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VARIATIONS AND INSERTIONS OF SCHWA: EARLY TEENAGE L2 LEARNERS OF ENGLISH

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Abstract
This study examines variations and insertions of schwa observed in the speech of 200 early teenage pre-intermediate second-language learners of English. The respondents were third-year students of a junior high school located in an urban setting in Ghana, a multilingual post-colonial African country south of the Sahara. The respondents read aloud sections of familiar texts they themselves chose. The reading sessions and subsequent oral interaction sessions were video-taped, transcribed verbatim, and analysed. The respondents' articulation of schwa, as captured in the recordings, was compared with corresponding forms in the Ghanaian school variety of English. This variety served as the reference point for the comparisons made. Variations recognised were categorised and described focusing on their plausible sources. The findings indicate that all the unpredictable variants of schwa observed in their speech are traceable to their mother tongues. This has implications for second language theory, second language research, and second language pedagogy.

Keywords: Variations of schwa, Ghanaian school variety of English, teenage L2 learners of English, schwa epenthesis, mother tongue.

Introduction
Different varieties of English are spoken and heard across the globe. These include both native and non-native varieties. Native varieties of English are spoken in communities where English is generally used by the majority as first language. These include the United Kingdom, the United States of America, Canada, Australia, New Zealand, and the Caribbean. Non-native varieties of English are spoken by the literate population in communities where English is used as a second language. Second language communities of English include areas in the Indian sub-region and Anglophone Africa where Britain established trade links leading to their colonisation and implantation of the English language there. In these second language communities, the English language has acquired some peculiar characteristics that are indigenous to the respective communities. The process by which a transplanted language "loses some of its native-speaker characteristics and takes on those of the new community" is known as nativisation (Owusu-Ansah, 1997:24). Kachru (1987) refers to second language communities as outer circle.

Some linguists, however, reject the concept of nativisation on several grounds. One of the reasons given for rejecting the legitimacy of non-native varieties of English is the fear that encouraging second language varieties will lead to corruption of the language and this, they assert, will eventually create unintelligibility of English. For example, Quirk (1990:4) claims that "interest in varieties of English has got out of hand and has started blinding both teachers and the taught to the central linguistic structure from which the varieties might be seen as varying". Fortunately, this description does not apply to the Ghanaian school variety of English which serves as the standard and yardstick for measuring the respondents' oral production in English. Long before Quirk's fear was articulated, the authorities of the Republic of Ghana, anticipating the possibility of an aspect of the situation characterised above, had constituted the Ghanaian school variety of English and institutionalised it in all public schools in the country as the standard variety to be taught, learnt, and acquired. The purpose for which the Ghanaian school variety of English is promoted in Ghanaian schools is not just for achieving intelligibility among speakers but more importantly for creating an enabling linguistic environment that will equip learners of the school system with knowledge, skills, and attitudes to acquire an ethnically neutral accent.

With this in view, it is expected that the respondents in the current study, who were third-year students of junior high school, would have their articulation of schwa similar to the variations realised in the spoken form of the Ghanaian school variety as they progressed in the learning of English as a second language. The aim of this study, therefore, is to find out whether or not the respondents' oral production in English contains variations of schwa that are not predictable variants of that phoneme. The purpose is to trace the sources of observed unpredictable variations in their oral production. To realise the aim and the purpose of the study, the following three research questions were formulated. First, what are the variations observed in the respondents' oral production of schwa using the Ghanaian school variety of English as the measure? Second, what accounts for each variation of schwa recognised? Third, what are the sources of instances of schwa insertion in the respondents' oral production?

Literature Review

This section presents a short review of the literature on schwa. It also gives an exposition of the Ghanaian school variety of English which serves as the standard and yardstick for measuring the respondents' oral production in English. The status of schwa in the Ghanaian school variety of English is briefly reviewed, and the section closes with a review of three empirical studies on second language learners' oral production in English.

What is Schwa?

The term schwa has a long history spanning many centuries. It is generally accepted that the term was introduced into German linguistics from Old Hebrew. Catford (1977:178) confirms this by indicating that schwa is the "German form of the name of the obscure [ə]-like Hebrew vowel". This view is also shared by Crystal (2008:424) who writes that "the term schwa comes from the German name of a

vowel of this central quality found in Hebrew". The term schwa entered German linguistics in the early 19th Century mainly through the works of Jacob Grimm (1785-1863). The prominence of schwa in German linguistics is evident in the inclusion of the form *schwa* in many German words. For example, *schwach*, *schwank*, and *schwanken* are German words that mean "weak", "varying" and "unstable" respectively. Each of these words begins with the form *schwa-* and the meanings of the words clearly reflect what we know in English linguistics about schwa; it occupies weak positions, it is subject to slight variations, and it has an intermediate quality. What is quite unclear is how the schwa symbol [ə] came into English usage. Some researchers agree that it was the English mathematician and Philologist, Ellis (1845), who first introduced schwa into English. Subsequently, the schwa symbol was included in the draft version of the International Phonetics Alphabet (IPA) in 1887; and from 1888 onwards, the symbol became part of all official versions of the International Phonetics Alphabet.

In English linguistics, *schwa* is known to be a short, mid-central, neutral, lax vowel. It has been described as the most frequently used vowel sound in spoken English. It has several labels. It is called schwa "because the German name of the symbol [ə] is schwa" (Ladefoged and Johnson 2015:43). Jones (1960:91-97), however, distinguishes three main variants of the English phoneme [ə] and refers to only one of the three variants as schwa. According to Jones (1960:91), schwa has "an intermediate quality and is often called the neutral vowel". The label *neutral vowel*, probably, derives from the fact that the symbol [ə] may be used to specify a range of mid-central vowel qualities. So, the vowel /ə/ does not have one exact pronunciation. It is subject to slight variations depending on the individual speaker and on the nature of the adjoining sounds. Expressing the same idea, Ladefoged and Johnson (2015:104) indicate that "some accents have slightly different qualities … but all are still within the range of a mid-central vowel that can be symbolised by [ə]". Chomsky and Halle (1968:110) had earlier asserted that "for any particular dialect, the feature specification and the appropriate phonetic rules of the exact phonetic realisation of [ə] can be established". Furthermore, schwa /ə/ is also known as *reduced vowel*. It is used in unstressed environments where the quality of vowels diminishes in terms of duration or clearness. Ladefoged and Johnson (2015:104) explain that the symbol /ə/ is often produced when vowels have a central, reduced vowel quality. The primary purpose of schwa, therefore, is to allow unstressed syllables to be uttered more quickly so that the main beats of spoken words are easier to place on the stressed syllable.

The Ghanaian School Variety of English

Several varieties of English are spoken in Ghana, but the variety that serves as the point of reference for evaluating the spoken language of the respondents in this study is what is known as the Ghanaian school variety of English (henceforth: the school variety). The school variety is the standard for all educational institutions in the country. For example, it is the variety of English used by the West African Examinations Council, by the National Board of Professional and Technical Examinations, by all public and private universities in the country, and by all other examination boards operating in the country. The school variety is the most

prestigious and the most enviable in Ghana; it is spoken without any identifiable ethnic accent.

The Ghanaian school variety of English is the standard variety deliberately chosen on attainment of independence in March 1957 to be taught, learnt, and acquired in the school system in Ghana. It is the same variety currently being promoted among recipients of formal education throughout the country by the Ministry of Education, the Ghana Education Service, the National Board of Professional and Technical Exanimations, and by the West African Examinations Council. For example, the Ministry of Education, on behalf of the Government of Ghana, endorses the teaching, the learning, and the acquisition of the school variety in three main ways. First, it upholds the school variety through the contents suggested to be taught, learnt, and acquired in school in the form of English syllabuses designed for use at the pre-tertiary levels. Second, the Ministry sponsors the training of Ghanaian citizens (English teachers) to be equipped with knowledge, skills and attitudes to confidently teach the school variety of English wherever they are stationed in the country. The Ministry of Education also ensures that books it procures and supplies to schools throughout the country reflect the school variety of English,

On its part, the Ghana Education service promotes the teaching of the school variety by posting teachers trained in the teaching of English as a second language to all public schools in the country to teach the Ghanaian school variety of English so that products of the school system will be able to use this variety with facility. This is determined through the examination results school leavers obtain in English. The West African Examinations Council is not left out in the agenda of promoting the teaching, the learning, and the acquisition of the Ghanaian school variety of English. This council does so through the contents of English examination papers set and administered at the high school levels: junior high school and senior high school. Notwithstanding this agenda, the high school English syllabuses mandate the teaching of certain aspects of specific varieties of English including the United Kingdom Standard English, the General American English, and the Educated Ghanaian English although these labels are not explicitly used. This inclusion is necessary for making products of the school system able to communicate not only with Ghanaian citizens but also with all native and non-native speakers of English.

With this understanding, most Ghanaian citizens expect every product of the school system to be able to use the Ghanaian school variety of English with a certain level of proficiency. Consonant with this expectation, Oral English has constituted a prominent component of the high school curriculum since 1990, and is externally examined by the West African Examinations Council as Core English Paper 3 at the senior high school level since 1999. Core English is a compulsory subject studied at all the pre-tertiary levels and externally examined at the junior and the senior high school levels. Before 1999, Oral English was taught as an elective subject. So, key players in the Ghanaian school system have always ensured that products of the school system are orally proficient in the Ghanaian school variety of English.

Because the Ghanaian school variety of English is the national norm, it is commonly referred to as the Ghanaian Standard English, a label that corresponds

with that found in many first language communities of English. For example, in the United Kingdom, the norm is called the United Kingdom Standard English; and in Scotland, the standard variety is called Scottish Standard English. In the United States of America and in Australia, however, the standard spoken is referred to as the General American English and the General Australian English respectively. The Ghanaian Standard English, the school variety, is not exactly the same as the variety referred to as Educated Ghanaian English (Sey, 1973) which is also known as Ghanaian Variety of English (Asante, 1997:36) because certain variations of language features that are encouraged in Ghanaian Variety of English are considered unsuitable in the Ghanaian school variety.

The spoken form of the Ghanaian school variety was modelled on British Received Pronunciation, and this was to be expected. Received Pronunciation is the term that describes the regionally neutral accent used by many middle-class speakers in the United Kingdom, particularly in England. It is concerned exclusively with pronunciation and is widely used as a reference point in dictionaries and as a model for teaching English as a second language. It is the accent usually described as typically British. The term Received Pronunciation (RP) was introduced by Ellis (1869) and popularised in the 20th century mainly by British phoneticians including Jones (1917; 1918). The origins of RP are traceable to the public schools and universities of 19th-century Britain. Jones (1917) originally referred to RP as Public School Pronunciation because it was the variety promoted by the public schools and the universities. During its heydays, RP enjoyed high social prestige in Britain, being thought of as the accent of those with power, money, and influence. No wonder, it was adopted by the British Broadcasting Corporation (BBC), it was referred to as Oxford English, it was described as posh accent, and above all, it was called the Queen's English.

Although RP could be heard from educated native speakers throughout England and Wales, it was defined by Soanes and Stevenson (2011: xv) as "the standard accent of English as spoken in the south of England". The prestige enjoyed by RP began to be undermined in the 1960s and the 1970s particularly through the works of British sociolinguists. Their promotion of regional and dialectal varieties resulted in a drastic reduction of the status enjoyed by RP. For example, the British dialectologist, Trugill (1974), estimated that only 3% of people in Britain were RP speakers but this rough estimate was immediately questioned and rejected by British phoneticians including Lewis (1975). The works of advocates of non-native varieties have further reduced the status of British Received Pronunciation. Indeed, the Ghanaian school variety currently plays in Ghana the role that RP played between the 1920s and the 1970s in the British public-school system, the British civil service, and in the British Empire as a whole.

Schwa in the Ghanaian School Variety of English

Like British Received Pronunciation, the Ghanaian school variety of English also recognises variations of schwa. One realisation is always extremely short such that its exact value is difficult to observe or describe. This variation usually occurs in initial and medial positions in disyllabic and polysyllabic words. The initial letter 'a-' of the words *about*, *above*, *abroad*, *accept*, and *away*, for example, is realised

in the Ghanaian school variety of English as the extremely short variation of schwa, and these words are transcribed as /əˈbout/, /əˈbʌv/, /əˈbrɔ:d/, /əkˈsept/, and /əˈwei/ respectively. A combination of letters such as 'ae' beginning a word may also be heard as the extremely short variation of schwa. For example, the initial sound of aesthetic /əsˈθetik/ is realised as this variation of schwa. When it is heard in word-medial position in the Ghanaian school variety of English, schwa may be represented in writing by various letters and combination of letters as illustrated below.

Table 1. Medial post-tonic schwa

	Letter(s)	***Word***	***Sound***		***Letter(s)***	***word***	***Sound***
1.	a	vitamin	/ˈvaitəmin/	2.	e	paten	/ˈpætən/
3.	i	horrible	/ˈhɔrəbl/	4.	o	lemon	/ˈlemən/
5.	u	chorus	/ˈkɔːrəs/	6.	ai	portrait	/ˈpɔːtrət/
7.	au	restaurant	/ˈrestərɔ□/	8.	ar	forward	/ˈfɔːwəd/
9.	er	modern	/ˈmɔːdən/	10.	ei	foreign	/ˈfɔrən/
11.	oi	porpoise	/ˈpɔːpəz/	12.	or	effort	/ˈefət/
13.	ou	famous	/ˈfeiməz/	14.	ui	circuit	/ˈsəːkət/
15.	are	hovered	/ˈhʌvəd/	16.	oar	cupboard	/ˈkʌbəd/

The sixteen orthographic forms listed above are used in the Ghanaian school variety of English to represent the schwa [ə] vowel when it occupies word medial position. Another variation of schwa observed in the Ghanaian school variety of English occurs in word-final position only. This realisation of schwa appears to be slightly lower in height than when the vowel occupies word-initial or word-medial position. Orthographic forms that represent this variety of the vowel in the Ghanaian school variety of English include the following.

Table 2. Final post-tonic schwa

Letter(s)	***Word***	***Soud***		***Letter(s)***	***word***	***Sound***
1.	*a*	fauna	/ˈfaunə/	2.	*ar*	scholar	/sˈkɔlə/
3.	*er*	teacher	/ˈtiːʧə/	4.	*ir*	tapir	/ˈteipə/
5.	*or*	doctor	/ˈdɔktə/	6.	*ough*	borough	/ˈbʌrə/
7.	*our*	colour	/ˈkʌlə/	8.	*re*	metre	/ˈmiːtə/
9.	*ur*	murmur	/məːmə/				

The most common orthographic form that represents word-final schwa in English is *-er*, followed by *-or*, and then by *-ar*. The least common way of spelling the schwa sound on the end of a word is *-ough.*

Studies on L2 Learners' Oral Production in English

To put the current study in perspective, the rest of this section reviews three studies on second language learners' variations of the English monophthong. Using twenty native English speakers, twenty early Miami-based Spanish-English bilinguals and twenty late Miami-based Spanish-English bilinguals as research respondents, Byers and Yavas (2016) investigated the durational variability of schwa in early and late Spanish-English bilinguals. The purpose of the study was to find out whether bilingual learners categorically displayed shorter or longer schwa durations between fixed word pairs where one pair contains a droppable syllable and the other does not. A three-way mixed model ANOVA was applied to the data to determine the relationship between schwa duration on the one hand and language group, word root, and droppable/non-droppable category on the other hand. Pairwise t-tests were also performed on individual categories to determine if semantically related pairs differed in duration. The findings show that native English speakers produced significantly shorter durations of schwa in droppable positions than in non-droppable positions. The study also indicates that early bilingual productions of schwa are very similar to those of monolingual English speakers, whereas late bilinguals display much longer durations in both droppable and non-droppable schwa positions. The findings imply that length of second language acquisition is a predictive factor in determining non-native speakers' oral production of schwa in droppable and non-droppable positions.

Wong, Dealey, Leung, and Mok (2019) investigated connected speech phonological processes (continuous oral production) of Cantonese learners of English as a second language. The researchers' motivation for the study derived from the fact that, although English was a core and compulsory curriculum course in their undergraduate programme, many students had difficulty speaking in that language. The purpose of the study was to determine the sources of challenges that Cantonese learners of English as a second language encounter when orally authoring connected speech in English. Three different groups of participants served as respondents. The first group was made up of 60 Cantonese ESL learners who were undergraduate students in four different universities in Hong Kong and were majoring in a variety of fields. The second group consisted of 10 native speakers of General American English, and the third group comprised 10 British Received Pronunciation (Standard Southern English) speakers. Results from post-hoc comparisons indicated that the General American speakers and the British Received Pronunciation speakers scored significantly higher marks than the Cantonese second language learners. Also, there was no significant difference in scores between the two native speaking groups. The study reveals that difficulties second language learners encounter when dealing with connected speech phonological processes are heavily influenced by differences between the learners' first language and their second language. The study recommends that second language educators be specially trained to be able to diagnose phonological errors more effectively in order to address difficulties learners face in the second language learning process.

Engaging early teenage pre-intermediate second-language learners of English as respondents, Agor (2019) investigated authoring unpredictable variants of the English monophthongs in the oral production of second language learners of English. The aim was to find out whether or not the respondents' oral production of English was converging toward the standard set in the Ghanaian school variety of English and to recommend theoretical, practical, and pedagogical solutions that would directly and indirectly help accelerate the process of convergence. The respondents were final-year students of two basic schools located in two different regions in their home country Ghana, and were between ages 14 and 16 years. They read aloud sections of familiar texts they themselves chose. The reading sessions and subsequent oral interaction sessions were video-taped, transcribed verbatim, and analysed. The respondents' oral production of the English monophthongs, as captured in the recordings, was compared with corresponding forms in the Ghanaian school variety of English. This variety served as the reference point for the comparisons made. Differences observed were categorised and described. These included intrusion of the approximant /j/ preceding the front vowel /e/, replacement of the central vowel /ʌ/ with the back vowel /ɔ/, and confusion in the use of the short front vowel /i/ and its long counterpart /i:/. The findings indicate that all the differing forms recognised in the respondents' oral production were mother tongue induced. Agor (2019) recommends that teachers of English as a second language should be empowered to deploy techniques and strategies in their teaching such that learners would be systematically deconditioned to auditorily perceive the difference between their own oral productions and their equivalences in the school variety.

The contents reviewed in this section, though chartered territories, have been very inspiring and can be described as "pleasant hours with the masters". The sub-sections on schwa, for example, reminded the researcher to expect variations but variations that are predictable variants of schwa in the oral production of the respondents as found in the Ghanaian school variety of English. The British Received Pronunciation section served as impetus for the use of the spoken form of the Ghanaian school variety of English as the standard and yardstick for measuring the respondents' oral production of the vowel under discussion. Also, the empirical studies reviewed provided guidance on the conceptual issues discussed and the research methods deployed. So, the literature reviewed has been very instructive in guiding the current study.

Method

Setting

The general setting of the study is junior high schools in Ghana. These are three-year educational institutions established to admit graduates who have successfully completed the six-year primary school course of study and to prepare them to enter second cycle institutions such as senior high, technical, commercial, and vocational schools. The three-year junior high school course may occur as part of the basic school. Indeed, the last three years of the nine-year basic school programme in Ghana constitutes the junior high school. Specifically, the data for this study were obtained between October 2016 and April 2018 from final-year

students of the junior high section of La-Bawaleshie Presbyterian Basic School at East Legon, near Accra, the capital city of Ghana. The school is accommodated in standard classroom buildings.

Participants and their Linguistic Background

Two hundred respondents were involved in this study. They were all born in Ghana and were between ages 14 and 16. They were functionally multilingual in English and two or three indigenous Ghanaian languages. They had varying degrees of proficiency in English. They were instructed in two different languages during their first five years of formal education. Usually, the two languages were the dominant Ghanaian language spoken in the community where the school is situated and English. The amount of the two languages used as medium of instruction during the first five years is approximated in percentages as follows. In Kindergarten One, 90% of academic instruction was transmitted in a Ghanaian language and 10% in English. In Kindergarten Two, the percentages changed to 80% conveyed in a Ghanaian language and 20% in English. This systematic variation of the amount in percentage of the two languages used as medium of instruction continued up to class three where the approximations were 50% communicated in a Ghanaian language and 50% in English. From class four onward, the respondents were instructed through the medium of English. It is also worth noting that, right from kindergarten one to form three in junior high, the pupils were taught English as a curriculum subject through the medium of English and were taught Ghanaian language as a curriculum subject through the medium of that Ghanaian language. The linguistic arrangement implemented in the school mirrors the national language policy for education.

Actually, two Ghanaian languages are mounted and taught as curriculum subjects in the school and each student is required to study only one. The two languages studied are Ga and Akwapim Twi. Ga is taught because it is the language of the community in which the school is located, and Twi is taught because most of the learners are Twi speakers. These two languages form part of eleven indigenous Ghanaian languages approved by the Ministry of Education to be studied at the basic school level. The rest are Asante Twi, Dagaare, Dagbani, Dangme, Ewe, Fante, Guruni, Kasim, and Nzema. One observation about the participants relates to the languages they used on the playground. There were numerous languages of the playground. These included Ga, Dangme, Twi, Fante, Ewe, Dagbani, Guruni, Dagaare, Nzema, and Guan. These numerous indigenous languages spoken in this school clearly reflects the multilingual nature of the country. According to Dakubu (1988:10), Ghana is linguistically heterogeneous with about forty-five different indigenous languages. The actual number of languages in Ghana has been variously given ranging between thirty-four and sixty depending on the individual linguist's perception of what constitutes a language. While Bamgbose (1976:14) talks about thirty-four distinct, mutually unintelligible indigenous languages in Ghana, Hall (1983:6) names forty-four languages as indigenous to Ghana. Criper (1971:6) had earlier put the figure at sixty.

Negotiation of Objectives and Procedures

Data for this study became accessible following a meeting held in the school in September 2016 where the tasks to execute and the procedures to follow were negotiated. These were to:

1. videotape reading sessions of 200 final-year students in a public junior high school in order to source their oral production in English.
2. videotape interaction sessions between the respondents and the research team.
3. compare elements of the respondents' oral production with corresponding elements in the Ghanaian school variety of English.
4. suggest sources of the respondents' variations of schwa and to discuss implications for theory, research, and pedagogy.

One teacher was nominated to assist the researcher in sourcing the data required. The nominee was primarily to ensure that the respondents were available and active during data collection sessions. She was essentially to create a conducive atmosphere for the data to be collected from the respondents. The respondents and their parents were supplied relevant consent forms to complete. They were taken through the various sections of the forms and the contents were fully understood. In all the parents of all the 200 pupils signed and returned the consent forms. Many visits were made to the school during the data collection phase of the study and the needed data for the study were successfully sourced.

Tasks Designed and Data Collected

The study sought to investigate the respondents' oral production of schwa. In order to do so, the respondents graciously agreed to choose any four familiar texts and to read aloud three paragraphs from any two of the chosen texts. They also agreed to interact with the research team on individual basis. Both the reading and the interaction sessions were to be videotaped. These recorded video sessions were played back and transcribed verbatim to determine the actual realisations of the mid-central vowel /ə/ in the speech of the respondents. Additionally, the actual words containing the unpredictable variants of /ə/ uttered by the respondents have been categorised and analysed. All these were done in order to provide adequate grounding for discussing plausible sources of the respondents' variations and misuse of the mid-central vowel /ə/. These tasks were executed also to suggest theoretical and pedagogical implications of the findings.

Findings and Discussion

The Ghanaian school variety of English promotes oral productions whose segments are predictable variants of the English phonemes. The term "unpredictable variants of schwa" refers to any realisation of the phoneme [ə] which is not a predictable variant of that phoneme. The term misuse of schwa refers to a deployment of a form of /ə/ in environments where that vowel is unexpected. This is referred to as schwa epenthesis. Unpredictable variants of schwa and schwa epenthesis lead to word pronunciation deviations. In all, two categories of unpredictable variants of the mid-central vowel /ə/ and one category of schwa epenthesis were observed in the speech of the respondents. These are listed in Table 3 below. Each category of variation was observed in more than one word. In other

words, each unpredictable variant of schwa recurred in different words and involved all the 200 respondents. But schwa epenthesis recurred in only five different words and involved 32 respondents. Corresponding to each differing type on the list is the number of different words whose pronunciation has been inadvertently modified by the respondents.

Table 3. Schwa variation type

SN	Schwa Type	Words	Learners
1.	Replacement of initial pre-tonic schwa /ə/ with a foreign vowel /a/	11	250
2.	Replacement of final post-tonic schwa /ə/ with a foreign vowel /a/	10	250
3.	Schwa /ə/ epenthesis (between a cluster of consonants)	5	32
Total		**61**	**250**

The actual words mispronounced by the respondents have been categorised and included rather as an appendix to this article. Corresponding to each mispronounced word on the list finds the phonetic transcription of how the respective respondent or respondents pronounced the word. Also accompanying each word on the list is the Ghanaian school variety of English transcription of the respective word.

The Ghanaian school variety of English was institutionalised over seven decades ago in the country as the standard variety to be taught, learnt, and acquired in all public schools. From the outset, it was envisaged that this variety would help learners of the school system to become intelligible to both Ghanaian and non-Ghanaian users of English. But the purpose for which the Ghanaian school variety of English is promoted in Ghanaian schools is not just for achieving intelligibility among speakers but more importantly for creating an enabling linguistic environment that would equip learners of the school system with knowledge, skills, and attitudes to acquire an ethnically neutral accent. With this in view, the research team expected that the respondents in the current study, who were junior high school students, would articulate the mid-central vowel /ə/ predictably as encouraged in the Ghanaian school variety of English. However, the results of the data analysed indicate three specific areas where the respondents' realisation and use of schwa is not consonant with what the Ghanaian school variety promotes. This section discusses the sources of the schwa-related issues raised and how these challenges could be resolved.

The first variation of schwa investigated has to do with replacement of initial pre-tonic schwa with a modification of the long back vowel /a:/. This modified back vowel, as heard in their oral production, is not a clear member of the phonological inventory of English. Its realisation is equivalent to the first half of the production of the English vowel /a:/. For the purpose of this discussion, the resultant back vowel, as heard in their speech, is represented in this paper with the symbol /a/. None of the 200 respondents produced predictable variants of schwa orally when it occupied word initial position. For example, the words *about*, *above*, *afraid*, and *again* were heard in the respondents' oral production as /'a'baut/, /'a'bav/, /'a'freid/, and /'a'gein/ respectively. Meanwhile, in the Ghanaian school variety of English, these four words are pronounced as /ə'baut/, /ə'bav/, /ə'freid/, and /ə'gein/. The

respondents also pronounced the words *allow*, *apart*, *avoid*, and *away* as /'a'lau/, /'a'pa:t/, /'a'vɔid/, and /'a'wei/ instead of /ə'lau/, /ə'pa:t/, /ə'vɔid/, and /ə'wei/ respectively.

In word-final position too, the short central vowel /ə/ was replaced by all the respondents with the same non-English vowel sound /a/. For example, the words *father*, *mother*, *brother*, and *sister*, which are pronounced in the school variety as /'fa:ðə/, /'mʌðə/, /'brʌðə/, and /'sistə/ were heard in the oral production of the respondents as /'fa'da/, /'mɔ'da/, /'brɔ'da/, and /'sis'ta/ respectively. Also, *doctor*, *teacher*, *farmer*, and *driver* which are produced in the school variety as /'dɔktə/, /'ti:ʧə/, /'fa:mə/, and /'draivə/ were pronounced as /'dɔkə'ta/, /'ti'ʧa/, /'fa'ma/, and /'drai'va/. This unusual shift in their realisation of instances of final post-tonic schwa is a feature observed in the speech of some educated Ghanaian speakers of English. The respondents stressed every syllable. This tendency to stress every syllable is a transfer from the indigenous Ghanaian languages and is referred to as syllable timed rhythm as opposed to stress timed rhythm inherent in the school variety. Indeed, the spoken form of the school variety observes both stressed and unstressed syllables, and it is this stress placement feature that defines the melody of an English word. The oral English contents, which are based on the Ghanaian school variety of English, should resolve the challenge if taught and learnt as required.

The final schwa-related phenomenon observed in the oral production of the respondents is schwa epenthesis. This is where a second language learner is aware of an L2 consonant cluster which is phonologically impermissible in the L1, and which he is unable to perform because the L1 syllabus structure inadvertently surfaces in the learner's oral production. Davidson et.al. (2004) explain that an epenthetic vowel is a lexical vowel that occurs to satisfy lexical syllabification. In the current study, thirty-two of the respondents inserted the short central vowel in environments where that vowel does not belong. Thirty-two of the respondents varied the pronunciation of the words *belt*, *film*, *milk*, *valco*, and *Volta* during the interaction sessions. They consistently split a sequence of two consonants – the lateral /l/ and a succeeding consonant – and inserted the short central vowel /ə/ between the two consonant sounds. This category of respondents pronounced the words *belt*, *film*, and *milk* as /'belət/, /'filəm/, and /'milək/ respectively, but these words are pronounced in the school variety as /belt/, /film/, and /milk/. Also, *valco* and *Volta* were heard as /'vʌləko/ and /'vɔləta/ instead of /'vʌlkə/ and /'vɔltə. Even though the 32 respondents heard the school variety pronunciation of these words regularly in the input, they were unable to auditorily perceive the sounds involved; they could not distinguish between what they regularly heard in the input and what they themselves produced in their speech. This pronunciation challenge is known as perception blind spot. The 32 respondents spoke Dagbani, Dagaare, Kasem, or Gurune as their home language. They spoke these languages on the school playground with their siblings whenever they did not want a third person to understand the contents of their conversations. Respondents whose home languages were Akwapim Twi, Asante Twi, Dangme, Ewe, Fante, Ga, and Nzema did not exhibit this schwa intrusion challenge in their spoken English.

There are implications of this finding for theory. In tracing the underlying source of this misuse of schwa, some revelations emerged. First, the four home

languages of this category of respondents are spoken mainly in the northern part of the country where Arabic schools are popular. The usual practice in the north is that most parents enrol their children in an Arabic school first before signing them up in the formal English school system. It is also the case that some families make their young ones attend both Arabic and English schools concurrently. So, is this differing type traceable to Arabic? Second, all these four languages belong to the Gur language family. So, is the Gur language family influencing the respondents' spoken English in this way? But the absolute revelation is that this monophthong differing category is traceable to the respondents' mother tongue. This revelation essentially questions the validity of Error Analysts' refutation of the statement of the Contrastive Analysis Hypothesis (Fries, 1945:9; Lado, 1957). Further research conducted in different second language contexts is needed to help unravel these questions. There are also implications for research. The current finding corroborates the results of Nogita and Fun (2012) who reported that "Mandarin and Japanese ESL learners with a relatively short length of residence in Canada ocassionally inset schwa in English consonant clusters when they immediately repeated sound stimuli".

This specific challenge displayed by the 32 respondents could be eliminated from their speech by deploying pedagogical interventions to systematically decondition them in order to auditorily perceive the difference between each pair: /'belət/ and /belt/, /'filəm/ and /film/, /'milək/ and /milk/ for example. The guarantee that this strategy would yield results is amply demonstrated in the second language literature. Corder (1967) asserts that second language learners' deviations provide the language teacher with information about how much the learner has learnt; they equip the researcher with evidence of how language is learnt; and they serve as devices by which the learner discovers the rules of the target language. This idea is supported by Broughton et.al. (1978:120) who declare that, "certainly, unless the learner is made aware of his errors, he cannot learn from them". Yankson (1994:1), expressing the same opinion, concludes that "the student must also be made aware of his systematic and recurrent errors, otherwise he cannot learn from them.

Conclusion

The Ghanaian school variety of English is taught, learnt, and acquired in all Ghanaian schools. This paper, however, makes three observations where the respondents' oral production of words containing the mid-central vowel /ə/, schwa, does not conform to what the school variety promotes. First, all the 200 respondents stressed every syllable in their speech; and this feature is traceable to their mother tongues. Second, as a result of the first observation, the respondents' oral production in English was characterised by both replacement of initial pre-tonic schwa and final post-tonic schwa rather with a non-English vowel whose production is close to the back vowel /a:/. Third, schwa epenthesis involving five words featured prominently in the speech of thirty-two respondents because this phenomenon is phonotactically permissible in their source languages.

It is therefore clear that the three deviation types observed are traceable to the mother tongue; the L1 is the underlying source of both the unpredictable variations of schwa and the misuse of that vowel in the oral production of the respondents.

This conclusion is consonant with current thoughts held by practitioners and researchers (including Wong et.al., 2019; Agor, 2019) in second language communities about the role of the first language in the acquisition of the second language, and this confirms Ellis's (2015:139) assertion that "the effects of L1 transfer on L2 learning are extensive, varied, and persistent". One indispensable pedagogical implication in this regard is that the English language teacher should have the students systematically deconditioned to auditorily perceive the difference between their own oral production and the equivalence in the school variety. The motivation for this suggestion comes from what we already know about second language learning. Second language learners' deviations are good learning, teaching and research material (Corder, 1967).

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Appendices

Replacement of Initial Pre-Tonic Schwa /ə/ *with a foreign vowel* /a/.

1. *about* was heard as /'a'bout/ instead of /ə'bout/
2. *above* was heard as /'a'bav/ instead of /ə'bout/
3. *abroad* was heard as /'a'broad/ instead of /ə'brɔ**:**d/
4. *accept* was heard as /'a'sept/ instead of /ək'sept/
5. *afraid* was heard as /'a'freid/ instead of /ə'freid/
6. *again* was heard as /'a'gein/ instead of /ə'gein/
7. *allow* was heard as /'a'lau/ instead of /ə'lau/
8. *apart* was heard as /'a'pat/ instead of /ə'pa**:**t/
9. *around* was heard as /'a'raund/ instead of /ə'raund/
10. *avoid* was heard as /'a'vɔid/ instead of /ə'vɔid/
11. *away* was heard as /'a'wei/ instead of /ə'wei/

Replacement of Final Post-Tonic Schwa /ə/ with a foreign vowel /a/.

12. *brother* was heard as /'brɔda/ instead of /'brʌðə/
13. *doctor* was heard as /'dɔkəta/ instead of /'dɔktə/
14. *driver* was heard as /'draiva/ instead of /'ɖraivə/
15. *farmer* was heard as /'fama/ instead of /'fa:mə/
16. *father* was heard as /'fada/ instead of /'fa:ðə/
17. *marker* was heard as /'maka/ instead of /'ma:kə/
18. *master* was heard as /'masta/ instead of /'ma:stə/
19. *mother* was heard as /'mɔda/ instead of /'mʌðə/
20. *sister* was heard as /'sista/ instead of /'sistə/
21. *teacher* was heard as /'ti:ʧa/ instead of /'ti:ʧə/

Schwa Epenthesis (Between a Cluster of Consonants)

22. *belt* was heard as /'belət/ instead of /belt/
23. *film* was heard as /'filəm/ instead of /film/
24. *milk* was heard as /'milək/ instead of /milk/
25. *valco* was heard as /'valəko/ instead of /'væ:lkə/
26. *volta* was heard as /'voləta/ instead of /'voultə/