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Igbo Phonological Interferences in the Acquisition of English Phonemes /ʌ/ and /eɪ/ in Charity Ekezie's Contents

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ABSTRACT

As a lingua franca, the acquisition of English as second and foreign language has been strongly influenced by the first language of the speakers. This influence which is commonly called interferences has been pronounced especially in the pronunciation where the second language production of speech is highly affected by the first language phonological inventory. The differences in the phonological system of Igbo spoken by Nigerian and English, thus, are interesting to be investigated due to the wide differences of both phonological systems. This research addresses phonological interferences of Igbo in the pronunciation of English vowels /ʌ/ and /eɪ/. A qualitative case study approach was conducted using Weinrich's framework of phonological interference. The findings show that the realization of phoneme /ʌ/ experience under-differentiation in initial position where it is consistently substituted with /ɔ/. However, in medial position, it is variably substituted with /ɔ/ or /ə/, which indicates that other influences may be involved. Meanwhile, the substitution of the diphthong /eɪ/ demonstrates a clear case of actual phone substitution either in the medial position or in the final position. The sounds used for substitution are phonologically similar to the target diphthong, which indicates that the pattern of replacement is predictable rather than random. This systematic replacement of one phoneme with its closest L1 equivalent confirms that the observed interference is a direct case of actual phone substitution. The observed interference patterns, while consistent, are based on a limited dataset. Therefore, further research with a larger sample size is needed for generalization.

INTRODUCTION

Nigeria's early exposure to English under decades of British colonial rule led to the development of a nativized variety, Nigerian English (Ugwuanyi and Aboh, 2025). Classified as an outer circle in Kachru's concentric circle model (Kachru & Nelson, 2011), English functions as a second language alongside indigenous languages like Yoruba, Igbo, and Hausa (Al-Mutairi, 2020; Anidi, 2021; Duru et al., 2024). The contact of English and Igbo in the English as second language acquisition has caused mixing of both language system (Odlin, 1989). This, as a result, shows the relation of a person's tribal background and the language acquisition process which leads to phonological interference (Chitulu & Njemanze, 2015; Oshodi & Owolewa, 2020).

Phonological interference which is defined as the influence of one language in the attempt of learning another language attributed by similarities and differences of both languages (Brière,

1968). While Brière (1968) use phonological interference as a term to specifically refer to influence cause by phonological system, other terms are used to call language influence in general such as language transfer (Odlin, 1989) and cross-linguistic influences (Elgort et al., 2023). However, this paper will use phonological interference to refer specifically to the case studied in this research that is the phonological system influence.

The investigation of the interference of one language in learning other language is considered important to the prediction of areas of interference between two languages (Brière, 1968), thus, can be addressed in the language learning. Previous studies on Nigerian English have identified several notable phonemes that provide a foundation for understanding patterns of L1 influence on English pronunciation. Chitulu and Njemanze (2015) investigated interference in the pronunciation of phoneme /ʌ/ and the diphthong /eɪ/, which are not in the Igbo alphabet. Meanwhile, Opara (2021) highlighted vowel substitution of /ɜ:/, /ʌ/, and /ə/. However, these studies did not systematically classify these occurrences under a clear phonological interference framework as classified by Brière (1968) or Weinreich (1953) for example.

While some researchers have used descriptive frameworks like Crystal's (Alfansyah et al., 2023; Nirwana & Suhono, 2023), Weinreich (1953) framework offers a more specific classification based on the interface of two languages in phonological system, which includes under-differentiation, over-differentiation, reinterpretation, and substitution. Its utility has been demonstrated across various language pairs and contexts (Fajri, 2025; Helvia, 2024; Nirwana & Suhono, 2023).

Using Weinreich (1953) framework, this study attempts to describe the phonological interference of Igbo in English acquisition to address the phonological challenges native Nigerian speakers face. Specifically, this research will analyze the realization of English phoneme /ʌ/ and diphthong /eɪ/ by a native Nigerian from the Igbo tribe, Charity Ekezie. By doing so, this study is expected to give contribution to the prediction of area of interference between two languages.

METHODS

A qualitative method of research is adopted in this paper to explore interferences in real-time pronunciation as used in daily conversation. This method enables researchers to comprehend social and human phenomena in a deep and contextual manner (Creswell, 2009). Therefore, the qualitative method with a case study approach by Creswell (2009) is used in this paper. Linked to the language interference, the researchers employ phonological interference theory from Weinreich, which specifically focuses on the phonemic point of view. Weinreich (1953) classified phonological interference into four categories:

1. *Under-differentiation of phonemes* is a category of interference that occurs when two different phonemes in L2 are considered the same by speakers because the L1 does not distinguish between them.
2. *Over-differentiation of phonemes* occurs when speakers apply phonemic distinctions from their L1 to the sounds in their L2, resulting in two sounds that are actually only allophonic variations of one phoneme being treated as two different phonemes, even though this distinction is unnecessary.
3. *Reinterpretation of distinctions* occurs when speakers apply acoustic features from L1 that are irrelevant or even non-existent in L2, leading to misinterpretation.

4. *Actual phone substitution* occurs due to the absence of an L2 phoneme in the L1 system, thus leading the speaker to substitute it with the closest phonologically similar L1 phoneme.

The material object of this paper comes from YouTube shorts, which is a shorter form of YouTube videos–typically 1-3 minutes–in vertical settings designed for quick consumption on mobile devices. There are 15 short videos of Charity Ekezie's English pronunciation on her YouTube channel. These 15 short videos are chosen according to purposive sampling, specifically criterion sampling as the strategy by (Patton, 2015), which in this paper is the data containing vocabulary with different phonemes /ʌ/ and /eɪ/, also no repetition of words. In addition, the number of 15 short videos was chosen because it was considered representative enough to show the repetitive and consistent sound production patterns of the research subject. Furthermore, this number aligns with the principle of saturation in qualitative research, which occurs when additional data no longer yields new findings (Creswell & Creswell, 2023).

The subject Charity Ekezie based on Ekezie (n.d.) is a Nigerian from the Igbo tribe of Nigeria. However, in her early childhood, she stayed in Cameroon, South Africa until she finished elementary school. Charity Ekezie officially resided in Nigeria when she continued her studies in high school. She then graduated from Nnamdi Azikiwe University in 2012, getting her bachelor's degree in Mass Communication/Media Studies. Ekezie claimed that she is fluent in both English and the Igbo language, although no information has been found about her first language. However, she likely picked up English during her childhood in Cameroon. English is one of Cameroon's official languages alongside French (Ojong Diba, 2021). In her career, she taught English to secondary school students for a year and became a radio presenter and newscaster from 2013 to 2017 for an English-speaking radio Search FM 92.3 of Minna, Nigeria (Ekezie, n.d.).

In this research, the researchers focused on the pronunciation of phonemes /ʌ/ and /eɪ/. Thus, for collecting the data, the researchers used the non-participant observation technique which include note-taking (Creswell, 2009). This method is commonly used as data collection technique in qualitative research metho which emphasizes data collection through direct observation of phenomena as they occur as explained by Creswell (2009). However, the researchers only act as observers who are objectively taking notes and observing the language or pronunciation used by the subjects without participating in the activities being observed. In other discourses, observation can utilize all the senses, such as vision, audition, olfaction, gustation, and tactile (Creswell & Poth, 2018). In this paper, observation was conducted through sound analysis of 15 reels/short videos on YouTube featuring Charity Ekezie speaking English with a Nigerian accent as the primary data sources.

The analysis of the collected data was conducted using Miles and Huberman (1994) qualitative data analysis method, which includes data reduction, data display, and conclusion drawing/verification. Following data collection through non-participant observation, the initial step—data reduction—was performed by simplifying multiple phonetic occurrences of the same word together into a single data category, and keeping track of the different realizations and their respective frequencies.

The data analysis continued using the remaining steps of Miles and Huberman (1994) framework: data display and conclusion drawing/verification (data reduction is elaborated on the Data Collecting Method section). These two interconnected stages are described below.

1. Data display is the process of organizing and presenting the data in a systematic format, such as tables, graphs, matrices, diagrams, or written narratives (Miles & Huberman, 1994). In this

stage, the data gathered were organized and shown in a structured format to allow for easily found data and effective analysis. The reduced phonetic data were displayed in tables, focusing specifically on the phonemes /ʌ/ and /eɪ. The table presented the following information side-by-side: the word, its phonetic realization by the subject, and the Standard RP derived from the Cambridge Dictionary (*Cambridge Dictionary*, n.d.) to facilitate comparison. Additionally, the frequency of each realization was included to allow for easier trend recognition. The source of the video was briefly mentioned to ensure the traceability of the data.

2. Conclusion drawing and verification is a stage where the conclusion is made from the data that has been reduced and displayed (Miles & Huberman, 1994). The analysis process began in this section with the systematic comparison of the realized pronunciations against the Received Pronunciation (RP) standard. This comparison allowed the study to move from a simple description to a theoretical interpretation. Weinreich's (1953) theory was used to explain the occurrences in the data, identifying the type of interference and the reasons for its categorization. Following this, an attempt to identify the important variables to the cause of the phonological interference was made. The final conclusion then was established based on a comprehensive interpretation of all the reduced and displayed evidence, ensuring the results are firmly supported by the data collected.

FINDINGS AND DISCUSSION

The findings are organized for clarity and focus, with the entire presentation divided into two primary subsections: the first is the explanation on Igbo phonological inventory to clearly differentiate from English, the second is dedicated to the realization of vowel /ʌ/ and diphthong /eɪ/. Furthermore, the data within each main phoneme section (the second and third subsections) are categorized by their distributional position: initial, medial, and final. If no interference is found in a particular distributional position, the sub-section is omitted. Each phoneme section also has a dedicated section on inconsistencies, which displays instances where the same word exhibits different phonetic realizations.

In each of the subsections, the tables are designed to facilitate comparative analysis, displaying the word and its phonetic realization by the subject side-by-side with the corresponding RP. The specific vowel in focus will be typed in bold within the table entries.

Igbo Phonological Inventory

To understand the nature of the interference, it is essential to first consider the phonological system of the speaker's L1. The table below presents the vowel inventory of the Igbo language (Eme & Uba, 2016), which will be used as a point of comparison with the English vowels used in Received Pronunciation. As can be seen below, some phonemes are present in the RP, but not in the Igbo language. In the Igbo language, there are only eight vowels.

Table 1. Igbo eight vowels (Eme & Uba, 2016)

alphabet	a	e	i	ị	o	ọ	u	ụ
phoneme	/a/	/e/	/i/	/ɪ/	/o/	/ɔ/	/u/	/ʊ/

Those eight vowels varied in the place of articulations as illustrated in the following articulatory chart of the Igbo vowel inventory.

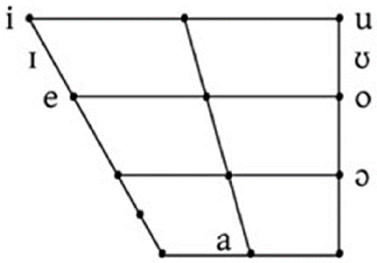

Figure 1. Standard Igbo vowel inventory (Akinbo et al., 2024)

The phoneme /ʌ/ that is regularly present in the RP phonemes is not present in the Igbo language. Another thing to note, diphthong vowels–such as /eɪ/–are not present in the Igbo language, as they are only found in consonants (NWOYE, 2023). The absence of these vowels in the Igbo language is likely to cause phonological interference.

Realization of Vowel /ʌ/ and Diphthong /eɪ/

The amount of linguistic data obtained from this study is 90 data, after conducting careful observation; including watching videos repeatedly and simultaneously taking notes of the words that experience phonological interference from the 15 short videos selected. Of the 90 data, data from the same words from the same video were merged as one data to examine the consistency of the pronunciation. However, the same words from different data are coded differently as different data, thus 58 words were resulted and coded as data 1 to 58.

Vowel /ʌ/

Through the analysis of vowel /ʌ/ when pronounced by Charity Ekezie as a native Nigerian, it is discovered that most /ʌ/ sound is replaced with the /ɔ/ sound both in initial and medial distribution. Although there are inconsistencies, the phoneme substitution persists in several different words.

For the vowel /ʌ/, the results found are presented in the table below, categorized by vowel distribution, including initial, medial and the table that also shows the inconsistencies of substitution within the same word.

Vowel /ʌ/ in the initial distribution

From the observation, the researcher only found five data that contained the vowel /ʌ/ substituted with /ɔ/.

Table 2. Data substitution of vowel /ʌ/ to /ɔ/

No	Data Number	Words	Source	RP	Charity Ekezie	Frequency
1.	1	Us	Video 2	[**ʌ**s]	[**ɔ**s]	2
2.	2	Understand	Video 9	[ˌ**ʌ**n.dəˈstænd]	[**ɔ**ndəstɑnd]	1
3.	3	Uncivilized	Video 11	[**ʌ**nˈsɪv.əl.aɪzd]	[**ɔ**nsɪvəlaɪzd]	1
4.	4	Other	Video 11	[ˈ**ʌ**ð.ər]	[**ɔ**ðɑ]	1
5.	5	Under	Video 12	[ˈ**ʌ**n.dər]	[**ɔ**ndɑ]	1

Throughout all fifteen videos collected, there are only five words in which the phoneme /ʌ/ is present in the initial distribution. All five of them show consistency in the replacement of the phoneme with the phoneme /ɔ/, and they do not correspond to the RP.

Vowel /ʌ/ in the medial distribution

Different from the initial distribution, the appearance frequency of the vowel /ʌ/ in the medial distribution is higher. The researcher found twenty-five data as follows.

Table 3. Data substitution of vowel /ʌ/ to /ɔ/

No	Data Number	Words	Source	RP	Charity Ekezie	Frequency
1.	6	Summons	Video 1	[ˈsʌm.ənz]	[sɔmɔns]	1
2.	7	Encompass	Video 1	[ɪnˈkʌm.pəs]	[enkɔmpɑs]	1
3.	8	Judge	Video 2	[dʒʌdʒ]	[dʒɔdʒ]	1
4.	9	Jump	Video 2	[dʒʌmp]	[dʒɔmp]	1
5.	10	Jungle	Video 2	[ˈdʒʌŋ.gəl]	[ˈdʒɔŋgul]	1
6.	11	Does	Video 3	[dʌz]	[dɔz]	1
7.	12	Something	Video 4	[ˈsʌm.θɪŋ]	[sɔmtɪŋ]	1
8.	13	Couple	Video 4	[ˈkʌp.əl]	[kɔpul]	1
9.	14	Suck	Video 4	[sʌk]	[sɔk]	1
10.	15	Substances	Video 4	[ˈsʌb.stənsɪz]	[sɔbstɑnsɪz]	1
11.	16	Become	Video 5	[bɪˈkʌm]	[bɪkɔm]	1
12.	17	Thunder	Video 7	[ˈθʌn.dər]	[tɔndɑ]	3
13.	18	Hut	Video 7	[hʌt]	[hɔt]	1
14.	19	Toothbrushes	Video 8	[ˈtuːθ.brʌʃɪz]	[tutbrɔʃɪz]	4
15.	20	Brush	Video 8	[brʌʃ]	[brɔʃ]	4
16.	21	Stuffed	Video 10	[stʌft]	[stɔft]	3
17.	22	Adults	Video 10	[ˈæd.ʌlts]	[ædɔlts]	1
18.	23	Comfort	Video 10	[ˈkʌm.fət]	[kɔmfɔt]	1
19.	24	Hug	Video 10	[hʌg]	[hɔg]	1
20.	25	Come	Video 11	[kʌm]	[kɔm]	1
21.	26	Butt	Video 13	[bʌt]	[bɔt]	2
22.	27	Much	Video 13	[mʌtʃ]	[mɔtʃ]	1
23.	28	Structure	Video 14	[ˈstrʌk.tʃər]	[strɔktʃɔ]	2
24.	29	Country	Video 14	[ˈkʌn.tri]	[kɔntri]	2
25.	30	Once	Video 15	[wʌns]	[wɔns]	1

It can be seen from the table above that the phoneme /ʌ/ in the medial distribution has twenty-five data that are consistently replaced with the phoneme /ɔ/. Based on this evidence, having discussed the data from the initial and medial distribution, it appears that the phoneme substitution of the vowel /ʌ/ consistently presents regardless of the distribution.

Inconsistencies within the same words

In the previous table of medial distribution, there are twenty-five data, in total, which are consistently replaced with the phoneme /ɔ/, but the researcher discovered five data where the vowel /ʌ/ was substituted with other sound but inconsistent within the same word, which can be seen in the table below.

Table 4. Data inconsistencies within the same word

No	Data Number	Words	Source	RP	Charity Ekezie	Frequency
1.	31	But	Video 4	1. [bʌt] 2. [bət]	[bət]	1
2.	32	But	Video 8	1. [bʌt] 2. [bət]	[bɔt]	1
3.	33	But	Video 14	1. [bʌt] 2. [bət]	[bʌt]	1
4.	34	Just	Video 2	[dʒʌst]	[dʒəst]	1
5.	35	Just	Video 3 and 5	[dʒʌst]	[dʒɔst]	3

As can be seen from items 31, 32, and 33 above, the word 'but' is pronounced by Ekezie in three different ways by the subject. Items 31 and 33 show two different pronunciations in that both correspond to the RP transcription. Item 31 is in accordance with the weak form of the word, but found in the dictionary, while item 33 is in accordance with the strong form of the same word. In video 14 (item 33), the subject pronounced what is originally [bʌt] using the same vowel sound /ʌ/ without replacing it with the vowel sound of /ɔ/, as has been consistently seen in the previous items.

In items 34 and 35, the word just is pronounced in two different ways by the subject. In item 35, especially, the word is consistently pronounced the same way throughout videos 3 and 6, using the vowel sound /ɔ/, thus pronounced [dʒɔst]. Not one of them corresponds to the RP transcription. From the varying pronunciations of both of the words above, it can be concluded that the phoneme /ʌ/ can sometimes be replaced with the phoneme /ɔ/, /ə/, or just stays as it is. It is known that the number of inconsistent replacements is smaller compared to the consistent replacements. Thus, it is safe to assume that the phoneme /ʌ/ is more likely to be replaced with the phoneme /ɔ/ by Ekezie.

The consistent substitution of /ɔ/ for the English /ʌ/ by the Nigerian subject strongly suggests under-differentiation. This claim is supported by the Igbo vowel chart, which shows that at the open-mid position, only the rounded vowel /ɔ/ is present. Notably, both the English /ʌ/ and the Igbo /ɔ/ are open-mid back vowels, meaning they are produced with the tongue positioned in the back of the vocal tract (Jones, 2011; Skandera & Burleigh, 2005). The adjacent English unrounded vowel /ʌ/ must therefore be accommodated. This phenomenon suggests the speaker is systematically merging the English distinction between /ʌ/ and /ɔ/ into a single L1 category. The concept of dephonemization (Hurdail, 2017), defined as the blurring or neutralizing of phonemic distinctions, thus applies here, as the subject is consistently applying their L1's single phoneme to two L2 phonemes. This indicates that the speaker is more habituated to the lack of distinction between these two sounds, a clear influence of the L1 system. However, this generalization cannot be made throughout all data and should be more cautiously made due to the likeliness of other influences taking place.

The variability observed in the data suggests the influence of factors beyond simple L1 phoneme inventory gaps. Such influences likely include the speed and continuity of the subject's speech, which can directly affect the production of assimilated sounds in continuous speech (Ramadhani, 2022). This dynamic process may account for instances where the target sound is either pronounced correctly or realized as an unstressed variant. For example, the proper

pronunciation of /ʌ/ in item 33, alongside the realization of /ə/ in item 31 and 34, aligns with the expectation that /ə/ is a common, weaker form of /ʌ/ in continuous, faster speech.

Another relevant influence is the phonetic environment of the sound (Ficayuma, 2024). Given that Igbo is the subject's L1, she may be more conditioned to produce sounds based on the typical neighboring sounds and positional constraints common in her native language. This habitual articulatory bias could modulate the realization of English vowels in specific contexts (Gass & Selinker, 2008).

Diphthong /eɪ/

Different from /ʌ/ vowel, out of fifteen videos that have been observed, the researcher did not find the diphthong /eɪ/ in the initial distribution of words, but the researcher found it in the medial and final distribution that occurs in several words pronounced by Ekezie with more variety in sound substitutions. Alike with the inconsistencies within the same word found in the /ʌ/ vowel, there are also found in the diphthong /eɪ/.

Vowel /eɪ/ in the medial distribution

For the diphthong /eɪ/ found in the medial distribution, the substitution occurs in several different sounds, such as /e/, /eʊ/, and /i/, which will be presented in the tables below.

Table 5. Data pronounced properly according to the RP transcription

No	Data Number	Words	Source	RP	Charity Ekezie	Frequency
1.	36	Take	Video 4	[t**eɪ**k]	[t**eɪ**k]	1
2.	37	Tail	Video 8	[t**eɪ**l]	[t**eɪ**l]	1
3.	38	Name	Video 14	[n**eɪ**m]	[n**eɪ**m]	1
4.	39	Made	Video 14	[m**eɪ**d]	[m**eɪ**d]	1

The researcher discovered four data from Ekezie's pronunciation on her three videos, which are two words that came from two different videos, while the rest of them came from the same video. The table above shows the words that are consistently pronounced properly according to the RP transcription.

However, other pronunciations that have the /eɪ/ sound substituted by other sounds are also present in the subject's speech, as shown in the table below.

Table 6. Data substitution of diphthong /eɪ/ to /e/

No	Data Number	Words	Source	RP	Charity Ekezie	Frequency
1.	40	Ladies	Video 1	[ˈl**eɪ**.diz]	[l**e**diz]	2
2.	41	Destination	Video 3	[ˌdes.tɪˈn**eɪ**.ʃən]	[destin**e**ʃən]	1
3.	42	Straight	Video 4, 5, and 6	[str**eɪ**t]	[str**e**t]	3
4.	43	Straighten	Video 5	[ˈstr**eɪ**.tən]	[str**e**tən]	3
5.	44	Translate	Video 9	[trænzˈl**eɪ**t]	[trænzl**e**t]	1
6.	45	Baby	Video 10	[ˈb**eɪ**.bi]	[b**e**bi]	5
7.	46	Place	Video 12	[pl**eɪ**s]	[pl**e**z]	1
8.	47	Cable	Video 13	[ˈk**eɪ**.bəl]	[k**e**bɔl]	2
9.	48	Incantations	Video 15	[ˌɪnkænˈt**eɪ**ʃᵊnz]	[ɪnkænt**e**ʃᵊnz]	1
10.	49	Days	Video 15	[d**eɪ**z]	[d**e**z]	1

As presented in item 42, the phoneme substitution of the word straight remains across three different videos–videos 4, 5, and 6. The word 'baby' in item 45 also appears five times in video 10. Including the rest of the items in the data, it presents a total of sixteen times the appearance of the phoneme substitution featuring the phoneme /e/. With that number, the phoneme /e/ becomes the most frequently appearing phoneme that replaces the /eɪ/ sound throughout all of the items collected.

In ten different words that contain the diphthong /eɪ/ in the medial distribution as shown above, the diphthong is mostly replaced with the vowel /e/. In this distribution, other sounds that substitute diphthong /eɪ/are found as follows.

Table 7. Data substitution of diphthong /eɪ/ to /eʊ/ and /i/

No	Data Number	Words	Source	RP	Charity Ekezie	Frequency
1.	50	Female	Video 10	[ˈfiː.m**eɪ**l]	[fim**eʊ**l]	1
2.	51	Plantain	Video 12	[ˈplɑː.n.t**eɪ**n]	[plɑntin]	1

Through items 50 and 51, the variations of the phoneme substitution in the pronunciation of /eɪ/ can be seen in which the diphthong is replaced with the sounds /eʊ/ and /i/. Both of the variations only appear once throughout the fifteen videos. There is another appearance of the sound /eʊ/ replacing /eɪ/ that will, eventually, be shown in the data table of the inconsistencies within the same words.

Overall, within just the medial distribution, the sound /eɪ/ is inconsistently pronounced. Accurate pronunciations according to the RP do present, but they are not persistent throughout the data collected.

Vowel /eɪ/ in the final distribution

The result of the observation found that the substitution of diphthong /eɪ/ still occurs in the final distribution below.

Table 8. Data substitution of diphthong /eɪ/ to /e/

No	Data Number	Word	Source	RP	Charity Ekezie	Frequency
1.	52.	They	Video 11	[ð**eɪ**]	[d**e**]	3
			Video 12	[ð**eɪ**]	[d**e**]	2

As shown by the items above, Ekezie still experienced the phoneme substitution of the diphthong /eɪ/ in the final distribution of a word. Unfortunately, there were not enough words that contained the diphthong in this distribution. Overall, based on the fifteen videos observed, there are only two cases of phoneme substitution within the same word, i.e., 'they'. Although only two, both cases similarly have the diphthong /eɪ/ changed to the phoneme /e/.

Inconsistencies within the same words

The researcher found six data for the substitution of diphthong /eɪ/ with vowel /ɪ/, /e/, and /eʊ/; however, this substitution appears in both medial and final distribution, as can be seen in the table below.

Table 9. Data inconsistencies within the same words

No	Data Number	Words	Source	RP	Charity Ekezie	Frequency	Distribution
1.	53	Location	Video 2	[ləʊˈk**eɪ**.ʃən]	[lok**ɪ**ʃən]	2	Medial
2.	54	Location	Video 3	[ləʊˈk**eɪ**.ʃən]	[lok**e**ʃən]	2	
3.	55	Play	Video 10	[pl**eɪ**]	[pl**e]**	1	Final
4.	56	Play	Video 10	[pl**eɪ**]	[pl**eɪ]**	1	
5.	57	Whale	Video 15	[w**eɪ**l]	[w**eɪ**l]	1	Medial
6.	58	Whale	Video 15	[weɪl]	[w**eʊ**l]	1	

The data above shows a broader variation of the phoneme substitution on the diphthong /eɪ/. Between each of the items in the data, the phoneme substitution differs from one another. The substituted sounds featured in this data are /ɪ/, /e/, and /eʊ/; and there are also two items that show no evidence of phoneme substitution, i.e., items 56 and 57.

It is important to note that Items 50, in the previous table, and 58 above show regularity of the environment in which the diphthong /eɪ/ is followed by the /l/ sound. This regularity apparently results in the replacement of variation /eʊ/. However, this regularity still cannot be confirmed as consistent, as can be seen from data 58, the diphthong /eɪ/ followed by the phoneme /l/ shows no evidence of phoneme substitution. Thus, any further discussion to confirm the consistency needs more evidence.

A more confident claim can be made with the findings concerning the substitution of the diphthong /eɪ/ as a clear case of Actual Phoneme Substitution. This substitution occurs when, instead of blurring the distinctions between different phonemes (as in under-differentiation), a consistent and predictable replacement is present. The data support this: out of 23 items, 14 present a staggering case of the monophthong /e/ substituting the diphthong. Other substitutions are seen in item 51 (/i/), item 53 (/ɪ/), and items 50 and 58 (/eʊ/).

The substitutions are not random errors; they are phonologically motivated. A diphthong is a single phoneme that involves a glide from one vowel sound to another (e.g., /eɪ/ glides from /e/ toward /i/). Both the starting sound /e/ and the ending sound /ɪ/ of the /eɪ/ diphthong are close-mid front vowels, produced in the front of the vocal tract. If we trace the position of the substituting phonemes, we can see that the most frequently occurring substitutes, which are /e/, /i/, and /ɪ/, are also produced around the close to close-mid front area in the vocal tract. This phonetic adjacency to the target diphthong establishes the predictability of these replacements. The substitution of /eʊ/ (item 50 and 58) is the only exception, due to its glided sound /ʊ/ existing in the back of the vocal tract, not the front. However, the overall pattern shows that the speaker is effectively selecting the closest front-vowel equivalent available in their L1 inventory.

This interpretation aligns with Flege (1995) Speech Learning Model, which shows that bilinguals often modify their pronunciation in ways that approximate the target language rather than reproduce it exactly. Similarly, Odlin (1989) observed that the resemblance between sounds across languages creates the potential for identification. In other words, non-native speakers are likely to match new sounds to the ones they already know from their first language.

Rather than representing a structural merger of sounds, this consistent pattern is more likely to be an established articulatory habit. This reflects the systematic application of the L1

phonological system onto the L2, where the speaker consistently replaces the more complex, gliding /eɪ/ sound with its closest monophthong counterpart, which is the key characteristic of actual phoneme substitution.

CONCLUSION

This research utilized Weinreich's framework to identify two distinct mechanisms of Igbo L1 phonological interference in the subject's English vowel production. The substitution of the English /ʌ/ with the Igbo /ɔ/ strongly suggests under-differentiation. This is a structurally motivated phenomenon rooted in the Igbo phonological inventory, which lacks a separate phoneme for /ʌ/. Consequently, the subject systematically blurs the distinction between the two English sounds into a single L1 category, i.e., /ɔ/, which demonstrates the consistent influence of L1 application. However, the presence of other sound realizations, such as /ə/, indicates that factors like speech rate and phonetic environment also modulate the phonetic outcome, suggesting that while the phenomenon is linked to underlying systematic factors, e.g., phonological inventory, the surface errors sometimes are still affected by other factors.

In contrast, the findings for the diphthong /eɪ/ provide a clear case for actual phoneme substitution. This case is not classified as under-differentiation, but a systematic articulatory habit. The speaker consistently replaces the complex, gliding sound /eɪ/ with the simpler monophthong /e/, an L1 sound that is phonologically similar due to its shared articulatory position, i.e., close-mid area. This pattern aligns with theories like Flege's Speech Learning Model, which posits that non-native speakers approximate the target sound by matching it to a known L1 category, confirming the substitution as a highly predictable and systematic process (Flege, 1995). This consistent choice of a monophthong to replace the more complex L2 sound is the key characteristic that defines this process as substitution.

In summary, this study demonstrates that L1 interference in Nigerian English operates through both under-differentiation (for /ʌ/) and actual phone substitution (for /eɪ/). While the observed patterns within the scope of this case study are mostly consistent, a more comprehensive understanding requires further research with a larger dataset to generalize these findings and strengthen the theoretical understanding of phonological acquisition in multilingual contexts. Future research should expand the scope and use larger and more diverse data collection, including studies across multiple speakers and contexts, to enable a more comprehensive analysis of phonological interference among different sounds. Such an approach would provide stronger evidence and deeper insights into phoneme substitution patterns and interference in Nigerian English influenced by Igbo phonology.

From what have been concluded, the findings of the research have several pedagogical implications, especially in the teaching of English pronunciation for Igbo-speaking learners. The first implication comes from the under-differentiation in the realization of /ʌ/ which suggests that the learning process should include explicit instruction or activities on the production of vowel /ʌ/ and distinguish it from the existing L1 category /ɔ/ which can improve the learners' phonemic awareness such as using minimal-pair training or using visual aid provided by several websites on pronunciation training to illustrate vowel space representations. The second implication from the findings on the realization of diphthong /eɪ/ which was consistently replaced by monophthong /e/ which was resulted from an articulatory simplification strategy rather than confusion on the different phonological inventory. In this case, repetitive and explicit instruction focusing on vowel movement

and glide formation is necessary. This is aligned with Flege's Speech Learning Model which gives emphasis on the role of articulatory awareness in modifying L1 speech production habit (Flege, 1995).

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