Latin alphabets. A culturally appropriate software for African languages must add these characters into its code base. In the case of the extracts below, for example, Pootle lacked the recognition of unique characters and tones, and these absences produced unacceptable Ewe language strings:

Extract 1

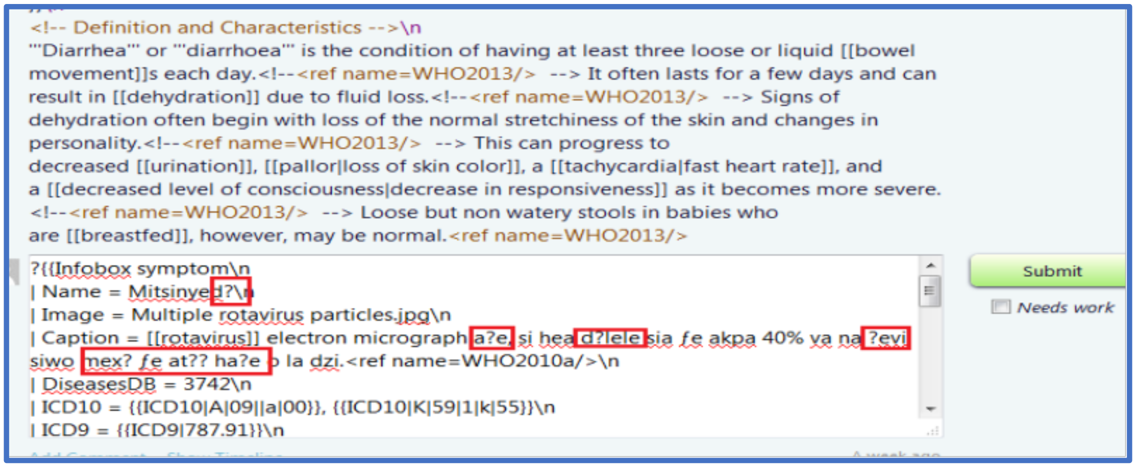
<!-- Cause and Diagnosis -->
Nu si hea d? sia v? la ƒe b?b?t?e nye [[virus]], [[bacteria]], [[parasite]], ƒe a?ahoho ?e [[d?kavi]]wo ?u alo nu si woy?na be[[gastroenteritis]].<!--<ref name=WHO2013/> --> Zi ge?e la miex?na nu manyomanyo siawo to nu?u?ua alo tsi si nugodo alo ame si le d? sia lem la gbl?. <!--<ref name=WHO2013/> > Wote?u amãe ?e hatsotso et?? me: mitsinyenye gaƒoƒo kpuie t?, ?u mitsinyenye gaƒoƒo kpuie t?, kple ne en? anyi wu k?si?a eve la, mitsinyenye atradit?.<!--<ref name=WHO2013/> --> Mitsinyenye gaƒoƒo kpuie t? la ate?u ava nenye be [[cholera]] le ame.<!--<ref name=WHO2013/> --> Ne nye be ?u li la, woy? n? be [[dysentery]].<ref name=WHO2013/>

I have highlighted in yellow all the Ewe alphabet symbols that the software flagged as infelicitous. Such is the case because the omitted alphabets are unique to Ewe but are not part of the code base of Pootle. Table 1 shows the deleted Ewe alphabets:

Table 1: Pootle's Unrecognized alphabets

Ewe characters	Description
/ɔ/	open-mid back vowel
/ŋ/	voiced velar nasal
/ɖ/	voiced retroflex stop
/ɛ/	open-mid front vowel
/ʋ/	voiced bilabial fricative

As we can see in extract 1, Pootle replaced all these characters with question marks. So, what we get are sentences like 'Nu si hea d? sia v? la ƒe b?b?t?e nye…', instead of 'Nusi hea dɔ sia vɛ la ƒe bɔbɔtɔe nye…' (The commonest cause of this disease is…). We can also see that while in figure 5, Pootle could not place diacritics on any alphabet, it does that in extract 1—e.g., "amãe" (divide it). As earlier noted, Ewe is a tonal language. Tone is crucial to how we understand the senses that sentences in the language carry. The inconsistency of tone marking in the Pootle translation reduces translation quality.



```
<!-- Definition and Characteristics -->\n
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movement]]s each day.<!--<ref name=WHO2013/>  --> It often lasts for a few days and can
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dehydration often begin with loss of the normal stretchiness of the skin and changes in
personality.<!--<ref name=WHO2013/>  --> This can progress to
decreased [[urination]], [[pallor|loss of skin color]], a [[tachycardia|fast heart rate]], and
a [[decreased level of consciousness|decrease in responsiveness]] as it becomes more severe.
<!--<ref name=WHO2013/>  --> Loose but non watery stools in babies who
are [[breastfed]], however, may be normal.<ref name=WHO2013/>
```

```
?{{Infobox symptom\n
| Name = Mitsinyed?\n
| Image = Multiple rotavirus particles.jpg\n
| Caption = [[rotavirus]] electron micrograph a?e, si hea d?lele sia ƒe akpa 40% va na ?evi
siwo nex? ƒe at?? ha?e ɔ la dzi.<ref name=WHO2010a/>\n
| DiseasesDB = 3742\n
| ICD10 = {{ICD10|A|09||a|00}}, {{ICD10|K|59|1|k|55}}\n
| ICD9 = {{ICD9|787.91}}\n
```

Figure 5: The white space of this Pootle interface shows some missing diacritics. I used red boxes to highlight some words that needed diacritics, e.g., the diacritic for nasalization of atɔ̃ "five" is missing in line 5.

To respect native-speaker positionalities and the discourse-world of Ewe, I made two pragmatic choices. First, I decided against sound and meaning manipulation, and reductions of sound sequences and syllable structure to accommodate the software's imperialism. I ignored the Pootle question marks and manually incorporated the unique Ewe alphabets into the translations but when I submitted the translations, Pootle, again, flagged the characters as anomalous. I made sure to record the correct translation in a Word document as evidence of Pootle's inadequacy at the time. Language is inscribed with histories, uses, performances, and senses deeper than what a software localizer, who is removed from those categories, can possibly plumb. These categories, in each language, are not only idiolectal but also sociolectal. So, even if the software localizer is a native speaker of a language, it is possible that they might not fully plumb the histories, senses, performances, and uses of that language. To use the experience of a designer or a team of engineers about language(s) to design a software and to foster an instrumental rationality is a problematic techne. Existential imperialism is the practice of upholding an approach to knowledge-making and dissemination that could disregard the long-lasting concepts and issues that are considered significant to the very existence of certain communities. It privileges certain ways and forms of meaning-making that could erase the linguistic and cultural experiences of users because they are "articulated in the privileged medium" (Ochieng, 2018, p. 200). A localization software is imperial when the design excludes or diminishes large swarths of meaning-making mechanisms, such as tone, and interrupt sound sequences.

Additionally, I joined the localizers for other languages to suggest a revision of the software program to sustain the linguistic particularities of our target languages. The idea is still being considered by the project managers. My insistence prevented a problematic localization that Ewe users might ultimately not accept. While this failed localization might be seen as a retrogression in the effort to make health information available to Ewe users, I see my stance as essential for overcoming "existential imperialism" and "existential totalism". I agree with other TPC scholars that while conducting additional tests might cause some delays, there is an overall benefit to launching a more localized, effective product (Acharya, 2018; Dorpenyo, 2020; Gonzales, 2018; Rose et. al., 2017; Sun, 2012, 2020). For this project, Pootle designers' existential imperialistic universalization of the software disregarded the situated uniqueness of Ewe.

What I presented above is just a snapshot of my experience. Essentially, I argue that machines and software do not have experience of contextual language use as humans do unless we feed machines with data. It is somewhat impractical that engineers and users can interact every day. Thus, linguists who have worked on or researched the languages and their cultures must be included throughout the software design project as *regenerative intermediaries* rather than as testers of the finished product. Below, I expand this argument to offer further suggestions for the possible ways that global designers of localization software could redress the challenges of multilingual meaning-making.

Culture-centered Software Localization

Against "[a] purely artifactual approach to translation and its tools [that] leads us to an idea of translation where productivity, and time and cost efficiency are the raison d'être," (Alonso & Calvo, 2015, p. 152), a culture-centered approach to software localization sustains the contextual ontology of the end users of a localization product. Such an approach considers users' peculiar linguistic and cultural orientations as core pillars of the entire localization process—starting right from software development. Throughout the WDP, I have experienced the material essence of culture-centered software localization that removes agency away from algorithms and offers humans, who are the real producers and ultimate users of the languages we target in localization work, the agency to modulate meaning-making according to contextual ontologies. Such an approach means that linguists and localizers become an integral part of the localization software building process as experts with equal power as the software developer. I was not privy to the identity and linguistic knowledge of the Localization Engineers who localized Pootle for our use. Nevertheless, the challenges we faced showed that these Engineers may not necessarily be linguists or if they were linguists at all, they might not be Ewe linguists. As such, they could not have envisaged the peculiarity of Ewe and its many phonotactic nuances.

A culture-centered software localization must engage “an extended cognitive, anthropological and social system or network which integrates human translators and technologies, whether specific to translation or not, and acknowledges the collective dimension of many translation workflows” (Alonso & Calvo, 2015, p. 148). This integrative approach to engaging with technologies in the translation process guides attention to linguistic and cultural complexities that universalist approaches might erase. A culture-centered software localization could allow professional translators and localizers to see technology as an extension of their capabilities, and as co-creators of meanings rather than an alternative, and, perhaps, efficient way of doing localization work.

My argument for a culture-centered software localization is closely related to, and expands on, the thought of TPC scholars such as Sun (2006) and Agboka (2013). Sun (2006) proposed the Culturally-Localized User-Experience (CLUE) model which suggests that a wholesome localization should be one that is situated and constructed in local contexts to aid “social affordances” or “object-oriented activity and social behaviors” (p. 560). Agboka (2013) also suggests Participatory Localization in which “localization should happen locally at user’s site, where prevailing local conditions influence design” (p. 45). Thus, power imbalances are erased or, at least, reduced when we localize in local contexts because the locals themselves are involved in the process. However, as Agbozo (2022) observed, power takes on messy and invisible forms in local contexts and the involvement of locals alone is not enough to solve these problems because “the plethora of users in these contexts […] are also working within different structures of power” (p. 9). Additionally, while CLUE proposes a dialogic relation in a dual mediation process, my argument for a culture-centered software localization suggests an iterative process that should involve several reiterations of dialogic processes through regenerative intermediations until the localization project is completed.

A culture-centered software localization is also an issue of ethics. A recent publication by Bolingo Communications and Media Consult (2022) on localization in Togo—a small West African Country—suggests that users of products of localization “prefer audio visual content” (p. 12) over alphabetic localization. Furthermore, these users suggest the following as ways of respecting the sensitivity to the societal values and mores of Togo: “avoid openly talking about sex,” “prioritize the Togolese flag” especially it’s colors in visual designs, and “avoid comments that stigmatize the Togolese culture” (p. 12). For me, paying attention to the Togolese flag is not an idea that will automatically lend itself to my design choices, but for these users, such choices demonstrate a form of respect for their country, and, by extension, an indication of patriotic cultural sensibilities towards their country. Localization products that do these are preferred over others. Attention to such contextual ontologies that cut against universalism could only be ascertained when we centralize users’ cultures at every iteration stage of the localization process including the choices of software technologies we develop or use.

Contrary to Alonso and Calvo (2015), I agree that technology is indeed an extension of humans, their capabilities, and their bodies. As such, we should not only interact with localization technologies; we should engage them so that they fully become part of our social and cultural reality before we start to use them. This argument is rooted in phenomenological thought that considers bodies as possessors of meaning. Merleau-Ponty (2012) reminded us that "The word has a certain place in my linguistic world, it is a part of my equipment" [and that] [t]he only means I have of representing myself is by pronouncing it, just as the only means the artist has of representing to himself the work, he is pursuing is by producing it" (p. 186). For Merleau-Ponty, there is no separation between human experiences and the technologies that help to reproduce those experiences through representation. Language and its technologies, such as localization software, are part of technologies of representation. As extensions of ourselves, technology and humans create meaning together. For instance, the way we convey information depends on what 'signs' mean to us within the speaker-hearer community (Heidegger, 2014). Seeing localization software technology as an extension of ourselves will guide how we contextually engage them and how such an engagement could facilitate cultural-centered orientations.

Appeals to Global Designers of Localization Software

From the foregoing discussion, I offer three appeals to localization software designers, especially those who target global audiences. By global audiences, I mean potential users of localization products that are not necessarily familiar with the cultural nuances of developers' contexts. Attention to global audiences is important because, as Acharya (2018) suggests, usability problems arise when product designers are unaware of how context affects usability within user cultures. In the contemporary moment when technological power and control shape all aspects of human life, or what Mbembé (2021) calls "algorithmic reason," attention to global user contexts are not only beneficial to usability but also to social justice— the "critical reflection and action that promotes agency for the marginalized and disempowered" (Jones, 2016, p. 343).

Foremost, I argue that localization software designers for global users—and by extension, the designers of all global technologies—move beyond conceiving these technologies as tools for engineering capital and rather, see their work as part of a larger *public intellectual practice*. For me, public intellectual practice regarding localization software is the way in which such technologies are contextually constitutive and embedded within the systemic worlding of the public that ultimately uses the technology and/or are affected by the products of the technology. In thinking about localization software in this way, designers will cease to become engineers of and witnesses to the assault on cultural vocabularies and evaluative aesthetics—an assault that runs the danger of violent-meaning-making. In seeing their work as part of a larger *public intellectual practice*, designers ought to intentionally engage with the cultural public to seek their acceptance of specific exemplar translation units and use the feedback to revise their designs. This process must not be a one-in-a-while dialogic venture—as the case usually is in software usability testing—but must be a liquid, iterative, and regenerative effort.

Secondly, to achieve a liquid, iterative, and regenerative public participation, it is essential that the localizers are embedded within the linguistic and cultural world of users of the software, and users of the localization products from the software. Merleau-Ponty (2012) posited that experience is primary to our understanding of any language. What we experience as individuals is linked to the many other experiences of other beings. All these experiences reflect how we understand our world and we express this understanding through language. Meaning is shared. Although I am a competent speaker and writer of Ewe, I depended a lot on native speaker consultants at moments that I fell short of comprehending certain translation units. My comprehension or that of my consultants is locked up in our experiences.

Thirdly, as a technical localizer, I argue that software designers should be willing to iterate multiple drafts, be open to critical responses, and have the tenacity to sift through a plethora of feedback that can provide imaginative routes for revision. Throughout the WDP, our project manager, to some extent, resisted our suggestion that Pootle is problematic and that the infelicitous translations that they identified were a result of the software's decontextualization. For them, the infelicitous translations were our fault that we needed to fix. Such attitudes to technology mediated processes projects technology as pure and rational equipment incapable of making errors. Such technological deterministic stances frustrate the work of critical localizers. To create a user-friendly localization software, the technology itself must first be localized. That means, the localization software itself must be created, user tested, and be revised to "fit into the technical and cultural milieu of specific user contexts" (Agbozo, 2022, p. 8; see also Sun, 2012). This process solicits several iterations of the software for each linguistic and cultural context. It is only when this process is completed that we can deploy such software for language localization.

Conclusion

Within transnational multilingual communities and digital spaces, translation and localization are quotidian resources for meaning making, and there are no singular ways of engaging these resources. Translation and localization in transnational contexts are a fluidly interactive processes that involve a plethora of stakeholders. These continuous interactions among stakeholders are a significant marker of global technical communication projects. That is why we must pay attention to contextual ontology if we want to overcome existential imperialism and totalism in our work.

In this reflection, I have discussed my involvement in a transnational public health information localization project to highlight the important role of the technical localizer as advocate and change agent. I also proposed some ways that global designers of software could pragmatically redress the work of power in localization. I hope that other localizers could also share the challenges they faced in their work, how they navigated those challenges, and the lessons we could all learn from them. As suggested by Gnecchi *et al.* (2007), translation and technical communication are seen as convergent industrial professions in North America and Europe. The same cannot be said about other contexts such as Africa where the two are seen as separate. However, translators and localizers use technical communication tools in their work. I am sure that if more localizers share their experiences from such contexts, we will see a clearer picture of the global social justice challenges of localization and how we could resolve them.

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