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Interference in Acquisition of Phonology by Swahili-Speaking EFL Learners

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Abstract
This paper aimed at examining L1 interference in the acquisition of English phonology by L1 Swahili learners of English. The paper examined L1's contribution in the segmental and prosodic errors that Swahili learners of English as a foreign language make and the potential moderating effects of age on L1 phonological interference. The study involved 47 Advanced Level (A-Level) students from three secondary schools in Tanzania who were given different elicitation stimuli to examine possible L1 interference in their English. It also examined interference disparities between participants who started learning English before the Critical Period (BCP) and those who began to learn English after the Critical Period (ACP). The findings show there are numerous L1-induced prosodic and segmental errors for all the participants. Results also show that the Critical Period Hypothesis effect was not evident among participants who started learning English before the Critical Period (BCP).
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1.0 Introduction and Literature Review

The theory of transfer of learning stands as one of the cornerstones in psychological sciences, offering invaluable insights into second language acquisition (SLA). This theory posits that all learning involves the transfer of prior "relevant aspects" that are intrinsically related to the new experience being acquired (Ausubel, 1963). Since its inception, myriad theoretical and empirical advancements have illuminated the challenges native speakers of one language face when learning another.

Transfer within SLA is aptly articulated by the Contrastive Analysis (CA) hypothesis. This hypothesis suggests that elements from the first language (L1) will transfer to the target second language (L2) (Saville-Troike & Barto, 2017). Introduced by Robert Lado in *Linguistics across Cultures* (1957), it asserts that L1 and L2 can have similar or distinct linguistic features. Elements that resonate with the learner's L1 are easier to learn, whereas dissimilar ones present challenges. This approach predicts and explains learner difficulties by contrasting L1 and L2 to pinpoint similarities and disparities (Saville-Troike & Barto, 2017). A transfer is deemed positive or facilitating when a linguistic element is consistent across both languages. In contrast, it is termed negative or interference when the element diverges (Major, 2008).

While the core tenets of the CA hypothesis spotlight the learner's L1 and L2, transfers influenced by languages other than L1 and L2 are equally salient. Learners, when grappling with a second language, often draw from their L1 or other known languages (Lloyd-Smith, Gyllstad, & Kupisch, 2017). Consequently, transfers might not always be rooted in the learner's L1 but can stem from other languages they have encountered.

Over time, while there have been critiques of this theory, the ongoing discourse has immensely enriched our understanding of the potential challenges L2 learners with specific native languages might face. These breakthroughs have enabled us to interpret the myriad experiences of second/foreign language learners attempting to grasp the phonetics and various linguistic structures of a non-native language.

This study delves into L1 interference in the acquisition of English phonology by native Swahili-speaking learners of English as a foreign language. The study highlights the impact of the Swahili language on acquiring various phonological elements of English by scrutinizing segmental and prosodic-related errors made by L1 Swahili learners. Furthermore, the paper explores the potential influence of age on L1 phonological interference, examining if L1-related segmental and supra-segmental errors vary among learners who began studying English at different stages of their lives.

1.1 Transfer Involving Segmental Errors

Extensive research has delved into the interference of L1 phonology on the acquisition of L2 in both segmental and suprasegmental realms. Current and past studies consistently highlight that upon mastering the phonology of

one language, learners often interpret sounds in a second language through the phonological lens of their L1 (Janssen, Segers, Mcqueen, & Verhoeven, 2017; Lloyd-Smith, Gyllstad, & Kupisch, 2017; Han, Hwang, & Choi, 2011; Major, 2008). These findings demonstrate that L2 speakers struggle to produce certain phonetic contrasts in L2 that are absent in L1 in the same manner as native speakers. This underscores the challenges L2 learners face in perceiving and producing non-native contrasts involving phonetic features dissimilar to their native tongue. When L2 learners of a shared linguistic background produce consistent variants of the target language, it can be inferred that they employ a common set of rules to produce these variants—rules grounded in shared linguistic knowledge, be it conscious or subconscious.

Weinreich (2010) offers a nuanced classification of L1 phonological transfer. He outlines several types of sound transfers, including: (i) Sound substitution – a learner replaces some L2 sounds with the nearest equivalent sounds from their L1; (ii) phonological processes – a learner transfers to L2 an L1 allophonic form that does not occur in the same L2 linguistic environment as in L1; (iii) underdifferentiation – this occurs when a phonological distinction exists in L2 but not in L1; (iv) overdifferentiation – this occurs when a phonological distinction exists in L1 but not in L2; (v) Reinterpretation of distinctions - this involves a reinterpretation of secondary aspects in L2 as primary or related features in L2 as distinctive; (vi) Phonotactic interference - this occurs when L1 has a different syllabic structure from L2, hence making the L2 syllabic structure to conform with the one in L1; (vii) prosodic interference - making the suprasegmental features e.g. tone, stress, intonation, etc., in L2 conform to L1 suprasegmental features.

Drawing from Weinreich's classifications, Saville-Troike and Barto (2017) note, "transfer from L1 to L2 phonology occurs in both perception and production, thereby influencing both listening and speaking" (p. 151). They identified numerous sound system aspects where L1 and L2 might diverge, encompassing phonemic systems, phonotactics, intonation patterns, and rhythmic patterns. The subsequent section will juxtapose the phonological contrasts between Swahili and English, spotlighting facets delineated by Weinreich (2010) and Saville-Troike and Barto (2017).

1.2 The Effects of Age on Phonological Transfer

Referring to the significance of age in L2 phonological acquisition, Major (2008) asserts that "all types of transfer in L2 phonology are correlated with age and experience" (p. 71). This idea borrows heavily from the Critical Period Hypothesis (CPH), which claims that, if a person starts learning a language after the age of puberty, approximately the age of 12, no matter how much they will be exposed to the language, they cannot acquire native-like pronunciation of that language (Saville-Troike & Barto, 2017). Major (2008) gives an example of adult and young children immigrants. He states that the native languages of adult immigrants can often be easily identified when they speak an L2, while young immigrant children quickly acquire the dominant language of their newly adopted country. That is very significant in analyzing the differences in acquisition interference observed among adults and young children.

Reflecting on the role of age in L2 phonological acquisition, Major (2008) posits that "all types of transfer in L2 phonology are correlated with age and experience" (p. 71). This perspective draws heavily from the Critical Period Hypothesis (CPH), which suggests that if an individual begins learning a language after reaching puberty, roughly around the age of 12, they cannot achieve native-like pronunciation, regardless of their level of exposure to the language (Saville-Troike & Barto, 2017). To illustrate this point, Major (2008) compares adult immigrants to young children immigrants. He observes that the native languages of adult immigrants can often be easily identified when they speak an L2, while young immigrant children swiftly acquire the dominant language of their newly adopted country. This observation is pivotal in discerning the distinctions in acquisition interference between adults and children.

Research comparing the phonological acquisition capabilities of adults and children has revealed that children tend to internalize and maintain non-contrastive features of L2 more effectively than adults (Smalle et al., 2018; Han, Hwang, & Choi, 2011; Tsukada et al., 2004). As an example, Tsukada et al., (2004) studied how adult and child Korean L1 speakers pronounced word-final voiceless stops in English, contrasting their pronunciations with those of native English speakers to determine if the L2 learners articulated the stops with release bursts. While both English and Korean accommodate stop consonants in word-final positions, in English, these consonants can optionally be articulated with a burst, whereas in Korean, they never are. Tsukada et al., (2004) discovered that, although the adult Korean participants, who had resided in North America for 3 to 6 years, often pronounced word-final stops in English with bursts, the child participants outperformed them, producing word-final stops nearly indistinguishable from native speakers. Consequently, the impact of age on second language acquisition is palpably evident across learners from diverse L1 backgrounds.

1.3 A Brief Comparison of Swahili and English Segmental Phonology

Certain aspects of SLA, especially in relation to Bantu languages—the language family to which Swahili belongs—have been somewhat overlooked. Spinner (2010) notes the paucity of research on the L2 acquisition of

Bantu phonology, with much of the existing research focusing on syntax and morphology. Only a handful of studies delve into the phonological facets of Bantu languages (Hyman, 2014; Kisseberth & Oden, 2014; Maddieson, 2014), and even those do not draw clear comparisons between these languages and English.

The key phonological distinctions between Bantu languages and English lie in their sound systems, especially vowels, and tonality. Most Bantu languages feature a mere five vowel phonemes and lack diphthongs (Hyman, 2014; Maddieson, 2014; Grant, 2002). As far as I am aware, limited research exists that investigates the phonological interference faced by L1 Swahili learners of English as a foreign language.

Grant (2002) pinpointed five significant phonological disparities between Swahili and English. Foremost among these is the variance in phonemic systems. He underscores that vowel sounds present the most pronounced challenge for L1 Swahili learners of English. While Swahili comprises five vowels: /i/, /e/, /a/, /o/, and /u/, English boasts 20 vowels. These are 12 monophthongs: /i/, /ɪ/, /e/, /æ/, /ɑ:/, /ʌ/, /ə/, /ɜ/, /ɒ/, /ɔ/, /ʊ/, and /u:/ and 8 diphthongs: /ɪə/, /eɪ/, /eə/, /aʊ/, /aɪ/, /əʊ/, /ʊə/, and /ɔɪ/. Among these English vowels, the schwa /ə/ lacks an equivalent in Swahili. Furthermore, Grant contrasts the 24 consonants of English with Swahili's 28. His analysis, grounded in Received Pronunciation (RP)—the standard of English taught in Tanzania—identifies several Swahili consonants absent in English: /j/, /ɣ/, /x/, /k^h/, /ɲ/, /t^h/, /p^h/, and /ch/. Conversely, English possesses /dʒ/ and /ʒ/ which are not found in Swahili. Notably, Swahili sounds /k^h/, /t^h/, and /p^h/ serve as allophones of English's /k/, /t/, and /p/, but they are non-contrastive in English.

Another phonological difference between Swahili and English is evident in the syllabic structure. Except for homorganic nasals, the typical feature of Swahili syllables is the use of overwhelmingly predominant open syllables, i.e., CV syllablic structure, with rare consonant clusters. Loan words which in their original langauge end in a consonant often get a vowel added to fit the Swahili syllabic mold: For instance, Arabic's *'kitaab'* transforms into *'kitabu'*, and English's *'cupboard'* morphs into *'kabati'*. However, while Swahili does exhibit orthographic sequences like mb, nd, ny, and nj, these generally stand for a singular, prenasalized consonant.

Zampin (2008) asserts that "in addition to learning to produce L2 segments accurately, L2 learners must master the stress patterns of the L2 in question" (p. 227). Swahili, a syllable-timed language, adheres to the penultimate stress pattern, placing stress on the second to the last syllable. English, being a stress-timed language, exhibits variability in its stress patterns, influenced by factors like word category, syllable count, affix presence, and more.

Though tonality distinguishes English from most Bantu languages, it is not a prominent feature in Swahili, appearing in only a handful of words. Intonation patterns, however, do exhibit stark contrasts. Swahili predominantly follows a low-fall intonation (Grant 2002), while English is more variable. The main question about this aspect is how Swahili speakers treat the English constructions with a rising tone like in wh-questions, do-inversion questions, and exclamations.

Correspondence between orthography and pronunciation is another aspect that shows a huge difference between Swahili and English. English and Swahili differ vastly in their orthographic representation of sounds. English often lacks a direct correspondence between spelling and pronunciation, while Swahili maintains a consistent one-to-one correspondence (Grant 2002), making its pronunciation more predictable. While this disparity might predominantly affect reading and writing skills, it does hold significance in phonological acquisition, especially when vocabulary is learned via reading. Studies have shown that orthography can influence word recognition (Perre & Ziegler, 2008) and play a pivotal role in phonemic awareness (Simon & Hereweghe 2010). Learners usually associate speech sounds with written letters.

While a comprehensive analysis of all these phonological nuances is warranted, the current study zeroes in on three pivotal aspects: segmental (phonemic) differences encompassing vowels and consonants, variances in syllabic structure, and contrasting rhythmic patterns. The present study will attempt to answer the following questions:

1. What types of L1-induced segmental and prosodic errors do Swahili learners of English as a foreign language make?
2. Are L1-related segmental and prosodic errors equally abundant among Swahili-native EFL speakers who began learning English before the critical age and those who started learning English after the critical age?

2.0 Research Design

2.1 Participants

The participants consisted of 47 Form V and Form VI students, aged 18 to 20, from three secondary schools in Tanzania. Twenty-one began learning English from primary education, starting around 6 or 7 years old (Before the Critical Period - BCP). The remaining twenty-six began in secondary education, approximately at ages 13 or 14 (After the Critical Period – ACP). In Tanzania, except for privately owned English medium primary, the language of instruction for all public primary schools is Swahili. In contrast, English is adopted from the secondary school level onward. Since most children start primary education at the age of 6 or 7 and secondary

education at 13 or 14, this distinction offers an opportunity to explore age effects in second language acquisition. My assumption posits that participants introduced to English during their primary education years, around ages 6 or 7, began their learning within the critical age window. In contrast, those who commenced their English learning in secondary school, roughly at ages 13 or 14, embarked on this journey after the critical age period had passed.

All participants hailed from areas where Swahili is predominantly spoken, specifically from urban or semi-urban backgrounds. This selection was intentional to mitigate the influence of possible multiple mother tongues present in rural settings. In urban and semi-urban areas, Swahili dominates, and other local languages are primarily learned as heritage languages.

2.2 Materials

Test materials encompassed printed English words, with participants reading them aloud. English minimal pairs were presented to scrutinize the contrasting sounds learners adopted. Tokens included *band* vs. *bend, rag* vs. *rug, bit* vs. *bet, etc.* (see Appendix B), and these tokens were used for examining the absence of long vowels and diphthongs in Swahili versus the presence of long vowels and diphthongs in English. For consonant differentiation, words such as eat vs. heat, useful vs. youthful, etc., were used (see Appendix B).

To understand the influence of L1 and L2 syllabic differences, words like *explanation, extreme, strengths,* etc., were presented (see Appendix C). The goal was to discern how Swahili-speaking learners navigated English words that defy Swahili's non-consonant cluster syllabic structure. In addition, the following words were used in examining the repair strategies applied by learners in closed syllable structures: *job*, *explaining*, *people*, *table*, etc. (see Appendix C). Finally, to gauge stress placement (given the rhythmic differences between the languages), words such as *photo, hospitality*, etc. were used (see Appendix D).

2.3 Procedures

Participants were individually recorded in a tranquil setting through a series of elicitation tasks. Elicitation tasks, particularly minimal pairs, were presented out of sequence but were all given in the orders shown in Appendices B and C to prevent recall bias in pronunciation. Post-recording, audio files were processed via Audacity software for separation and analysis. Simultaneously, two linguists manually transcribed the recordings. Both software-driven and manual transcriptions were used to deduce the phonological interferences resulting from Swahili-English sound discrepancies.

3.0 Results, Interpretations, And Discussion

As stated earlier, to identify the types of L1-induced segmental and prosodic errors that Swahili learners of English as a foreign language make and suggest pedagogical alternatives to mitigate the challenges. With a participant group of forty-seven (N = 47), our findings indicate notable phonological interference in these learners, stemming from the distinctive phonological characteristics of Swahili and English. Specifically, these interferences emerge from variations in phonemic sounds, syllabic constructs, and rhythmic stress patterns between the two languages. The ensuing sections delve deeper into the nature and implications of these phonological transfers.

3.1 Interference Caused by Segmental (Phonemic) Differences

In the subsequent discussions, insights from the gathered data are concisely presented. Interestingly, there were no significant differences related to the critical period. As a result, the categorization was based on the overarching pronunciation patterns displayed by the participants, without distinguishing by the age they commenced English learning. In every dimension, participants' pronunciations were gauged against Standard British English, which is the primary English dialect taught in Tanzanian schools.

3.1.1 Vowels.

Referencing Appendix A, specific materials employed to assess interference from vowel differences are outlined. Table 1 details the minimal pairs juxtaposed against the participants' pronunciations. As gleaned from Table 1, most vowels prompted errors, with the exception of /ɒ/ and /e/, which presented relatively fewer errors. Significant pronunciation discrepancies were particularly evident in /3:/, /æ/, and /ʌ/.

As stated earlier, Swahili comprises a straightforward vowel system of five: /a/, /e/, /i/, /ɒ/, and /u/. Thus, English words bearing any vowels outside this set were substituted with their nearest Swahili counterpart. For instance, the English /æ/ transitioned to either /a/ or /e/, and /ʌ/ was frequently replaced with /a/. English vowels /i:/ and /ɪ/, /u:/ and /ʊ/, as well as /ɔ/ and /ɒ/, were used interchangeably. This was influenced by the position of the syllables that contained these sounds and their corresponding letters used in the orthography of the respective words. Stress placement in participants' pronunciations also played a role. Typically, when they placed any of those sounds in the word-final position, they used short vowels, while the long counterparts were used elsewhere. However, it appears that the use of short vowels in word-final positions only applies when the vowel is inserted

as a repair strategy for English words that end in a consonant. The schwa sound /ə/, which does not have an equivalent sound in Swahili, was substituted with other stronger sounds like /a/, /ʊ/, and /e/ contingent on its representing orthographic letter (also reflected in Tables 2 and 3).

Conversely, diphthongs presented minimal interference for most participants. This could be attributed to the existence of vowel sequences in Swahili, like in /maua/ *'flowers'*, /maumivu/ *'pain'*, /oaniʃa/ *'match things'*, and /maelekezo/ *'instructions')*, although when vowel sequences occur, the adjacent vowels belong to different syllables. Yet, diphthongs /əʊ/ and /eɪ/ posed difficulties as most participants rendered /əʊ/ as /ɔ/ and /eɪ/ as /e/. It is worth noting that certain mispronunciations seemed rooted not in vowel discrepancies, but in the learners' struggles with English reading due to the language's inconsistent orthographic-phonemic relations.

Table 1. Participants' Pronunciation of Minimal Pairs with Contrastive vowels

Stimuli	Correct Pronunciation			Wrong Pronunciation(s)		
	Pron.	BCP	ACP	Pron.	BCP	ACP
band	/bænd/	7	4	/band/	9	12
				/bend/	5	10
rag	/ræg/	5	6	/rag/	10	17
				/reg/	6	3
bit	/bɪt/	6	5	/bit/	15	21
bird	/bɜ:d/	4	1	/bed/	17	25
cot	/kɒt/	17	18	/kɔ:t/	4	8
age	/eɪdʒ/	5	3	/ejɪ/	12	17
				/etʃ/	4	6
full	/fʊl/	3	3	/ful/	16	20
				/fulɪ/	2	3
tanned	/tænd/	7	4	/tand/	9	13
				/tend/	5	9
fine	/faɪn/	13	11	/fain/	6	16
				/fainɪ/	2	7
raise	/reɪz/	16	5	/reiz/	3	19
				/raiz/	2	5
pen	/pen/	21	26			

Stimuli	Correct Pronunciation			Wrong Pronunciation(s)		
	Pron.	BCP	ACP	Pron.	BCP	ACP
bend	/bend/	16	15	/bendɪ/	5	11
rug	/rʌg/	12	14	/rag/	9	12
bet	/bet/	19	20	/betɪ/	2	6
bud	/bʌd/	13	14	/bad/	8	12
caught	/kɔ:t/	8	5	/koʊt/	11	17
				/kɒt/	2	5
edge	/edʒ/	4	3	/ejɪ/	14	16
				/etʃ/	4	7
fool	/fu:l/	11	12	/ful/	6	8
				/fulɪ/	4	6
turned	/tɜ:nd/	3	2	/tand/	13	16
				/tandɪ/	5	8
fin	/fɪn/	4	6	/fin/	16	17
				/fain/	1	3
rise	/raɪz/	18	17	/raiz/	3	9
pan	/pæn/	6	4	/pan/	10	13
				/pen/	5	9

3.1.2 Consonants

Appendix B presents materials specifically designed to assess interferences resulting from consonant differences. As illustrated in Table 2, participants commonly struggled with words containing the /dʒ/ sound and those with 'gh' in their spelling. Findings reveal that learners frequently replaced the English sound /dʒ/ with the Swahili voiced palatal fricative /j/. This appears to be driven by two main factors: the nonexistence of /dʒ/ in the Swahili phonetic inventory, and Swahili's employment of the letter 'j' to represent the /j/ sound. Consequently, Swahili speakers tend to pronounce any word spelled with 'j', such as 'jam', with the /j/ sound. This trend is also apparent in Swahili adaptations of English loanwords, examples being /jajɪ/ for "judge", /jɒn/ for "John", and /januarɪ/ for "January".

Additionally, the /ɣ/ sound is frequently used by participants in words spelled with 'gh'. The source of this interference seems to lie in the discrepancies between Swahili and English orthographic conventions. Both languages utilize 'gh' in spelling, but while Swahili has a corresponding phonetic representation, English does not. This discrepancy prompts Swahili learners to inadvertently transfer the /ɣ/ sound to English words.

Table 2 delineates participants' pronunciation patterns of the stimuli from Appendix B

Table 2. Minimal Pairs: Words with Consonants Absent in Swahili or Consonants Seemingly Difficulty for Swahili Speakers

Stimuli	Correct Pronunciation			Wrong Pronunciation(s)		
	Pron.	BCP	ACP	Pron.	BCP	ACP
eat	/i:t/	15	17	/it/	6	10
useful	/ju:sfˁl/	6	4	/ju:zfʊl/	5	7
				/ju:zfʊ/	10	15
breeze	/bri:z/	11	10	/briz/	7	8
				/brizɪ/	3	8
bride	/braɪd/	10	8	/braid/	7	10
				/braɪdɪ/	4	8
ghost	/gəʊst/	1	2	/gɔst/	8	8
				/ɣɔst/	12	16
judge	/dʒʌdʒ/	5	6	/ʄajɪ/	16	20

Stimuli	Correct Pronunciation			Wrong Pronunciation(s)		
	Pron.	BCP	ACP	Pron.	BCP	ACP
heat	/hi:t/	9	11	/hit/	12	15
youthful	/ju:θfˁl/	5	4	/ju:θfʊl/	6	8
				/ju:sfʊl/	4	6
				/ju:sfʊ/	6	7
breath	/breθ/	10	12	/briθ/	7	9
				/brið/	4	5
pride	/praɪd/	10	8	/praid/	6	10
				/praɪdɪ/	5	8
host	/həʊst/	2	2	/hɔst/	19	24
jam	/dʒæm/	3	2	/ʄam/	9	16
				/ʄæm/	4	2
				/dʒam/	5	6

3.2 Interference Caused by Supra-segmental Differences

On suprasegmental aspects, the analysis centered on syllable structures and stress patterns. Appendix C provided words featuring consonant clusters and closed-syllable word endings, facilitating the examination of syllabic structure. The stress investigation employed stimuli from Appendix D, where participants were presented with words of varying syllable counts. We utilized word bases, *photo* and *hospital*, and expanded them by appending affixes to increase the syllable count.

3.2.1 Syllabic Structure

Challenges in the transfer of syllabic structures arise from consonant clusters forming syllable onsets and codas, and the positioning of those syllables within words. Zampini (2008) elucidates that frequent L2 syllable production errors encompass epenthesis, where a vowel sound is inserted either amidst a consonant cluster or after a word-final consonant. These errors also feature deletions, particularly of consonants within complex onsets or codas, alterations of the intended L2 syllable, and sound feature adjustments such as the devoicing of a stop consonant in a coda position. Table 3, presented below, details the pronunciations of stimuli from Appendix C. In this evaluation, a participant's pronunciation was deemed accurate if the syllable structure was correct, even if other variables—like appropriate vowels, consonants, stress, and other phonological facets—were not consistently accurate.

Table 3. Syllabic Structure: Participants' Pronunciation of Words with Consonantal Clusters

Stimuli	Dictionary Transcription	Participants' Frequent Pronunciation	Pron. with Syllabic Errors	
			BCP	ACP
explanation	/ˌek.splə'neɪ.ʃˁn/	/ẹks.pla'ne.ʃen/	0	0
exclamations	/ˌek.sklə'meɪ.ʃˁn/	/eks.kla'me.ʃen/	0	0
job	/dʒɒb/	/ʄɒb/, /ʄɒbʊ/	12	14
explaining	/ɪk'spleɪ.nɪŋ/	/eks'pleɪnɪŋ/	0	0
table	/'teɪ.bl̩/ /ˈteɪ.bəl/	/tebɒ/, /teɪbɒ/	13	18
multiplication	/mʌl.tɪ.plɪ'keɪ.ʃˁn/	/ṃaltipli'keʃen/	2	4
extreme	/ɪkstri:m/	/eks'trim/	0	0
strength	/streŋθ/	/streŋθ/, /streŋs/	0	0
kill	/kɪl/	/kil/, /kili/	7	13
people	/'pi:pl̩/	/pipɒ/	12	18
physics	/'fɪz.ɪks/	/'fizɪks/, /'fizɪksɪ/	4	8
brush	/brʌʃ/	/braʃ/	0	0

As indicated by Table 3, some words exhibited syllabic intrusion and augmentation due to Swahili's restriction on syllables with intricate onset and coda configurations. Grant (2002) posits that a prevalent compensatory tactic employed by Swahili-speaking learners of English is epenthesis, specifically vowel intrusion and inclusion to disentangle consonant clusters. Notable challenges were evident in words ending with consonants and those bearing consonantal clusters in word-final syllables, as seen in pronunciations of terms like *table, people, kill,* and *job*.

Yet, Grant's (2002) assertion is not entirely corroborated by this study, given the absence of apparent vowel

intrusion in word-initial and word-medial syllables. For instance, no vowel intrusion was detected in terms such as *explanation* (/ˌeks.pla'ne.ʃen/), *extreme* (/eks'trim/), and *strength* (/streŋθ/). Vowel intrusion predominantly manifests in closed-syllable-word-finals, particularly in monosyllabic words, where a terminal vowel was appended, exemplified in pronunciations like /ʝɒbʊ/ for *'job'* and /pɪpɒ/ for *'people'*. This scenario could be interpreted as a transference of Swahili's syllable constraints onto English. It suggests that Swahili inherently prohibits a closed syllable format in monosyllabic words.

On the other hand, the findings did not show any vowel insertions in syllables possessing complex structures. The sole identified phenomenon in this regard is the addition of a vowel to word-final-closed-syllables and the intrusion of strong vowels into syllables with weak ones. To illustrate, terms such as *explanation* and *exclamations* that naturally contain the weak vowel /ə/ were vocalized using strong vowels like /a/, /ʊ/, and /e/.

3.2.2 Stress

Regarding the impact of differences in L1 and L2 stress patterns, various studies have delved into the acquisition of primary word stress in a second language. As articulated in many L2 phonological researches, the focal point is often on discerning the nature of errors related to the positioning of the primary stress. Researchers aim to decode whether these errors stem from L1 interference or other factors (Zampini 2008).

In the English language, the addition of affixes to a base word can shift the stress placement. In this study, affixes were added to chosen English stems to assess if participants could detect the transition in stress patterns (refer to Appendix D). The findings indicate that the primary stress predominantly landed on the penultimate syllable across various tokens (as seen in Table 4). As a result, even when words were misarticulated by the participants, the stress consistently was placed on the penultimate syllable

Table 4. Participants Stress Placement

Stimuli	**Dictionary Transcription**	**Participants' Frequent Pronunciation**
photo	/fəʊ.təʊ/	/'fɔtɔ/
photography	/fə'tɒg.rə.fi/	/fɒ.tɒ'gra.fɪ/
photographic	/ˌfəʊ.tə'græf.ɪk/	/fɒ.tɒ'gra.fɪk/
photographically	/ˌfəʊ.tə'græf.ɪ.klɪ/	/fɒ.tɒgra.fiˌ'ka.lɪ/
		/fɒ.tɒˌgra.fi'ka.le/
hospital	/'hɒs.pɪ.tᵊl/	/hɔs'pɪtɒ/
hospitality	/ˌhɒs.pɪ'tæl.ə.ti/	/hɒspɪ'ta.lit/
		/hɒspɪta'litɪ/

The findings indicate that the mistakes made by native Swahili speakers learning English arise from the consistent penultimate stress pattern in Swahili, which contrasts with the flexible stress patterns in English. A common error observed among Swahili speakers was the placement of stress on the penultimate, or second-to-last, syllable of English words. Given that a large portion of Swahili words are bisyllabic or trisyllabic (as noted by Deen, 2005; Park, 1995), the impact of stress variations becomes more pronounced in English words that have more than three syllables. As a result, the influence of these stress differences might be even more evident at the sentence level compared to the lexical level.

3.3 The Effect of Critical Age

Numerous studies have examined the role of age in L2 learning, with specific emphasis on vowel production, and found that early L2 learners tend to produce L2 vowels more accurately than late L2 learners (Munro, Flege & McKay 1996; Zampini 2008). Additionally, the duration spent in an L2 environment plays a pivotal role in phonological accuracy (Bohn & Flege 1992). However, this pattern does not seem to hold for Swahili-speaking EFL learners. While there were variances amongst participants, it was evident that the influence of L1 on L2 pronunciation was comparable across both groups (see Tables 1 – 4). Interestingly, certain members of the ACP group even surpassed their BCP counterparts in performance. A striking difference, however, lay in the ease of pronunciation—members of the BCP group articulated English words with discernible fluidity, though not always accurately.

Such findings challenge the long-held belief that starting age is paramount in language acquisition. Zampini (2008) argues that such outcomes reveal the intricacies inherent in L2 speech production research. Given that the duration of L2 exposure does not consistently forecast L2 proficiency, it is pivotal to factor in other determinants like learners' aptitude, their level of anxiety, beliefs, motivation, and other personal traits (Rouhi & Hassanpour 2010).

Additionally, it is imperative to distinguish between second language acquisition (SLA) and foreign language acquisition (FLA) when assessing the age factor. Notions of age influence, as presented in works by Major (2008), Saville-Troike and Barto (2017), Han, Hwang & Choi (2011), and Tsukada et al., (2004), possibly focus more on SLA than FLA. My distinction between SLL and FLL is contingent on the locale where the

language is learned, i.e., an SL is learned in the area where it is spoken as a native language, while an FL is learned in a place where the language is not spoken as a native language.

Although SLA and FLA might exhibit similar error patterns, the contexts differ significantly. FLA often lacks consistent and authentic native-speaker interactions. Also, the frequency and quality of contact with the language might be reduced in FLA settings, making L1 interference more prominent. In Tanzania, the multilingual backdrop and various sociolinguistic elements might foster a negative influence among English learners.

In aiming to promote bilingualism, Tanzania's language policy mandates immersing the kids in English. However, the proficiency of those facilitating this immersion is questionable. Many Tanzanian educators, despite being expected to speak the language proficiently for their students to copy, lack fluency and accuracy in English (Rugemalira, 2005; Senkoro, 2005). This gap might lead students to replicate mispronunciations from their peers and instructors, with interferences stemming more from imitating others than Swahili language structure.

4.0 Conclusion

The present study shows that there are L1-induced segmental and prosodic errors demonstrated by Swahili-speaking learners of English as a foreign language. Three phonological dimensions - sound system, syllabic structure, and stress pattern - were examined in this study, and they all demonstrated distinctive interference in learners' pronunciation of English. What looks critical, however, is that it seems that they may have different degrees of interference.

The most significant Swahili L1-induced phonological errors were caused by a vast vowel difference between Swahili and English. English boasts a repertoire of 20 vowels in contrast to Swahili's 5. English also differentiates between long and short vowels, as well as monophthongs and diphthongs—a distinction absent in Swahili. Swahili speakers often navigate this disparity by mapping each English vowel to a corresponding Swahili vowel. While consonants posed challenges, these issues weren't as profound and largely stemmed from orthography-pronunciation discrepancies.

Syllabic structures in English also pose hurdles for native Swahili speakers. Swahili predominantly adopts an open syllable structure, whereas English accommodates more intricate structures. Additionally, Swahili restricts word endings to vowels, a constraint not present in English. A common workaround for these learners was vowel intrusion. Also, Swahili employs a consistent penultimate stress pattern in contrast to the more variable English system, but the impact on English pronunciation was minimal. However, considering the significant disparity, the repercussions might be more evident in connected speech than in isolated words. The scope of this research did not encompass transfer in connected speech.

This study also examined the effect of age on learning English as a foreign language. Specifically, it aimed to determine if the aforementioned L1-induced errors were uniformly distributed across learners who began English learning either before or after a critical age period. Interestingly, the age of acquisition didn't bear any discernible effect on error patterns. Minor discrepancies that did surface among learners likely arose from social and personal factors, including individual aptitude, anxiety, beliefs, motivation, and other personal traits. My assumption is that age-related findings in other studies—like those by Major (2008), Saville-Troike and Barto (2017), Han, Hwang, and Choi (2011), and Tsukada et al., (2004)—may predominantly address second language acquisition rather than foreign language learning.

Nevertheless, this research is not without its limitations. With a modest sample size of 47 students, a larger pool could have provided a more comprehensive perspective. While the present research did not seek statistical extrapolations, more participants and numerical data could have offered more depth. The primary stimuli consisted of isolated words, which might not fully capture phonological nuances present in connected speech. The phonological properties of words at the lexical level may be vividly different from the phonological properties of exact words in connected speech. Stress patterns, for instance, might manifest differently in sentences versus isolated words. For those considering similar research trajectories, incorporating a larger, more diverse participant base and analyzing both isolated and connected speech would be advantageous.

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Appendices

APPENDIX A
Stimuli for Vowels

List 1	List 2
band	pan
rag	rise
bit	fin
bird	turned
bend	fool
cot	edge
age	caught
full	learned
tanned	bud
fine	bet
raise	rug
pen	bend

APPENDIX B
Stimuli for Consonants

List 1	List 2
eat	host
pride	youthful
ghost	heat
judge	breath
useful	jam
breeze	bride

APPENDIX C
Stimuli for Syllabic Structure and Consonant Clusters

explanation
extreme
strength
exclamations
job
kill
explaining
people
table
physics
brush
multiplication

APPENDIX D
Stimuli for Stress Placement

photo
photographic
hospital
photographically
hospitality
photography