Multi-Linguistic Interferences in the Articulation of English Fricatives among Selected Students in a Public University in Lokoja, Nigeria

Theodore Shey Nsairun
Department of English and Literary Studies, Faculty of Arts,
Federal University Lokoja, Lokoja, Kogi State, Nigeria
Email: theodore.nsairun@fulokoja.edu.ng

and

Ebele Deborah Uba
Department of Linguistics, Faculty of Arts,
Nnamdi Azikiwe University Awka, Anambra State, Nigeria
Email: eduba@unizik.edu.ng

Abstract

In the quest to solve human communication problems, the need to learn a foreign language arises, and this usually occurs in a multilingual setting. In the process of this learning, some challenges occur, especially the phonological phenomenon of interference. Given this challenge, the paper contributes to scholarly works on language learning by exploring the articulation of English fricatives by selected [ethnic] students of the Federal University Lokoja (FUL), Lokoja, Nigeria. The researchers carefully selected some participants from the Ebira, Igala and Okun-Yoruba ethnic groups, which form the majority of ethnicities in the university community. A total of 60 students were selected for this study; 20 each from the 3 major ethnic groups in FUL. The major instrument used for this research is the Read Aloud Method, containing nine carefully structured sentences each containing a target English fricative sound. The selected test items were read aloud by the participants and subjected to both perceptual and acoustic analyses. The acoustic analysis was done using the speech analyzer PRAAT. Audio-Articulation Model developed by Mehmet Demirezen was used as the framework for this study. The

study reveals that there is a dominant influence from the mother tongue of the participants as they were unable to properly articulate some fricatives in some cases. Also, the study found that there is an overlapping peculiar to the different speakers representing each ethnic group. It can be concluded that since ethnic groups have their distinct languages, it is a factor in the inability of speakers to properly produce fricative sounds. This absence of the fricatives in the L1 shows up in the production of the L2.

Keywords: Multi-linguistic interferences, English fricatives, Articulation, Linguistic responsibility.

Introduction

The ability as well as the need to speak a foreign language has never been as vital as it currently is in the 21st century, especially as the world is fast becoming a global village. Also, the conglomerate of different languages in different societies has made learning of others' languages a linguistic responsibility. Hence, being multilingual, there is the gain of seeing the world through different eyes as different cultures are expressed through them. Interestingly as Wardhaugh (2010, p.93) puts it, "…a monolingual individual would be regarded as a misfit, marked as lacking an important skill in society, the skill of being able to interact freely with the speakers of other languages with whom regular contact is made in the ordinary business of living." Many people all over the world are no longer monolinguals as they tend to live side-by-side with many other languages which they are *forced* to learn for daily interaction, trade, and/or for social or political reasons.

In the process of learning a second language or other additional languages, speakers are often conditioned by their mother tongues. This mother tongue conditioning makes speakers (who are learning a new language) transfer some aspects of their native language to the new language. But it is difficult to find a speaker who has equal competence in 3 or 4 languages. Sridhar (1996, p.50) observes that ultilingualism involving balanced, native-like command of all the languages in the repertoire is rather uncommon. Typically, multilinguals have varying degrees of command of the different repertoires. The difference in competence in the various languages might range from command of a few lexical items, formulaic expressions such as greetings, and rudimentary

conversational skills to excellent command of the grammar and vocabulary and specialized register and styles.

Multilinguals tend to switch to different languages to serve the need of such languages. Akindele and Adegbite (2005) claim that each language in a multi-linguistic setting has its own distinct phonological, lexical, grammatical and discourse rules, which form a code of communication in the community or individual who uses it. It is important to note that multi-linguistic communities are consequences of language contact that tend to influence one another directly or indirectly. This is the case with the present study which focuses on Federal University Lokoja (FUL), Nigeria, which is a multi-linguistic community of students and staff. FUL is situated in Lokoja which is on the confluence of Rivers Benue and Niger. The dominant ethnic groups in Kogi (and invariably so in Lokoja) are the Igala, located in the Eastern flank and Kogi East Senatorial District; Ebira is the second largest ethnic group in the state. Ebiraland is located on the Western flank of the Niger River and in the Central Senatorial District. The next major group is a cluster of ethnic minorities identified as Okun, following the common usage of the word for greeting. A large subset of the group also identifies itself as Yoruba. They are in the Western Senatorial District. Sandwiched between these three blocks of ethnic groups are several minorities (Cleen Foundation, 2011).

Here, since there are different ethnic groups, English is the official mode of instruction and administrative transactions. For some students of FUL, English is their first language, while some have it as their second, third and even fourth language. In their daily conversations as well as formal classroom exchanges, some students tend to speak English with some linguistic interference. One tends to hear some sounds, words, and even sentences that are *dented* with mother-tongue undertones. For the most part, these interferences are phonological, in this case, the articulation of fricatives. Articulation of English sounds can truly be a daunting task, especially in a university setting like FUL where 99% of the students and staff are non-native speakers of English and, where different ethnic groups are speakers of languages with different phonological conversations from that of English phonology.

Review of Related Literature

Learning a language is quite challenging let alone learning several languages. This "presents new and different challenges in managing the

influence from other non-native languages" (Ruskin, 2016, p.11). In this case, most students of FUL are unaware and normally do not expect any cross-linguistic influence to occur. When we consider the concept of linguistic interference among cross-linguistic communities, we are looking at a phenomenon that exists when there is a fundamental change in one language system as a result of foreign input, or foreign misuse. This foreign input could be at the graphological, phonological or syntactic levels, which results in a semantic problem. Lipski (1976, p.229) observes that among other conceivable forms of linguistic structure, interference between languages can be divided into three general categories, via the *substratum, superstratum* or *adstratum* models of linguistic interference. The first involves lexical interference, which is, borrowing entire words or phrases. The second case is phonological interference, involving the transfer of sounds or sound patterns from one language to another. Lastly, syntactic interference involves the formation of words and phrases, the transfer patterns of word formation from one language to another, and the shift in the meaning of partial or false cognate forms. Also, interference could result from extra-linguistic factors like socio-cultural and psychological factors. In a multilingual speech community, therefore, the social environment in which lingual interaction takes place is a significant factor for linguistic interference (Flege, 1981).

When speakers of different languages interact closely (like in the case of FUL), it is natural for their languages to influence one another. Hence, one tends to notice a manifestation of the emergence of new lexical and/or phonological items in the spoken forms of co-existing languages. These new items are a result of linguistic overlap which robs off neighbouring languages as a result of imitations of forms or patterns of other languages. Furthermore, linguistic interference can also result in mutual exchanges of linguistic items which in the case of the current study, can be limited to a particular geographical region or at certain linguistic levels. Weinreich (1963, p.86), while focusing specifically on the phenomenon of 'bilingualism' and 'interference' observes that "to predict typical forms of interference from the socio-linguistic description of a bilingual community and a structural description of its languages is the ultimate goal of interference studies." Interference can be a result of the influence of one language on another, especially in a second language acquisition situation. The speaker, who is exposed to two or more languages is most likely going to have one language influencing his/her other languages which mostly culminates in code-switching or code-

mixing. From a broader perspective, the learner of other languages would often apply knowledge from one language to learn them.

Lado (1957) observes that cross-language interference may occur at several levels of an organization; first, a speaker might mispronounce a sound in a foreign language because no comparable sound exists in the phonetic inventory of his native language. Second, interference might occur at the level of segmental phonetic features even if the more abstract phonological features that specify sounds have been correctly combined. In this case, language learners are to mispronounce only certain allophones of a novel foreign language phoneme. Third, interference might result from cross-language differences in the phonetic implementation of a feature. Lado's observations above fall under the sub-field of articulatory phonetics. This we shall consider below.

Articulatory Phonetics

Osisanwo (2012, p.11) conceptualises articulatory phonetics as a sub-field that examines the production of speech sounds with a special focus on the specific functions of the various organs of speech. That is, it is concerned with the description of the movements of the vocal organs that produce speech sounds. The focus here is on the organs which include the lips, teeth, tongue, hard and soft palates, nose, alveolar ridge, vocal cords, etc. To have a clear view of these organs, Roach (2004) proposes the use of a mirror and good light to look into one's mouth. Atoye et al. (2017) see articulatory phonetics as those organs of speech that assist in the modification of speech sounds. For them, every language has a definite set of speech sounds, and every sound can be described concerning the vocal organs that are used in producing it. These definite sets of speech sounds have some sounds that affect/determine the sounds of other languages around them. In the case of this study, the focus is the articulation of fricatives of English as they interfere with neighbouring languages in use. What then are English fricatives?

In his definition, Roach (2004) sees fricatives as consonants with the characteristic that, when they are produced, air escapes through a small passage and makes a hissing sound. Most languages have fricatives, the most commonly found is the voiceless alveolar fricative /s/. Roach further explains that fricatives are continuants, which means that you can continue making them without interruption as long as you have enough air in your lungs. Atoye et al. (2017) agree that in the pronunciation of a fricative consonant, the obstruction to the airstream is not complete;

instead, the air passage is narrowed so much that audible friction is produced. The English Language has nine (9) fricative sounds which have been grouped below according to their manner and places of articulation.

Place of articulation

Manner of articulation	Labio-dental	Dental	Alveolar	Post-Alveolar	Glottal
Voiceless	F	ɵ	S	ʃ	h
Voiced	V	Đ	Z	ʒ	

Table 1.1 the nine fricatives of English

Except for the glottal sound, each place of articulation has a pair of phonemes, one is voiceless while the other is voiced.

Theoretical Framework
This study is hinged on the Audio-Articulation Model developed by Mehmet Demirezen (2010), a professor of Linguistics at Hacettepe University in Turkey. This model was developed to treat the fossilized pronunciation errors in Turkish adult students of English. Demirezen (2010) claims that this method is designed to fill the gap in the field of pronunciation teaching. He further explains that the audio-articulation model is on the analytic-linguistic approach which involves micro-listening and speaking activities in terms of automatic speech recognition and production exercise. This approach was used to elicit data from students in the course of this study.

Methodology
Respondents for this study are FUL students who were purposively selected from three ethnic groups of Ebira, Igala and Okun-Yoruba. These languages co-exist in the FUL community alongside English. A total of 60 students were selected for this study; 20 each from the 3 major ethnic groups in FUL. What informed the choice of these students was the fact that they form the majority of ethnic speakers of the selected languages on campus. The major instrument used for this research is the Read-Aloud Method, containing nine carefully structured sentences each containing a target English fricative sound. Their renditions were recorded on a computer and subjected to acoustic analysis using the sound analyzer PRAAT. The Read-Aloud Method in collaboration with the Audio-

Articulation Model was used to test the selected students' renditions of English fricatives that appear in particular positions against the backdrop of what obtains in Standard British English.

Data analysis

This section analyses FUL students' renditions of the nine English fricatives as contained in the carefully structured sentences. The sentences are outlined below according to the particular fricative sound that they aim at, together too with their transcribed forms. Also, a perceptual way of how some of the students articulated some of the sounds is given below the transcribed forms.

Voiceless labiodental fricative /f/
Frankly, he referred to the laugh /fræŋkli, hi: rɪfɜ:d tʊ ðə lɑ:f/
- [franklɪ, hi: rɪfɑ:d {rɪvɑ:d} tu dɪ lɑ:f]

Voiced labiodental fricative /v/
All vowel sounds are voiced /ɔ:l vaʊəl saʊnds ɑ: vɔɪst/
- [ɔ:l vɔ:wel saʊnds ɑ: vɔɪst]

Voiceless interdental fricative /θ/
Thanks, my tooth is better /θæŋks, mai tu:θ ɪz betə/
- [taŋks, mai tʊt is betə]

Voiced interdental fricative /ð/
This is where we bathed yesterday /ðɪs ɪz weə wi: beɪðd jestədeɪ/
- [dɪs ɪs wɪə wi: bɑted jestadei]

Voiceless alveolar fricative /s/
 Some consonant sounds are voiceless /sʌm kɔntsənænts ɑ: vɔɪsləs/
- [sɔm kɔnsɔnants ɑ: vɔɪsles]

Voiced alveolar fricative /z/
Zebras move with ease in the zoo /zebrəz mu:v wɪθ i:z in ðə zu:/
- [zebrɑ:s {ʤebrɑ:s} mu;v wɪt i:z in dɪ zu:]
Voiceless palato-alveolar fricative /ʃ/
She brought the machine on schedule /ʃi: brɔ:t ðə məʃi:n ɒn ʃedʒu:l/
- [ʃi:{ʧi:}brɔ:t dɪ mɑʃi:n {matʃin} on ʃedu:l {ʧedu:l}]

Voiced palato-alveolar fricative /ʒ/

The seizure on the television cleared all confusion /ðə siːʒə ɒn ðə telɪvɪʒən klɪəd ɔːl kənfjuːʒən/

- [dɪ seiʃɔ: {seiʤɔ: ɒn dɪ televɪʃɔn {televɪtʃɔn kliad ɔːl kɔnfuːʃɔn {kɔnfuːtʃɔn}]

Voiceless glottal fricative /h/
He hid in the hut /hiː hɪd ɪn ðə hʌt/

- [hi: {i:} hɪd {ɪd} in dɪ hɔt {ɔt}]

From the presentation above, the students' renditions of the 9 sentences can be observed to have some differences in the transcribed forms. The differences are in the way the students articulated some of the sounds; hence, the perceptual representations of the renditions (as shown in the second transcription in each sentence) have some sounds differently articulated from the first transcriptions. These differences are (in some part) a result of first language interference, while others can be attributed to the phonological influence of one language over the other, incorrect placement of stress, substitution and perceptual similarity. In light of this fact, a summary of the perceptual performances of the students' renditions of the fricatives is presented below:

Articulation and perception of renditions of fricatives by the students

Fricative sound	Words to be tested	20 Ebira students	20 Igala students	20 Okun students	Total	Overall performance
/f/	Frankly, referred, laugh	Correct 20; incorrect 0	Correct 20; incorrect 0	Correct 11; incorrect 9	Correct 51; incorrect 9	Correct 85%; incorrect 15%
/v/	Vowel, voiced	Correct 20; incorrect 0	Correct 20; incorrect 0	Correct 15; incorrect 5	Correct 55; incorrect 5	Correct 91.2%; incorrect 9%
/θ/	Thanks, tooth	Correct 4; incorrect 16	Correct 3; incorrect 17	Correct 4; incorrect 16	Correct 11; incorrect 49	Correct 18.3%; incorrect 81.7%
/ð/	This, bathed	Correct 2; incorrect 18	Correct 2; incorrect 18	Correct 2; incorrect 18	Correct 6; incorrect 54	Correct 10%; incorrect 90%

/s/	Some, sounds, voiceless	Correct 20; incorrect 0	Correct 20; incorrect 0	Correct 20; incorrect 0	Correct 60; incorrect 0	Correct 100%; incorrect 0%
/z/	Zebras, ease, zoo	Correct 18; incorrect 2	Correct 12; incorrect 8	Correct 19; incorrect 1	Correct 49; incorrect 11	Correct 81.7%; incorrect 18.3%
/ʃ/	She, machine, schedule	Correct 20; incorrect 0	Correct 11; incorrect 9	Correct 16; incorrect 4	Correct 47; incorrect 13	Correct 78.3%; incorrect 21.7%
/ʒ/	Seizure, television, confusion	Correct 2; incorrect 18	Correct 1; incorrect 19	Correct 2; incorrect 18	Correct 5; incorrect 55	Correct 8.33%; incorrect 91.7%
/h/	He, hid, hut	Correct 20; incorrect 0	Correct 20; incorrect 0	Correct 11; incorrect 9	Correct 51; incorrect 9	Correct 85%; incorrect 15%

Table 1.2 Articulation and Renditions of Fricatives by students

The table above captures (in general) the students' correct and incorrect renditions of the fricative as recorded on the sound analyzer PRAAT. The statistical analyses were calculated

as $\dfrac{\text{翻 耀翻翻翻翻 耀翻 翻 翻 耀 耀翻 耀}}{\text{翻 耀翻翻翻翻翻耀耀翻 耀耀耀}} \times 100$.

Most Ebira students' rendition were fairly delivered as a general look at their performance shows that they had less difficulty articulating most English fricatives. This is a result of interference from largely the Nigerian English factor. While any language has the potential to be the source language, like English is the case in the current study, the source language tends to be a non-native language that is dominant. Their renditions were juxtaposed with a controlled rendition which served as the yardstick for measuring the performance of each respondent. The control, who is a Nigerian, who has lived in the United Kingdom for the utmost of 30 years, and who speaks English with a near-native accent, read aloud the nine sentences which were recorded on the sound analyzer PRAAT. It was based on this that each student's renditions were analyzed. To this effect, individual acoustic representations were labelled thus:

*The Control

Stu.2EbiF/M: where *stu.* means student; *2* means student's number; *Ebi* means Ebira; and *F/M* means Female or Male. This is the same format for the other two languages which were represented as *Iga* for Igala and *OY* for Okun-Yoruba. Hence, some Ebira students rendered the dental fricatives thus:
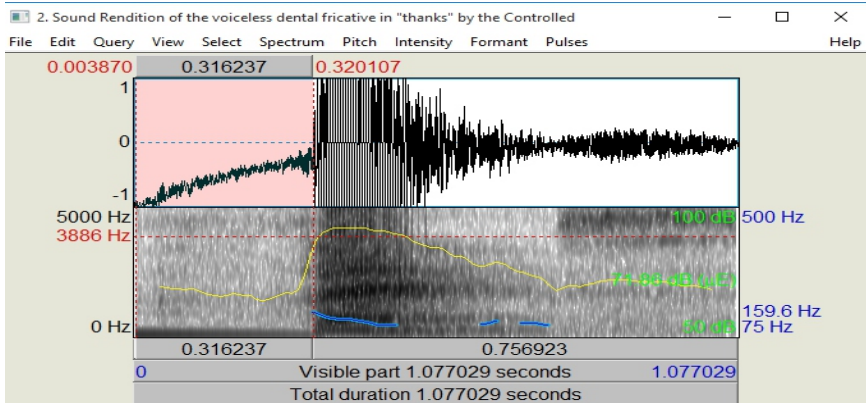

Fig. 1: Rendition of the voiceless dental fricative /θ/ in the test item thanks to the control
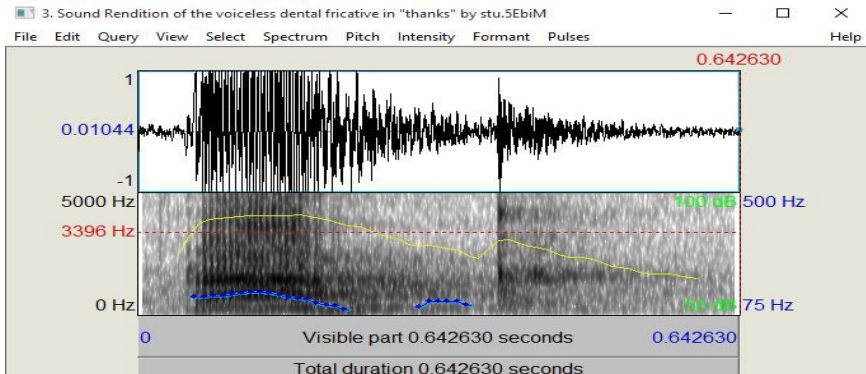

Fig. 2: Rendition of the voiceless dental fricative /θ/ in thanks by stu.5Ebi

This sound constituted a problem not only for this Ebira student but for almost all respondents. From their performance above, only 18.3% of the students could articulate the sound correctly, the rest 81.7% did not

articulate the sound correctly. This phenomenon was observed in the articulation of the voiced counterpart of this sound. That is, the voiced dental fricative /ð/. It is important to note that these sounds do not exist in the phonemic inventories of any of the students' languages, hence their inability to articulate them correctly. In Fig. 1, the highlighted portion shows the waveforms as quite stretched at approximately 0.317 visible part, while Fig. 2 maintains a 0 visible part. This means that the control was able to articulate the sounds correctly as it should, while the students substituted the sounds with the nearest sounds in their native languages. That is, /t/ and /d/ respectively. It, therefore, goes without saying that the stu.5EbiM in Fig. 2 articulated the voiceless dental fricative sound as /t/ [tɑnks] instead of /θæŋks/. This is mainly a result of linguistic interference from their mother tongues or the Nigerian English factor.

The voiced palate-alveolar fricative /ʒ/ proved to be particularly difficult for almost all the students to articulate. Again, it is important to reiterate that sound does not exist in the phonemic inventory of any of the languages under study. It, therefore, suffices to say that linguistic interference, in this case, was brought about by mother tongue interference or by cross-ethnic influence. The sound was largely rendered differently as /ʃ/, /dʒ/ and /tʃ/ as is evident in the recorded rendition of stu.1IgaM below:
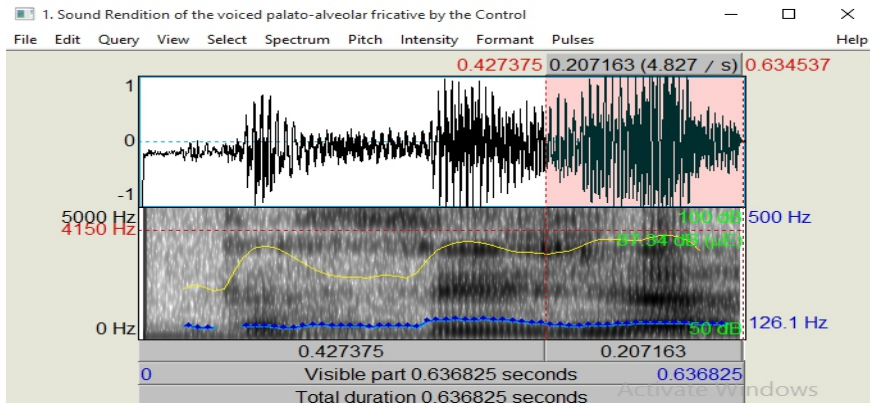

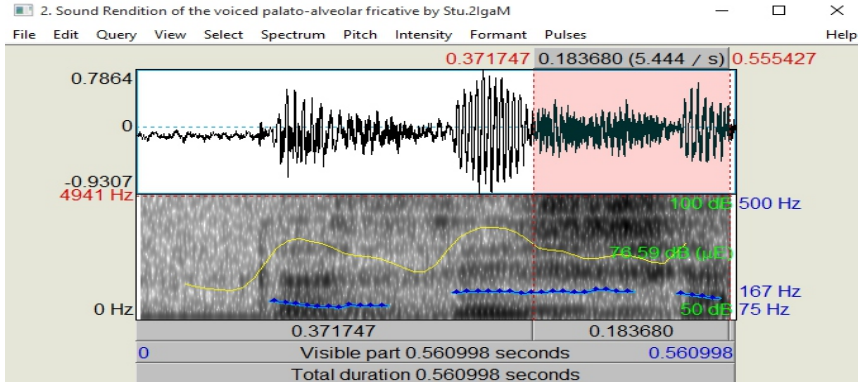**Fig. 3: Rendition of the voiced palato-alveolar fricative /ʒ/ by the Control**

Fig. 4: Rendition of the voiced palato-alveolar fricative /ʒ/ by stu.2IgaM

The highlighted portions in figs 3 and 4 above show how differently the sound was articulated by both the control and a second Igala student. The waveform (that is, the blue line) in fig. 3 runs through to the end of the figure indicating that it voiced sound. In fig. 4, the waveform is broken at intervals indicating that it was rendered as /ʃ/ which is the voiceless counterpart of that sound. This student as well as some other Igala respondents also rendered the sound /ʒ/ in *seizure*, *television* and *confusion* as affricates /ʧ/ & /ʤ/. This is a clear example of mother tongue interference as the students had to substitute the sound to the nearest sounds in their phonemic inventories. In another development, the voiceless glottal fricative /h/ was rendered in a manner which was observed to be particular to the Okun-Yoruba respondents. The sound was completely deleted especially when it appeared at the initial position.
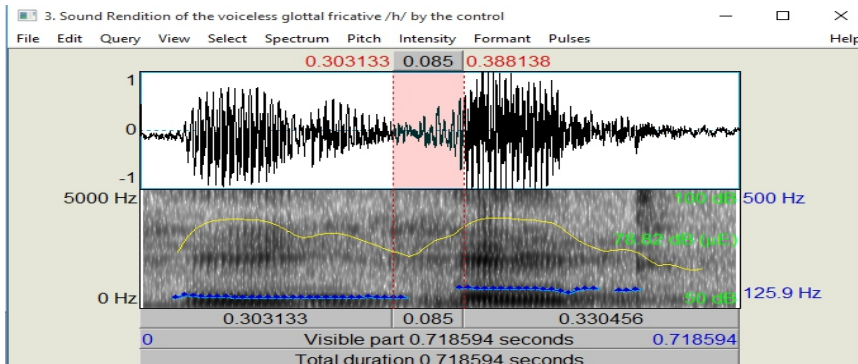

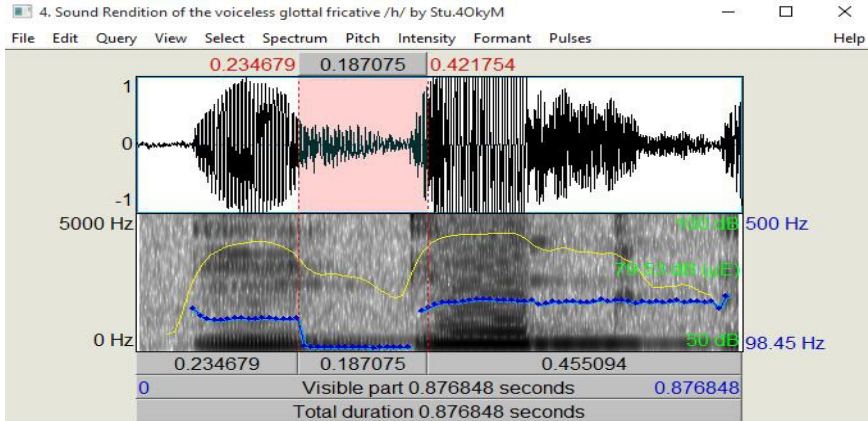**Fig. 5: Rendition of the voiceless glottal fricative /h/ by the Control**

Fig. 6:   **Rendition of the voiceless glottal fricative /h/ by stu.4OkyM**

The highlighted area in Figs. 5 and 6 show the waveform to be broken in the former and present in the latter. The highlighted area shows the waveform because the student realized the sound was voiced as a result of deleting the /h/ which is a voiceless sound. This is strange as the sound is present in the Okun-Yoruba phonemic inventory. On the other hand, the other two languages under investigation did not experience such a phenomenon, for which one may claim that it could have been caused by interference from them in the case of stu.4 OkyM in fig.6 above.

Discussion

Articulation of sounds by respondents in this study reveals some levels of interference that occur in a multi-linguistic setting, in this case, phonological interference. Mother tongue interference is also a major contributing factor in the way respondents in this study articulate some of the English fricatives. There is also an overlapping influence of how an ethnic group articulates certain sounds which affect the way neighbouring languages equally articulate such sounds. In the case of the interdental fricatives /θ/ & /ð/, 90% of the students (see Table 1.2. above) could not produce them correctly because of their mother tongue interference. Another reason why this happened was that the interdental sounds are not present in the phonemic inventories of the selected ethnic groups under study. Mother tongue interference is evident in respondents' rendition of the interdental fricatives as shown in Fig. 2. Even though the respondent, in this case, is Ebira, respondents from the Igala and Okun-

Yoruba ethnic groups were not able to articulate the sound correctly. Most respondents rather substituted the sounds with alveolar plosives /t/ & /d/, which this study found to be the nearest sounds respondents could produce. This has invariably taken us out of the realm of fricatives.

Similarly, 91.7% of respondents could not articulate the voiced palato-alveolar fricative /ʒ/ correctly. As mentioned earlier, this sound does not exist in the phonemic inventories of the selected ethnic groups. Figs. 3 and 4 above show clearly the disparity in the articulation of the sound by the control and an Igala student respondent. Where the pitch trace in Fig. 3 shows that the sound is voiced, the same cannot be said for the pitch trace in Fig. 4 as it is broken at some point, suggesting that the sound articulated is voiceless. Some respondents rendered /ʒ/ as the voiceless counterpart /ʃ/. Hence, respondents rendered the test items seizure /siːʒə/, television /telɪvɪʒən/ and confusion /kənfjuːʒən/ as [seiʃɔ], [televɪʃɔn] & [kɔnfuːʃɔn] respectively. A recurrent feature was the deleting of the voiceless glottal fricative /h/ by some Okun-Yoruba respondents who did so especially when it appeared at the initial positions of words. The highlighted areas in Figs. 5 and 6 show the pitch traces to be present even though the sound has been deleted. This, the researchers think is caused by the voiced sound that is articulated once the /h/ is deleted. Hence, the test items he /hiː/, hid /hɪd/ and hut /hʌt/ were rendered as [iː], [id] and [ɔt].

The labiodental fricatives /f/ & /v/ did not pose much of a problem to most students. Fig. 1.2 above show that 85% of the students were able to articulate the voiceless labiodental fricative /f/ correctly, while 91% of them were able to articulate the voiced labiodental fricative /v/ correctly. Much as this is the case, 9 out of the 20 Okun-Yoruba students were not able to articulate voiceless labiodental fricative /f/ correctly. Some of them tended to substitute the sound with its voiced counterpart /v/. The /f/ in the test item "referred" /rɪfɜːd/ was rendered as [rɪvɑːd]. The researcher finds this phenomenon to be interesting because the voiceless labiodental fricative sound is present in the Okun-Yoruba phonemic inventory. The question of inter-language influence does not feature in this case as the other two ethnic groups in this study do not substitute the sound at all. It is therefore safe to say that this phenomenon is a case of personal/individual peculiarity as justified by the 9 out of 20 Okun-Yoruba students who were unable to articulate the /f/ correctly. The alveolar fricatives /s/ & /z/ also did not pose much of a challenge to most students except for a few Igala students who found the

voiced alveolar fricative /z/ difficult to articulate. 8 out of the 20 Igala students used in this study substituted the voiced alveolar fricative /z/ with voiced palato-affricate /ʤ/, which has taken us out of the realm of fricatives completely. Some of the Igala students rendered the sound /z/ in "zebras" /zebrəz/ and "zoo" /zu:/ as [ʤebrɑ:s] and [ʤu:] respectively. The researchers believe that this is the influence of mother tongue interference since the voiced alveolar fricative does not exist in the Igala phonemic inventory.

Conclusion

This study is an attempt to analyze multi-linguistic interference in the articulation of English fricatives among selected ethnic students at the Federal University Lokoja, Lokoja, Nigeria. Acoustic analyses of this study show that about 90% of the students from the selected ethnic groups were unable to articulate the interdental fricatives /θ/ and /ð/ correctly. Similarly, too, about 91% of the students were unable to articulate the voiced palato-alveolar fricative /ʒ/ correctly. This is because such sounds are not present in their L1 phonemic inventories. The study concludes that inter-ethnic influence, mother tongue influence, individual peculiarities and differences in the phonemic inventories of the selected ethnic groups are features responsible for the students' substitution, deletion, replacement and voicing or devoicing of fricative sounds.

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