CAHIERS AFRICAINS DES DROITS DE L'HOMME ET DE LA DEMOCRATIE AINSI QUE DU DEVELOPPEMENT DURABLE
REVUE AFRICAINE INTERDISCIPLINAIRE

ISSN : 2791-1063 (Imprimé)
ISSN : 2791-1071 (En ligne)

28ème année - Numéro 85 - Volume 1 - Octobre-Décembre 2024

PHONOLOGICAL INTERFERENCE IN EFL LEARNERS' PRONUNCIATION

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ABSTRACT

Eighty Lingala-Kikôngo-French speakers' learners of English pronunciations of 10 English words were recorded for the purpose of identifying pronunciation deviations due to the participants' prior acquired/learned languages phonological systems. The qualitative descriptive method helped identify addition of some segments, substitution of segments, diphthongization of monophthongs, monophthongization of diphthongs, vowel sound reduction, intervocalic consonant voicing, intervocalic consonant devoicing, checked vowel sounds in final position, and French phonological processes applied to English. These pronunciation deviations were accounted for in line with Flege's (1995) Speech Learning Model and Weinreich's (1953) interference typology.

Keywords : *Interference, interphonologies, pronunciation deviations*

RESUME

Quatre-vingts locuteurs de Lingala-Kikôngo-Français apprenant la prononciation de l'anglais ont été enregistrés prononçant 10 mots anglais afin d'identifier les écarts de prononciation dus aux systèmes phonologiques des langues acquises/apprises par les participants. La méthode descriptive qualitative a aidé à identifier l'ajout de certains segments, la substitution de segments, la diphtongaison des monophthongues, la monophthongaison des diphtongues, la réduction des sons vocaliques, la vocalisation des consonnes intervocaliques, la dévocalisation des consonnes intervocaliques, les sons vocaliques vérifiés en position finale, et les processus phonologiques français appliqués à l'anglais. Ces déviations de prononciation ont été prises en compte conformément au Modèle d'Apprentissage de la Parole de Flege (1995) et à la typologie des interférences de Weinreich (1953).

Mots-clés : *Interférence, interphonologies, écarts de prononciation.*

1. INTRODUCTION

Language instructors constantly reflect on the causes of their learners' mispronunciations. Difficulties imposed on EFL learners by their prior acquired/learned languages phonological systems may be noticeable from their EFL pronunciation. Keshavarz and Avishan Keshavarz (2022:1) note a lot

of empirical studies that have been conducted on the pronunciation difficulties of adult learners of English as a foreign language (EFL) (e.g., Akbari, 2013; Bada, 2001; Baloch, 2013; Bekleye, 2011; Bui, 2016; Chan, 2009; Lin, 2001; Metruk, 2018; Thompson, 1991; Varol, 2012; Zhanmig, 2014). All in common revealed the influence of the MT on pronunciation problems of EFL learners. However, one should not look at the mother tongue as the sole interference source. This study goes further considering that all languages acquired or learned before English have potential to influence the EFL learners to commit pronunciation errors. After a literature review, the research design unfolds the participants, instrument, data treatment method and results. The part on research findings and discussion precedes the conclusion.

2. LITERATURE REVIEW

Contrastive analysis (CA) is an approach to language study which investigates the differences between pairs (or small sets) of languages against the background of similarities and with the purpose of providing input to applied disciplines such as foreign language teaching and translations studies (Nsakala, 2023:10). Gass and Selinker (2011) acknowledged two roles to contrastive analysis: the predictive and the explanatory power. Under the framework of CA, it was widely accepted that potential areas of difficulties and errors for the target language learners are those of differences between the learners' mother tongue and the target language. Newmark and Reibel (1968:159) acknowledge the role of interference, they call manifestation of ignorance in these terms:

> … a person who knows his native language, in the early stages of learning his new one, he finds there are many things he has not yet learnt to do… he has no choice other than use what he already knows to cope with what he does not know. To the speaker of the target language, the learner will be seen to be sturbornly replacing the target habits by the native ones. From the learner's point of view, however, all he is doing is the best he can: he refers for help to what he already knows to fill in his gaps of training.

Weinreich (1953) divides interference into phonic, phonotactic and suprasegmental interference and further classifies phonic into sound substitution, underdifferentiation, overdifferentiation, and reinterpretation of distinctions.

The language learner's linguistic production that exhibits signs of interference is simply an interlanguage. Selinker (1972:214) coined the term interlanguage which they defined as "a separate linguistic system based on the observable output which results from a learaner's attempted production of a target language (TL) norm". Richards and Schmidt (2010:293) say of

interlanguage to be "the type of language produced by second and foreign language learners who are in the process of learning a language". Nsakala (2023:33) argues that "an interlanguage is an idiolect that has been formed by a second language learner which maintains some characteristics of their mother tongue and can also overgeneralize some rules of the target language in writing and speaking". Interlanguage is a language production which is different from both the learner's first language and the target language (Selinker, 1972). At a particular stage of target language development, learners consistently exploit the same grammatical forms, which may often be different from those used by native speakers. A study by Tangtorrith and Pongpairoj (2022), for example, indicated that their subjects showed systematicity of L2 English stress placement due to L1 transfer. The phonological systems from which the participants in this study may transfer features to English are dealt with in comparison to the phonological system of English in the next section.

It is of interest to examine the areas of differences in which Kikôngo-Lingala-French speakers learners of English are likely to encounter difficulties. The vowels systems are considered first.

French is a language with nasalized vowels we do not find in the other three. However, the phonological system of English does not contain nasalized vowels but some nasalization is produced in cases like 'can't'. Its phonemic transcription is /ka:nt/, but its real pronunciation is [kãt]. Assimilation based on similarity of spelling may mislead into producing a nasalized French vowel where this is not the case in English. The pronunciation of the French words 'inventaire' [ɛ̃.vã.tɛʁ] and 'instance' [ɛ̃s.tãs] may influence that of the English words 'inventory' *[ɛ̃.vã.tɪɪ] and 'instance' *[ɛ̃s.təns] instead of ['ɪn.vən.trɪ] and ['ɪns.təns] respectively. The English central vowel sounds /ʌ/, /ɜ: / and /ə/ and the front open /æ/ will be a nuisance for speakers of Lingala and Kikôngo. The Lingala Kikôngo speaker learner of English will need to create new phonetic categories for these sounds are non-existent in Lingala and Kikôngo. However, the Lingala Kikôngo speaker learning duty of these three English vowel sounds is alleviated if they learned French which has the central vowel /ə/ though the level of mouth openness to discriminate the three sounds, the slight frontness of /ʌ/ compared to /ə/ and /ɜ: / and the length of the latter owing to absence of long vowel sounds in French will remain problematic.

The presence of front rounded, /Y/, /ø/, /œ/, and /œ̃/ and back spread, /ɑ/ and /ã/ vowel sounds is but perhaps with no significant influence on the production of English vowel sounds inasmuch as they do not assimilate to any sound of the English vowel sound inventory.

Kikôngo has long monophthongs as exemplified in 'mb**a**mba': core and 'mb**aa**mba': a kind of snake. It must be pointed out that sometimes a long monophthong is not indicated by doubling the vowel. For example, the vowel

sound of the first syllable in 'lamba': to cook is as long as that in 'mbaamba'. Contrarily, this type of vowel sounds is non-existent in Lingala and French. Thus, the learning of Lingala and French by a Kikôngo speaker may reduce their accuracy in producing English long monophthongs. Likewise, the absence of diphthongs in French and Kikôngo may impact negatively on the quality of English diphthongs Lingala speakers with knowledge of French and Kikôngo produce.

As for diphthongs, Lingala and English possess diphthongs but this category of vowel sounds is non-existent in Kikôngo and French. Consequently, the acquisition of Kikôngo and the learning of French before English by a Lingala speaker may have a sound quality reduction effect. About the Lingala diphthongs, Yacioko Kasengulu Muyunga (1979:23) notes that ''in … Lingala, the first element of a diphthong is weaker than the second.'' In other words, Lingala diphthongs are rising ones. However, this observation is at variance with Daniel Jones (1969:101) who counts /ɪə/and /ʊə/ as rising diphthongs while /eɪ/, /aɪ/, /ɑʊ/, /əʊ/, and /ɔɪ/ are falling diphthongs. The Lingala words 'min**ei**', and 'nd**ai**', for example, bear the falling diphthongs /eɪ/ and /aɪ/ respectively. Moreover, the structure of Lingala diphthongs as noted by Yacioko Kasengulu Muyunga (1979) /ůi/, / ĭe/, /ůe/, / ĭɛ/, /ůɛ/, / ĭa/, /ůa/, / ĭɔ/, and /ůo/ diverges greatly from that of English diphthongs. For this reason, English diphthongs might be a stumblingblock for a Lingala speaker learner of English.

The ongoing discussion draws on Flege (1995) that unless much effort is explicitly made to perceive, detect, store, and organize the features of the target sounds for their authentic production, vowel sounds mapped as similar in the four languages under study will be produced with a degree of inaccuracy. Such areas of apparent similarity are prone to interlanguage in phonology or interphonoligies. Interphonologies are also noted in the areas of unassimilated vowel sounds but before establishment of the new phonetic categories which they require. This evidence based on the Speech Learning Model (see Flege, 1995) is not restricted to vowel sounds in additional language(s) learning but it equally applies to consonant sounds learning.

The English interdentals /θ/ and /ð/ are not found in the other three languages. Given their complexity, learners of English make a bad selection and subtitute /f/, /t/, /s/ and /v/, /d/, /z/ for them respectively (see Corder, 1973). The voiceless stops /p, t, k/ appear in all the four languages under study but their initial and final allophones are problematic for speakers of Kikôngo, Lingala, and French owing to the absence of the features aspiration in initial position and unreleased in final position for these sounds. The affricates /ʧ/ and /ʤ/ are not phonemes in French except in loan words like 'tshombo', telephone and 'jogo', excellent dribbler. Therefore, speakers of

Kikôngo and Lingala in which the occurrence of these affricates is either very restricted or unattested, as is the case for Kindibu, the Kikôngo variant spoken by the participants in this investigation and Lingala, are at no advantage learning French before English. The alveolo-palatals /ʃ/ and /ʒ/ occur in some dialects of Kikôngo but not Kindibu. They are also of very limited frequency in Lingala. The learning of French in which these phonemes have a greater functional load is advantageous to Kikôngo-Lingala speakers before they embark on learning English, this other language with a greater functional load for /ʃ/ and /ʒ/. The English dark [ɬ] occurs in final position, before another consonant sound or /w/ but it is non-existent in Kikôngo, Lingala, and French. Therefore, it is likely to cause difficulty to Kikôngo-Lingala-French speakers learners of English. In French, the forward articulation of /k/ and /g/ as /c/ and /ɟ/ respectively obeys assimilation to adjacent sounds as the uvular fricatives /χ/ and /ʁ/ do. In the first case, the front vowel sounds /i/ (spread) and /y/ (rounded) are responsible for allophonic variation while in the second, adjacent voiced or voiceless environment dictates the change. Forward articulation and assimilation to environment are frequent phenomena. It is, therefore, valid to assert that learning French prior to English is beneficial to Kikôngo –Lingala speakers. Finally, the English velar nasal, /ŋ/ of which phonemic status is undesputed in word final position is pronounced [ŋg] by Kikôngo-Lingala speakers owing to the fact that /ŋ/ always occurs preceding /g/ and never in isolation in these languages.

After a comprehensive discussion on the interlingual effects of segmental systems/inventories of English, French, Lingala, and Kikôngo in learning English, the distribution of the segments thus described in these languages receives focal attention.

About English vowel sounds, there are checked vowel sounds which never occur word finally, for example, /æ/ and /ʌ/. Free vowel sounds, on the contrary are found in the three word positions. A vowel sound in a syllable final position makes that syllable an open syllable whereas the close syllable ends in a consonant sound. Insight into combinability of segments in a language is better gained through the study of its syllable structure. The syllable of English is structured as (C)(C)(C) V(C)(C)(C)(C). It is evident that it allows clusters up to three consonants on the onset and four consonants on the coda. In French, the syllable structure is (C)(C)(C) V(C)(C)(C). The difference with English lies on the number of consonants the coda permits. In Kikôngo, the syllable structure is (C)CV whereas Lingala syllable structure is (C)(C) V.

It is of interest to note that Kikôngo and Lingala have very simple syllable structures. Lingala allows initial vowel sounds word initially 'e.lo.ko', thing but Kikôngo does not. Furthermore, consonant clusters are not permitted in word final position. In Lingala and Kikôngo word initial position, you find

consonant clusters, for example, mbula: year/rain and mpimpa: night. It is worth saying that in Kikôngo, in initial position, the bilabial or alveolar nasal followed by an apostrophe is a syllabic nasal not an element of a consonant cluster. Illustrations are n'suni (mu-su-ni): flesh and nsuni: a sort of ant, n'za (mu-za): behaviour and nza: come/world, m'fundu (mu-fu-ndu): accusation and mfundu: secret. However, Mathilde Hutin in Phono_ *francais_0.pdf* (Retrieved on 27th October, 2023) indicates that "learners will encounter difficulties learning syllables, especially those which allow a high number of consonants to cluster will be difficult for them to produce. They will have the tendency to simplify the clusters by either omitting some elements or adding epenthetical vowels between consonants." For example, some Kikôngo-Lingala speakers learners of English and French are used to pronouncing the English word chapter *['ʧæ.pɪ.tə] and the French word 'gros' *[goʁo] instead of ['ʧæ.ptə] and [gʁo] respectively. The absence of consonant clusters in Kikôngo and Lingala poses perception and production problems to Kikôngo-Lingala speakers' learners of English, a language with a high number of consonant clusters. The insertion of an epenthetical vowel to break a consonant cluster in production can be interpreted as the listener perceives that illusionary vowel in listening. The learning of French which also allows a considerable number of clusters before English may alleviate the difficulty. It is also of interest to note that consonant clusters you find in English word final position, for instance, -nt in dependent, -**ŋg** in to**ngue** never occur in word initial position in English but they do in Kikôngo and Lingala as pre-nasalized sounds, not consonant clusters. It must be said in passing that awareness about consonant clusters was selected (see the research instrument) to be considerably examined in order to grasp in depth the difficulty engendered by interlingual phonotactic discrepencies in learning English.

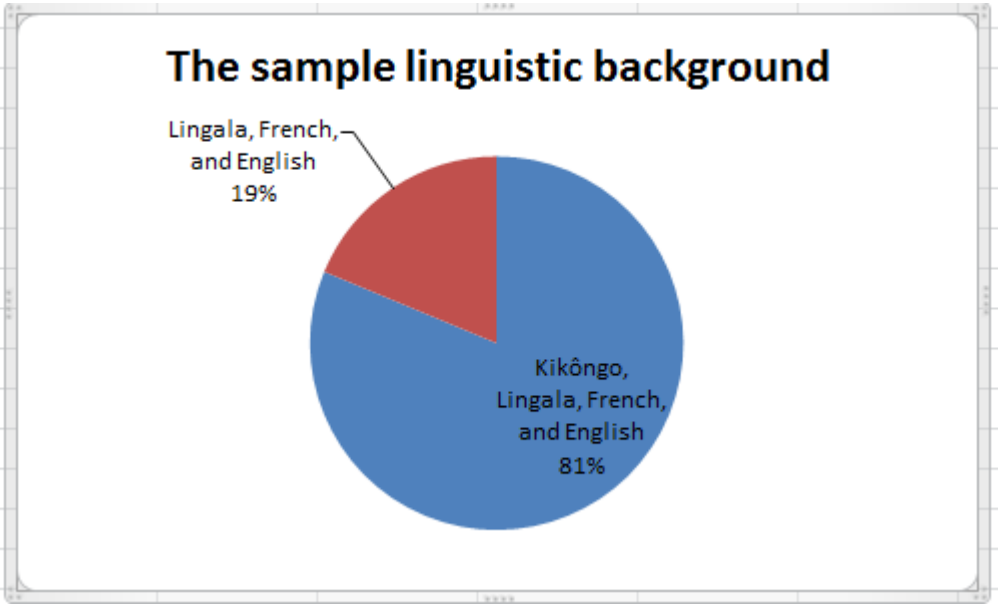
The English, French, Kikôngo, and Lingala consonant clusters inventories have led to conclude that Kikôngo and Lingala are not permissible with consonant clusters on the coda while English and French allow consonant clusters on both the onset and the coda with English being more permissible with consonant clusters on the coda than French. These interlingual differences impact the perception and production of English consonant clusters by Kikôngo-Lingala speakers as exemplified by the process of epenthesis consisting in adding an unnecessary vowel sound to break the complex consonant cluster in order for the foreign words to fit the structure of Kikôngo and Lingala. It was also seen that the learning of French which allows consonant clusters before English is an advantage for Kikôngo-Lingala speakers' learners of English.

3. RESEARCH DESIGN

3.1. Participants

The researcher selected a random probabilistic sampling to build a sample of 80 participants. It is simple as it gives every individual in the sampling frame (i.e., the desired population) an equal and independent chance of being chosen for the study. Indeed, the population of a class was allotted each a number and a lottery draw helped select the participants. The participants' linguistic background is as displayed in the following pie chart.

Figure 1: The participants' linguistic background



From the graph above on the participants' linguistic background, the researcher observed that all the participants are multilinguals but they make two groups: the first is one of the participants who speak Lingala, French, and English and represent 19 % of the sample and the second group representing 81 % of the sample includes the participants with the linguistic background of four languages, Kikôngo, Lingala, French, and English. It must be noted that the investigation took place in a Kongophone area but 19 % of the sample do not speak Kikôngo. Kikôngo risks becoming an endangered language in the years to come if the tendency not to use it increases. However, there is no way to ascertain that the 19% of the sample are with zero knowledge of Kikôngo.

The participants' own estimates of languages uses in percentage are as twenty participants, the highest frequency representing 25% of the sample, reported that they use English at 50% in their lives ; the highest frequency is with 19 participants, say 23.8% of the sample that was observed to report their

use of French at 70% ; one observed that 17 participants or 21.3% of the sample and the highest frequency use Lingala at 80%; fifteen participants or 18.75% of the sample stated that they never use Kikôngo. In addition, 10 participants representing 12.5% acknowledged that they use Kikôngo at 10% and 10 other participants were observed to use Kikôngo at 20%.

The participants specified three contexts of the English language daily use with the time scale as follows: the widest portion of the sample, 29 participants or 36.3% of the sample use English at university in the span of 4-6 hours; 47.5% of the sample or 38 participants use English in their contacts with friends in the time scale of 1-2 hours; and 42 participants or 52.5% of the sample do not use English at home, however, 29 participants or 36.3% of the sample use English in the time scale of 1-2 hours. Overall, English remains a school subject, that is, it is only most used at school with the consequence that learning opportunities are rare outside school.

3.2. Instrument

Ten words were presented on a sheet of paper for each participant to pronounce. For the recording of the participants' pronunciations, the Adobe Audition 1.5. rar computer downloaded application was used. The researcher collected this data from January 12th, to January 14th, 2023.

3.3. Data treatment method and results

The participants' pronunciations of the 10 target words were faithfully transcribed. The outcome of this challenging irksome task is as follows:

Table 1 : TABULATED QUALITATIVE DATA

Alfalfa **[æl'fælfə]**	Resemble **[rɪ'zemb(ə)l]**	sing **[sɪŋ]**	doctor **['dɒktə]**	Nuisance **['nju:səns]**
[ælfælf]	[rɪ'semb(ə)l]	[sɪŋg]	['dɑktɒ]	['nju:səns]
[æl'fælfə]	['rɪsemb(ə)l]	[sɪŋg]	['dɑktə]	['nɥɪsəns]
['ælfəlfə]	[rɪ'semb(ə)l]	[sɪŋg]	['dɑktə]	['nju:səns]
[æl'fælfə]	[rɪ'semb(ə)l]	[sɪŋ]	['dɑktə]	['nɥɪsəns]
['ælfəfə]	[rɪ'semb(ə)l]	[sɪŋ]	['dɑktə]	['nɥɪzəns]
['ælfəlfə]	[rɪ'semb(ə)l]	[sɪŋg]	['dɑktə]	['nɥɪsəns]
[æl'fælfæ]	[rɪ'sɑ̃b(ə)l]	[sɪŋ]	['dɑktɒ]	['nɥɪzəns]
['ælfælfə]	[rɪ'sɛ̃b(ə)l]	[sɪŋ]	['dɑktə]	['nju:səns]
['ælfæfæ]	[rɪ'zemb(ə)l]	[sɪŋg]	['dɑktə]	['nɥɪzəns]
['ælfæ]	[rɪ'semb(ə)l]	[sɪŋ]	['dɑktə]	['nɥɪsɪs]
[æl'fælfɪə]	[rɪ'zemb(ə)l]	[sɪŋg]	['dɒktə]	['nɥɪsəns]
[həl'fɑ:fə]	[rɪ'sɑ̃b(ə)l]	[sɪŋg]	['dɒktə]	['nju:jəns]
[æl'fælfə]	['rɪsəmb(ə)l]	[sɪŋg]	['dɒktə]	['nju:səns]
[æl'fælfə]	[rɪ'zemb(ə)l]	[sɪŋg]	['dɒktə]	['nɥɪsɪns]
[əl'fælfə]	[rɪ'semb(ə)l]	[sɪŋg]	['dɒktə]	['nɥɪsəns]

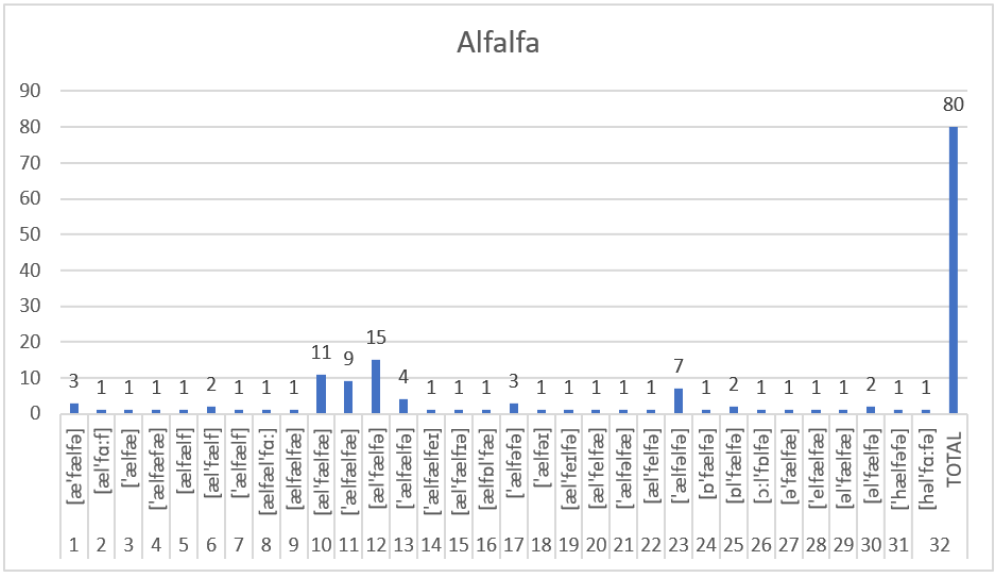
['ælfəfə]	[rɪ'semblə]	[sɪŋg]	['dɒktə]	['nɥɪzəns]
[æl'fælf]	['ri:sɪmb(ə)l]	[sɪŋg]	['dɒtə]	['nju:seɪs]
[æl'fælfə]	[rɪ'sɑ̃b(ə)l]	[sɪŋg]	['dɒktɒ]	['nɥɪzəns]
[æl'fɑ:f]	[rɪ'sɑ̃b(ə)l]	[sɪŋg]	['dɒktɒ]	['nɑʊsəns]
[æl'fælfæ]	[rɪ'semblə]	[sɪŋg]	['dɒktə]	['nju:səns]
[æl'feɪlfə]	[rɪ'zemb(ə)l]	[sɪŋg]	['dɑktə]	['nɥɪzəns]
['ælfəfə]	[rɪ'zemb(ə)l]	[sɪŋg]	['dɑktə]	['nɥɪzəns]
[ɒl'fælfə]	[rɪ'semb(ə)l]	[sɪŋ]	['dɑktə]	['nju:səns]
['hælfəfə]	[rɪ'sɪmb(ə)l]	[sɪŋg]	['dɑktə]	['nɥɪzəns]
[æl'fælfæ]	[rɪ'semb(ə)l]	[sɪŋg]	['dɑktə]	['nɥɪzəns]
[ælfɒl'fæ]	[rɪ'semb(ə)l]	[sɪŋg]	['dɑktɒ]	['neɪzəns]
[æl'fælfə]	[rɪ'semb(ə)l]	[sɪŋ]	['dɑktə]	['nɥɪzənz]
[æl'felfə]	[rɪ'semb(ə)l]	[si:ɪŋ]	['dɑktə]	['nɥɪzɛ̀s]
[æl'fælfə]	[rɪ'sɑ̃b(ə)l]	[sɪŋ]	['dɑktə]	['naɪzəns]
['ælfəlfə]	[rɪ'zemb(ə)l]	[sɪŋ]	['dɑktə]	['nɥɪzəns]
['ælfælfæ]	[rɪ'sɛ̃ b(ə)l]	[sɪŋ]	['dɑktɒ]	['nɥɪzəns]
['ælfəlfə]	['rɪsəmb(ə)l]	[sɪŋg]	['dɑktə]	['nju:səns]
['ælfəlfə]	[rɪ'zemb(ə)l]	[sɪŋ]	['dɑktə]	['nju:səns]
['ælfəlfæ]	[rɪ'zemb(ə)l]	[sɪŋg]	['dɑktə]	['nju:səns]
[æl'fælfæ]	[rɪ'sɛ̃ b(ə)l]	[sɪŋg]	['dɑktə]	['nɥɪzəns]
['elfælfæ]	[rɪ'semb(ə)l]	[sɪŋg]	['dɑktɒ]	['nɥɪzəns]
[æl'fælfə]	[rɪ'semb(ə)l]	[sɪŋg]	['dɑktə]	['nju:səns]
[æl'fælfə]	[rɪ'semb(ə)l]	[sɪŋg]	['dɑktə]	['nu:ɪzəns]
[æl'fælf]	['rɪsəmb(ə)l]	[sɪŋ]	['dɑktə]	['njɒsəns]
['ælfælfæ]	[rɪ'semb(ə)l]	[sɪŋg]	['dɑktɒ]	[nɥɪ'ses]
['ælfælfæ]	[rɪ'zemb(ə)l]	[sɪŋg]	['dɑktə]	['nɥɪzəns]
[ælfæl'fɑ:]	[rɪ'sɛ̃b(ə)l]	[sɪŋ]	['dɒktə]	['nɥɪzəns]
[æl'fælfə]	['rɪsəmb(ə)l]	[sɪŋg]	['dɒktɒ]	['nɥɪsəns]
[æl'fælfə]	[rɪ'sɪmb(ə)l]	[sɪŋ]	['dɒktə]	['nɥɪzəns]
[æl'fælfæ]	['ri:zəmb(ə)l]	[sɪŋ]	['dɒktə]	['nɥɪzəns]
[ælfælfæ]	[rɪ'semb(ə)l]	[sɪŋg]	['dɒktɒ]	['nju:səns]
[ɔ:l'fɒlfə]	[rɪ'sɛ̃b(ə)l]	[sɪŋg]	['dɒktə]	['nju:səns]
[æl'fælfæ]	[rɪ'semb(ə)l]	[sɪŋg]	['dʌktə]	['nɥɪzəns]
[ɒl'fælfə]	[rɪ'zemb(ə)l]	[sɪŋg]	['dɒktə]	['nɥɪzəns]
['ælfælfæ]	['rɪsəmb(ə)l]	[sɪŋg]	['dɒktə]	['nju:səns]
['ælfælf]	['rɪsəmb(ə)l]	[sɪŋg]	['dɑktə]	['nɥɪzəns]
[æl'fælfæ]	[rɪ'semb(ə)l]	[sɪŋg]	['dɒktə]	['nɥɪzəns]
[ə'fælfæ]	[rɪ'zemb(ə)l]	[sɪŋg]	['dɒktə]	['nɥɪzəns]
['ælfəlfə]	['rɪsəmb(ə)l]	[sɪŋ]	['dɒktɒ]	['nju:səns]
[æl'fælfæ]	[rɪ'semb(ə)l]	[sɪŋg]	['dɒktɒ]	['nju:səns]
[æ'fælfə]	[rɪ'semb(ə)l]	[sɪŋ]	['dɒktə]	['nɥɪsəns]
[æl'fælfə]	[rɪ'semb(ə)l]	[sɪŋg]	['dɒktə]	['nɥɪsəns]
[əl'fælfæ]	[rɪ'semb(ə)l]	[sɪŋg]	['dɒktə]	['nɥɪsəns]
['ælfælfæ]	[rɪ'zemb(ə)l]	[sɪŋ]	['dɒktə]	['nɥɪzəns]
['ælfəlfə]	[rɪ'semb(ə)l]	[sɪŋg]	['dɒktə]	['nɥɪzəns]

['ælfælfæ]	[rɪ'semb(ə)l]	[sɪŋg]	['dɒktə]	['nɥɪsəns]
[æl'fælfə]	[rɪ'semb(ə)l]	[sɪŋ]	['dɒktɒ]	['nju:səns]
[æl'fælfə]	[rɪ'zemb(ə)l]	[sɪŋ]	['dɒktə]	['nɥɪzəns]
['ælfælfæ]	[rɪ'semb(ə)l]	[sɪŋ]	['dɒktə]	['nɥɪzəns]
['ælfælfə]	['ri: semb(ə)l]	[sɪŋg]	['dɒktə]	['nju:səns]
[æl'fælfæ]	[ərɪ'semb(ə)l]	[sɪŋg]	['dɒktə]	['nɥɪsəns]
[æl'fælfə]	[rɪ'zemb(ə)l]	[sɪŋg]	['dɒktə]	['nɥɪzəns]
['ælfælfə]	[rɪ'zemb(ə)l]	[sɪŋ]	['dɒktə]	['nɥɪzəns]
[əl'fælfə]	[rɪ'zemb(ə)l]	[sɪŋg]	['dɒktə]	[nɥɪ'sɑ:ns]
['ælfælfə]	[rɪ'sembləns]	[sɪŋg]	['dɒktə]	['nɥɪzəns]
[æ'fælfə]	[rɪ'semb(ə)l]	[sɪŋg]	['dɒkθə]	['nɥɪsəs]
[æl'fælfæ]	[rɪ'semb(ə)l]	[sɪŋg]	[dɒkt]	['nju:səns]
['ælfəɪ]	['rɪsəmb(ə)l]	[sɪŋg]	['dɒktə]	['nju:zəns]
['ælfælfæ]	[rɪ'zemb(ə)l]	[sɪŋg]	['dɒktə]	['nɥɪzəns]
[æl'fælfæ]	['resəmbləns]	[sɪŋg]	['dɑktə]	['nju:səns]
[ɒ'fælfə]	['ri:səmb(ə)l]	[sɪŋg]	['dɒktə]	['nɥɪzəns]
['ælfælfæ]	[rɪ'zemb(ə)l]	[sɪŋg]	['dɒktə]	['nɥɪzəns]
[æ'fælfə]	[rɪ'semb(ə)l]	[sɪŋg]	['dɒktə]	['nɥɪzəns]
[æl'felfæ]	['ri:səmb(ə)l]	[sɪŋg]	['dɒktə]	['nɥɪsəns]
['ælfælfeɪ]	['resəmb(ə)l]	[sɪŋg]	['dɒktə]	['nju:səns]
singer **['sɪŋə]**	increasing **[ɪn'kri:sɪŋ]**	long **[lɒŋ]**	plaid **[plæd]**	acre **['eɪkə]**
['sɪŋgə]	[ɪnkrə'æsɪŋg]	[lɒŋ]	[pleɪd]	['aɪkrə]
['sɪŋgə]	[ɪn'krezɪŋg]	[lɒŋg]	[pleɪd]	['ekr]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ekrɪ]
['sɪŋə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[pleɪd]	['ekrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['eɪkrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[plaɪd]	['ekrə]
['sɪŋə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[pleɪd]	['ekrə]
['sɪŋgə]	[ɪn'kri:sɪŋg]	[lɒŋg]	[pleɪd]	['ekrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ɑ:krə]
['sɪŋgə]	[ɪn'gri:zɪŋg]	[lɒŋg]	[pleɪd]	['eɪgrə]
['sɪŋgə]	[ɪn'kri:sɪŋ]	[lɒŋ]	[pleɪd]	['eɪkrɪə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ekrɪ]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['eɪkə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ekrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['eɪkrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['eɪkrɪ]
['sɪŋgə]	['ɪkrɪzɪŋ]	[lɒŋg]	[pleɪd]	['eɪkrɪ]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ekrɪ]
['sɪŋgə]	['aɪkri:sɪŋg]	[lɒŋg]	[pleɪd]	['aɪkrɪ]
['sɪŋgə]	[ɪn'kri:sɪŋ]	[lɒŋ]	[pleɪd]	['eɪkrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪt]	['ekr]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[pleɪd]	['ekrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[pleɪt]	['ekrə]

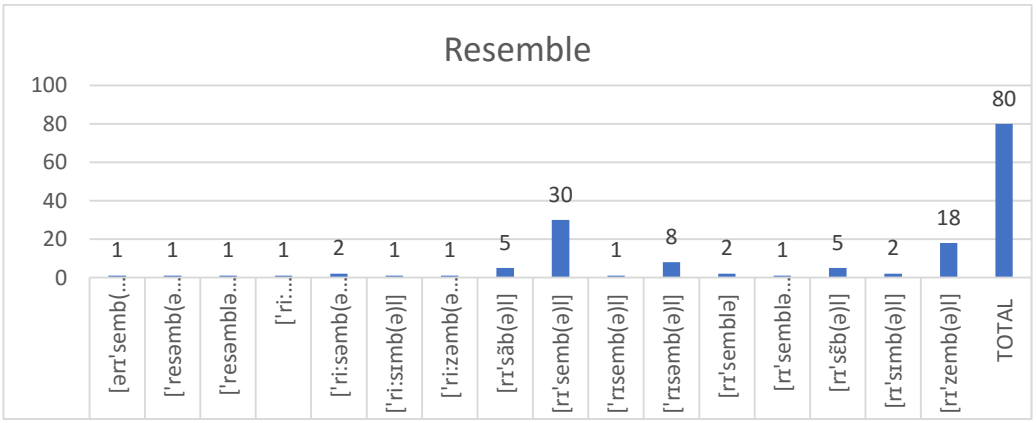
['sɪŋgə]	[ɪn'kri:sɪŋ]	[lɒŋg]	[pleɪd]	['eɪk]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋgi]	[pleɪd]	['ekrə]
['sɪŋgə]	[ɪn'krɪəsɪŋ]	[lɒŋ]	[p^{h}lend]	[kri]
['sɪŋgə]	[ɪns'kri:zɪŋ]	[lɒŋ]	[pleɪd]	['ækrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ɛ̃ krə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[pleɪd]	['ɛ̃ kə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['eɪkə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ekrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ekri]
['sɪŋgə]	[ɪn'kri:sɪŋ]	[lɒŋg]	[pleɪd]	['ækə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['eɪkri]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ekrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ekrə]
['sɪŋgə]	[ɪnkrəæ'sɪŋ]	[lɒŋg]	[pleɪd]	['ekrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ekri]
['sɪŋgə]	[ɪn'krezɪŋg]	[lɒŋg]	[pleɪd]	['ekrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[pleɪt]	['ãk]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ekrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ekrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pled]	['eɪkə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[pleɪd]	['ɛ̃kə]
['sɪŋgə]	[ɪn'kri:sɪŋ]	[lɒŋ]	[pleɪd]	[ækr]
['sɪŋgə]	['ɪnkri:zɪŋ]	[lɒŋ]	[pleɪnd]	['eɪkri]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	[ɑ:k]
['sɪŋgə]	[ɪn'kri:sɪŋ]	[lɒŋg]	[pleɪnd]	['ekri]
['sɪŋgə]	[ɪn'kri:sɪŋ]	[lɒŋg]	[pleɪd]	['ekə]
['sɪŋə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ekri]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[pleɪd]	['ekə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ekrə]
['sɪŋgə]	[ɪn'kri:sɪŋg]	[lɒŋg]	[pleɪd]	[ɑ:kə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ekə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['eɪkri]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[pleɪd]	['eɪkə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	[ɑ:krə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[pleɪd]	[ɜ:k]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ekrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[pleɪd]	['ekrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ɑ:kə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[plæn]	['ekri]
['sɪŋgə]	[ɪn'kri:sɪŋ]	[lɒŋ]	[pleɪd]	['ɑ:krə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ɪŋkə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[pleɪd]	['eŋkri]
['sɪŋgə]	[ɪn'kri:zɪŋ]	[lɒŋ]	[pleɪd]	[ek]
['sɪŋə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pled]	['eŋkrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[pled]	['eŋkrə]

['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[pleɪd]	['eɪkrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pled]	['eŋkə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ækrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['eɪkri]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ekri]
['sɪŋgə]	[ɪn'kri:zɪŋ]	[lɒŋg]	[pleɪd]	['ekrə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[pleɪd]	[eɪkr]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	['ekə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[pled]	['ɑ:kə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋ]	[pleɪd]	['eɪkə]
['sɪŋgə]	[ɪn'kri:zɪŋg]	[lɒŋg]	[pleɪd]	[ãk]
['sɪŋgə]	[ɪn'kri:sɪŋg]	[lɒŋg]	[pleɪd]	['ekri]
The phonetic transcription in bold beside each target word is the correct one				

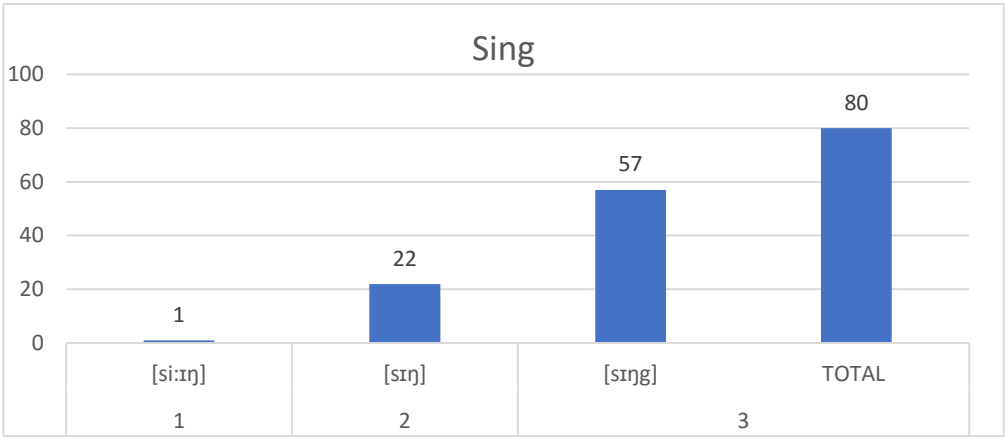
The SPSS package helped sort out the participants' different pronunciations of each word for the purpose of finding out the pronunciation with the highest frequency, that is, the pronunciation typical of the sample for each target word. This qualitative descriptive method yielded the data display in the following histograms.



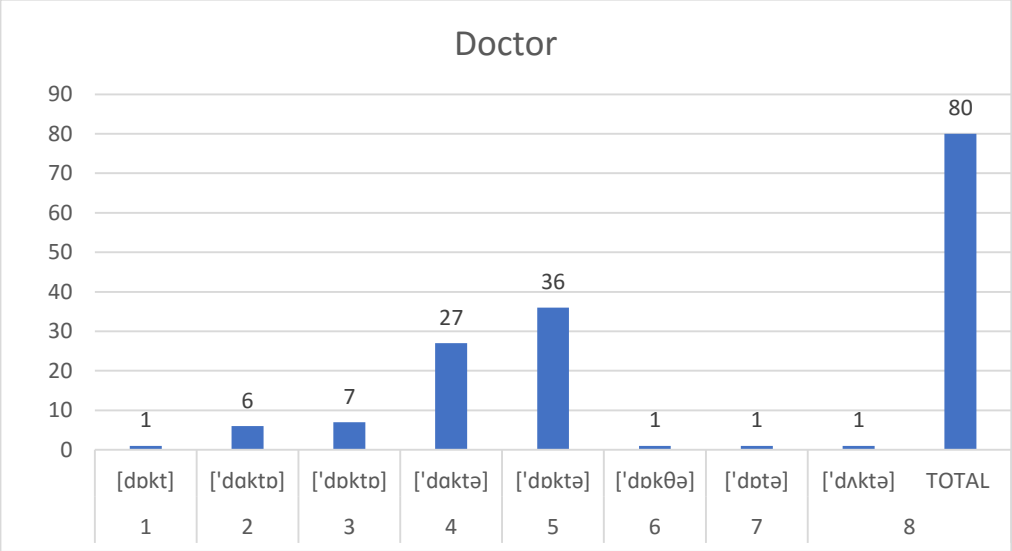
[æl'fælfə] is observed to be the pronunciation typical of the sample for the word 'alfalfa' with its highest frequency, that is, 15 out of 80, that is, 18.75% of the sample.



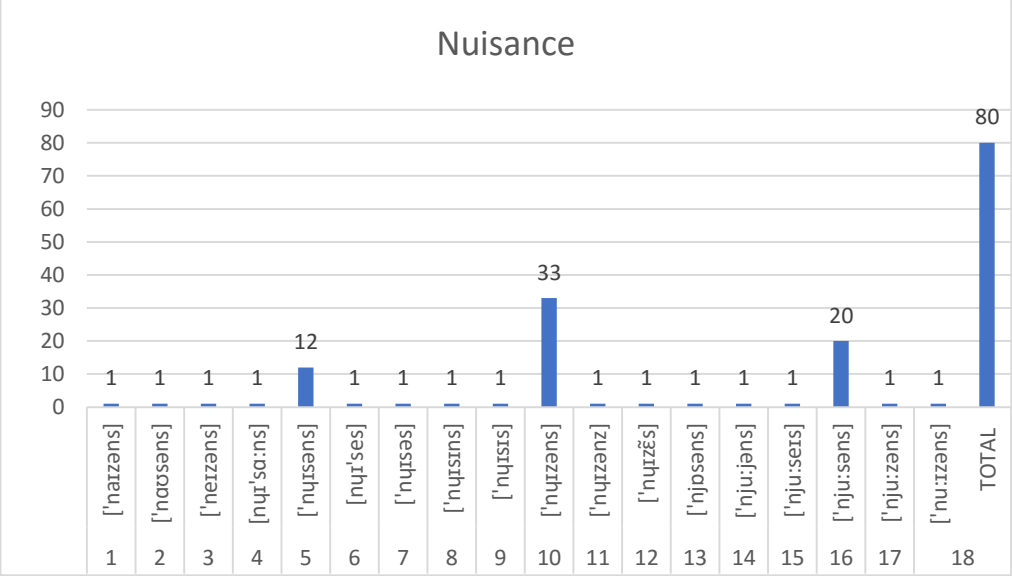
The word 'resemble' was pronounced as [rɪ'semb(ə)l] by 30 subjects of the sample. This is the highest frequency. Thus, this pronunciation is typical of the sample.



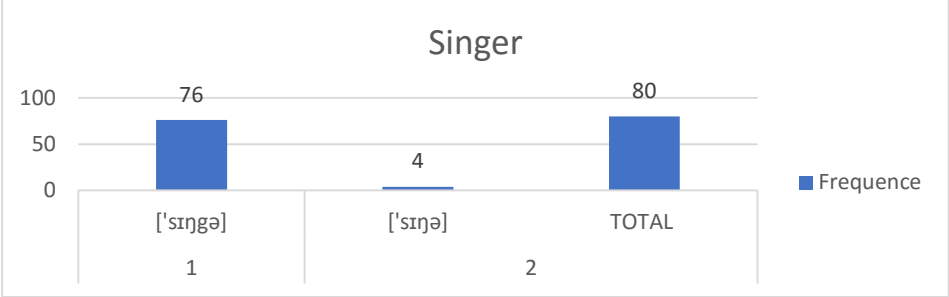
This word was pronounced overwhelmingly among the sample as [sɪŋg]. With 57 of frequency, this pronunciation is typical of the sample.



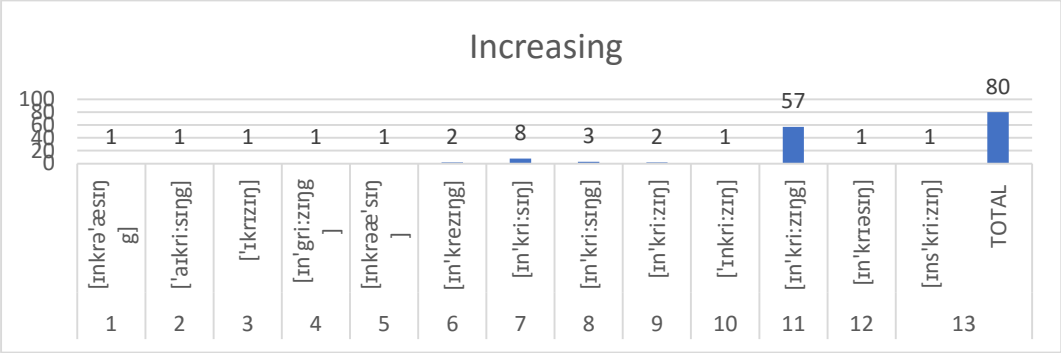
['dɒktə] with the frequency of 36, the highest of all is the pronunciation typical of the sample.



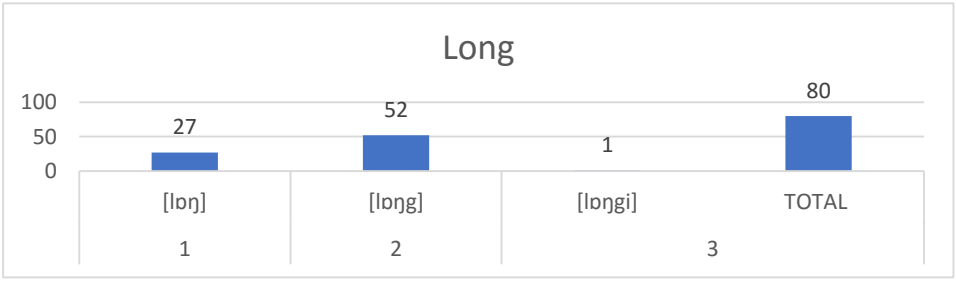
['nʊɪzəns] is the pronunciation with the highest frequency, 33 among the 18 different ways in which the word 'nuisance' was pronounced among the sample. As revealed in the graph, the pronunciation typical of the sample.



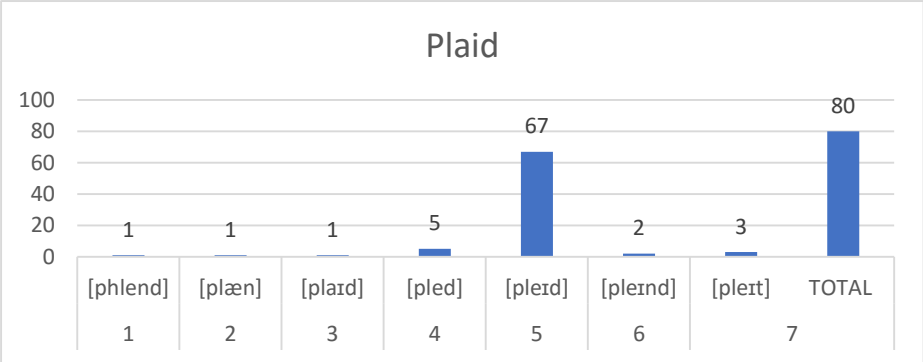
The overwhelming majority of the sample, 76 subjects pronounced the target word 'singer' as ['sɪŋgə]. The other 4 subjects realized the word as ['sɪŋə]. ['sɪŋgə] is the typical pronunciation among the sample.



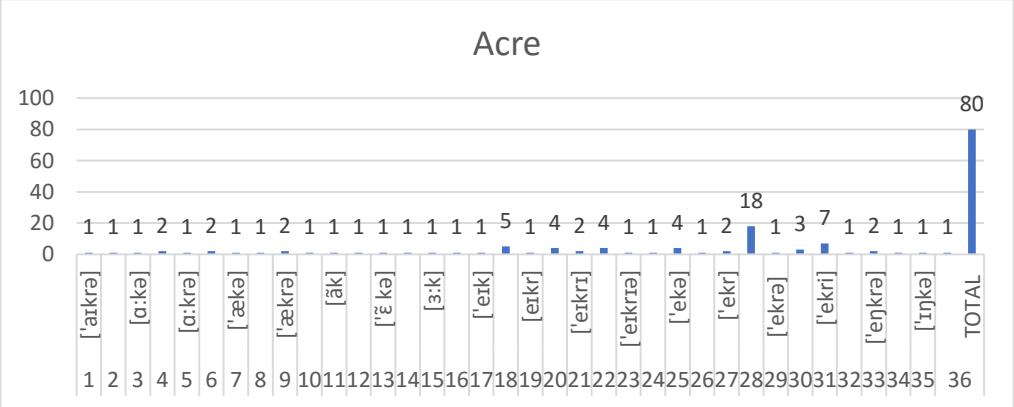
The word 'increasing' was observed to be pronounced by the sample in 13 different ways among which [ɪn'kri:zɪŋg] is with the highest frequency, 57. This pronunciation is, thus, typical of the whole sample.



Fifty-two subjects out of 80 pronounced the word 'long' as [lɒŋg]. This highest frequency for [lɒŋg] indicates that it is the typical pronunciation of the word among the whole group.



This word was pronounced as [pleɪd] by the majority of the group, that is, 67 subjects. This pronunciation is typical of the sample.



The word 'acre' was observed to be pronounced in 36 different ways. The pronunciations are scattered. However, ['e̲krə] with the frequency 18 is the highest compared to all others and is taken as typical of the whole sample.

The following table recaps the pronunciation typical of the sample for each of the fifty target words.

Table 2: SYNOPSIS AT TARGET WORDS PRONUNCIATIONS

[æl'fælfə], F:15	['dɒktə], F:36	[ɪn'kri:zɪŋg], F:57	['e̲krə], F:18
[rɪ'semb(ə)l], F:30	['nʊɪzəns], F:33	[lɒŋg], F:52	
[sɪŋg], F:57	['sɪŋgə], F:76	[pleɪd], F:67	

These pronunciations of the target words with the highest frequency for each word were focused for the purpose of getting insight into both the phonological processes the sample subjects utilize and the eventual pronunciation deviations. It goes without saying that pronunciation is a domain of accuracy to the norm. It must be noted that where a typical pronunciation is with a low frequency, a high variability of ways in which the target word is pronounced was observed. However, certain pronunciations,

though not typical of the sample, will be referred to in case they embody a phonological process worth being pointed out.

A minute examination of the subjects' pronunciations of the target words led to identify some phonological processes the participants apply. These are exemplified as follows.

1. Addition of some segment: ['eɪkə] is pronounced *['ekrə].
2. Substitution of segments: [lɒŋ], ['sɪŋ], ['sɪŋə], [ɪn'kri:sɪŋ], and ['nju:səns] are realized as *[lɒŋg], *['sɪŋg], *['sɪŋgə], *[ɪn'kri:zɪŋg], and *['nʊɪzəns] respectively. It must be pointed out that [ŋ] is rare in French ('Bingbing'), non-existent in Lingala, and rare in Kikôngo word final positions. When [ŋg] occurs in final word position in the speech of a Lingala Kikôngo French speaker learner of English, it is a substitution whereas it is a case of an addition of an unnecessary element in English intralingually.
3. Diphthongization of monophthongs: [plæd] is pronounced [pleɪd].
4. Monophthongization of diphthongs: ['eɪkə] is pronounced *['ekrə].
5. Vowel sound reduction: ['eɪkə] is pronounced *['ekrə].
6. Intervocalic consonant voicing: [ɪn'kri:sɪŋ] and ['nju:səns] are realized as *[ɪn'kri:zɪŋ] and *['nʊɪzəns] respectively .
7. Intervocalic consonant devoicing: [rɪ'zemb(ə)l] is pronounced as *[rɪ'semb(ə)l].

   Besides the above phonological processes inferred based on the target words pronunciations typical of the sample, there are those evinced by small portions of the sample. Some of them are pinpointed in the following lines.

8. Checked vowel sounds in final position: [æl'fælfə], ['dɒktə] are, for example, realized as *[æl'fælfæ] and *['dɒktɒ] respectively.
9. French phonological processes applied to English: ['eɪkə] is realized as *['ekrə].

4. RESEARCH FINDINGS AND DISCUSSION

The identified participants' pronunciation deviations are interphonologies between the target language, English and the participants' prior acquired/learned languages. The addition of /r/ and the reduction of /eɪ/ to /e/ in the word acre pronounced as *['ekrə] may have been dictated by the participants' knowledge of the French system in which there are no diphthongs while the letter r is never deleted. Secondly, [ŋ] is substituted for [ŋg] in the words sing, singer, increasing and long. The sound [ŋ] is non-existent in Lingala, rare in French and almost rare in Kikôngo (see the word '/ŋana/': to blame) while it occurs in word middle position as an allophone of [n] before [k] and [g] and in word final position in English. The consonant cluster /ng/ realized as [ŋg] is seen in all word positions in Lingala and Kikôngo but limited to middle and final positions in French. Given this situation, Lingala Kikôngo

French speakers learners of English transfer [ŋg] from their prior acquired/learned languages to English and generalize it to all positions where the consonant cluster /ng/ occurs. It is of interest to indicate that intralingually, learners of English add the unnecessary [g] to produce [ŋg] where [ŋ] is the correct pronunciation. Thirdly, intervocalic consonants are voiced in French. As a result, intervocalic consonants in the words increasing and nuisance are pronounced as [z] instead of [s]. Fourthly, the devoicing of the intervocalic [z] of [rɪ'zembə(ə)l] to [s] may be interpreted as the influence of the French pronunciation of the word 'ressembler'. Fifthly, the diphthongization in *[pleɪd] instead of [plæd] is due to the misleading spelling of the English word plaid. The grapheme 'ai' is generally pronounced [eɪ] and rarely [æ]. Sixthly and finally, Kikôngo and Lingala syllables are open ones but in French, there are both open and close syllables. However, there is no restriction to the occurrence of vowel sounds in word final position in these three languages. English, on the contrary, distinguishes checked vowel sounds which never occur in word final position from free vowel sounds which occur in all word position. Phonological interference from Kikôngo, Lingala, and French leads to English pronunciation deviations as *[æl'fælfæ] and *['dɒktɒ] instead of [æl'fælfə], ['dɒktə] respectively. The ongoing discussion is in line with Fledge (1995) that vowel sounds identified as similar in the four languages under study will be pronounced with inaccurately if much effort is not explicitly made to perceive, detect, store, and organize the features of the target sounds for their authentic production. These areas of apparent similarity are prone to interlanguage in phonology or interphonoligies. Interphonologies are also noted in the areas of unassimilated vowel sounds but before establishment of the new phonetic categories which they require. This evidence based on the Speech Learning Model (see Flege, 1995) is not restricted to vowel sounds in additional language(s) learning but it equally applies to consonant sounds learning. In addition, Weinreich (1953) divides interference into phonic, phonotactic and suprasegmental interference and further classifies phonic into sound substitution, underdifferentiation, overdifferentiation, and reinterpretation of distinctions. This is another basis on which the identified participants' pronunciation deviations can be explained.

5. CONCLUSION

This study identified nine types of phonological interference : addition of some segment, substitution of segments, diphthongization of monophthongs, monophthongization of diphthongs, vowel sound reduction, intervocalic consonant voicing, intervocalic consonant devoicing, checked vowel sounds in final position, and French phonological processes applied to English. These pronunciation deviations were accounted for in line with Flege's (1995) Speech Learning Model and Weinreich's (1953) interference typology.

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