
Ghanaians' Realization of [ə] and its Implications for English Teachers

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Abstract

Studies have shown that speech perception of non-native contrasts in second language acquisition pose problems for L2 speakers. These may be due to the influence of the L1 phonological system, markedness, universal tendencies or individual characteristics. This paper is an acoustic study that examined the way Ghanaians realize the [ə] in speech. In all, 66 first year students from the Ghanaian Languages departments of the University of Education, Winneba were chosen for the study. They were given English words with [ə] at initial, medial and final positions in carrier frames to read as sentences. The data was then analyzed using the Computerized Speech Laboratory (CSL 4500). Results of this study showed that Ghanaians do not really produce [ə], but rather, produce the vowels according to the way they are spelt in words. English teachers are therefore advised to pay particular attention to the teaching of pronunciation of English words while teaching their students and teacher-trainees.

Key words: Schwa, Ghanaian English words, L2 speakers, unstressed syllables, speech perception

Introduction

Speech perception of non-native contrasts in second language acquisition (SLA) has been widely acknowledged to pose difficulties for L2 speakers. Factors such as the influence of the L1 phonological system, marked universal tendencies or individual characteristics may account for some of these difficulties. (Eckman, 1977)

In spite of that, there are studies (Bongaerts et al., 1997; Markham, 1997; Escudero, 2006) that have shown that L2 speakers can learn to perceive new L2 vowels in a native-like manner. Besides, theories like the Speech Learning Model (SLM) by Flege defend the idea that the native language sound system mechanisms 'remain intact over the life span' (Flege, 1995:239) and that it is possible for adult learners to establish new non-native phonetic categories.

While schwa[ə] is a very frequent sound in English as the nucleus in unstressed syllables both in content words and function words, the same cannot be said of African languages especially, Ghanaian languages. This fact in addition to others such as the influence of orthography, specially in contexts in which language is introduced in its written form (most formal instruction settings) may explain why this sound tends to be assimilated to L1 vowel sounds by most speakers of Ghanaian languages (and therefore identified and produced as a peripheral vowel).

English is a stress-timed language displaying phonological vowel reduction (Christophersen, 1956). Weak vowels, such as schwa [ə] are part of the phonological form of many words in the language. (Furthermore, English allows important weakening processes in function words (prepositions, pronouns, auxiliary verbs and conjunctions), in which peripheral vowels are often centralized to schwa. Speakers of African languages such as Twi,

Ewe, Yoruba, in which there is no stresslessness, can find difficulties in perceiving and producing vowel reduction.

The English language has become the language of international politics, trade, finance, and science. It has brought about the convenience of global communication. However, different varieties or forms of English ('Englishes') have evolved from different speakers of this language from different countries. Most of these varieties are difficult to understand, especially, for native listeners of English and even more so for some non-native listeners. These varieties of English are usually referred to, according to where they are coming from, as Singaporean English, Indian English, South African English, West African English, e.t.c. Even among West African English-speaking countries, there are sub-regional varieties. Thus, we can have Nigerian English (English spoken in Nigeria) (Jibril, 1986, Kujore, 1990), Cameroonian English (Bobda, 1994; Bobda & Chumbow, 1999), Liberian English (English spoken in Liberia), Gambian English (English spoken in Gambia), e.t.c.

English is not a native language of Ghana, but every educated Ghanaian learns it, and some use it extensively in their everyday lives. Crystal (1987) states that a... *language used in all corners of the world by people from all walks of life develops new spoken varieties which are used by local people as symbols of their identity*. These varieties of the English language have evolved as a result of differences, mainly in their phonological and morphological systems. For instance, in Ghana, most speakers of English find it difficult to differentiate between [i] and [ɪ], on the one hand and between [o] and [ʊ] on the other hand. (Akpanglo-Nartey, 2008).

The Ghanaian Situation

The central /ə/ vowel is one of the vowels of Ewe. This can be exemplified in a word like *akple* [akplə] – a local food. Abdul-Rahman (2005) also posits that /ə/ is a full vowel in Dagbani, and it can be found in words like [pəni] – *shaving / mound*. No other Ghanaian language has the vowel [ə] in its phonemic inventory.

Different authors across the globe have described aspects of English spoken in their respective countries. These include (Jibril, 1986, Kujore, 1990) for Nigerian English (NE), (Zuengler, 1983) for Kenyan English, (Kachru, 1965; Parasher, 1981) for Indian English and (Bobda, 1994; Bobda & Chumbow, 1999) for Cameroon English (CamE). Linguists see the emergence of varieties in any language as a normal occurrence, because human language is dynamic and subject to constant change (Crystal 1987).

There is a possibility of a norm of English which is non-native to England, and English spoken in Ghana is one of such. The trend therefore is to recognize the English in Ghana as an entity that has its own internal viability and must be studied and described independently of any other form of English. The Ghanaian speaker has to know what English he speaks, be able to describe it and explain how it works, so that learners can identify and use its structure, phonological system, etc., effectively. However, the codification of this variety of English spoken in Ghana has not been done; and until this is done and accepted, what variety of English are Ghanaians expected to speak?

English is the official language of Ghana. It is also the language of instruction at all levels of education. The Ghanaian child is taught in English, and is expected to produce the language the same way the native speaker does. However, African speakers usually produce vowels the

way they are. They do not reduce or unstress any vowel. For instance, Christopherssen (1956), argues that, “There is a general tendency among Africans to substitute the vernacular [a] for final [ə] and thus, instead of [entə], produce [enta] (with equal stress on both syllables)”. He is of the view that this situation must be avoided, for it sounds quite un-English. The vowel [ə] is identified as vowel No 12 in English. According to Christopherssen (1956), an important characteristic of this vowel is that it occurs only in unstressed syllables. Other vowels, too, may be used in unstressed syllables, such as [i] in coffee and in the noun import; but these two vowels are also frequently used in stressed syllables, while [ə] never occurs with stress. This means that the vowel [ə] can be found at any position where the vowel at that position is not usually, to be heard loudly or ‘stressed’.

Lack of stress means lack of force or energy in pronunciation. Vowel No. 12 is usually very short; it is a central or neutral vowel; and it is lax. That is, it is said without any tension of the muscles. Hence, it is a rather vague and obscure sound. This means that when other vowels lose their stress, they tend to become more obscure and to assume the quality of no. 12. With the loss of stress, vowels tend to lose their specific tongue position and to adopt a neutral position.

There is no standard spelling of [ə], which may in fact be represented by any of the five vowel characters [a, e, i, o u] and partly in order to help to achieve the right pronunciation of vowel.

Related Previous Studies

Yankson (1971) is a study on contrastive analysis of English and Fante consonants. He discussed the learning problems for the Fante learner of English. He concluded that any sounds the Ghanaian languages lack are non-existent in Ghanaian English (GE).

Sey (1973) reports that the common pronunciation differences are:

- (i) The use of /a/ as a substitute for RP /æ/, /a:/ and /ə/, giving pronunciations like:

<u>GE</u>		<u>RP</u>		
kat	for	kæt	--	cat
salmɔn	for	sælmən	--	salmon
lɛta	for	letə	--	letter

Adjaye (1987) studied Educated Ghanaian English (EGE) pronunciation. She presented an analytical description based on research data from the English pronunciation of thirty-eight Akan, Ewe and Ga speakers of English as a second language, from elementary, secondary / technical, and university and higher levels of education. She described English as spoken by Ghanaians by examining the segmental and non-segmental and contextual features of the English they use. She concluded that it is evident from the data that there is an accent that can be labelled EGE with describable features... different from Akan, Ewe or Ga, all of which also differ from one another. For instance, she concluded that there is a tendency for the speakers of EGE to use only 20 of the 24 RP vowels, with the vowels /ə/, /ɒ/, /æ/ and /ɜ:/ constantly replaced by /a/ or /ɛ/.

Gyasi (1991) adds that the word *bus*, is interestingly pronounced as /bas/, by Twi speakers but by Ga speakers as /bɔs/ and Fanti speakers as /bes/; *cup* and *but* are pronounced as /kap/ and /bat/ by Twi speakers, as /kɔp/ and /bɔt/ by Ga speakers, and as /kɛp/ and /bet/ by Fanti speakers respectively, thus collaborating what Sey had intimated earlier (1973), that Fantes use /ɛ/ for /ə/, when he said...*in some areas, particularly Cape Coast, RP /ə/ is very often pronounced /ɛ/*. He gives examples of words where [ə] has been replaced with [ɛ] by speakers of GE as:

first, thirst, serve, stern, work, worst, burn, church.

From Gyasi's claim, it can be deduced that Twi speakers Koranteng (2006) conducted a study to determine the way Ghanaians realize the central vowels of English. She recorded words that were pronounced in open discussions with colleagues, students and radio/ TV programmes. She also recorded words that were selected and read. Using auditory means, she isolated words with central vowels and transcribed them. Of special interest to this study is the realization of the vowel [ə]. According to Koranteng's study, [ə] was realized in 110 words as follows:

[ə] in 32 cases

[a] in 41 cases

[ɛ] in 11 cases

[ɜ] in 15 cases

[o] in 9 cases

[ʊ] in 2 cases

She concluded that apart from the fact that the use of English central vowels by Ghanaians is not common, there is also a lot of fronting (use of [ɛ], [a]). Akpanglo-Nartey (2008) conducted an acoustic description of Ghanaian English vowels. Her main aim was to provide an accurate phonetic description of the vowel sounds of the Ghanaian variety of English. She recorded sentences with words in [hVd] contexts as spoken by speakers of all the Ghanaian language groups in the Faculty of Languages of the University of Education, Winneba. (i.e.: Akan, Ewe, Dagbani, GaDangme, Nzema, Gonja, Gurene, Dagaare, Kasem,) and analyzed them using the Kay Elemetrics Computerized Speech Lab (CSL Model 4500). Comparing her results with the British and American varieties of English, it was revealed that there is conflation of some vowels including, [i, ɪ], [æ, ɑ, ʌ], [ɒ, ɔ], and [ʊ, u]. Citing Lim and Nartey (1993), she concludes that her results are similar to theirs in relation to studies on Singaporean English, where they report of conflation in the following pairs of Singaporean English vowels: [i, ɪ], [ɛ, æ], [ɒ, ɔ], and [ʊ, u]. Various reasons have been given for the lack of distinction between these vowels.

Sey (1973:148-149) (as well as Harman, and Schachter) identifies:

- *the spelling system of both English and the L₁,*
- *the fact of having learnt English from books, and/or*

- *a generalization of some native English usage.*

In considering the vowels that are produced outside the main or recognized varieties, Plat, et al (1984) summarise the general tendencies in the rendition of vowels in the New Englishes as:

a tendency to shorten vowels;

a lack of distinction between long and short vowels;

a tendency to replace central vowels by either front or back vowels;

a tendency to shorten diphthongs and to leave out the second element in a diphthong

Objectives

The main objective of this study is to examine the way Ghanaians realize the vowel [ə] in their everyday speech. It will also look at some implications of this phenomenon for the Ghanaian English Language teacher.

The data

The sample involved in this study consists of a total of 66 first year university students from the nine main language groups studied in the University of Education, Winneba. Six speakers (3 males and 3 females) were chosen from each of these areas; Akan (Fante and Twi), Ewe, GaDangme (Ga and Dangme), Dagbani, Nzema, Gonja, Dagaare, Kasem, Gurene. These speakers were native inhabitants of the selected language areas. They were between 26 and 45 years. None of them had any known hearing loss or speech impairment. They were people who were born, raised and are still living in these areas and had formal education up to the university level, with the English language as the language of instruction.

Corpus

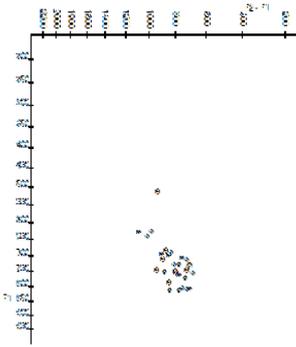
Selected English words from the Longman Pronunciation Dictionary were used for this study. These words had [ə] at initial, medial and final positions. (At these positions, the vowel is supposed to be unstressed in English).

The words were then put in a carrier frame to form sentences. The frame took the form, 'Say only'. The sentences were printed on hard cards that measured about two inches by five inches, and presented to the speakers to read. Every speaker was made to repeat each sentence three times. Speakers were encouraged to read the sentences as naturally as possible so as to reflect their every day speech. The sentences were then recorded using a Sony DAT recorder.

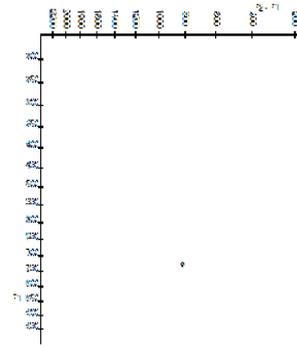
The words that were used in the recordings are presented as follows:

Initial

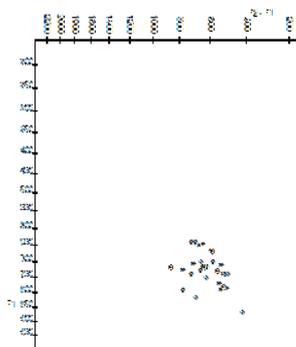
about [əbaʊt], accord [əkɔ:d], adapt [ədæpt], affirm [əfɜ:m], against, [əgenst] alert [əlɜ:t], appeal [əpi:l], ascend [əsend], avoid [əvɔɪd], await [əweɪt]



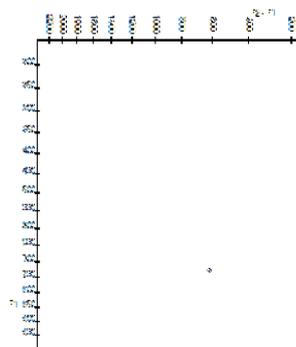
Group B vowels at initial position (raw)



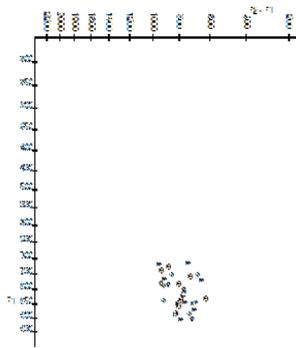
Group B vowels at initial position (average)



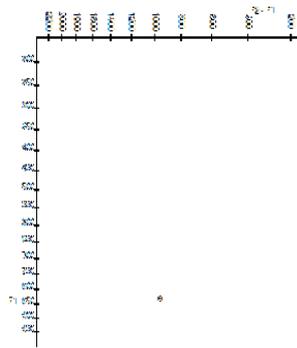
Group C vowels at initial position (raw)



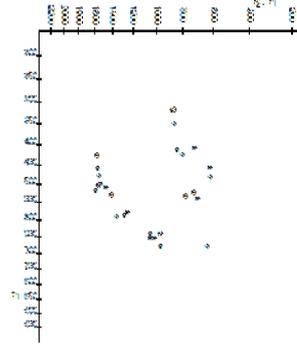
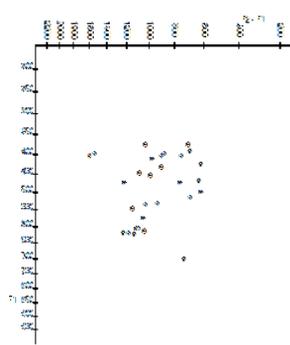
Group C vowels at initial position (average)



Group D vowels at initial position (raw)

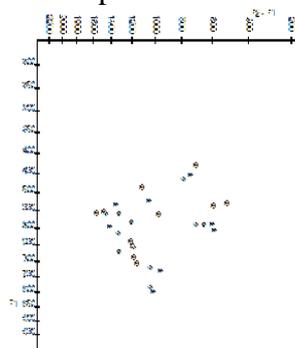
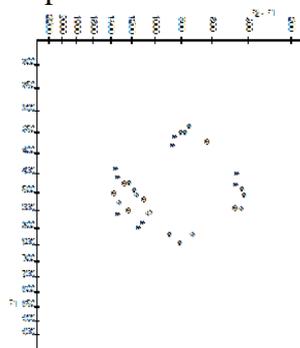


Group D vowels at initial position (raw)



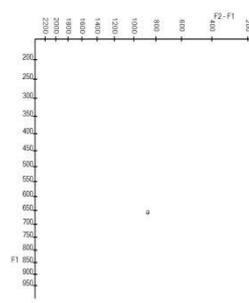
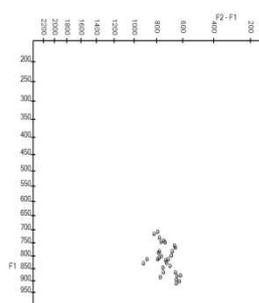
Group A vowels at medial position

Group B vowels at medial position



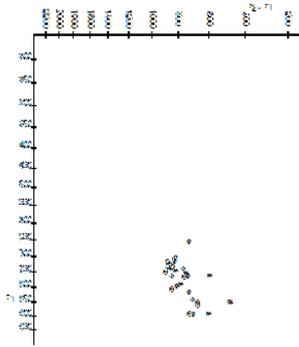
Group C vowels at medial position

Group D vowels at medial position

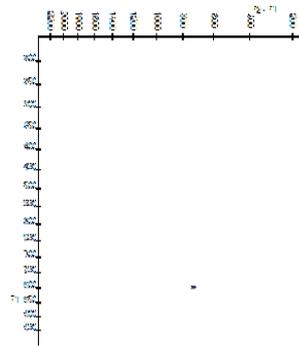


Group A vowels at final position (raw)

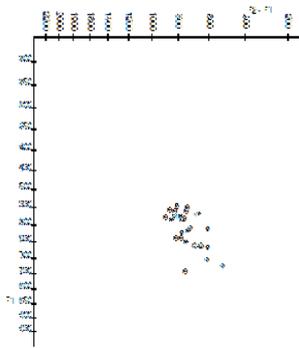
Group A vowels at final position (average)



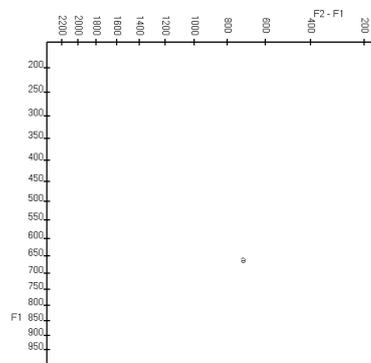
Group B vowels at final position (raw)



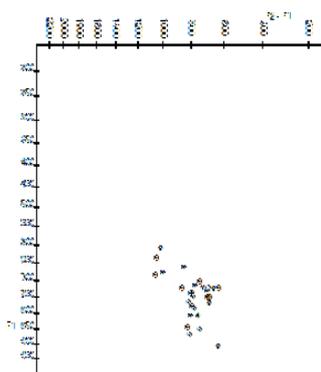
Group B vowels at final position (average)



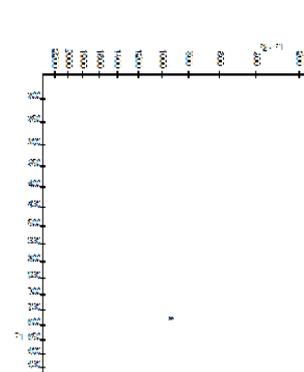
Group C vowels at final position (raw)



Group C vowels at final position (average)



Group D vowels at final position (raw)



Group D vowels at final position (average)

Discussion

Initial Position

The following can be said of the different speakers from the different language areas at initial positions:

- At the initial position, the speakers of Group A (Twi and Kasem) produced this vowel in the region where F1 is between 650 and 700 Hz and F2¹ (F2-F1) is between 950 and 1000 Hz.
- At the initial position, the speakers of Group B (Fante, Dagaare and Ga) produced this vowel in the region where F1 is between 700 and 750 Hz and F2¹ (F2-F1) is 850 Hz.
- At the initial position, the speakers of Group C (Gurene and Nzema) produced this vowel in the region where F1 is between 800 and 850 Hz and F2¹ (F2-F1) is between 900 and 1000 Hz.
- At the initial position, the speakers of Group D (Dangme, Ewe, Dagbani and Gonja) produced this vowel in the region where F1 is between 800 and 700 Hz and F2¹ (F2-F1) is between 950 and 1000 Hz.

Medial Position

The following can be said of the different speakers from the different language areas at medial positions:

- At the medial position, the speakers of Group A (Dangme and Nzema) produced this vowel in the regions where F1 is between 350 and 700 Hz and F2¹ (F2-F1) is between 500 and 1700 Hz. Where the vowel to be unstressed had the spelling {er}, they produced it in the region of the mid front vowel, [ɛ]. Where the vowel to be unstressed had the spelling {o}, the speakers produced it in the region of [o]. In the same vein, where the vowel to be unstressed had the spelling {ar} or {oar}, they produced it in the [ɔ] region. The rest of the vowels at medial positions were produced in the region of the low, near-central vowels because they had the spelling {a}.
- At the medial position, the speakers of Group B (Twi, Fante, Gonja and Gurene) this vowel in the regions where F1 is between 300 and 700 Hz and F2¹ (F2-F1) is between 520 and 1700 Hz. Where the vowel to be unstressed had the spelling {er}, they produced it in the region of the mid front vowel, [ɛ]. Where the vowel to be unstressed had the spelling {o}, the speakers produced it in the region of [o]. In the same vein, where the vowel to be unstressed had the spelling {ar} or {oar}, they produced it in the [ɔ] region. The rest of the vowels at medial positions were produced in the region of the low, near-central vowels because they had the spelling {a}.
- At the medial position, the speakers of Group C (Ewe, Ga, Kasem and Dagaare) produced this vowel in the regions where F1 is between 430 and 830 Hz and F2¹ (F2-F1) is between 450 and 1700 Hz. Where the vowel to be unstressed had the spelling {er}, they produced it in the region of the mid front vowel, [ɛ]. Where the vowel to be unstressed had the spelling {o}, the speakers produced it in the region of [o]. In the same vein, where the vowel to be unstressed had the spelling {ar} or {oar}, they

produced it in the [ɔ] region. The rest of the vowels at medial positions were produced in the region of the low, near-central vowels because they had the spelling {a}.

- At the medial position, the speakers of Group D (Dagbani) produced this vowel in the regions where F1 is between 320 and 620 Hz and F2¹ (F2-F1) is between 400 and 1500 Hz. Where the vowel to be unstressed had the spelling {er}, they produced it in the region of the mid front vowel, [ɛ]. Where the vowel to be unstressed had the spelling {o}, the speakers produced it in the region of [o]. In the same vein, where the vowel to be unstressed had the spelling {ar} or {oar}, they produced it in the [ɔ] region. The rest of the vowels at medial positions were produced in the region of the low, near-central vowels because they had the spelling {a}.

Final Position

The following can be said of the different speakers from the different language areas at final positions:

- At the final position, the speakers of Group A (Gonja, Twi) produced the vowel in the region where F1 is between 650 and 700 Hz and F2¹ (F2-F1) is between 850 and 950 Hz.
- At the final position, the speakers of Group B (Fante, Dagbani, Kasem, Dangme) where F1 is between 750 and 800 Hz and F2¹ (F2-F1) is between 700 and 800Hz.
- At the final position, the speakers of Group C (Nzema and Gurene) where F1 is between 650 and 700 Hz and F2¹ (F2-F1) is between 750 and 800 Hz.
- At the final position, the speakers of Group D (Ewe, Dagaare, Ga) where F1 is between 750 and 800 Hz and F2¹ (F2-F1) is between 900 and 1050 Hz.

Conclusion

From the foregoing discussions, it is realized that all the speakers from the languages investigated produce the vowel [ə] almost the same way. This means that at the initial, medial and final positions, the vowel [ə] is produced in almost the same way by all the 66 speakers. It is intriguing that [ə] exists in Ewe, but speakers who were recorded failed to realize it in the English words given. The question as to why they have it and yet could not produce it goes beyond this essay and more investigation needs to be done.

Results of this study have shown that Ghanaians do not unstress any vowel in any position in a word. They produce the vowel sounds usually, according to the way they are spelt, and this is in line with Christophersen (1956), Sey (1973), Adjaye (1987) and Bobda (2000) who concluded in their studies that speakers of African languages, and in particular, Ghanaian languages, substitute [ə] as follows:

- [a] for [ə] (Christophersen,1956)
- The use of /a/ as a substitute for RP /æ/, /ʌ:/ and /ə/ (Sey,1973)
- Replace /ə/, /ɒ/, /æ/ and /ɜ:/ with /a/ or /ɛ/. (Adjaye, 1987)
- substitute RP /ɒ/, /ə/, /ə:/ and /æ/ with /a / and /ɛ/ (Bobda, 2000)

Implications for the English teacher

This study has shown that in spite of the fact that we are thought to be using Received Pronunciation (RP), Ghanaians stress the unstress vowel [ə], no matter its position in a word. Until GE is accepted, codified and recognized, the implications of this study for the English teacher in Ghana are:

- Universities that train English teachers in Ghana must pay particular attention to the teaching of pronunciation to their students for them to be able to transfer those skills to teacher-trainees who would also follow the proper standard of production and pronunciation in order to teach it well in school after their training. Following the proper standard of production and pronunciation means that students would be taught to produce the vowel sounds and words of English in a native-like manner through the use of games, including tongue twisters.
- Teachers must give the best model when teaching so that pupils can pick the right production.
- Pupils and students must be made to use the language laboratory during language lessons in order to behave linguistically like the native speaker.
- Children must also be made to practice using the language at leisure time and at play in order to master the language, and most especially, the vowel sounds.

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