PHONOLOGICAL ANALYSIS OF THE ENGLISH SPOKEN BY HAUSA NEWSCASTERS IN BROADCASTING MEDIA IN NIGERIA

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DECLARATION

I declare that this thesis is my original work, except where due citation has been made, and has not been previously presented for a degree or any other award in any university.

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This thesis is dedicated in memory of my late father Alkali Usman Bappah Ahmed and my beloved mother Hajiya Maryam Usman.

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SYMBOLS AND CODES

[ ] Phonetic Transcription

/ / Phonemic Trancription

→ Becomes

Word Boundary

. Syllabic Boundary

/ Enviroment

* Violation

*! Fatal Violation

☞ Optimal Candidate

OPERATIONAL DEFINITION OF KEY TERMS AND CONCEPTS

Accent Marker

It refers to spoken English which is characterized by a Hausa accent. It does not obscure the meaning but rather shows identity of the speaker.

Allophone

It refers to variant of a sound segment which denotes a different realization of the same phoneme.

Bausanci

It is a dialect of Hausa language spoken in Bauchi.

Broadcasting Organization

It refers to public electronic media which include radio and television stations in Bauchi State of Nigeria which are: NTA Bauchi, BATV, BRC and Glove FM Bauchi in the present study.

Bulletin

It is a radio or television news scripts which cover all stories covered by reporters, logically arranged, edited and prepared for news presentation.

Constraints Interaction

It is a violation of lower ranked constraints, while at the same time satisfying the higher ranked constraints by the optimal candidate (winner).

Constraints Ranking

Ranking of constraints for a given language comprises sequential arrangement of constraints based on domination violation: A and B, either A dominates B or B dominates A.

Faithfulness Constraints

This is a constraint in optimality theory that focuses on the relationships between input candidate and output.

First Language

This refers to the first language acquired by an individual or mother tongue. In this study the Hausa language is referred to as a first language or mother tongue.

Hausa

Hausa is a West Chadic family of Afro-Asiatic Language phylum. It is a dominant language in West Africa comparable to Kiswahili in East Africa and Arabic in North Africa. It has an estimated number of one hundred million speakers globally. The Hausa in this study is an eastern dialect of the Hausa language used in Bauchi town of Bauchi State, Nigeria (Bausanci).

Hausaists

Hausaists refer to Hausa speakers. The Hausa speakers in this study are speakers of Bauchi dialect, technically referred to as Bausanci.

Markedness Constraints

It is a structural requirement designed on well formedness of the surface structure irrespective of the input form.

Newscasters

Newscasters refer to Hausa speakers of English who are newsreaders of English news at the NTA Bauchi, BATV, BRC and Glove FM Bauchi.

Onset

It refers to consonant(s) that occur in the initial position of a syllable.

Optimality Theory

It is a constraint based theory that views language as a system of universal principles. It involves three mechanisms: Generator, Constraints and Evaluator.

Phoneme

A phoneme is the smallest unit of distinctive sound. It cannot be broken into smaller parts.

Rhyme

Rhyme encompasses the **nucleus** which is realized by a vowel and the **coda** which is realized by possible consonant(s) in the final position of a syllable.

Second language

In this study, second language refers to English. It is a language learned in a formal situation and plays the role of a second language in the Nigerian society.

Segmental Phonology

It involves the consonants and vowels of RP English and the Hausa language.

Semantic Alteration

It refers to mispronunciation of RP English words which leads to change of meaning.

Transfer

It involves the influence of a native language in the use of English. The influence is basically at the phonological level where the phonological features of the native language are transferred by second language speakers of English to their spoken English.

ABBREVIATIONS AND ACCRONYMS

AIT	African Independent Television
BATV	Bauchi State Television
BBC	British Broadcasting Corporation
BRC	Bauchi Radio Corporation
CON	Constraint
CV	Consonant Vowel
DW	Deustche Welle
ENBS	Eastern Nigeria Broadcasting Service
EVAL	Evaluator
FM	Frequency Modulation
GA	General American
GEN	Generator
HL	High Low
IPA	International Phonetic Alphabet
ITV	Independent Television
LH	Low High
NBC	National Broadcasting Commission

NORLA	North Regional Literature Agency
NTA	Nigerian Television Authority
OT	Optimality Theory
RP	Received Pronunciation
WNTV	Western Nigeria Television

ABSTRACT

The study examines the English pronunciation patterns of Hausa broadcasters. The research was carried out based on the presupposition that the English spoken by Hausa broadcasters is different from RP English and is likely to mislead or distort the communication process. The study was guided by three objectives which centred on an examination and analysis of the way Hausa broadcasters articulate RP English consonants, vowels and consonant clusters. The research used Optimality Theory and adopted the descriptive research design. The study was carried out in Bauchi State Northeast Nigeria and data were obtained through production test and recording of news broadcasts from four public broadcasting stations in Bauchi. These include two radio stations and two television stations. Moreover, twenty-two Hausa broadcasters from the four media outlets were selected as respondents. The findings revealed that the speech by the majority of the respondents does not conform to RP English because it is characterized by semantic alteration which changes the meaning of words where words like *pull* are rendered *full, heal* as *hill, upper* as *offer*, *raid* as *red* and *exact* as *exert.* The speech is also marked by the Hausa English accent but this does not interfere with meaning. These problems were caused by phonological processes such as: substitution, frication, stopping, affrication, long vowel reduction, monophthongization of diphthongs, epenthesis and deletion. The majority of the respondents English language Markedness constraints outranked Faithfulness constraints.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter presents the following: the background to the study, statement of the problem, objectives of the study, research questions, assumptions of the study, scope and limitation, justification and significance of the study.

1.1 Background to the Study

The dominant role of the English language in many countries across the world has justified its status as the world's most common lingua franca (Crystal, 2003; Dewey, 2007; Larsen-Freeman & Anderson, 2011). This role includes: language of international communication, cooperation and integration, bilateral and multilateral agreement in summits and conferences (Fromkin, Rodman & Hyams, 2011). The widespread use of the English language across the globe can be classified according to the 'three circles model of world English' as follows: Inner Circle, Outer Circle and Expanding Circle (Kachru, 1982). The inner circle is where the language is being used by a quarter of the world population as a first language (Crystal, 2003). The outer circle is where the English language is used as a second language or foreign language. This is in countries like: Ghana, Kenya, Nigeria, India, Pakistan, Sri Lanka and Jamaica. In the expanding circle, English is used for special purposes such as countries like France, Germany, Italy, Egypt and Libya (Kachru & Smith, 2008).

In addition, although the English spoken in the Outer and Expanding Circles derived their models from either British or American English, they are markedly different from the Inner Circle at the phonological, lexical and grammatical levels. Therefore, the focus of the present study is on the phonology of English in the second language environment that is the Outer Circle.

The pronunciation patterns of most of the speakers of English as a second language are characterized by regional and ethnic phonological features of their native languages which culminate in communication breakdown. For instance, the potentially English aspirated sounds /p/ /t/ /k/ at the word initial position are articulated without aspiration which make some native speakers of English to perceive them as voiced /b/ /d/ /g/, particularly in Malaysian English (Schneider, 2003). In Philippines, voiceless labio-dental fricative is substituted with voiceless bilabial plosive (Bautista, 2001). In Albania, the English spoken by Albanian speakers of English is different from RP English. This is because the RP English has 12 monophthong vowels while the Albanian language has only 7 vowels. English has 24 consonants while the Albania has 27 consonants. These discrepancies make them to speak the English which is markedly different from the RP English. For instance, long vowels such as /i:/ do not exist in the Albanian language which makes it difficult for them to pronounce English words with long vowels correctly. Also, they encounter problem in pronouncing the phoneme [w] as it does not exist in the Albanian language. These mispronunciations have resulted in semantic alteration and communication breakdown (Alimemaj', 2014).

Similarly, there is evidence of clusters simplification in the English spoken in China, Singapore and Western India where words like /hænd/ is rendered as [han], /fɜ:st/ becomes [fos] and /tend/ as [ten] (Atechi, 2006). These clusters simplifications also have an effect on the meaning of the words produced and are likely to distort the communication process.

Moreover, there is simplification of diphthongs and triphthongs and lack of distinction between long and short vowels. Stressed and unstressed syllables are uttered with the same force, while clusters are simplified in the English spoken in the second language environment (Kachru & Smith, 2008). The English spoken in Northern Cameroon is marked by regional and ethnic features. For instance, the RP diphthong /əʊ/ is reduced to monophthong /ʊ/ particularly in northern areas whereas in Ghana /l/ is used in place of /r/ where the word /prɒblɛm/ is rendered as [plɒblɛm]. The speakers of English in Cameroun and Ghana also exhibit clusters reductions where /mɒst/ is produced as [mos]. In fact, the influence of native languages on English as noted in Cameroon and Ghana has also manifested in most of the Englishes spoken in the second language environment particularly Africa (Simo Bodda, 2000). This influence has an adverse effect on the communication process.

In Nigeria, the English spoken is characterized by lack of interdental fricatives sounds /θ/ and /ð/. This is because the two sounds do not exist in most of the Nigerian languages thereby resorting to /t/ and /d/ as substitutes. This has resulted in semantic alteration of some English words. For instance, /θɔ:t/ is produced as

[tot] and /ʌðə/ is rendered as [oda]. Similarly, /s/ and /z/ are also used as alternatives for /θ/ and /ð/. This substitution is also confusing because words like /θɪk/ is produced as [sɪk] and /brɛθ/ is also rendered as [brɛd]. Moreover, some of the languages also lack voiced counterpart of certain phonemes like /ʃ/ and /ʒ/. The voiced counterpart /ʒ/ is absent in most of the Nigerian languages hence the realization of either its voiceless /ʃ/ or voiced affricate /dʒ/ as alternative (Olaniyi, 2014). Additionally, the vowel trapeziums of most of the Nigerian languages do not have more than seven vowels. This makes most of the speakers of English to face difficulties in articulating certain RP vowels especially those that do not exist in their languages. Prominent amongst them are: schwa /ə/, caret /ʌ/ and nurse /ɜ: / vowels. There are also lack of distinctions between long and short vowels such as /i:/ and / ɪ/, /ɔ:/ and / ɒ/, /u:/ and /ʊ/ and /æ/ and /ɑ:/. The implication of these is lack of distinction between pairs of words like /si:t/ and /sɪt/, /ʃɔ:t/ and /ʃot/, /pu:l/ and /pʊl/ and /mɑ:tʃ/ and /mætʃ/ (Okoro, 2017).

Another aspect is the phonotactic rules. The syllable structures of some of the Nigerian languages are open CV or limited number of final consonants like CVC. This structure influence the speech patterns of most of the speakers of English in Nigeria in producing consonant clusters or the final consonant thereby introducing deletion to simplify the cluster. For instance, /mʌnθ/ as [mon] (Soneye & Oladunjoye, 2015). The problems emerging from the literature can be summarized as: improper manipulations of consonants, vowels and phonotactic rules and these can be attributed to a number of factors such as: language transfer, lack of exposure to RP English sounds and attitude (Iyere, 2013). These problems usually lead to a change of meaning and subsequent communication breakdown (Emeka-Nwobia & Onu, 2016). It should be noted that the basis for appropriate, comprehensible and intelligible English speech hinges on appropriate pronunciation which greatly influences the effectiveness of communication, particularly in the broadcasting industry where information dissemination is the primary function (Osisanwo, 2000).

In Nigeria, the amalgamation of Northern and Southern protectorates by British colonial administration in 1914 gave birth to what is now known as Nigeria where three different linguistic groups –Hausa, Igbo and Yoruba –were merged to form a single political entity (Danladi, 2013). This led to the adoption of English as an official language in Nigeria, it also assumed the status of a second language where Hausa speakers began to learn English as a second language. The role of English in Hausa community and Nigeria in general originated from the colonial era. Its recognition as an official language and medium of instructions in schools, commerce, administration, science and technology, judiciary, police, armed forces, national assembly (legislature), international relations and mass media have justified its dominant role in Nigeria despite being considered as an exolect. These roles make it highly relevant that its accuracy and level of usage have appeared to be the objects of many studies in assessing its intelligibility and effectiveness in all aspects of human endeavors in Nigeria including broadcasting media (Ekundayo et al, 2012; Aladeyomi, 2013).

Although, there were some community broadcasting stations in Nigeria in 1930, the full-fledged broadcasting took effect in 1952 following the recommendations of the Turner-Byron Commission, which saw the establishment of broadcasting organizations at the Federal and State levels. This led to the establishment of the Nigerian Broadcasting Service in 1952. Regional broadcasting then began to manifest with the establishment of Western Nigeria Television (WNTV) by Western Nigeria Regional Government in 1959, followed by Eastern Nigeria Broadcasting Service (ENBS) in 1960 and later Northern Nigeria Regional Government established Radio Kaduna Television in 1962 (Aladeyomi, 2013). The people of Nigeria listen to radio and television for the purpose of acquiring information and education. There are various educational programmes on radio and television stations designed to educate learners. These are: learning by radio and television, language learning programmes, learning English spelling and schools debate. These programmes are designed specifically to facilitate learning and are broadcast both in English and the Hausa language.

1.1.1 The Hausa People and Language

Literally, the name *Hausa* primarily refers to the language rather than members of the ethnic group, but the trend has been extended so that the name Hausa is used to describe the majority of the people of northern Nigeria and south-central Niger who share a common history, customs, values and language (Peace Corps/Niger, 2006). The contemporary Hausa people or Hausaists (Abubakar, 2001) originated from Hausa Bakwai and north-western states, north-central states of Nigeria and some part of Niger Republic. Bakwai means seven in Hausa, (the seven ancient cities of Hausa are: Kano, Katsina, Daura, Biram, Rano, Zazzau or Zaria and Gobir), these cities formed the first language area of Hausa and the language is used in all the domains, namely: homes, markets, schools and wider communication. Apart from the main seven ancient cities of Hausa (Hausa Bakwai), there was a spread of Hausa during the Hausa Empire days from the seven ancient towns to other seven non-native towns called Banza Bakwai (seven illegitimate towns of Hausa) where the Hausa language was used as a second language. These towns include: Nufe, Yawuri, Kebbi, Illorin, Kwararrafa, Zamfara and Gwari. In addition, the emergence of Sokoto Empire in the nineteenth century gave rise to the incorporation of the organization of Hausa Bakwai (seven ancient cities of Hausa) into the empire and later metamorphosed to Northern Region of Nigeria. The kingdom of Borno, some states in the North-East, North-Central such as Benue, Plateau and Kwara States have Hausa as their second language and language for wider communication (Peace Corps/Niger, 2006).

Agriculture is the main occupation of Hausaists. They are also engaged in cloth dyeing, weaving and tanning of leather (Waziri & Musa, 2010). Moreover, Hausaists were popularly known to be merchants and religious travelers who trekked to Saudi Arabia in caravans for religious obligation and across the Sahara Desert. They used to establish some temporary settlements on their way in countries like Chad, Cameroon, Sudan, and Libya. These temporary settlements later evolved into full Hausa speaking communities. One of the remarkable legacies about

Hausaists is the preservation of language identity, loyalty and maintenance of cultural values at home and abroad where they established some settlements in which Hausa language is still used as their communal language (Mohammed, 2005). This has led to the proliferation and spread of Hausa language across West Africa and beyond.

The Hausa language belongs to the West Chadic family of Afro-Asiatic phylum (Olaniyi, 2014). It has a greater demographic strength of native speakers than any other language in the south of the Sahara Desert and a significant number of second language speakers. It is also a language of wider communication for almost everyone in northern Nigeria and Niger, and the Muslim community of northern Ghana, Togo and Benin. It is estimated that the language has about one hundred million speakers globally and it is a dominant language in West Africa, a phenomenon similar to Kiswahili in East Africa and Arabic in North Africa (Haruna, 2008 & Mukhtar, 2013) (See. Appendix A) a map indicating the distribution of Hausa language area.

1.1.2 The Role of Hausa in the Nigerian Community

There are lots of hypotheses on the reasons behind the powerful and influential nature of Hausa which gave the language a coveted status in the midst of many linguistic groups in Nigeria and the West African sub-region. Lord Lugard, a British Colonial Governor-General of Nigeria who ruled between 1914 –1919 opined that Hausaists were the most widespread ethnic group in West Africa mainly because of their social and economic struggles, and hence Hausa would be the dominant language in Northern Nigeria (Adamu, 1974).

History has shown that the Hausa language has assimilated various linguistic groups to a large extent that many groups who were non-native Hausa speakers have been assimilated as native speakers of Hausa. For instance, the people of Bauchi town are known to be Gerawa who speak the Gere language. There has been a language shift from Gere to Hausa as Gere speakers abandon it in favour of Hausa. Consequently, scholars have classified Bauchi town amongst the language areas of native speakers of the Hausa language (Abubakar, 2001).

This form of domination of the Hausa language has been described in various coinages such as *Hausafication* (Adamu, 1974), *Hausanization* (Kukah, 1993) and Hausa-isation (Furmiss, 1996). However, this study suggests the term *Hausa Universality* instead of the three ascriptions above in order to ameliorate the anomalies attached to the terminologies: *Hausafication*, *Hausanization* and *Hausa-isation*. These are associated with political domination over other ethnic groups in Nigeria which generate some form of rivalries and oppositions. This antagonistic attitude towards Hausa language by other linguistic groups in Nigeria has reached a stage where the rival groups frequently caution their speakers about the domineering nature of Hausa language. For instance, Hausaists are being derogatorily called by Kanuris as *Afuno*, *Kenchi* by Nupe, *Abakwa* by Jukuns, *Genderu* by Fulanis, *Gambari* by Yoruba, *Agara* by Kambarawa and *Mollah/Mallah* by tribes of Southern Nigeria.

Therefore, the term *Hausa universality* is preferred because the language is used in many parts of the world. It is taught in some universities in countries like UK, US, Germany, China and South Korea. The language is also used in international broadcasting media such as BBC (London), Deutsche Welle of the (Republic of Germany) and Voice of America (Washington DC). There are Radio Beijing International (China), Radio Alkahira (Cairo Egypt), Radio Tehran (Islamic Republic of Iran) and Radio Ghana (Accra Ghana). Others are Radio Amfani Niger (Republic Niger), Radio Moscow (Moscow Russia) and Radio France International (France). The spread of Hausa is assured with many international forums using it. This is in spite of local resistance amongst older non Hausa speakers.

1.1.3 The Hausa Language in Religion

One of the greatest events that took place in northern Nigeria in 19th Century was the Islamic reform which saw the emergence of Sokoto Empire. The Empire was spiritually and politically motivated and this gave rise to the development of Hausa as the language of the Empire. The Sokoto Empire used Hausa as the Empire language but it should be noted that Sokoto was originally a Fulfude speaking community. It was not one of the seven ancient cities of Hausa (Hausa Bakwai). The Sokoto had shifted from Fulani to Hausa during the earlier Empire. Even during the British Empire period, the Sokoto Empire Institution retained Hausa as the official language alongside English. Hausa was the language in which Islam was propagated and Sokoto was the centre of teaching and learning Islamic Religion. Later, the Christian Missionaries taught Christian Religion in Hausa. This led to the adoption of Hausa language as a language of religion in Nigeria for both Islam and Christianity (Adamu, 1974).

This fact is demonstrated in both churches and mosques in Northern Nigeria as Hausa is used as a medium of religious instructions. Despite the antagonistic attitude of some ethnic groups on the domination of Hausa language and its Islamic tenet, no group or individual has ever protested on the imposition of Hausa language on churches. Moreover, even Radio Nigeria Kaduna (Regional Radio Station owned by Federal Government of Nigeria) transmits Christian programme in Hausa language in order to reach a wider society of Christian community in Nigeria.

1.1.4 The Hausa Language in Politics

Hausa language has had the advantage of a wide coverage even during the colonial era because of trade adventure. The language was widely known and understood by speakers of various ethnic groups in Northern Nigeria; it was the language of wider communication amongst different ethnic groups in the North (Philips, 2004). In 1947, the colonial administration through the constitutional provision (Richards Constitution) recommended the use of Hausa language as an additional parliamentary language in Northern Nigeria. Therefore, Hausa language was used in deliberations and other debates in the chamber of the Northern Parliament. Later, the constitutional provision of 1954 accepted the use of Hausa language as a regional official language alongside English with the provision of documentation in English that is to say parliamentary documents were in English, whereas debate remained in Hausa. This provision accorded Hausa language a predominant role in regional politics, education and communication (Danladi, 2013). Hausa continued to proliferate throughout the 19^{th} century. The adoption of the language as a medium of colonial administration facilitated its extension to reach other areas such as Borno, Adamawa and Tiv land where the language was less influential during pre-colonial era.

Moreover, even with the introduction of language policies in education, National Policy on Education (1977; 1981; 1998 & 2004) which encouraged linguistic pluralism and recommended the inclusion of native languages in school curriculum, Hausa was already enjoying regional supremacy in administrative functions, education and judiciary. At the moment, Sharia Courts in Northern Nigeria operate in Hausa language during court sessions. The story is almost the same in the parliaments of most of the Northern States. In trade, Hausa language is also used in markets in Northern Nigeria.

1.1.5 The Hausa Language in Literature

Nigeria is very popular in literature and film industry, especially with the prominent African novelist Chinua Achebe, Wole Soyinka and popular film industry Nollywood. However, Hausa language has been in literature since pre-colonial era because it has a long history of Arabic orthographical system dating back to centuries before the invasion of the British colonial administrators in Nigeria. There were some literary activities in the northern region even before the coming of the Christian missionaries such as poetry and Islamic religious texts written in Arabic Script known as Ajami. This is because the Northern Nigeria has earlier had contact with Arabs through Trans-Sahara Trade and Pilgrimages to Saudi Arabia. It was reported by Philips (2004) that there was a Hausa text written in Ajami (Hausa writing in Arabic script characters) titled *Tarihin Annabi Musa* (the Biography of Prophet Musa) written by a Hausaist known as Abdallah Suka in the 17th Century. Today, this writing convention of Hausa in Arabic script is only used in Koranic schools; it was superseded by Roman Orthography which was introduced by British colonialists (Peace Corps/Niger, 2006). The Roman Orthography remains the writing system of Hausa language in education, literature and media.

With the Romanization of Hausa language by British colonial administrators, who changed Hausa orthography from Ajami to Roman Script in 19th Century, the trend of Hausa literature continued as it gave rise to the emergence of Hausa novels: *Magana Jari* written by Abubakar Imam in 1936, and *Shehu Umar* written by Nigeria's First Prime Minister Sir Abubakar Tafawa Balewa. Although earlier in 1932, British Colonial administrators introduced a regional newspaper called Northern Provinces News, a trilingual newspaper in English, Hausa and Arabic (*Jaridar Nigeria Ta Arewa. /Jaridat al Nijeriya al Shimaliyya*) published after every three months. However, by 1939, a monolingual Hausa newspaper called *Gaskiya*

Ta Fi Kwabo was launched into the newsstands. Additionally, North Regional Literature Agency (NORLA) was also established in 1954 in order to strengthen literary activities in Northern Nigeria (Yahaya, 1988). Though NORLA could not survive after independence, literary activities continued which produced a large number literary books such as: *Ruwan Bagaja, Jiki Magayi, Jatau Na Kellu, Kwabon Masoyi and In Da So Da Kauna.* These books were converted to film videos which facilitated the establishment of Hausa film industry KANNYWOOD. The industry has spread to other major cities of Northern Nigeria like Kaduna, Bauchi, Zaria, Sokoto, Katsina, Gusau, Jos and Gombe. The industry has also given birth to the emergence of entertainment magazines like *Tauraruwa* published in Kano. Tauraruwa exists alongside other Hausa newspapers such as *Aminiya* and *Rariya*.

From the foregoing, it is clear that the Hausa language plays prominent roles in Northern Nigeria. It is an official language second to English in the region and the medium of instruction in nursery and lower basic education (primary 1 – 3). It is also a language of politics, religion as well as legal proceedings in Shari' ah courts. Hausa is a common lingua franca, a language of trade, mass communication -print and electronic media, literature and film industry in northern Nigeria.

However, the artificial amalgamation of the regions based on the British colonial perspective as Hausa in the northern region, Igbo in the eastern region and Yoruba in the western region within the country paved the way for English to be a unifying factor in the country (Danladi, 2013). Despite the dominance of English in Nigeria today, these three major languages are still influential in their respective regions. Hausa remains the most widely spoken language in Nigeria with 29% of speakers, located in the northern region of which Bauchi state, a research area of this study, is inclusive. See Appendix B for map indicating the linguistic groups of Nigeria with Bauchi within the group of Hausa speakers.

Hausa language is divided into seven dialects. They are Kananci, Sakkwatanci, Katsinanci, Hadejiyanci, Dauranci, Zazzaganci and Bausanci (Bauchi Dialect) which is the area of this study. However, recent studies have categorized the seven dialects into two: western dialect and eastern dialect. Western dialect includes Sakkwatanci and Katsinanci while eastern dialect comprises Kananci, Hadejiyanci, Dauranci, Zazzganci and Bausanci (Abubakar, 2001). The language is used side – by –side with English in Nigeria.

1.1.6 The Role of English in Hausa Community in Nigeria

The amalgamation of Northern and Southern Protectorates in 1914 paved the way for English language to be adopted as an official language while Hausa remained as the regional language in Northern Nigeria. Therefore, the role of English in Hausa community can be associated with the role of English in Nigeria.

The English language plays various roles and functions in Nigeria It is an *acrolect*- a language of high social prestige, *a demolect*- a language with good shared number of speakers, a *metalect*- link language that cut across multilingualism and multiculturalism in Nigeria and a *burolect*- language of administration, commerce, law, education and media. It is the language spoken in Hausa community and Nigeria at large, and the 1999 constitution of Nigeria gave it a primary position. Hausaists have embraced the language passionately for many reasons. Some of the reasons are that it strengthens the country's identity and nationalizm in the midst of more than 521 linguistic groups, that it is one of the powerful and prominent languages in the world, and that it signifies prosperity for Nigerians (Christiana-Oluremi, 2013; Ikechukwu, 2013 & Patrick, Sui, Didam & Gyang, 2013).

The English language was earlier rejected and looked at with suspicion in Northern Nigeria because it was introduced by Evangelical expediency (Christian Missionaries), hence it was viewed as being in opposition with Islam. Specifically, the main reason for the proliferation of the uses of English amongst the Hausa community in Nigeria is to promote Western Education which further creates wider access to social rewards.

From pre-independence era to date, English has undergone various stages of developments in Nigeria in general and Northern Nigeria in particular (Awonusi, 1986: Imam, 2012; Oluniyi & Olajumoke, 2012). These developments have aided the language in assuming a dominant role in the Nigerian political environment (Sofenwa, 1978; Mgbo-Elve, 1981; Bamgbose, 1971 & Awonusi, 1990). These can be seen from the activities of the Christian Missionaries (Richards, 1945; Ajeigbe, 1987; Egbe, 1979 & Growther, 1962), the constitutional provisions (Woolman, 2001; Aluade, 2006; Christopher, 2008 & Alade, 2011) and the national policies on education (FRN, 1979: NPE, 1977, 1981.1998, 2004; Jen-Mary, 2008 & UNESCO-IBE, 2010).

1.1.7 The Role of Broadcasting Media in Hausa Community

The people of Northern Nigeria, particularly Hausaists are known to be frequent listeners of Radio and Television such as BBC, Voice of America, Deustche Welle (Germany) (Mohammed, 2005) and the recently established Radio France International. A research conducted by BBC World Service indicates that Nigeria has the largest audience of English and Hausa programmes on BBC World Service radio with average number of 25 million audience every week and the audience are mainly Northern Nigerians (Abubakar, 2014). The Hausaists listen to radio and television not only for the purpose of acquiring information but also educational purpose. This is why an average Hausa speaker irrespective of educational background can comment on international issues.

In Nigeria, television and radio stations can be categorized into Federal (national), State (county) and Private. The federal television, i.e. the Nigerian Television Authority has stations in all the 36 states of the federation, the same with Radio Nigeria. All states have their television and radio stations. The liberalization of broadcasting media in Nigeria in 1992 paved the way for the emergence of private television and radio stations in the country (Adeyanju & Okwori, 2006) like African Independent Television (AIT), Channels TV, Ray Power Radio, Cool FM and Radio

Freedom. These broadcasting stations (public and private) are operating under the regulatory agency of National Broadcasting Commission (NBC).

However, the majority of television and radio stations in Nigeria broadcast in the English language, the nation's official language, and some indigenous languages depending on the region or location of the station (Odegbenle, 2013). News broadcasts on television and radio in Nigeria are in English followed by translated version into indigenous languages (Aladeyomi, 2013).

It is clear that one of the primary roles of the media is to give information because information is central in human life. Through news broadcast journalists furnish human curiosity to know about their immediate world around them. Generally, in the Hausa community news reports are gathered systematically in English and translated in Hausa language in order to reach a wider community irrespective of social and educational status. Another role of the media in society is in the area of education. Broadcasting organizations educate the society through various educational programmes. In the Hausa community, there are programmes such as: learning by radio and television, language learning programmes and schools debate which are designed specifically in order to facilitate learning and are broadcasted both in English and Hausa language.

Entertainment has also received the attention of broadcasting media in their programmes in Hausa community and both the Hausa and English language seem to have an equal role. Hausa and English films are presented, the same thing with music and songs. The youth prefer English music and films with little attention to Hausa songs and music, whereas elders favour traditional Hausa films, music and songs. The children on their part choose modern Hausa movies. In the aspect of religion, religious programmes on radio and television are usually in Hausa because Hausa is the language of religion in Northern Nigeria and the followers prefer to listen to preachings in Hausa. The trend is the same in political mobilization. Radio and television feature political programmes in Hausa in order to be able to explain all the political gimmicks that are better understood in Hausa language. In Nigeria, English is the language of science and technology, likewise in Hausa community, broadcasting organizations present scientific programmes in English. This is because it is assumed that Hausa language may not carry the weight of scientific and technological concepts. From the discussions and explanations, it is important to note that Hausa and English are equally important. Moreover, the trend of globalization and technological advancement has contributed immensely towards the influence of the English language on the Hausa language. This has culminated in establishing various language contacts such as code switching especially in natural conversation.

1.2 Statement of the Problem

Broadcasting media has a great role to play in standardizing the spoken language of any society because broadcasters can influence the speech patterns of the entire community based on the number of radio listeners and television viewers they have. The level of consistency exhibited by newscasters tends to shape the speech habit of their audience owing to the high level of confidence the populace has in them, particularly on pronunciation (Aladeyomi, 2013). Therefore, newscasters are expected to present correct, comprehensible and intelligible English speech in their news rendition.

In broadcasting, the process of communication can be affected if there is noise or inappropriate articulations of certain consonants and vowels that affect the message. The broadcaster's mother tongue or L1 can constitute one such aspect of noise, thereby compromising the intended message. Hausa broadcasters from Nigerian Television Authority and Radio Nigeria are influenced by their native languages in pronouncing English words contrary to the expected norms of English pronunciation. This trend has a negative effect on members of other ethnic groups in Nigeria and other nationalities, especially children who perceive it as an ideal form and internalise it in their language faculty (Onwibiko, 2015). It also contributes to the problems of lack of standard pronunciation in the English spoken in Nigeria. However, our aim was to identify the issues behind the problems. By focussing on selected consonants, vowels and consonant clusters, we sought to understand why Hausa newscasters produce English RP sounds inappropriately.

1.3 Research Objectives

The general aim of the study was to investigate the phonology of Hausa newscasters of English bulletins.

The specific objectives of the study were as follows:

1. To identify and describe the articulation of selected consonants in the speech of Hausa newscasters.
2. To examine the articulation of selected vowels in the speech of Hausa newscasters.
3. To analyze the pronunciation of consonant clusters in onset and coda positions in the speech of Hausa newscasters.

1.4 Research Questions

The study sought to answer the following research questions:

1. What are the specific characteristics of Hausa newscasters' articulation of selected consonants?
2. What are the defining features of Hausa newscasters' articulation of selected vowels?
3. How do Hausa newscasters pronounce English consonant clusters in onset and coda positions?

1.5 Research Assumptions

1. There is inappropriate articulations of selected consonants in the speech of Hausa newscasters of English bulletin.
2. There is inappropriate articulation of selected vowels in the speech of Hausa newscasters of English bulletin.
3. Hausa newscasters of English bulletin are unable to pronounce consonant clusters in the onset and coda positions.

1.6 Justification and Significance of the Study

This research is different from previous studies on phonology such as: Aladeyomi (2013) and Emeka-Nwobia (2013) that centred on errors in the phonology of broadcasters in Nigeria particularly the English spoken by Igbo and Yoruba broadcasters without due consideration to the English spoken by Hausa broadcasters. Moreover, Optimality Theory, as a recent phonological theory has not been well researched within the Nigerian phonology of English.

Therefore, the present study contributes in filling this research gap, particularly in electronic media which are often regarded as a good model of Standard English pronunciation. It focused on the phonology of Hausa broadcasters of English on radio and television in Bauchi State Nigeria. It also considered linguistic variations that exist in spoken English in Nigeria (Hausa English, Igbo English and Yoruba English Brann, 2006). The study centred on Hausa newscasters of English bulletin in the northern region of Nigeria, who use Hausa English accent as opposed to the previous studies that captured the broadcasters in the southern part of Nigeria who use either Igbo English or Yoruba English.

In addition, the phonology of Hausa broadcasters of English bulletin in Nigeria is significant. This is because it examined the speech patterns of broadcasters who are regarded as a model of standard pronunciation in Nigeria and identified their lapses in speech broadcast. This work serves as an enlightenment in order to restore the lost glory of broadcasting industry in Nigeria for which they are known. Such lapses may be the reason why educated parents and language instructors are no longer regarding the broadcasters as good model of learning standard spoken English in Nigeria. Therefore, the study is useful to International Institute of Journalism for the training of broadcasters in Nigeria, it is also beneficial to the Nigerian Radio House for in service training of broadcasters in Nigeria.

1.7 Scope and Limitations of the Study

The present study is on phonology of Hausa newscasters of English bulletins in Nigeria. It is limited to segmental features such as consonant articulations and vowels and consonant cluster pronunciation. The study did not involve other paralinguistic features such as gestures, facial expressions and body language. It is a mixed mode triangulation within the ambit of Optimality Theory. The study is also limited to public radio and Television stations in Bauchi State. Data for the analysis were elicited from radio stations in Bauchi State, Northern Nigeria. Bauchi State is amongst the 19 Northern States in Nigeria and falls within the category of users of

Hausa English (Brann, 2006). Similarly, it is the most populated state in the North-East with 4.6 million people (National Population Commission, 2006).

1.8 Chapter Summary

The chapter presented a background to the study which featured the status of English language from the global, regional to local context of the Nigerian society. It further highlighted issues regarding broadcasting in Nigeria and the position occupied by English in broadcasting. Moreover, the problems of English pronunciation faced by the Hausa newscasters have been stated and they formed the basis of this research work. Objectives of the study and their corresponding research questions also featured in addition to the research assumptions. The chapter also justified why the research is different from the previous studies and also stated the beneficiaries of the research work. The study centred on the phonology of Hausa newscasters and conducted in public broadcasting media in Bauchi state, Nigeria.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.0 Introduction

This chapter examines related studies in the area of the Hausa and English phonology. It also discusses the phonology of non-native English and Nigerian speakers of English in particular. Additionally, the review also discusses relevant studies on pronunciation of newscasters in Nigeria and the theoretical framework adopted by the study.

2.1. RP English Segmental Phonemes

There are 44 consonantal and vocalic segmental phonemes in Received Pronunciation (RP) English. Vowels are produced with no restriction or obstruction to the flow of air from the lungs to the mouth or nostrils, whereas consonants are produced with constriction or obstruction to the air flow by any organ of speech (Finnegan, 2012; Yule, 1996). In RP English, there are 20 vowels and 24 consonants. These phonemes are represented through the use of appropriate phonetic symbols drawn from the larger inventory of International Phonetic Alphabet (Murthy, 2012).

2.1.1. RP Vowels

There are three types of RP vowels: Monophthongs, Diphthongs and Triphthongs (Murthy, 2012). The monophthongs are single vowels which are 12: /i: / /ɪ/ /e/ /æ/ /ɑ: / / ɒ/ /ɔ: / /u/ /u: / /ʌ/ /ɜ: / and /ə/. This is also illustrated in a chart below:

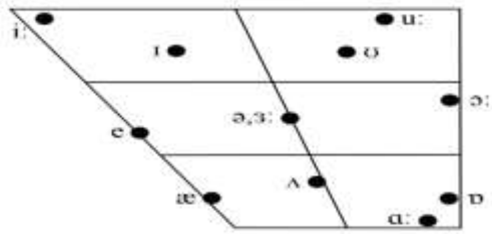

Figure 2.1 RP Pure Vowel Source: Roach (2004: 13)

Similarly, there are combinations of two single vowels to form a double vowel called diphthongs and they are classified into closing and centring. Closing comprises five diphthongs: /eɪ/ /aɪ/ /ɔɪ / /əʊ/ and /aʊ/ whereas centring encompass three diphthongs: /ɪə/ /eə/ /ʊə/ (Olajide & Olaniyi, 2013). This division is illustrated in the charts below:

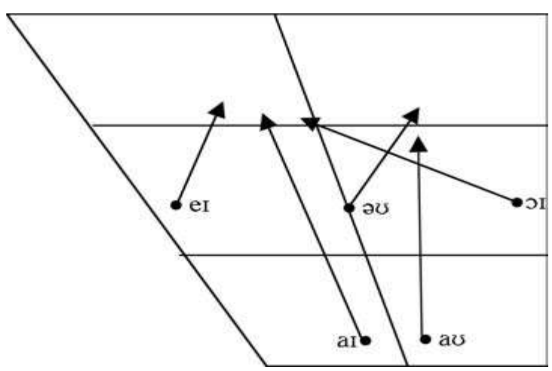

Figure 2.2 RP Closing Diphthongs Source: Roach (2004:18)

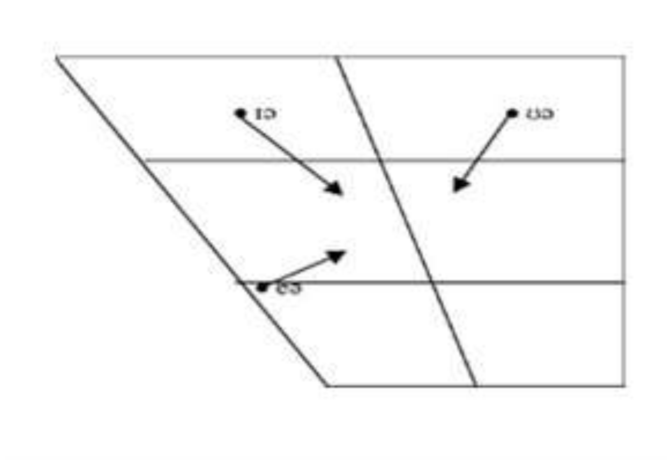

Figure 2.3 RP Centring Diphthongs Source*: Roach (2004:8)*

Moreover, there are three successive articulatory gestures that are realized as one segment. These are /əʊə/ /eɪə/ /ɔɪə/ /aɪə/ and /aʊə/. Though the present study did not involve the articulation of triphthongs because they do not occur frequently. Examples of the diphthongs and triphthongs are presented below:

/eɪ/ main /meɪn/ pain /peɪn/	/ɪə/ ear //ɪə/ near /nɪə/
/aɪ/ bike /baɪk/ eye //aɪ/	/eə/ air /eə/ hare /heə/
/ɔɪ/ boy /bɔɪ/ coin /kɔɪn/	/ʊə/ tour //tʊə/ pure /pjʊə/
/əʊ/ go /gəʊ/ goat /gəʊt/	/əʊə/ lower / əʊə/
/aʊ/ pound /paʊnd/ crown /kraʊn/	/eɪə/ layer /leɪə/
/ɔɪə/ employer /ɪmplɔɪə/	/aɪə/ tyre /taɪə/
/aʊə/ power /paʊə/	

2.1.2 RP Consonants

The labelling and description of consonant phonemes hinges upon articulatory features involving place of articulation (which classifies consonants as bilabial, labio-dental, dental, alveolar, palato alveolar, post alveolar, palatal, velar or glottal), manner of articulation (which makes consonants plosive/stops. affricate, fricative, approximant lateral or nasal) and state of the glottis which labels consonants as either voiced or voiceless. Below is the consonantal chart which presents the 24 RP consonants.

	Bilabial	Labio – Dental	Dental	Alveolar	Post – Alveolar	Palato – Alveolar	Palatal	Velar	Glottal
Plosive	p b		t d					k g	
Affricate						tʃ dʒ			
Fricative		f v	θ ð	s z		ʃ ʒ			h
Nasal	m			n				ŋ	
Lateral				l					
Approximant or Semi- vowel	w				r		j		

Figure 2.4 RP Consonantal Chart   Source: Roach (2004:32)

2.1.3 RP English Syllable Structure

A syllable can be a word or a part of it to comprise a vowel with or without consonant (Murthy, 2012). The English syllable comprise a single or sequences of sound segments that can form a word (e.g. are /ɑː/, eye /aɪ/, ear /ɪə/ and air /eə/) (Ayieko, 2013). Moreover, the structure of English syllable is made up of *onset* and *rhyme*, the rhyme is divided into peak and coda. The occurrence of a consonant or cluster (that is occurrence of more than one consonant) in the initial position of a syllable is called *onset* while a sound or sequence of sounds that follow is *rhyme*. Under the rhyme, a peak is realized by a vowel which is the nucleus of a syllable while a coda is identified by the possible consonant(s) that occur at the final position of a syllable.

2.2. Hausa Segmental Phonology

Smirnova (1982) identified 14 vowels in Hausa. These include 10 monophthongs and 4 diphthong whereas Lindan-Webb (1985) argued that there are 12 vowels in the Hausa vowel trapezium. 5 short vowels, 5 long vowels and 2 diphthongs not 4. Even the number of consonants vary ranging from 23, 25 to 32 (Newman, 2000 & Jaggar, 2011). Thus, the present study adopted the classification of Sani (2005) which accommodates all the variations that exist in Hausa phonemes. The inventory is used in Standard Hausa orthography and it is used by local and international media. The chart is larger than the inventory of Newman (2000) which has 32 consonants. According to Sani (2005) there are forty-eight (48) phonemes in Standard Hausa, comprising thirty-four (34) consonants sounds and fourteen (14) vowel sounds.

2.2.1 Hausa Monophthongal Vowels

Hausa vowels are basically classified into two segments: the “monophthongs” and the “diphthongs”. Monophthongs are vowels of steady quality, having one element of sound in their production; these vowels can either be of short or long quality in the course of their articulation. They are ten (10) short and four long vowels. This can be seen in the following cardinal vowel chart. The most important thing in the study of vowel production is the tongue movement indicated as follows:

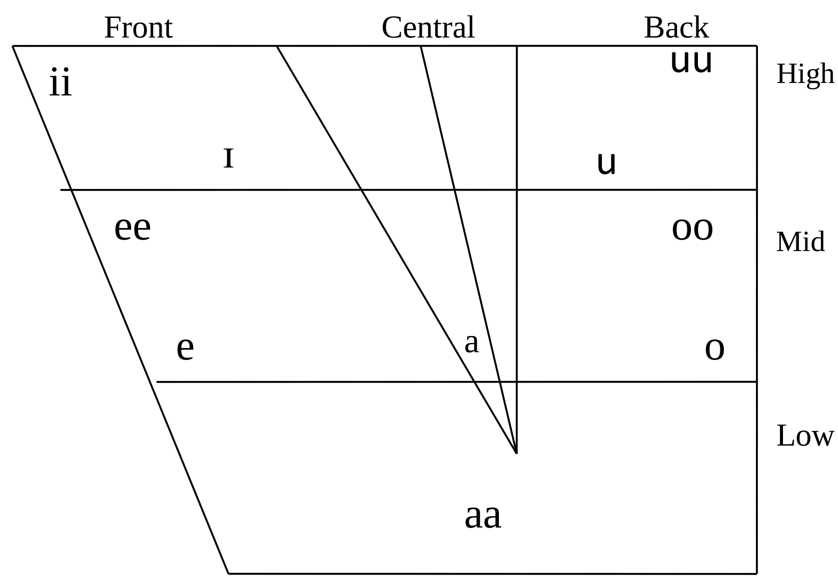

Figure 2.5 Hausa Monophthogal Vowels Chart Source: Sani (2005:16)

2.2.2 Hausa Diphthongal Vowels

There are vowels of two qualities in their articulations. These are two successive articulatory gestures that are produced as one vowel. The vowel begins with one quality of sound and ends in another quality. This is demonstrated in the vowel trapezium displayed overleaf.

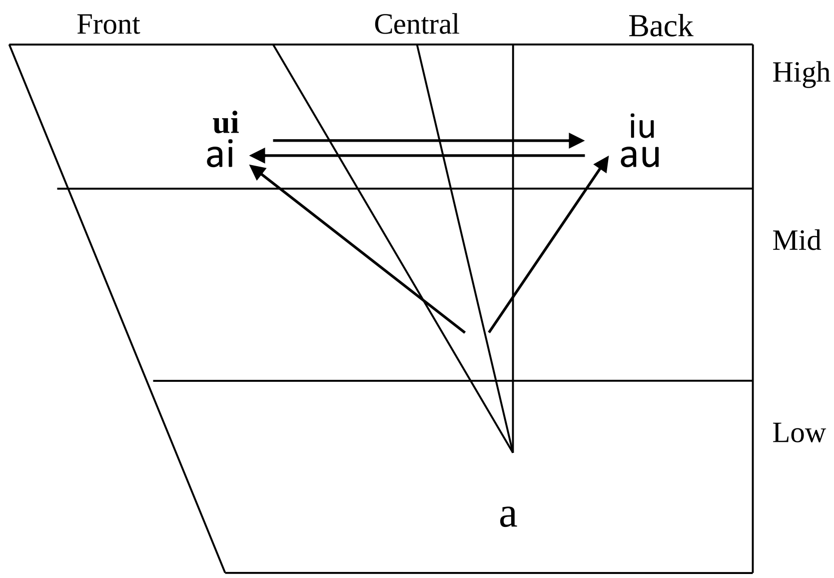

Figure 2.6 Hausa Diphthongal Vowels Chart Source: Sani (2005:15)

2.2.3 Hausa Consonant Sounds

According to Sani (2005) there are 34 consonants in Hausa. These involve 26 primary articulatory consonants and 8 secondary articulatory consonants. Primary consonants are those with only one segment as phoneme whereas secondary consonant are two successive articulatory gestures produced as one phoneme. The phonemes are presented in a chart overleaf.

	Balabial	Palatalized Balabial	Alveolar	Retroflex	Postalveolar	Palatal	velar	Labio velar	Labialized velar	Palatalized velar	Glotial	Palatalized Glotial
Stop/ explosive	b		t d				k g		kw gw	kj gj	ʔ	ʔj
Implosive	ɓ			ɗ								
Ejective			s'				ƙ		ƙw	ƙj		
Nasal	m		n			ɲ	ŋ					
Fricative	Φ	Φj	s z		ʃ						h	
Affricate					tʃ dʒ							
Lateral			l									
Trill/Roll			r									
Flap				ɽ								
Approximant Semi vowel						j		w				

Figure 2.7 Hausa Consonantal Chart Source: *Sani (2005:20)*

2.2.4 Hausa Syllable Structure

In Hausa language, there are two types of syllable structures: Open and Closed syllables. An open syllable is made up of a consonant accompanied by a vowel which in Hausa can be short, long or a diphthong, it is known as CV, CVV. A closed syllable, on the other hand, contains a consonant, short vowel and another consonant symbolised as CVC. The initial consonant in the syllable is known as the *Onset*, the vowel in the middle is *Nucleus* or *Syllabic consonant,* and the final consonant, in the case of closed syllable, is *Coda*. Hausa does not permit the co-occurrence of more than one consonant (cluster) either at the onset or coda (Caron, 2013: Musa &Altakhaineh, 2015). Though Abubakre (2008) argues that there are consonant clusters in Hausa. However, evidence from the literature prove otherwise as there are either abutting consonant or secondary consonant (see Sani, 2005), hence the realization of a higher ranked phonotactics constraint *COMPLEX.

2.3 Phonological Analysis of the English and Hausa Languages

A contrastive analysis of RP English phonemes and Hausa indicates there is a large number of RP English phonemes that are not in the phonemic inventory of Hausa language. These are /p/, /f/, /v/, /θ/, /ð/and /ʒ/. There are many consonant sounds such as implosives and homorganically articulated consonants in Hausa that are not in English. These are /ɓ/, /ɗ/, /ƙ/, /Φj/, /kw/, ƙw/, /ƙj/, /kj/, /gw/, /gj//. In fact, Hausa has a larger number of consonants than English. Additionally, the comparison also reveals that the variants of the phoneme lateral /l/ that is velarized [ɫ] as in milk is labelled as lateral phoneme /l/ in Hausa English.

The number of vowels in RP is higher than the number of vowels in Hausa. RP English has twenty vowels (20), twelve (12) monophthongs and eight (8) diphthongs while Hausa has fourteen, ten (10) monophthongs and four (4) diphthongs. As a result, Hausa speakers of English device some means of simplification to effect the communication. These are monophthongization of diphthongs, long vowel reduction, substitution of diphthong with monophthong and glide epenthesis.

Kager (1999) explains that some languages have a different dimension of syllable structure which do not permit complex onset and coda that is CC or CCC. Hausa is one of such languages that do not permit consonant clusters. When there is a cluster, especially in loanwords from English, an epenthetic vowel is introduced to break up the cluster. Examples, /plæŋk/ as [fɪ.lan.kɪ], /brеɪk/ as [bur.kɪ], /bentʃ/ became [ben.tʃɪ], and /plɒt/ (of land) – [fu.lo.tɪ] (Jaggar (2001:1). On the contrary it has what is referred to as Abutting Consonants where two consonants occur in the middle of a word, one marking the end of a closed syllable the other denoting the beginning of another syllable e.g /babba/ (big), haŋja (road), /takalmɪ/ (shoe) (Sani, 2005). English on the other hand, allows for complex onset and coda where a number of consonants co-occur as in strengths /streŋθs/, springs /sprɪŋz/ (Roach, 2009).

2.4 Phonological Features of New Englishes

Phonology of English has been a great challenge to most speakers of English as a second language due to the conflicting nature between phonemic representation and orthography (Schmied, 1991). This inconsistency is evident in the British English where the writing system is not a true reflection of the pronunciation. Even in the dictionaries used by the native speakers, a phonemic transcription of every word is provided as a guide to pronunciation (Bobda, 1994). Although there is a dearth of literature on phonology of new Englishes (Bobda, 2001), remarkable contributions were made by researchers (Kachru, 1984; Platt et al, 1984; Crystal, 1997; Bamgbose, 1998; Simo Bobda, 2000; 2001 & 2003).

2.4.1 Articulations of Vowels by Non-native Speakers of English

Labov (1973) in his research investigated the characteristic features of Black Americans (Africa Americans) speech in New York. For example, the absence of a distinction between /i/ and /e/ before nasal /pɪn/ equal to /pen/ has become a marker of African American in New York City. It is also common to find that young black people do not distinguish ‘four’ and ‘for’ ‘which’ and ‘witch’, while monophthongization of ‘high’ and ‘wide’ is common.

In fact, there is a high level of vowel restructuring in the new Englishes. Kachru and Smith (2008) report that most of the English spoken by non-native speakers is characterized by long vowel reductions. The RP long vowels /i: / /u: / and /ɔ: / are produced as shorts /ɪ/ /u/ and /o/ respectively. Moreover, central vowels also undergo some forms of restructuring. The schwa vowel /ə/ is articulated as /a/ in East and South African English whereas the wedge vowel /ʌ/ is produced as /o/ in West African English and /a/ in East African English. The vowel /ɜ: / is produced with variants /ɔ/ /ɛ/ or /a/ in the English spoken in West Africa. In a similar vein, there is a monophthongization of diphthongs where the speakers produce only one part of the diphthong. For instance, /eɪ/ is articulated as /e/ whereas /əʊ/ is produced as /o/ (Simo Bobda, 2000). Similarly, Atechi (2006) reports that the deviation from the norms of RP in vowels articulations of non-native English is a marker of non-native English. It is noted that /i: /, /u: /, /ɔ: / and / ɑ: / are articulated as short sounds /ɪ / /ʊ/ /ɒ/ and /a/. This scenario is also evident in the English spoken by different groups in Kenya where most the RP long vowels are considerably reduced to short vowels in their speech.

In Nigeria, Olajide and Olaniyi (2013) point out that educated speakers of English in Nigeria demonstrate long vowel reduction in their speech. The RP long vowels /i: /, /u: /, /ɔ:/ and / ɑ: / are produced without the feature length which make them short vowels and create lack of distinctions between some pairs of words. Opanachi (2013) identifies the vowels articulations of Igala speakers of English in Nigeria and the participants pronounce words like *seat* as *sit* which denote that there is no difference between /i:/ and /ɪ/. The RP central vowels /ə/ /ʌ/ and /ɜ: / are pronounced as /ɔ/ and /a/, while /æ/ is articulated as /a:/. It should, however, be noted that Hausa and Igala are different, and the present study is interested in the speech of broadcasters. Moreover, Josiah, Bodunde and Robert (2012) observe that Nigerian speakers of English usually substitute RP phonemes with those that have similar articulatory features in their native languages. The respondents were drawn from undergraduate students in university while the present study is centered on the broadcasters.

Olaniyi and Josiah (2013) account for the vowels articulation of three major varieties of English in Nigeria, namely: Hausa English, Igbo English and Yoruba English. They maintain that the speakers substitute RP vowels with the vowels from their native language and further claim that Hausa English is closer to RP than other varieties. They cited an example of RP English wedge vowel /ʌ/ which is replaced with /a/ in Hausa English and according to Olaniyi and Josiah, the sound /a/ is closer to RP wedge vowel. This study discusses the phonological variations that exist between the three varieties of English in Nigeria (Hausa English, Igbo English and Yoruba English). However, phonological features of Hausa newscasters were not explored. Ekundayo (2016) notes that there is a general feature of phonemic realization of letter/sound ‘E’ which cuts across all speakers of English in Nigeria. The letter/sound ‘E’ is generally realized as /e/ irrespective of a phonetic environment. This feature is therefore considered as marker of English spoken in Nigeria. In a similar vein, Tsojon and Aji (2014) report that the wedge vowel ʌ/ is produced as /ɒ/ while the schwa vowel /ə/ is usually replaced by /a/ and the nurse vowel /ɜ: / is substituted with /ɒ/. The /eɪ/ is produced as monophthong /e/ all in the speech of Jukun (Wapan) speakers of English in Nigeria. Though the study featured RP vowels articulations in Nigeria, it is only limited to Jukun speakers of English.

Ojarikre (2015) examines a contrastive analysis of segmental phonology of Nigerian Pidgin English and Standard English. The study revealed that the features of Nigerian Pidgin English affect the speech production of the Nigerian speakers of English. Moreover, the feature long vowels are absent in the Nigerian Pidgin which make most of the Nigerian speakers of English to reduce the quality of RP long vowels to short. Similarly, Malah and Rashid (2015) study the segmental phonemes of English and Hausa where they discover that the 2 languages vary considerably. According to them, English has 20 vowels while Hausa has 13 vowels. They both have long and short vowels though Hausa long and short vowels are spelt alike and have a semantic impact. They further envisage that Hausa speakers will have difficulties in producing some English vowels such as central vowels: schwa /ə/, caret /ʌ/ nurse /ɜ:/ , low front vowels /æ/ and diphthongs.

The studies reviewed featured vowel articulations of non-native speakers of English around the world and Nigeria in particular and none of these researchers captured the speech of broadcasters. Therefore, the present study examines the English pronunciations of Hausa broadcasters in Nigeria.

2.4.2 Articulations of Consonants by Non-native speakers of English

There are features that mark the new varieties of English throughout the world (Atechi, 2006) such as voiceless interdental fricative /θ/ and voiced interdental fricative /ð/. In addition, there are other consonants that are also difficult to produce by non-native speakers of English. These are voiceless labiodental fricative /f/ and voiced labiodental fricative /v/.

Bautista (2001) reports that voiceless bilabial plosive /p/ is used in place of voiceless labio-dental /f/ whereas voiced bilabial plosive /b/ replaces voiced labiodental fricative /v/ in the English spoken in Philippines. Schneider (2003) observes that the potentially aspirated phonemes in word initial /p/ /t/ /k/ are produced with their inherent feature of aspiration in Malaysian English.

Adedimeji (2007) states that the English spoken by different linguistic groups are identified in their articulations of certain segmental phonemes. These are: /t/ is used for /θ/, /d/ for /ð/, /ʃ/ for /tʃ/ and/ ʃ/ for /ʒ/. Similarly, Jowit, (2007) reveals that most of the English speakers in Nigeria speak English which is alien to RP. This is because there are some features of Nigerian languages that are transferred which marked it out as a distinct variety. Patrick, Sui, Didam and Gyang (2013) further explicate troublesome consonants of Hausa, Igbo and Yoruba speakers of English in Nigeria. The Yoruba speakers of English find it difficult to articulate English phonemes /f/ voiceless labiodental fricative and voiced labiodental fricative /v/. Similarly, /tʃ/ and /z/ are also problematic to them in addition to interdental sounds /θ/ and /ð/. Hausa speakers of English also find it difficult to articulate interdental sounds /θ/ and /ð/ thereby resorting to /t/ and /d/ as substitutes. Moreover, they also encounter difficulties in producing voiceless bilabial plosive /p/, and hence the realization of voiceless labiodental fricative /f/. Igbo speakers of English experience snags in producing /θ/ and /ð/ which necessitate the realization of /t/ and /d/ as substitutes. The study discusses phonological difficulties faced by the major ethnic groups in Nigeria with participants drawn from senior primary schools. However, educated speakers of English were not included in the subjects, likewise, newscasters were not part of the samples.

In a related study Olaniyi (2014) provides the phonological features of English spoken by Hausaists, Igbos and Yorubas within the framework of social classification (Brann, 2006). The findings show that the Hausa speakers of English have difficulties in articulating voiceless labiodental fricative /f/, voiced labiodental fricative /v/ and voiceless bilabial plosive /p/. It should be noted that /p/ and /f/ are used interchangeably by the Hausaists. Besides, voiceless interdental fricative /θ/ and voiced interdental fricative /ð/ are also problematic to the Hausa speakers of English thereby resorting to /t/ and /d/ and /z/ as substitutes. Voiced palato alveolar fricative /ʒ/ is frequently produced as voiced palato alveolar affricate /dʒ/. This is because it is not known in Hausa and hence the substitution with the one that shares some articulatory features. Similarly, Igbo speakers of English also have problems in articulating voiceless interdental fricative /θ/ and voiced interdental fricative /ð/. They are replaced by /t/ and /d/ respectively. Furthermore, Yoruba speakers of English hardly produce /θ/, /ð/, /dʒ/, /p/, /v/ and /ʒ/. Additionally, a contrastive analysis of English and Hausa segmental phonemes by Malah and Rashid (2015) also reveal that Hausa speakers of English are likely to have difficulties in articulating some English phonemes because they do not exist in Hausa. These include /p/, /f/, /v/ /θ/, /ð/ and / ʒ/. The studies discussed English phonological difficulties faced by three major linguistic groups in Nigeria. However, pronunciations in broadcasting industry as a model in speech community was not the focus of the researcher.

Realizing the phonological deviations demonstrated by Nigerian speakers of English, Udofot (2011) opines that the English spoken in Nigeria deviates from the norms of RP; it acquires new features that mark it out as a variety and there is the need for its adoption in Nigerian schools. She further states that the deviations in Nigerian English should be permitted and regarded as accent marker. It is clear that /θ/ and /ð/ are substituted with /t/ and /d/ whereas /f/ and /v/ are used interchangeably in word like /l i:v/. The researcher focused on language education and suggested the need for legislation that will pave the way for Nigerian English to assume the status of medium of instructions in schools and as a subject. However, she was unable to present the methodology and samples of the respondents who participated in the study. The research looks like a desktop review without empirical evidence to justify the information presented. Therefore, the present study adopted a descriptive study design – a triangulation mixed method. A sample of broadcasters were drawn from radio and television stations as respondents.

Similarly, Ekundayo, Longe and Teilanyo (2012) note that the misarticulations of RP phoneme demonstrated by Nigeria speakers of English should not be condemned and labelled as errors, but rather features of Educated Nigerian English. According to them, these features are similar to what marks American English out from British English, hence the recognition of Nigerian English as a variety in its own right. Although samples of the study were drawn from students of linguistics, literature, mass communication and journalists, the respondents were not measured against the specific phonemes that are perceived to be difficult to Nigerian speakers of English.

It was a random selection of English words which left out a lot of segmental features that are problematic to the Nigerian speakers of English. Thus, the absence of those segmental features in the research stand out as major limitations of their work.

The studies reviewed have provided consonant articulations of non-native speakers of English from general to specific features of Nigeria speakers of English including Hausa speakers of English who are the subjects of the present study.

2.4.3 Articulations of the Syllable Structure by Non-native Speakers of English

Phonotactic rules are considered relevant to the attainment of appropriate pronunciations in any given language. It is a rule which governs the linear order of phonemes and their occurrences in language (Yavas, 2011). It states the acceptable and unacceptable sequences of phonemes in a particular language and the possible syllable structure, vowel sequences and consonant cluster where available. However, one of the challenges to most non-native speakers of English is the articulation of consonant clusters. This is because these features do not exist in most of the African languages and Nigeria in particular. The non-native speakers of English often employ some strategies to simplify the consonant cluster. These strategies are epenthesis and deletion (Soneye & Oladunjoye, 2015).

Epenthesis is one feature of the non-native English around the world. Kachru and Smith (2008) report that the non-native speakers of English in South East Asia usually insert vowel /ɪ/ in word initial position to declusterize the cluster at the onset. For instance /skul/ is pronounced as [ɪskul]. Shibuya and Erikson (2010) cited in Soneye and Oladunjoye (2015) also assert that Japanese speakers of English encounter difficulties in articulating English consonant clusters and hence the insertion of epenthetic vowels. The English spoken in East Africa is also marked with vowel insertion to break up the clusters. For instance, /əgenst / is realized as [agenest], and the situation is similar to West African English where epenthetic vowels are usually introduced to break up consonant cluster. For example /smɔ:l/ becomes [sumul] (Atechi, 2006).

Deletion is another feature used by non-native speakers of English to simplify the consonant cluster. In Malaysian English one of the consonants in the coda is usually deleted to simplify the coda. For instance, /desk/ is pronounced as [des]. Moreover, in Singaporean English /ri: sənt/ is pronounced as [rɪsen] while in Indian English /hænd/ is realized as [han]. Cluster reduction is also a major characteristic of English spoken in Ghana as it happens in the English spoken in West Africa. For example, /mɪst/ is realized as [mɪs]. The scenario is similar to the English spoken in Nigeria where / fɜ:st/ is produced as [fos] (Huber, 2004 & Atechi, 2006).

In Nigeria, studies on English consonant cluster articulation are limited. The few number of studies available establish the use of epenthesis and deletion strategies in simplifying the English cluster. Scholars corroborate that there is a frequent use of consonant deletion in coda and vowel insertion to simplify the cluster in the English spoken in Nigeria (Jowitt, 1991; Simo Bobda, 1995; Gut, 2007). Gut (2004) explains that Nigerian speakers of English employ the use of deletion strategy in coda clusters by deleting one consonant to create a simple coda. For example /hænd/ is pronounced as [han] – a situation similar to Indian English. In addition, there is also the use of epenthesis where the vowels / ɪ/ and /u/ are inserted between two consonants in the coda position. Example, /kæt / is realized as [katul]. However, the use of epenthesis in onset was not reported in the study and hence the need for further research.

Mbah and Wayah (2014) make a significant contribution by explaining the errors in the pronunciation of English consonant clusters by Tiv speakers of English in Nigeria. The researchers adopt a descriptive research approach within the OT framework to identify the constraints that the Tiv speakers of English encounter. It appears that the subjects find it difficult to pronounce consonant clusters, hence the violation of phonotactics rule by epenthesizing vowels to break up the cluster.

Similarly, Bamisaye and Ojo (2015) point out that the Yoruba speakers of English also pronounced English cluster based on Yoruba syllable structure as CV V or syllabic consonant N. Complex cluster either at the onset or coda are not permitted in Yoruba, hence the use of epenthetic vowel to break up the cluster. The study focused on the domestication of English words in Yoruba news rendition. In-depth investigations on phonotactic articulation of Yoruba speakers of English was not carried out in the study and Hausa speakers were not included. Therefore, the studies reviewed have provided a valuable insight into the phonotactic articulation of non-native speakers of English in general and Nigeria in particular. However, researches on Hausa speakers of English, particularly broadcasters have not been explored and hence the need for the present study.

2.5 Phonological Analysis of the English Spoken in Nigeria

For five and a half decades, there have been studies on Nigerian phonology of English, but most of the studies focused on identifying and classifying the English spoken in Nigeria. The contact between English and Nigerian indigenous languages has produced new varieties that are markedly different from RP (Bamgbose, 1971). These Englishes spoken in Nigeria acquire the features of some Nigerian languages (Udofot, 2003; Sunday, 2010). Several efforts have been made by researchers in categorising these varieties (Jibril, 1982; Jowitt, 1991; Banjo, 1996), these researchers corroborate that there are acrolectal, mesolectal and basilectal varieties of English in Nigeria.

2.5.1 Classifications of the English Spoken in Nigeria

Banjo (1995) classified Nigerian English on the basis of linguistic markers. The study showed that there are four varieties. These are: Variety One which is marked by heavy influence of L1 transfer particularly in phonology and morphology. Variety Two which is characterized by deviations in phonology and morphology, but closer to British English in grammar. Variety Three is prestigious and is similar to British English. Banjo (1996) added that Variety Four acquired all the features of British English.

Another classification was made by Jowitt (1991) where he classified English spoken in Nigeria based on ethnic markers. According to him, there are three major varieties of English in Nigeria, namely: Hausa English, Igbo English and Yoruba English. There are other varieties of English spoken by Ibibio, Ebira, Efik and Igala. Jibrin, (1986) had earlier classified English in Nigeria along regional lines. He added that there is Hausa English found in Northern Nigeria and Southern English in Southern Nigeria which all have sub varieties. Udofot (2003) argues that educational variable was omitted in the above classifications. She provides three varieties of English, namely non-standard, standard and sophisticated. The non-standard is spoken by peoples who obtained primary, secondary, Diploma and NCE certificates, level II undergraduates in universities and teachers at primary schools. The standard are used by teachers at secondary schools and tertiary institutions, level III and IV undergraduates and graduates of polytechnic. The sophisticated English is used by people who lived in the first language environment of English, university graduates from humanities and lecturers of English and linguistics.

The studies above classified English spoken in Nigeria on the basis of linguistic ethnic, regional and education variable. In this regard, two classifications are relevant to the present study. Regional/ethnic which produced Hausa English and educational variable which brought about sophisticated English used by the educated including broadcasters who are mostly graduates from the school of humanities.

2.5.2 L 1 Transfer in the Nigerian Phonology of English

Another aspect that received scholarly attention in the Nigerian phonology of English is the first language transfer. Scholars often attribute features of Nigerian English to L1 transfer. Ikechukwu (2013) conducted a study on the language transfer between English and Igbo language in Nigeria. The study adopted a descriptive approach in order to identify the levels of interactions between the two languages. The result indicated that Igbo interferes with the English at the phonological level, whereas English interferes with the Igbo at the lexical level. The study concludes by identifying the emergence of a new variety tagged *Englibo,* a product of language contact between English and Igbo. Though the research discusses some interactions between English and Igbo language, it focuses on language contact phenomenon rather than phonological research.

Apeli and Ugwu (2013) examine the phonological transfer in the pronunciation pattern of Izion native learners of English in Nigeria. The research focuses on some interlanguage factors such as: level of interaction with English, educational level and access to oral English lesson in school. The findings identify three fundamental factors responsible for the language transfer which include: level of immersion, educational level and lack of exposure to oral English.

Similarly, Iyere (2013) identifies factors leading to the problems of pronunciation which include: language transfer, age, attitude and insufficient knowledge of English sounds system and suggests the inclusion of Contrastive Analysis Model in the curriculum of second language learners. The studies reviewed have been able to identify factors responsible for language transfer in the pronunciation of English words by non-native learners of English in Nigeria. The studies are relevant in view of their focal point of addressing pronunciation difficulties amongst learners of English in Nigeria. However, the present study differs by focusing on educated speakers of English in Nigeria, particularly broadcasters.

In another development, phonological variations in English, particularly in second language environments is usually associated with first language. This view is imbued in the works of Nigerian linguists who often attribute phonological variations to phonological transfer. Bamgbose (1971; 1995) states that the phonological features of Nigeria's indigenous languages influence English pronunciation patterns of Nigerian speakers of English to the extent that some articulatory features of local languages are used in English speech. This position is supported by Banjo (1979; 1996) and Egbe (1979).

In a similar vein, Jibril (1979) reaffirms that first language transfer which results in deviation from the norm of RP, is the main factor of phonological variations in the English spoken in Nigeria. These include not only the segmental features but the tonal features of African languages. It is clear that English is a stress-timed language while African languages are syllable-timed. These are some of the reasons why Nigerians speak English with syllable-timed rather than stress-timed (Udofort, 1997). There are some educated Nigerians who approximate native-like competence of either British or American standard.

It should, however, be noted that sociolinguistic approach involves the principle of multiple factors rather than a single factor which the studies reviewed above in Nigeria singled out language transfer as the only cause of phonological variations. For instance, there are situations where some Nigerian speakers of English pronounce words inappropriately which cannot be associated with mother tongue transfer. Therefore, other factors may be responsible which only research would reveal. Variation in any language is likely to be influenced by multiple causes. Evidence from the studies reviewed show that English spoken in Nigeria is classified based on several dimensions, and there is a heavy influence of L1 transfer.

2.6 Studies on the Phonology of Newscasters in the Broadcasting Industry

In recent years, research on the phonology of newscasters has received scholarly attention. Hannisdal (2006) discuses some phonological variations amongst newsreaders on BBC, SKY NEWS and ITV in Britain. The research uses six phonological variables and discovers phonological variations in each. These include CURE lowering (/ʊə/ > ɔ: /), GOAT allophony (əʊ>ɒʊ), T-voicing (t > t̬), Smoothing (aɪə, aʊə>aə), Yod coalescence (tj and dj>tʃ and dʒ) and R-sandhi (/r/ deletion in *word far away).* The research propound the existence of pronunciation variations amongst British broadcasters who are using RP accent and the study is related to the proposed study because it highlights phonological variation amongst newscasters.

In Nigeria, there are researches on the phonological features of broadcasters. Aladeyomi and Adetunde (2007) study segmental phonemes errors in the spoken English of Nigerian Television casters. They identify some errors being made by television broadcasters in Nigeria as a result of features of English that are absent in the phonemic inventories of Nigerian languages and environmental influence. These affect their use of English and make it sound different from its natural tenet of RP. The study was not able to capture Hausa broadcasters of English who are the subjects of the present study.

In addition, Soneye (2007) observes that the inconsistency between English orthography and phonetic symbols also influences the pronunciation patterns of newscasters of the Nigerian Television Authority. For instance, the voiced velar plosive /ɡ/ is present in the phonemic inventories of all the three major languages in Nigeria but the majority of the newscasters produce it as voiced palato alveolar affricate /dʒ/ in the second syllable of a word, e.g. gigantic /dʒaɪdʒæntɪk/ . The study focused mainly on spelling pronunciation phenomenon. The specific phonemes that are perceived to be difficult to Nigerian speakers of English were not covered by the research.

Similarly, Akpan, Anorue, Obayi and Etu (2012) also identify the influence of mother tongue in the broadcasting industry in Nigeria. The researchers adopt the use of Communication Process Model which examines the relationships between encoder and decoder. The respondents who are mainly broadcasters in Enugu State Southern Nigeria reveal that Nigerian broadcasters are influenced by mother tongue interference in their broadcasting, particularly in sounds articulation which affect their pronunciation of some English words and suggests for intensive linguistic training in order to improve their proficiency. The study gives insight into the problems of broadcasters in southern Nigeria who use Igbo English variety, however, there was no linguistic theory in the research to account for the mother tongue transfer.

In a related study Emeka-Nwabia (2013) examines the phonological errors of broadcasters in Ebonyi State, neighbouring Enugu State, Southern Nigeria. In the research, newscasts were tape recorded and analysed using Phonemic Theory. It was discovered that the errors being committed by the newscasters are associated with substitutions of English phonemes with phonemes of the Igbo language. Similarly, Aladeyomi (2013) examines the pronunciation patterns of Nigerian television newscasters against the standard British pronunciation. He focuses on errors related to central vowels, consonants, stress and intonation. The respondents transfer the features of their native language to English. The study used phonetic transcription of news telecasts that are tape recorded and the findings reveal some errors related to consonants, stress and intonation. However, the researcher adopts the use of convenient sampling in selecting the participants, and according to Awang (2012) convenient sampling is not appropriate for population inference and cannot be used for descriptive research simply because the researcher cannot say with confidence that the individuals are the representatives of the population.

Soneye and Oladunjoye (2015) opine that Yoruba broadcasters often delete one consonant in two consonant cluster coda to declusterize the cluster. Moreover, when there are three consonant cluster coda, one consonant is usually deleted to reduce the weight of the cluster. The researchers were not able to trace the case of epenthesis from the respondents which they believed to have existed in non-native English and suggest further research into the Nigerian phonology of English to identify the process. In response to this call, the present study captures the case of epenthesis in the data.

The studies reviewed are related to the proposed study in view of their focal point on investigating errors in the pronunciation of newscasters on radio and television in Nigeria. However, the present study varies from the previous researches because it focuses on describing the phonological patterns of Hausa broadcasters of English. This serves as a paradigm shift from error-based approach used in previous studies to a descriptive approach of phonological patterns of broadcasters in broadcasting industry in Nigeria.

2.7 Theoretical Framework

2.7.1 Optimality Theory

The present study adopts the Optimality Theory to account for the English segmental articulations of Hausa broadcasters. OT was introduced by Prince and Smolensky (1993) and developed by Prince and McCarthy (1993). The theory proposes that form is acted on simultaneously by hierarchical constraints that are within the ambit of Markedness and Faithfulness. Markedness constraints are interested in the output representation less marked, whereas the Faithfulness constraints require the output being faithful to the input (Kager, 1999; McCharthy, 2002, 2004, 2007, 2008).

Moreover, the surface realization or output of speech production of language is premised upon the interactions between some sets of constraints (Kadenge, 2012). These constraints are violable, but the violation is not a yardstick for the realization of ungrammatical structure or accounts for acceptable grammatical structure. The optimal output is determined by minimum violations of set of hierarchical constraints (Kager, 1999). The introduction of OT as phonological theory is imbued by the fact that languages across the world are different in terms of structure hence the realization of language structure as a fundamental principle of defining and describing language. Chomsky and Halle (1968) opine that languages encompass set of universal principles which are available in all human languages. These constitute the grammatical rules which guide the functions and operations of every language. Within the grammar of every language, some properties are universal whereas others are language specific. OT also imbibes the ideal of universal principles where it states that every language has an independent grammatical system which governs the operation of the language through some schematic rules. It is against the bedrock of this fact that Prince and Smolensky (2004) advance that all languages have specific set of hierarchical constraints that determine the structure of language and the acceptable grammatical structure is determined by least violations of the constraints.

Unlike the previous phonological theories, OT proposes a clear mapping between underlying and surface structure. The mapping is centred in the hierarchically-ranked constraints. Constraints are concerned with well-formedness of candidates' form banning marked structures or requiring felicitous/unmarked form. Other constraints are concerned with identity relations between underlying/surface forms that is complete output forms. Moreover, OT observes input/output nexus in assessing faithfulness but as an output device, OT prepares a surface structure (McChathy, 2002).

Markedness and faithfulness constraints in OT explain the formal order of RP English pronunciation and the deviations demonstrated by Hausa broadcasters in their speech. The Markedness constraints handle all forms of deviations and rearrangement in the output such as insertion, deletion and substitution. While the Faithfulness constraints preserve input-output identity.

There are three mechanisms that anchor the operation of linguistic elements from input to output. These are: Generator (GEN), Constraints (CON) and Evaluator (EVAL).

i. GEN: creates the infinite number of candidates that will compete in the race.
ii. CON: pin down the benchmarks of violable constraints against which candidates will be measured.
iii. EVAL: selects the winner based on the violation of the lower constraints.

Markedness Constraints

The followings are the Markedness constraints identified to capture the structural well-formedness of the output.

*COMPLEX $_{\text{ONSET}}$

Onset is simple (Kager, 1999).

*IDENT-IO (V) $_{\text{LONG}}$

No long vowels in the Hausa broadcasters' English.

*IDENT $^{\text{CONT}}$

The occurrence of continuants is prohibited

(Sani, 2005 & Newman, 2000).

*COMPLEX $^{\text{VOW}}$

The chain of vowels in a syllable is not permitted.

*IDENT-IO BACK

Back vowel is not allowed.

*IDENT-IO LOW

The appearance of a low vowel is not allowed (Caron, 2013; Newman. 2000).

*COMPLEX CODA

Coda is simple (Kager, 1999).

*VOICED-CODA

Voiced obstruent in coda is prohibited (Kager, 1999).

Faithfulness Constraints

The preservation of the features of the input in the output is governed by a set of FAITHFULNESS CONSTRAINTS which require input segments to have correspondents in the output.

MAX -IO

Every segment in the input has a correspondence in the output (No deletion) (McCarthy and Prince, 1995).

DEP- IO

Output segments must have input correspondence (No insertion).

IDENT-IO (F)

If a segment has a feature [αF] in the input, then it must be specified as [αF] In the output.

2.8 Conceptual Framework

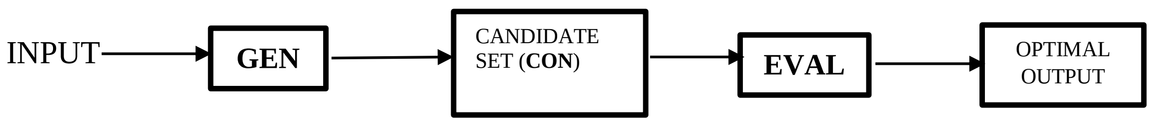

Figure 2.8 Optimality Theory Conceptual Framework (Boersma Dekkers & Van de Weijer, 2002)

EXAMPLES:

OT Evaluation of the word *class* in RP English

(1) Input / klɑ:s/

Output [klɑ:s]

Input /klɑs/	*IDENT-IO [-low -high]	IDENT-IO [+low +back]
a. [klæs]	*!	
b. ☞ [klɑ:s]		*

The constraints are presented as *IDENT-IO [-low, -high] dominates *IDENT-IO [+low, +back] for RP, and the rank is the opposite in American English. All other data in the set yield the same result. It seems that RP does not allow low or high back vowels, but allows mid- back vowels.

OT Evaluation of the word *class* in American English

(2) Input /klæs/

Output [klæs]

Input /klæs/	*IDENT-IO [+low +back]	*IDENT-IO [-low -high]
a. ☞ [klæs]		*
b. [klɑ:s]	*!	

American English does not permit mid-back vowel, but allows low-back vowel. In general OT, *IDENT [-low,-high] is a high rank constraint, meaning that mid vowel is more marked, and yet, it is preferred in RP

OT Evaluation of the word *Ripple* in Hausa English

(3) Input / r ɪ p ə l/

Output [r ɪ ɸ u l]

Input / r ɪ p ə l/	IDENT^{CONT}	*IDENT-IO ^{BACK}	IDENT- IO (place)
a. [r ɪ p ə l]	*!	*!	
b. ☞ [r ɪ ɸ u l]		*	
c. [r ɪ f ə l]		*!	*!

Candidate (a) represents RP candidate but incurs fatal violation of a higher ranked constraint IDENT ^{CONT} which allows the occurrence of a continuant /ɸ/ in Hausa (Sani, 2005 & Newman, 2000) and also violates another constraint *IDENT-IO ^{BACK} which do not permit the realization of back vowel. Candidate (b) represents Hausa English output and is the winner because it satisfies higher ranked constraint IDENT^{CONT} and violates *IDENT-IO ^{BACK} .This is because the constraints rankings are: IDENT^{CONT} >>*IDENT-IO ^{BACK} IDENT-IO (place). Candidate (c) could not emerge as the optimal output because it contravenes a higher ranked constraints *IDENT-IO ^{BACK} and lower ranked constraint IDENT-IO (place).

OT Evaluation of the word *string* in Hausa English

(4) Input /s t r ɪ ŋ/

Output [s ɪ t r ɪ ŋ]

Input /s t r ɪ ŋ/	*COMPLEX ^{ONSET}	DEP-IO
a. [s t r ɪ ŋ]	*!	
b. ☞ [s ɪ t r ɪ ŋ]		*

Candidate (a) represents RP output and it is disqualified because it violates a higher ranked constraint *COMPLEX^{ONSET} which prohibits the occurrence of consonant cluster onset. However, it is faithful to lower ranked constraint DEP-IO. Candidate (b) represents Hausa English and is the winner because it obeys a higher ranked constraint *COMPLEX^{ONSET} and disobeys the lower ranked constraint DEP-IO which disallows the insertion of a segment in the output

However, OT has been criticized by researchers as being inadequate. It lacks sufficient analysis to explicate opaque rule patterning which makes phonological opacity to be a great challenge to the proponents of OT (Idsardi, 2000). Researchers also point out that the use of OT in identifying vowel variation may be confusing, this is because Markedness and Faithfulness constraints do not capture all the segmental phonemes. It allows only a minimum amount of structure necessary to distinguish contrasting elements. This denotes that some segments are left without specification if they are the least marked segment types (Causley, 1999).

Evidence from the stock of OT constraints show that there are constraints necessary to handle and explain the phonology of any speaker of a given language. What matters is the ability to identify and rank the relevant constraints appropriately (Kager, 1999; McCharthy, 2008). In this connection, the relevant constraints necessary to account for the phonology of Hausa broadcasters have been identified and they are ranked based on the grammar of Hausa language so as to capture the actual speech production of the subjects. The study minimized the number of candidates and constraints for clarity and understanding (cf. examples pg. 59 - 61). Only candidates and constraints relevant to the study were selected in order to avoid redundancy (Kager, 1999).

2.9 Chapter Summary

The chapter has reviewed studies on the phonological features of the English and Hausa languages. The articulation patterns of non-native speakers of English and Nigerian speakers of English have been discussed and various classifications of Nigerian English have been delineated. The chapter has also presented relevant studies on the phonology of newscasters particularly in Nigeria and the theoretical framework that guided the study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the methods and procedures that have been used to collect the data. These include: the research design, site of the study, target population, sampling techniques and sample size, research instruments, data collection procedures, data analysis and ethical consideration.

3.1 Research Design

The present study was designed to investigate the phonological patterns of Hausa newscasters in the broadcasting industry in Nigeria. To meet the objectives of the study, a descriptive survey research design is adopted. The design is a method of studying and describing a social phenomenon. This involves detailed description of a phenomenon in words and classify features, count and construct statistical model to explain what is observed (Creswell, 2012; Noor, 2012). The choice of descriptive research model is premised upon its basic tenets of describing, explicating and interpreting contemporary life events, practise or phenomenon at a particular time and place. The design enabled the researcher to describe the phonological features of Hausa newscasters in their articulation of consonants, vowels and consonant clusters.

3.2 Site of the Study

The research was conducted in Bauchi State (county) in the North-Eastern part of Nigeria. The state shares borders with seven other states. Kano Jigawa and Plateau to the West, Borno, Adamawa, Taraba, Yobe and Gombe to the North East, and Kaduna to the North West. The research focused on the electronic media within Bauchi State.

3.3 Target Population

The target population was the entire population which the researcher intended to cover (Creswell, 2012 & Awang, 2012). The target population for the research were Hausa broadcasters in electronic media in Bauchi State Nigeria. The broadcasting stations include radio and television stations that are situated in the State. Radio Nigeria (Globe F.M) - a federal/national owned radio station, Bauchi Radio Corporation (BRC) - a state/county owned radio station, Nigerian Television Authority Bauchi, - a federal owned television station, Bauchi State Television Authority (BATV) - a state/county owned television station and Ray Power Network –a private owned radio station.

3.4 Sampling Techniques and Sample Size

The research adopted purposive multistage sampling in which four out of the five electronic media stations in Bauchi State were purposively selected. They are Radio Nigeria (Globe F.M), Bauchi Radio Corporation (BRC), Nigerian Television Authority Bauchi (NTA) and Bauchi State Television Authority (BATV). Only the

Ray Power Station which is a privately owned radio station was not included because their news broadcast is usually broadcast from their headquarters in Lagos Southern Nigeria. The broadcasters in the Ray Power speak a different variety of Nigerian English from that spoken by Hausaists. Therefore, the four broadcasting stations were considered sufficient to describe the phenomenon under study.

From the four broadcasting stations above, a total of 22 participants were randomly selected and the selection was done by the researcher with the aid of Managers/Directors News of the selected stations. Furthermore, the researcher also purposively selected the phonological segments in their speech as identified in the objectives of the study. This is because they do not exist in the phonemic inventory of Hausa (cf. Hausa phonemic inventory p. 31 - 33) and are likely to be difficult to most of the Hausa broadcasters (Malah & Rashid, 2015).

Table 3.1: List of Participants

Broadcasting Stations	**Participants**	
RS 1	6	
RS 2	6	
TVS 1	6	
TVS 2	4	
TOTAL	22	

A total of 22 broadcasters voluntarily participated in the study. The reason for having four participants in TVS 1 is that, at the time of conducting this research they were the only English newscasters in the station. All the participants present news and other programmes on air in their respective stations.

3.5 Research Instruments

The researcher used production test to elicit the data. The production test comprised a series of questions with a list of vocabulary items containing the selected sounds that are perceived to be problematic to the broadcasters. Through the production test, the researcher was able to identify the patterns of broadcasters' articulations of the targeted consonants, vowels and consonant clusters (ff. Appendix II).

3.6 Data Collection Procedures

The data were drawn by means of audio recording of the newscasters reading the texts in Appendix (II) and news broadcast. The production test was conducted by the researcher with the aid of a research assistant. It took six months to record the data. This is because of the nature of their schedule of duty and to be able to capture varieties of news presentations. The bulletins recorded included News Line 5: 00 p.m. local time and World News 11. 00 a.m. local time. Others were News 7.00 p.m. and 7.30 p.m. The process of production test and news recording were conducted as follows:

I. RS1

AT the RS1, the researcher was received by one of the directors of the stations who gathered all participants and briefed them about the exercise. Thereafter, the researcher administered the production test to the selected participants, one after the other, in their respective offices. The production test lasted for about 30 minutes with each of the participants. The researcher was also taken to the studio where he witnessed the news broadcast live.

II. RS2

Sequel to the approval given by the General Manager of the station, the researcher was received by the General Manager and handed over to the Head of News Department who gathered the participants and informed them about the exercise. The production test was conducted in her office. The proceedings lasted for about 30 minutes with each of the participants.

TVS1

At the TVS1 the researcher was received by the Manager News. A separate office was set aside for the exercise by the management. The participants were selected by the researcher with the aid of the manager who briefed them on the nature of the exercise. The tests were conducted within the usual time frame of 30 minutes with each of the participants.

TVS2

The researcher was also at TVS2 on the same mission. After receiving the formal approval from the management, the researcher was received and guided to the News Room by one of the directors of the station. The press crew at the News Room welcomed the researcher and allowed him to participate in their pre projection meeting. This is because the researcher had undergone industrial attachment in the station and had an idea about their deliberations. Thereafter, a separate office was set aside for the exercises, though some were interviewed in their offices. The exercise lasted for about 30 minutes with each of the participants.

Recordings of news segments directly from broadcasting stations is also a useful and appropriate source of data used by the researcher because it provides standard sounds and speech production devoid of any sorts of noises and no part of the broadcast speech would be exempted (Hannisdal, 2006). Below is the schedule of news recording process.

Table 3.2 News Bulletin Recording Process

Stations	**News Broadcast**	**Number of Newscasters**	**Number of Bulletin Recorded**	**Duration**
RS1	News Line	6	18	9 hours
RS2	World News	6	18	9 hours
TVS1	News	6	18	9 hours
TVS2	News	4	12	6 hours
Total	4	22	66	33 hours

There are 22 newscasters from 4 different media stations as earlier noted. A total of 33 hours of news presentations were recorded. Out of the 33 hours, 9 hours of news presentations were recorded from 18 news bulletins presented by 6 newscasters in each of the 3 stations. Except at the TVS2i where we had 6 hours of news recordings from 12 bulletins presented by 4 newscasters. It should be noted that each newscaster was recorded for 1 hour 30 minutes from 3 different news presentations of 30 minutes each. These had resulted in arriving at 9 hours from 6 newscasters in each of the 3 stations and 6 hours from 4 newscasters at TVS2

3.7 Data Analysis and Presentation

The data obtained from recordings were listened to and transcribed. The researcher also cleaned the data and selected the phonological feature that were relevant to the study. The researcher was specifically concerned with the specific words that contain specific consonants, vowels and syllable structures especially those that do not exist in the Hausa language. Each word was noted and counted based on the number of occurrences in the bulletins and the realizations of appropriate and inappropriate articulations produced by the respondents were also marked. It should be noted that the study is not interested in the individual speakers, rather the total speech productions of the Hausa broadcasters irrespective of age, gender or level of education. This is in order to avoid being particularistic or apportion blame on individual(s) that could lead to loss of job.

The presentation and analysis of the data were arranged in sections and sub-sections. The transcribed data were analyzed and presented based on two parameters: semantic alteration, accent and marker. The semantic alteration indicates change of meaning in the speech of the respondents. Accent marker denotes typical Hausa English accent which does not change the meaning of words, but shows English spoken in Hausa accent. The analysis also provides the phonological processes that are involved in the course of their articulations such as: frication, stopping, affrication, devoicing, monophthongization of diphthongs, substitutions of monophthongs, vowel length reduction, substitution of consonants, glide epenthesis, and deletion.

Additionally, the analysis further presents the auditory analysis of the data based on the descriptive statistics which account for the frequency levels and percentages of the articulations of RP English and Hausa English sounds as produced by the respondents in their speech and recorded by the researcher. It is presented in tables and supported with bar charts for visual illustrations. OT analysis is also presented via tableau where constraints marking of RP English and Hausa English are also presented.

3.8 Data Management and Ethical Considerations

In a research of this nature that involved participants from government establishments, issues related to ethical and legal consideration had to come into being, considering the protocols attached in gaining access to the site from the authorities who are bestowed with all powers regarding the operational conduct of the organizations. The researcher got permission from the Graduate School and the media stations and the respondents participated voluntarily. Special codes were assigned in place of names of the media houses as RS1, RS2, TVS1 and TVS2 for confidentiality.

3.9 Chapter Summary

The chapter has provided the research design adopted and the locations where the study is conducted. It has also presented the media organizations that are involved in the study and how participants were selected. Methods and procedures through which the data were collected and analyzed have been provided.

CHAPTER FOUR

DATA PRESENTATION ANALYSIS AND DISCUSSION OF CONSONANTS ARTICULATIONS

4. 0 Introduction

The chapter presents and analyzes the data obtained that relate to objective one as stated. These involve descriptions and analysis of articulations of some selected consonants that are perceived to be difficult to articulate by Hausa broadcasters. The set of consonants are those that do not exist in the Hausa language. The articulations of the respondents are analyzed on the basis of semantic alteration which changes the meaning of word and accent marker which indicates Hausa English accent. The analysis also focuses on auditory count of the pronunciations to determine the number of RP and non RP realizations of the speech sounds. Moreover, OT constrains interactions and their rankings in the grammar of Hausa language have also been provided to explicate the deviations in the speech of the respondents. Therefore, the chapter focuses on the ways in which Hausa broadcasters handle RP consonants /p/, /θ/, /ð/ and /ʒ/.

4. 1 Hausa English Consonant Articulation of /p/

Basically, the articulations of speech sounds entail some anatomical and physiological parameters which is known as three term label. The sound /p/ is produced when the upper and lower lips come in the contact with each other. This creates a complete blockage of air from the lungs which build up air adequately and then separates the lips suddenly which allows the blocked air to rush out with explosion. In other words, the sound /p/ is produced when the upper and lower lips agree into contact. This creates a complete blockage of the airstream from the lungs. A pressure builds behind the lips. When lips separate the airstream is suddenly released with an explosion. Therefore, /p/ is labeled as voiceless bilabial plosive bilabial. The sound can occur in English at the initial, medial and final position of a word with different allophonic realizations [p^h] [p] [p']. It is usually aspirated at the initial position of English word as in [p^h ɪ n], unaspirated in the medial position as in [s p ɪ n] and unreleased in the final position of a word as in [s t ɒ p]. This allophonic variation is referred to as complimentary distribution. The [p] sound is produced as [ɸ] in Hausa English.

On the other hand, the consonant /ɸ/ is articulated with both upper and lower lips like /p/, but with relatively partial closure. However, the speech air escapes through narrow opening with some kind of frictions. The sound is technically described as voiceless bilabial fricative and can occur in Hausa freely at word initial, medial and final position without any variant. Orthographically, the sound is represented as " F " in Hausa. It should be noted that this consonant does not exist in the English language, but is present in Hausa language. In this regard, the data representing broadcasters' pronunciation of English words that involved /p/ sound is described below.

4.1.1 Articulation of /p/ in Word Initial Position

Table 4.1: The RP Phoneme /p/ Realized as [ɸ] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Pin / p ɪ n/	/[ɸ ɪ n]	/p/ → [ɸ]	Semantic alteration
Pine / p a ɪ n/	[ɸ a ɪ n]	/p/ → [ɸ]	Semantic alteration
Port / p ɔ: t/	[ɸ o t]	/p/ → [ɸ]	Accent marker
Pardon /p ɑ: d ə n/	[ɸ a d o n]	/p/ → [ɸ]	Accent marker
People / p i: p l/	[ɸ ɪ ɸ ʊ l]	/p/ → [ɸ]	Accent marker
Passion / p æ ʃ n/	[ɸ a ʃ o n]	/p/ → [ɸ]	Semantic alteration
Person / p ɜ: s n/	[ɸ a s o n]	/p/ → [ɸ]	Accent marker

The table above provides various English words and their transcriptions based on RP that are drawn from the speech of Hausa broadcasters. It further shows Hausa English pronunciation which saw the realization of /p/ as [ɸ] in word initial position. This is as a result of absence of /p/ in Hausa phonemic inventory, hence the substitutions of /p/ with /ɸ/ (C.f. p. 33) where Hausa phonemic inventory was provided. The inventory has justified the absence of /p/ in Hausa (Sani, 2005). This implies that voiceless bilabial plosive becomes voiceless bilabial fricative in word initial position. This process is called frication and has produced two implications: semantic alteration which changes the meaning of word and accent marker which indicates Hausa English accent. There are 23 words in the table and out of which 14 words representing 61% of the data show Hausa English accent when /p/ is realized as [ɸ] in word initial position. Examples, *police, public* and *pastor*. The frication is accent marker since it does not obscure the meaning of the words, On the other hand, 9 words representing 39% indicate semantic alteration which changes the meaning of word when /p/ is substituted with [ɸ] in word initial position. For instance, *pull* is altered to *full*, *passion* changes to *fashion* and *pin* is realized as *fin.*

Moreover it is noted that the respondents do not speak English RP because their speech indicates accent marker which shows Hausa English accent and semantic alteration which changes the meaning of a word. Olaniyi and Josiah (2013) maintain that majority of the Hausa speakers of English do not produce voiceless bilabial plosive /p/ in their articulations, instead they produce /f/ which has been established as an ethnic marker. The present study has gone further to account for elements of semantic alteration and a paradigm shift from /f/ to /ɸ/. The frication used by the respondents is shown as

/p/ ⟶ [ɸ] / # ______

Voiceless bilabial plosive becomes voiceless bilabial fricative in word initial position.

Table 4.2: Frequency and Percentage of /p/ and /ɸ/ in Word Initial Position

PHONEME SEQUENCE	NO. OF WORDS	/p/	/ɸ/
/pə/	8	41	173
/pe/	3	15	60
/pu/	4	21	117
/pI/	4	14	65
/po/	4	17	127
TOTAL FREQUENCY	**23**	**108**	**542**
TOTAL PERCENTAGE	**100%**	**16.6**	**83.4%**

Table 4.2 above indicates that /ɸ/ is frequently used than /p/ based on the frequency. The production of /ɸ/ constitutes 542 representing 83.4% while /p/ realizes 108 representing 16.6%. For instance, the word *police* is produced with /ɸ/ 71 times representing 89% while it is produced with /p/ 9 times representing 11%.

Moreover, the highest frequency is realized by the majority of the respondents who are not exposed to RP models whereas the lowest frequency shows the small group of respondents who are aware of RP sound. Patrick, et al (2013) point out that majority of Hausa speakers of English introduce frication in the articulation of bilabial plosive /p/. This scenario is also seen in the analysis above.

Evidence from the analysis reveal that the majority of the respondents in the study prefer the use of /ɸ/ than /p/ in word initial position. The findings indicate the use of non-English sound by the majority of Hausa broadcasters in Hausa English. /p/ is a voiceless bilabial plosive whereas /ɸ/ is a voiceless bilabial fricative (c.f. p 29 & 33) for the phonemic inventories of Hausa and English.

4.1.1.1 OT Analysis

In Optimality Theory, the phonological process is conceptualized in terms of a set of universal constraints. The present thesis adopts a Correspondence Theory (McCarthy and Prince 1995) where the input and the output are in correspondence relation with each other. The assumption is that the underlying element (input) is the RP English word which corresponds with the surface element (output) and it should have the same feature specification as their corresponding input (RP English) forms. The proposed constraints are:

IDENT-IO (F): Output correspondents of an input [ɣF] segment are also [ɣF].

IDENT ^{CONT} Feature continuant /ɸ/ is required in the output.

The phoneme /p/ bilabial plosive is absent in Hausa language and Hausa broadcasters spirantize the sound and realize it as [ɸ].

OT Evaluation of spirantinzation /p/ in the RP English word *pin* in Hausa English

(1) Input /p ɪ n/

Output [ɸ ɪ n]

Input /p ɪ n/	IDENT ^{CONT}	IDENT-IO (F)
a. [p ɪ n]	*!	
b. ☞[ɸ ɪ n]		*

The constraints ranking in the tableau are IDENT ^{CONT}>> IDENT-IO (F). Candidate (a) appears as RP output and it prefers obstruent /p/ in the output. This contradicts a higher ranked constraint IDENT ^{CONT} which requires the realization of a continuant /ɸ/ in the output and it obeys a lower ranked constraint IDENT-IO (F). Hausa broadcasters output agrees with the higher ranked constraint IDENT ^{CONT} and disobey a lower ranked constraint IDENT-IO (F) which states that output correspondents of an input [ɣF] segment are also [ɣF].

OT Evaluation of spirantinzation /p/ in the RP English word *pain* in Hausa English

(2) Input / p eɪ n/

Output [ɸ e n]

Input / p eɪ n/	IDENT ^{CONT}	*COMPLEX^{VOW}	IDENT-IO (F)
a.☞ [ɸ e n]			*
b. [p eɪ n]	*!	*!	
c. [f eɪ n]		*!	*

The Hausa English allows the realization of IDENT ^{CONT} which paved the way for the appearance of voiceless bilabial fricative /ɸ/. On the contrary, the RP English could not provide that sound, instead it prefers voiceless bilabial stop /p/. The RP English also appeared with diphthong which is also prohibited in Hausa English *COMPLEX^{VOW}. Another candidate in item (c) featured with a voiceless labio-dental fricative /f/ but violate *COMPLEX^{VOW} because of the diphthong.

4.1.2 Articulation of /p/ in Word Medial Position

Table 4.3: The RP Phoneme /p/ Realized as [ɸ] Word Medial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Copy / k ɒ p ɪ/	[k o ɸ ɪ]	/p/ → [ɸ]	Semantic alteration
Shopping / ʃ ɒ p ɪ ŋ/	[ʃ o ɸ ɪ n]	/p/ → [ɸ]	Accent marker
Unhappy ʌ n h æ p ɪ/	[o n h a ɸ ɪ]	/p/ → [ɸ]	Accent marker
Grasshopper /g r ɑ: s h ɒ p ə/	[g ɪ r a s h o ɸ a]	/p/ → [ɸ]	Accent marker
Happen / h æ p ə n/	[h a ɸ u n]	/p/ → [ɸ]	Accent marker
Participation / p ɑ: t ɪ s ɪ p e ɪ ʃ ə n/	[ɸ a t ɪ s ɪ ɸ e ʃ o n]	/p/ → [ɸ]	Accent marker
Corruption / k ə r ʌ p ʃ ə n/	[k o r o ɸ ʃ o n]	/p/ → [ɸ]	Accent marker
Upper / ʌ p ə/	/[o ɸ a]	/p/ → [ɸ]	Semantic alteration
Campaign / k æ m p e ɪ n/	[k a m ɸ e n]	/p/ → [ɸ]	Accent marker
Ripple / r ɪ p ə l/	[r ɪ ɸ u l]	/p/ → [ɸ]	Accent marker

Table 4.3 shows the articulation of /p/ in word medial position which is usually realized as [ɸ]. This is because the English /p/ is an unregistered segment in Hausa hence the realization of [ɸ] in place of /p/ in Hausa English. This process is called sprintazation/ frication and has produced accent marker which indicates a typical Hausa English accent and semantic alteration which changes the meaning of words. In the table above, 10 words have emerged as produced by the subjects. 8 words representing 80% of the words produced above indicate accent marker when /p/ is

realized as [ɸ] in word medial position. Examples, *grasshopper*, *campaign* and *corruption* do not exhibit change in meaning when the frication is used in the articulation of /p/ but rather they show Hausa English accent. On the other hand, 2 words representing 20% are marked with semantic alteration which changes the meaning of word when /p/ is substituted with [ɸ] in word medial position. For instance, *copy* is altered to *coffee* and *upper* changes to *offer*. The speech of the respondents is marked Hausa English accent and semantically alters the meaning of a word. This is the result of the frication rule used by the respondents. The rule is presented as

/p/ ⟶ [ɸ] / C__C

Voiceless bilabial plosive becomes voiceless bilabial fricative in word medial position.

Table 4.4: Frequency and Percentage of /p/ and /ɸ/ in Word Medial Position

PHONEME SEQUENCE	**NO. OF WORDS**	**/p/**	**/ɸ/**
/upt/	1	10	41
/əpe/	2	7	44
/upe/	1	3	19
/mpə/	1	6	27
/ope/	1	4	19
opɪ/	1	6	20
/ɪpl/	1	-	5
/opj/	1	5	27
TOTAL FREQUENCY	**9**	**41**	**202**
TOTAL PERCENTAGE	**100%**	**16.9%**	**83.1%**

The table above reveals that the respondents used /ɸ/ more often than /p/. The /ɸ/ constitutes 202 representing 83.1% of the speech production while /p/ realizes 41 representing 16.9 %. For instance, the word *corruption* is produced with /ɸ/ incorrectly 11 times representing 79% while /p/ is produced correctly 11 times representing 21 %.

The higher level of /ɸ/ is influenced by the absence of /p/ in Hausa which necessitates the use of /ɸ/ because of its similar articulatory features with English /p/. This articulation is considered Hausa English and it indicates lack of exposure to RP model by the vast majority of the respondents.The few who produce /p/ are exposed to RP models. Olajide and Olaniyi (2013) reveal that only few Nigerian speakers of English who are mainly broadcasters produce English sounds effectively.

The findings show that the majority the respondents produce /ɸ/ over /p/ in word medial position. It is important to note that despite the fact that the sound is unaspirated in word medial position, they maintain to use phoneme /ɸ/ with its frication as a continuant.

4.1.2.1 OT Analysis

IDENT $^{\text{CONT:}}$ Feature continuant [ɸ] is required in the output.

IDENT-IO $^{\text{ROUND:}}$ Feature vowel (round) must be required in the output.

IDENT-IO (F): Output correspondents of an input [ɣF] segment are also [ɣF].

OT Evaluation of spirantinzation of the word medial sound /p/ in the RP English word *Ripple* in Hausa English.

(3) Input / r ɪ p ə l/

Output [r ɪ ɸ u l]

Input / r ɪ p ə l/	IDENT^{CONT}	IDENT-IO ^{ROUND}	IDENT- IO (F)
a. [r ɪ p ə l]	*!	*!	
b. ☞ [r ɪ ɸ u l]			*
c. [r ɪ f ə l]		*!	*

The RP output in candidate (a) refuses to agree with a high rank constraint IDENT^{CONT} which allows the occurrence of a continuant /ɸ/ in Hausa (Sani, 2005 & Newman, 2000). It also comes with a schwa vowel which is also not required. The Hausa English is marked by IDENT^{CONT} which is a high rank constraint. It also captures rounded vowel. The candidate is not faithful to IDENT-IO (F) which requires that every segment of same feature in the output should have a segment of same feature in the input but it is a low rank constraint. This is because the constraints rankings are: IDENT^{CONT} >>*IDENT-IO^{ROUND} IDENT-IO (F) Candidate (c) fails to agree with IDENT-IO ^{ROUND} in its output and it not the optimal output.

OT Evaluation of spirantinzation of the word medial sound /p/ in the RP English word *happen* in Hausa English.

(4) Input /h æ p ə n/

Output [h a ɸ u n]

Input /h æ p ə n/	IDENT^{CONT}	IDENT-IO ^{ROUND}	IDENT- IO (F)
a. [h æ p ə n]	*!	*!	
b. [h æ f ə n]		*!	*
c. ☞ [h a ɸ u n]			*

In the tableau above, two constraints must be present in the output. They are IDENT^{CONT} and IDENT-IO ^{ROUND} which dominates IDENT- IO (F). The RP output could not meet the demands of the two important high rank constraints. Another candidate satisfies IDENT^{CONT} and fails to agree with IDENT-IO ^{ROUND} and IDENT-IO (F). Hausa English fulfils the criteria of the high rank constraints and it is not faithful to IDENT- IO (F).

4.1. 3 Articulation of /p/ in Word Final Position

Table 4.5: The RP Phoneme /p/ Realized as [ɸ] in Word Final Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Wipe / w a ɪ p/	[w a ɪ ɸ]	/p/ ⟶ [ɸ]	Semantic alteration
Op / ɒ p/	[o ɸ]	/p/ ⟶ [ɸ]	Semantic alteration
Hope / h ə ʊ p/	[h o ɸ]	/p/ ⟶ [ɸ]	Accent marker
Workshop / w ɜ: k ʃ ɒ p/	[w o k ʃ o ɸ]	/p/ ⟶ [ɸ]	Accent marker
Whip / w ɪ p/	[w ɪ ɸ]	/p/ ⟶ [ɸ]	Accent marker
Ripe / r a ɪ p/	[r a ɪ ɸ]	/p/ ⟶ [ɸ]	Semantic alteration
Rope / r əʊ p/	[r o ɸ]	/p/ ⟶ [ɸ]	Accent marker

Table 4.5 above indicates that the voiceless bilabial plosive /p/ is usually articulated as voiceless bilabial fricative in word final position / ɸ/ due to the absence of /p/ in Hausa language. The frication realized as voiceless bilabial plosive becomes voiceless bilabial fricative in word final position. Examples, *rope, whip* and *workshop* denote accent marker since the frication in the articulation of the /p/ does not change the meaning of the words. On the other hand, 5 words representing 43% indicate semantic alteration which changes the meaning of words. For instance, *ripe* is altered to *rife*, *wipe* changes to *wife* and *op* changes to *off.* Thus, these words produced semantic alteration because the meanings of words have been affected. The speech productions of respondents is contrary to the RP English because it is

marked by accent and semantic alteration which shows changes in meaning. This is as a result of the frication used by the subjects. The rule is shown as

/p/ $\longrightarrow$ [ɸ] / _________ #

Voiceless bilabial plosive becomes voiceless bilabial fricative in word final position.

Table 4.6: Frequency and Percentage of /p/ and /ɸ/ in Word Final Position

PHONEME SEQUENCE	NO. OF WORDS	/p/	/ɸ/
/op/	4	14	85
/ɪp/	3	9	40
TOTAL FREQUENCY	**7**	**23**	**125**
TOTAL PERCENTAGE	**100%**	**15.4%**	**84.5%**

The sound /ɸ/ dominates the articulation with 125 at 84.5% and on the other hand, /p/ sound forms 23 tokens 15.4%. Similarly, /ɸ/ appeared 31 in pronoucing the word *hope* at 91% while 3 tokens at 9% are in favour of /p/..

The appearence of /ɸ/ is occassioned by the absence of /p/ in Hausa and hence the realization of /ɸ/ as a substitute. Malah and Rashid (2015) posited that the bilabial plosive /p/ may not be realized by the Hausa speakers of English because of its absence in the Hausa phonemic inventory. Instead, the phoneme /ɸ/ may be used due to its presence in the Hausa inventory. This assertion reimposes the findings of the present study.

The findings reveal that majority of the respondents substituted RP /p/ with the Hausa / ɸ/ in word final position. The two sounds /p/ and/ ɸ/ belong to the same natural class that share the same places of articulation and state of glottis but are differentiated in terms of manner of articulation which makes them to function as phonemes. Thus, one cannot be used in place of another.

4.1.3.1 OT Analysis

IDENT $^{CONT:}$ Feature continuant /ɸ/ is required in the output.

REDUCE (V): Vowel reduction must be required.

IDENT-IO (F): Output correspondents of an input [ɣF] segment are also [ɣF].

*IDENT (V) ^{LONG} No long vowel in the speech of broadcasters.

OT Evaluation of spirantinzation of the word final sound /p/ in the RP English word *Hope* in Hausa English

(5) Input / h ə ʊ p/

Output [h o ɸ]

Input / h ə ʊ p /	IDENT ^{CONT}	REDUCE	IDENT-IO (F)
a. ☞[h o ɸ]			*
b. [h ə ʊ p]	*!	*!	*
c. [h ə ʊ f]		*!	*

The tableau shows that candidate (a) output captures IDENT^{CONT} and REDUCE (V) which are ranked higher than IDENT-IO (F). It appears that the candidate does not agree with IDENT-IO (F). RP production on the other hand, violates two higher ranked constraints IDENT^{CONT} which requires the realization of a feature continuant in the output and REDUCE (V) which requires the reduction of diphthong in the output. It is, therefore, disqualified. Candidate (c) is also a loser because of violation of a higher ranked constraint REDUCE (V) and lower ranked constraint IDENT-

IO (F) which states that every feature segment in the output must have a replica of same value in the input.

OT Evaluation of spirantinzation of the word final sound /p/ in the RP English word *workshop* in Hausa English

(6) Input / w ɜ: k ʃ ɒ p/

Output [w o k ʃ o ɸ]

Input / w ɜ: k ʃ ɒ p/	IDENT ^{CONT}	*IDENT (V) ^{LONG}	IDENT-IO (F)
a. [w ɜ: k ʃ ɒ p]	*!	*!	
b. [w ɜ: k ʃ ɒ f]		*!	*
c. ☞ [w o k ʃ o ɸ]			*

The RP output fatally violates IDENT ^{CONT} and *IDENT (V) ^{LONG} and it remains faithful to the input. Candidate (b) agrees with IDENT ^{CONT} and it captures long vowel which is prohibited in the output. Hausa broadcasters output is not faithful to the input but captures the important constraints IDENT ^{CONT} and *IDENT (V) $^{LONG.}$

4.1.4 Discussions of the Findings

In the English spoken by Hausa broadcasters, the spirantinzation/frication process used by the majority of the respondents where /p/ is realized as //ɸ/ has produced an accent marker which shows Hausa English and semantic alteration which changes the meaning of words. Semantic alteration is likely to hinder comprehensible and intelligible English speech, and subsequent breakdown of communication. It is therefore labelled as an area where the Hausa broadcasters should pay attention so as to inform, educate and mobilize effectively.

On the other hand, previous studies on Nigerian speakers of English have shown that the Hausa speakers of English often substitute voiceless bilabial plosive /p/ with labiodental fricative voiceless /f/ in their speeches (Jibril, 1982; Newman, 2000; Ekundayo et al., 2012 & Patrick et, al. 2013). However, the present study argues that the majority of the respondents do not substitute bilabial plosive / p/ with labiodental fricative /f/ rather bilabial fricative /ɸ/ which is orthographically represented as ‘F’. The justification for the difference in the finding with previous researches is because of the dynamic nature of human language where language speakers are likely to change in their pronunciation over a period of time (Hannisdal, 2006). This indicates a kind of paradigm shift from labiodental fricative /f/ to bilabial fricative //ɸ/ which shows some level of improvement in their articulation. Certainly, the finding provides a valuable insight into the Nigerian phonology of English.

4. 2 Hausa English Consonant Articulation of /θ/

The interdental sound /θ/ is a sound articulated when the tongue is placed between the teeth, the tip touching lower front teeth and the blade touching the upper teeth as against inserting the tongue between upper and lower teeth as perceived by many speakers of English and teachers (Roach, 2000). The sound is described as voiceless interdental fricative. It occurs freely in word initial, medial and final position. It is produced in Hausa English as [t], [d] or [s].

4.2.1 Articulation of /θ/ in Word Initial Position

Table 4.7: The RP Phoneme / θ Realized as [t] or [s] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Three / θ r i: /	[t ɪ r ɪ]	/θ/ → [t]	Semantic alteration
Think / θ ɪ ŋ k/	[t ɪ ŋ k] [s ɪ ŋ k]	/θ/ → [t] /θ/ → [s]	Semantic alteration
Theory / θ ɪ ə r i/	[t ɪ j o r ɪ]	/θ/ → [t]	Semantic alteration
Thousand / θ a ʊ z n d/	[t a u z a n] [s a ʊ z a n]	/θ/ → [t] /θ/ → [s]	Semantic alteration
Thirty / θ ɜ: t i/	[t a t ɪ]	/θ/ → [t]	Accent marker
Thirteen / θ ɜ: t ɪ n/	[t a t ɪ n]	/θ/ → [t]	Accent marker
Thank / θ æ ŋ k/	[t a n k]	/θ/ → [t]	Semantic alteration
Theatre / θ ɪ ə t ə/	[t ɪ j a t a]	/θ/ → [t]	Accent marker
Through / θ r u: /	[t u r u]	/θ/ → [t]	Semantic alteration
Thorough / θ ʌ r ə/	[t o r o]	/θ/ → [t]	Accent marker
Thursday / θ ɜ: z d e ɪ/	[t o s d e]	/θ/ → [t]	Accent marker

Table 4.7 shows instances where voiceless interdental fricative /θ/ becomes voiceless alveolar plosive [t] or voiceless alveolar fricative [s]. The reason for the substitution is that /θ/ is not in the inventory of Hausa (Sani, 2005) hence the realization of /t/ and /s/ which are present in Hausa. This process is labelled as stopping. It is interpreted as voiceless interdental fricative becomes voiceless alveolar plosive or voiceless alveolar fricative in word initial position. Additionally, voiceless interdental fricative becomes voiceless alveolar plosive when it is followed by a consonant, central vowel or centering diphthong. Moreover, voiceless

interdental fricative becomes voiceless alveolar plosive or voiceless alveolar fricative when it is followed by a front vowel or closing diphthong. This process has produced two dimensions: semantic alteration which changes the meaning and accent marker which shows Hausa English accent. There are 14 words in the table out of which 5 words representing 36% of the pronunciations are marked with Hausa English accent when /θ/ is realized as [t] in word initial position. Examples are t*heatre* t*heory* and *thorough.* On the other hand, 9 words representing 64% of the speech productions are marked with semantic alteration which changes the meaning of a word when /θ/ is substituted with [t] or [s] in word initial position. Examples, *thing* is altered to *tin/sin*, *think* changes to *sink* and t*hree* changes to *tree*.

Based on the data presented, the respondents speak English which is different from RP English because it is characterized by accent marker of Hausa English and semantic alteration which affect the meaning of the words. This is as a result of stopping process used by the majority of the respondents. The rule is presented as

$$\text{(a) } /\theta/ \longrightarrow \left\{ \begin{array}{c} [t] \\ [s] \end{array} \right\} \ / \ \# \ -$$

Voiceless interdental fricative becomes voiceless alveolar plosive and voiceless alveolar fricative in word initial position.

(b) $/\theta/ \longrightarrow [t]\ /\ -\ \left\{ \begin{array}{c} [C] \\ [V] \end{array} \right\}$

Voiceless interdental fricative becomes voiceless alveolar plosive when it followed by a consonant and vowel.

(c) $/\theta/ \longrightarrow [s]\ /\ -\ \left\{ \begin{array}{c} [V] \end{array} \right\}$

Voiceless interdental fricative becomes voiceless alveolar fricative when it is followed by vowel.

Table 4.8 Frequency and Percentage of /θ/ /t/ and /s/ in Word Initial Position

PHONEME SEQUENCE	**NO. OF WORDS**	**/θ/**	**/s/**	**/t/**
/ θɪ/	6	8	27	139
/θr/	2	4	-	50
/θo/	2	1	16	53
/θe/	2	0	-	35
/θu/	1	4	-	19
/θæ/	1	3	-	31
Total Frequency	**14**	**20**	**43**	**327**
Total Percentage	**100**	**6.9%**	**14.1%**	**79%**

Table 4.8 above shows that /θ/ has two variants according to Hausa broadcasters, the first variant /t/ dominates the output of the respondents at 79% while 14.1% of the speech production featured with /s/. The phoneme /θ/ appeared at 6.9%. The

three phonemes were produced in a word *thousand* where /t/ appeared 42 times at 84%, /s/ featured 6 times at 11% and it is produced with /θ/ 1 time at 5%.

The variations in the frequency level justify the different levels of exposure of the respondents. The majority of the respondents produce /t/. There are some who produce /s/. This is because /s/ is similar to /θ/ in terms of manner of articulation and state of the glottis. Only a few of the respondents produce /θ/. Atechi (2006) noted that one of the features of non-native English is the substitution of /θ/ with /t/. Moreover, Udofot (2003) pointed out that the interdental fricatives are found to be problematic to most of the Nigerian speakers of English which necessitate the use of alveolar plosives as substitutes. Surprisingly, some of the respondents have also introduced /s/ in their quest for /θ/.

From the analysis presented above, it is clear that the majority of the respondents prefer to use voiceless alveolar plosive /t/ and some use voiceless alveolar fricative /s/. Only a few use the phoneme /θ/.

4.2.1.1 OT Analysis

*IDENT $^{\text{CONT}}$: No feature continuant in the output.

*COMPLEX $^{\text{ONSET}}$: Onset is simple.

*IDENT (V)$^{\text{LONG}}$: No long vowel in the English of Hausa broadcasters.

DEP-IO: Every segments in the output should have input correspondents (No insertion).

OT Evaluation of stopping of the word initial sound /θ / in the RP English word *three* in Hausa English

(7) Input / θ r i: /

Output [t ɪ r ɪ]

Input/ θ r i:/	*IDENT^{CONT}	*COMPLEX^{ONSET}	*IDENT(V)^{LONG}	DEP –IO
a. [θ r i:]	*!	*!	*	
b. [s r i:]	*!	*!	*	*
c. ☞[t ɪ r ɪ]				*

The constraints ranking for the realization of the word three is *IDENT^{CONT} *COMPLEX^{ONSET} >> *IDENT (V) ^{LONG} DEP–IO. Candidate (a) is the RP output and it is deficient because of fatal violations of *IDENT ^{CONT} which forbids the occurrence of voiceless dental fricative /θ/ in Hausa (Sani, 2005), *COMPLEX^{ONSET} which prohibits the appearance of consonant cluster at the onset (Kager, 1999) and *IDENT (V) ^{LONG} which is also prohibited in Hausa English. Similarly, Candidate (b) also fails to adhere to *COMPLEX^{ONSET,} *IDENT^{CONT} and *IDENT (V) ^{LONG} vowel and it is therefore labelled as a loser. Candidate (c) is the output of the majority of the Hausa broadcasters and it is the optimal output. It violates only one lower ranked constraint DEP-IO which prohibits insertion of a segment in the output.

OT Evaluation of stopping of the word initial sound /θ / in the RP English word *thirty* in Hausa English

(8) Input / θ ɜ: t ɪ/

Output [t a t ɪ]

Input/ θ ɜ: t ɪ/	*IDENT^{CONT}	*IDENT(V)^{LONG}	DEP –IO
a. ☞ [t a t ɪ]			
b. [θ ɜ: t ɪ]	*!	*!	
c. [s ɜ: t ɪ]		*!	

The speech of the Hausa broadcasters is faithful to all the constraints as seen in the tableau. The RP output incurs serious violation of two important constraints. The candidate prefers to use feature continuant and long vowel which are not allowed in the speech of Hausa broadcasters. The other potential candidate in item (c) also violates *IDENT (V)^{LONG} which is another high rank constraint.

4.2.2 Articulation of /θ/ in Word Medial Position

Table 4.9: The RP Phoneme /θ/ Realized as [t] in Word Medial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Something / s ʌ m θ ɪ ŋ/	[s o m t ɪ n]	/ θ/ ⟶ [t]	Accent marker
Nothing / n ʌ θ ɪ ŋ/	[n o t ɪ n]	/ θ/ ⟶ [t]	Accent marker
Authority / ɔ: θ ɒ r ə t ɪ/	[a t o r ɪ t ɪ]	/ θ/ ⟶ [t]	Accent marker
Ethics / e θ ɪ k s/	[e t ɪ k]	/ θ/ ⟶ [t]	Accent marker
Pathetic / p ə θ e t ɪ k/	[ɸ a t e t ɪ k]	/ θ/ ⟶ [t]	Accent marker
Mathematics /m æ θ ə m æ t ɪ k s/	[m a t ɪ m a t ɪ k]	/ θ/ ⟶ [t]	Accent marker

The data in table 4.9 show that the voiceless interdental fricative /θ/ is usually realized as voiceless alveolar plosive [t] in word medial position in the speech of Hausa newsreaders. This is because the phoneme /θ/ does not exist in Hausa (Sani, 2005) and hence the substitutions of /θ/ with /t/ in Hausa English (Newman, 2000). The process is called stopping and it is interpreted as: voiceless interdental fricative becomes voiceless alveolar plosive in word medial position. It has produced Hausa English accent which does not interfere with the meaning of the words. The substitution is an accent marker. Semantically the meaning is not altered. Nevertheless, the respondents are encouraged to improve towards the right model of RP English.

The findings indicate that the respondents do not use RP English sound /θ/ in word medial position, their speech is marked by accent marker of Hausa English. Hausa English accent may be marked when /θ/ becomes [t] in Hausa indicating that [t] consonant may mark accent. This pattern of speech is informed by stopping rule used by the majority of the respondents and it is presented as

/θ/ ⟶ [t] / C__C

Voiceless interdental fricative becomes voiceless alveolar plosive in word medial position.

Table 4.10 Frequency and Percentage of /θ/ and /t/ in Word Medial Position

PHONEME SEQUENCE	NO. OF WORDS	/θ/	/t/
/eθɪ/	2	6	60
/oθɪ/	1	2	21
/uθɪ/	1	7	61
/æθɪ/	2	4	40
Total Frequency	**6**	**19**	**182**
Total Percentage	**100%**	**9.5%**	**90.5%**

Two sounds have emerged from the speech productions of the respondents. The table above accounts the use of /t/ more often than /θ/ in word medial position. It is clear that /t/ is the sound used by most of the respondents at 90.5 % from 182 tokens. The phoneme /θ/ featured in 19 tokens at 9.5%. This is further justified in the word *authority* where /t/ constitutes 90% as against /θ/ with 10%.

The frequency level illustrates that the majority of the respondents produce /t/ in place of /θ/ Josiah, Bodunde and Robert (2012) reveal that out of the 65 Nigerian undergraduate students from the university whom were asked to articulate /θ/, only 13 respondents representing 20% were able to produce the sound effectively while 52 respondents representing 80% substituted the sound with /t/. This statistical data support the analysis presented above.

The findings reveal that most of the respondents prefer to use voiceless alveolar plosive /t/ in place of voiceless interdental fricative in word medial position. This is as a result of phonological constraint which does not accommodate /θ/ in the phonemic inventory of Hausa.

4.2.2.1 OT Analysis:

*IDENT $^{CONT:}$ No feature continuant in the output.

*COMPLEX ^{CODA} Coda is simple.

MAX-IO: Every segments in the input should have output correspondents

(No deletion).

OT Evaluation of stopping of the word medial sound /θ / in the RP English word *ethics* in Hausa English

(9) Input / e θ ɪ k s/

Output [e t ɪ k]

Input /e θ ɪ k s/	*IDENT ^{CONT}	*COMPLEX ^{CODA}	MAX –IO
a. [e θ ɪ k s]	*!	*!	
b. ☞ [e t ɪ k]			*

The RP English output which appears as candidate (a) prefers feature continuant and consonant cluster in coda position. These contradict the rules of Hausa broadcasters English where they rank the two constraints high. *IDENT ^{CONT} prohibits the realization of voiceless interdental fricative in Hausa (Newman, 2000 & Sani 2005) and *COMPLEX ^{CODA} disallows the occurrence of consonant cluster in coda (Kager, 1999). The constraints are ranked *IDENT ^{CONT} *COMPLEX ^{CODA} >> MAX IO.

OT Evaluation of stopping of the word medial sound /θ / in the RP English word *mathematics* in Hausa English

(10) Input /m æ θ ə m æ t ɪ k s/

Output [m a t ɪ m a t ɪ k]

Input //m æ θ ə m æ t ɪ k s/	*IDENT^{CONT}	*COMPLEX ^{CODA}	IDENT-IO (F)
a. ☞ [m a t ɪ m a t ɪ k]			*
b. [m æ s ə m æ t ɪ k s]	*!	*!	*
c. [m æ θ ə m æ t ɪ k s]	*!	*!	

The output of the Hausa broadcasters produced the word with – continuant /t/ and with simple coda /k/. This is in line with high rank constraints in the grammar of Hausa. On the contrary candidate (b) and (c) captured both the continuant and coda cluster in their speech. These differences in constraints make their speech different.

4.2.3 Articulation of /θ/ in Word Final Position

Table 4. 11: The RP Phoneme /θ/ Realized as [t] [d] or [s] in Word Final Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
With / w ɪ θ/	[w ɪ t] [w ɪ s]	/θ/ → [t] θ/ → [s]	Semantic alteration
Birth / b ɑ: θ/	[b a d] [b a t]	/θ/ → [d] θ/ → [t]	Semantic alteration
Math / m æ θ/	[m a s]	/θ/ → [s]	Semantic alteration
Health / h e l θ/	[h e l t]	/θ/ → [t]	Accent marker
Worth / w ɜ: θ/	[w o d]	/θ/ → [d]	Semantic alteration
Month / m ʌ n θ/	[m o n t]	/θ/ → [t]	Accent marker
North / n ɔ: θ/	[n o t] [n od]	/θ/ → [t] /θ/ [d]	Semantic alteration
South/ s a ʊ θ/	[s a u t] [s a u d]	/θ/ → [t] /θ/ [d]	Accent marker

The result in the table above reveals that voiceless interdental fricative /θ/ became [t], [d] or [s] in word final position. Unlike in the medial position as noted earlier the occurrence of the sound in final position produces three different sounds as variants which is slightly similar to the results in word initial position where two different phonemes were realized as variants. The phoneme /θ/ is not present in the inventory of Hausa, as a result the Hausa speakers replace it with /t/ or /d/ (Newman, 2000). This process is realized as stopping where voiceless interdental fricative becomes voiceless alveolar plosive, voiced alveolar plosive or voiceless alveolar fricative in word final position. The process has produced two dimensions: semantic alteration which changes the meaning of word and accent marker which indicates

Hausa English accent. There are 14 words in the table 6 words representing 43% and are marked with accent marker which shows Hausa English accent when /θ / is substituted with [t] or [d] in word final position. Examples are *faith*, *both* and *south*. On the other hand, 8 words representing 57% of the articulation lead to semantic alteration which changes the meaning of word when /θ/is realized as [t] [d] or [s] in word final position. Examples, *birth* is altered to *bad*, *north* changes to *not* and *math* is realized as *mass.*

The rules are presented as:

$$\text{(a) } /\theta/ \longrightarrow \left\{\begin{array}{c} {[t]} \\ {[d]} \\ {[s]} \end{array}\right\} \ / \ \_\_\_\_\_ \ - \ \#$$

Voiceless interdental fricative becomes voiceless alveolar plosive, voiced alveolar plosive and voiceless alveolar fricative in word final position.

$$\text{(b) } /\theta/ \longrightarrow [d] \ / \left\{\begin{array}{l} +\text{Vocalic} \\ +\text{Back} \\ \end{array}\right\} \ \_\_\_\_\_ \ - \ \#$$

Voiceless interdental fricative becomes voiced alveolar plosive when it occurs after a back vowels in word final position.

(c) $$/\theta/ \longrightarrow [s] \;/ \left\{ \begin{array}{l} +\text{Vocalic} \\ \\ +\ \text{Front} \end{array} \right\} \;\underline{\qquad}\; - \#$$

Voiceless interdental fricative becomes voiceless alveolar fricative when it occurs after front vowels in word final position.

Table 4.12 Frequency and Percentage of /θ/ /s/ /d/ and /t/ in Word Final Position

PHONEME SEQUENCE	NO. OF WORDS	/θ/	/s/	/d/	/t/
/ɪθ/	2	2	7	-	87
/rθ/	6	15	-	74	112
/æθ/	1	-	21	-	16
/lθ/	2	-	-	-	51
/nθ/	1	4	-	-	20
/uθ/	1	-	-	12	37
/oθ/	1	-	-	16	14
Total Frequency	**14**	**21**	**28**	**102**	**337**
Total Percentage	**100%**	**4.3%**	**5.7%**	**20.9%**	**69.1%**

Table 4.12 indicates that /t/ is frequently used by the respondents, followed by /d/, then /s/ and finally /θ/. The phoneme /t/ constitutes 337, representing 69.1% of the speech of the respondents. It is followed by /d/ which forms 102, representing 20.9%, then /s/ which realizes 28, representing 5.7% and finally /θ/ which forms 21 at 4.3%. The word *with* is came with the variants where /t/ forms tokens at 88%, /s/ realized at 7 tokens representing 9% and it is also produced with /θ/ 2 tokens at 3%. Ekundayo, et al. (2012) assert that there are element of substitution in the English spoken in Nigerian which can be described as accent marker, especially when it does not interfere with meaning. This position is in line with the data presented and analyzed.

The frequency levels further reveal that the majority of respondents produce /t/. There are some who produce /d/. Some produce /s/ and /s/ is closer to /θ/ in manner of articulation and state of the glottis. The few who produce /θ/ were exposed to RP model right from schools.

Evidence from the analysis reveals that the articulation of /θ/ in word final position by the Hausa broadcasters produced three different phonemes as variants. These variants /t/, /d/ and /s/ are not allophones they are independent phonemes both in English and in Hausa. However, the majority of the respondents handle them as variants of θ/. /t/ is a voiceless alveolar plosive, /d/ is a voiced alveolar plosive and /s/ is a voiceless alveolar fricative. Thus, they cannot be used as variants of voiceless interdental fricative.

4.2.3.1 OT Analysis

*IDENT CONT: No feature continuant in the output.

* VOICED-CODA: No coda voiced.

OT Evaluation of stopping of the word final sound /θ / in the RP English word *with* in Hausa English

(11) Input ‘w ɪ θ/

Output [w ɪ t]

Input / w ɪ θ/	*IDENT CONT	* VOICED-CODA
a. ☞ [w ɪ t]		
b. [w ɪ d]		*!
c. [w ɪ s]	*!	
d. [w ɪ θ]	*!	

Hausa English output in item (a) is the optimal output. It is faithful to the two constraints. The constraints are ranked as *IDENT ^{CONT} >> VOICED-CODA. Candidate (b) disobeys *VOICED-CODA which disallows the occurrence of a voiced consonant in coda. Candidate (c) violates *IDENT^{CONT} a higher ranked constraint which prohibits the occurrence of voiceless interdental plosive /θ/ in Hausa and candidate (d) is RP also fails to be faithful to a higher ranked constraint *IDENT ^{CONT}. Therefore, candidate (b), (c) and (d) are the losers.

OT Evaluation of stopping of the word final sound /θ / in the RP English word *fourth* in Hausa English

(12) Input / f ɔ: θ/

Output [f o t]

Input / f ɔ: θ/	*IDENT ^{CONT}	*IDENT V)^{LONG}	*VOICED-CODA
a. [f ɔ: θ]	*!	*!	
b. ☞ [f o t]]			
c. [f o d]			*!

There are constraints as *IDENT ^{CONT} *IDENT (V) ^{LONG} >>*VOICED-CODA. The RP output preserved the features of the input. This made it to violate high rank constraints *IDENT ^{CONT} and *IDENT V) ^{LONG}. The speech of Hausa broadcasters obeyed the high rank constraint though it is not faithful to the input. The candidate in item (c) prefers to use voiced sound in the coda which violate *VOICED-CODA,

4.3 Hausa English Consonant Articulation of /ð/

The sound /ð / is a counterpart of a voiceless interdental fricative / θ/, though they are different at the state of the glottis. The sound is also produced when the tongue is placed behind the teeth, the tip touching lower front teeth and the blade touching the upper teeth, the vocal cord vibrates during the articulation. This feature marks it out as distinctive. The sound occurs in all the phonetic environments. However, it is articulated as voiced alveolar plosive /d/ or voiced alveolar fricative /z/ in Hausa English.

4.3.1 Articulation of /ð/ in Word Initial Position

Table 4.13: The RP Phoneme /ð/ Realized as [d] or [z] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
The / ð ə/	[d e]	/ð/ $\longrightarrow$ [d]	Accent marker
That / ð æ t/	[d a t]	/ð/ $\longrightarrow$ [d]	Accent marker
Those / ð ə ʊ z/	[d o s] [z o s]	/ð/ $\longrightarrow$ [d] /ð/ $\longrightarrow$ [z]	Semantic alteration
Then / ð e n/	[d e n]	/ð/ $\longrightarrow$ [d]	Semantic alteration
There / ð e ə/	[d a j a] [z a j a]	/ð/ $\longrightarrow$ [d] /ð/ $\longrightarrow$ [z]	Semantic alteration
Than / ð æ n/	[d a n]	/ð/ $\longrightarrow$ [d]	Accent marker
Them / ð e m/	[d e m]	/ð/ $\longrightarrow$ [d]	Accent marker

Table 4.13 shows that the voiced interdental fricative /ð/ became voiced alveolar plosive [d] or voiced alveolar fricative [z] in word initial position. The reason for

the substitutions is informed by the absence of /ð/ in Hausa and hence the need to use /d/ or /z/ which are available in the language (Newman, 2000). The process is called stopping which is interpreted as voiced interdental fricative becomes voiced alveolar plosive in word initial position. In this case, it happens when voiced interdental fricative /ð/ is followed by a diphthong in word initial position. This process has produced two dimensions where accent marker shows Hausa English accent and semantic alteration changes the meaning of words. There are 7 words in the table and 4 words representing 57% of the speech produced accent marker when /ð/ is substituted with [d] in word initial position. Examples are *the, that* and *them.* The substitution does not change the meaning of the words but rather the identity of the speakers with Hausa English accent. On the other hand, 3 words representing 43% denotes semantic alteration which changes the meaning of word when /ð/ is realized as [d] or [z] in word initial position. Example, *those* changes to *does, there* changes to *dear*. Therefore, the process of stopping used by the majority of the respondents is likely to constitute a barrier to effective communication.

The study observes that what the respondents produced is different from RP English because of accent marker. It is the English spoken in Hausa accent. It is also different from RP because it is incomprehensible due to changes in meaning. This is as a result of stopping strategy used by the subjects in their articulation and the rule is presented as:

$$\text{/ð/} \longrightarrow \left\{ \begin{array}{c} [d] \\ [z] \end{array} \right\} / \ \# \underline{\qquad\qquad}$$

The rule is interpreted as voiced interdental fricative becomes voiced alveolar plosive and voiced alveolar fricative in word initial position.

Table 4.14 Frequency and Percentage of / ð/ /z/ and /d/ in Word Initial Position

GROUP OF WORDS	**NO. OF WORDS**	**/ð/**	**/z/**	**/d/**
/ðe/	4	18	28	170
/ðæ/	2	5	-	66
/ðo/	1	4	39	28
Total Frequency	**7**	**27**	**67**	**264**
Total Percentage	**100%**	**7.5%**	**18.7%**	**73.7%**

Table 4.14 above provides the number of occurrence of each sound in the process of articulating /ð/ in word initial position. The sound /d/ is produced 264, at 73.7% of the total speech. Then, it is followed by /z/ which is realized 67, representing 18.7% and /ð/ forms 27, at 7.5%. This is supported with an example from the word t*he* which has 111 tokens. /d/ is a dominant sound with 103 at 92% while /ð/ forms/ 9 representing 8% and not with /z/.

The frequencies vary significantly and the majority of the respondents produce /d/. There are some who use /z/ which is closer to /ð/ in terms of manner of articulation and state of the glottis. The few who produce /ð/ are familiar with RP model. A research by Josiah, et al. (2012) indicates that out of 65 Nigerian undergraduate students in the university who were asked to produce voiced interdental /ð/, only 9 respondents representing 13% were able to produce the phoneme appropriately while 56 respondents representing 81% were not able. This confirms the difficulties faced by Nigerian speakers of English in articulating the phoneme /ð/.

4.3.1.1 OT Analysis

*IDENT ^{CONT}: No feature continuant in the output.

*IDENT ^{BACK} :   No feature vowel (back) in the output.

OT Evaluation of stopping of the word initial sound /ð/ in the RP English word *the* in Hausa English

(13) Input / ð ə /

Output [d e]

Input / ð ə /	*IDENT ^{CONT}	*IDENT ^{BACK}
a. ð ə	*!	*!
b. ☞ d e		
c. z e	*!	

The constraints ranking in tableau is presented as *IDENT ^{CONT} >> IDENT ^{BACK}. Candidate (a) is the RP output and it captures a continuant and a back vowel which seriously violate the constraints in the tableau. *IDENT ^{CONT} forbids the occurrence of voiced interdental fricative /ð/ in Hausa (Sani 2005) and *IDENT ^{BACK} prohibits the realization of a schwa vowel in Hausa (Newman, 2000). Candidate (b) is considered as an output Hausa broadcasters and it obeys all the constraints, Candidate (c) disobeys *IDENT^{CONT} and satisfies *IDENT ^{BACK} which prevents it from emerging as the optimal output.

OT Evaluation of stopping of the word initial sound /ð/ in the RP English word *those* in Hausa English

(14) Input / ð ə ʊ z/

Output [d o s]

Input /ð ə ʊ z/	*IDENT ^{CONT}	*COMPLEX^{VOW}	IDENT-IO (F)
a. [ð ə ʊ z]	*!	*!	
b. [z o s]	*!		*
c. ☞ [d o s]			*

The high rank constraints have been violated by the RP output. The second candidate also violated one of the high rank constraints *IDENT^{CONT} and low rank constraint IDENT-IO (F). The output of the Hausa broadcasters is faithful to the high rank constrains and disagree with low rank constraint.

4.3.2 Articulation of /ð/ in Word Medial Position

Table 4.15: The RP Phoneme /ð/ Realized as [d] and [z] in Word Medial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Within / w ɪ ð ɪ n/	[w ɪ d ɪ n]	/ð/ → [d]	Accent marker
breathing /b r i: ð ɪ ŋ/	[b ɪ r ɪ d ɪ ŋ]	/ð/ → [d]	Semantic alteration
more than / m ɔ: ð æ n/	[m o d a n]	/ð/ → [d]	Semantic alteration
Withdraw / w ɪ ð r ɔ: /	[w ɪ d u ro]	/ð/ → [d]	Accent marker
Withhold /w ɪ ð h ə ʊ l d/	[w ɪ d h o l]	/ð/ → [d]	Accent marker
Mother / m ʌ ð ə/	[m a d] [m a z a]	/ð/ → [d] /ð/ → [z]	Semantic alteration

The data in the table 4.15 indicate that voiced interdental fricative /ð/ becomes voiced alveolar plosive [d] and voiced alveolar fricative [z] in word medial position as a result of absence of / ð/ in Hausa (Sani, 2005). This leads to the realization of two phonemes as replacements in Hausa English. This process is called stopping. In the present study, voiced interdental fricative becomes voiced alveolar plosive in word medial position or voiced interdental fricative becomes voiced alveolar fricative when it occurs before mid-front short vowel in word medial position. This process has produced accent marker and semantic alteration. There are 16 words in the table and 11 words representing 69% of the data indicate accent marker since the meanings of the words are retained when /ð/ is substituted with [d] or [z] in word medial position. Examples are *gather, either, neither* and f*ather*. On the other hand, 5 words representing 31% show semantic alteration since the meaning of the words have changed. For instance, *mother* is altered to *murder*, *brothe*r changes to *broade*r, *other* to *orde*r, *breathing* is realized as *breeding* and *more than* to *modern*. These changes are likely to constitute a barrier to effective communication. It should be noted that, language is an important instrument in broadcasting just as the media industry. The success of communication is largely premised upon effective use of language.

The respondents exhibit pattern of speech influenced by accent. It is also informed by incomprehensibility due to changes in meaning. This alteration is caused by the stopping process used by the subjects and the rule is presented as:

(a) $/\text{ð}/ \longrightarrow [d]\ /\ \#\ \_\_\_\_\ \#$

Voiced interdental fricative becomes voiced alveolar plosive in word medial position.

(b) $/\text{ð}/ \longrightarrow \begin{Bmatrix} [d] \\ [z] \end{Bmatrix}\ /\ -\ \_\_ \quad \begin{Bmatrix} /\text{ə}/ \end{Bmatrix}$

The rule is presented as voiced interdental fricative becomes voiced alveolar fricative when it is followed by mid-central short vowel.

Table 4.16 Frequency and Percentage of /ð/ /z/ and /d/ in Word Medial Position

PHONEME SEQUENCE	**NO. OF WORDS**	**/ð/**	**/z/**	**/d/**
/ɪðɪ/	1	6	-	31
/əðɪ/	1	3	-	13
/ɪθə/	1	4	-	19
ɪðh/	1	2	-	15
/oðe/	4	12	45	106
/eðe/	1	3	10	16
/əðe	3	5	33	73
/ɪðe/	2	7	11	33
/rðe	1	5	12	30
/ɪðd/	1	4	-	27
Total Frequency	**16**	**51**	**111**	**363**
Total Percentage	**100%**	**9.7%**	**1.1%**	**69.1%**

Table 4. 16 above shows that there are two variants of /ð/ in the speech of Hausa broadcasters /d/ is the frequent sound used in place of/ ð/. It constitutes 363, at 69.1%, /z/ realizes 111, which forms 21.1% and 51 tokens at 9.7% are in favor of /ð/. The pronunciation of the word *mother* featured the two variants with /d/ 27, at 71%, /z/ attracts 8 tokens at 21% and only 8% of the 3 tokens show support to /ð/.

The frequency level differ considerably. The majority of the subjects produce /d/. There are some who use /z/ because /z/ is closer to /ð/ in manner of articulation and state of the glottis. The few who produce /ð/ are fully familiar with RP model. The realization of /d/ and /z/ as replacements for /ð/ in the English spoken in Nigeria has been acknowledged by Udofort (2011). Similarly, Olaniyi (2014) notes that majority of Nigerian speakers of English produce /d/ or /z/ as substitute for /ð/.

The findings show that the articulation of voiced interdental sound in word medial positions produced two variants as substitutes. They are voiced alveolar plosive /d/ and voiced alveolar fricative /z/.

4.3.2.1 OT Analysis

*IDENT ^{CONT} : No feature continuant in the output.

*COMPLEX ^{ONSET} : Onset is simple.

*IDENT (V) ^{LONG} : Long vowel is not allowed in the speech of Hausa broadcasters.

DEP-IO: Every segments in the output should have input correspondents

(No insertion).

OT Evaluation of stopping of the word medial sound /ð/ in the RP English word *breathing* in Hausa English

(15) Input /b r i: ð ɪ ŋ/

Output [b ɪ r ɪ d ɪ ŋ]

Input /b r i;ð ɪ ŋ/	*IDENT^{CONT}	*COMPLEX^{ONS}	*IDENT(V)^{LONG}	DEP-IO
a. [b r i: ð ɪ ŋ]	*!	*!	*!	
b.☞ [b ɪ r ɪ d ɪ ŋ]				*

The two candidates (a) and (b) appear with different constraints ranking. The RP output prefers feature continuant, consonants cluster and long vowel. These made the candidate to be faithful to Faithfulness constraint, the output of the Hausa broadcasters on the other hand considers the Markedness constraints and disregard the Faithfulness constraint.

OT Evaluation of stopping of the word medial sound /ð/ in the RP English word *further* in Hausa English.

(16) Input /f ɜ: ð ə/

Output [f o d a]]

Input /f ɜ: ð ə/	*IDENT^{CONT}	*IDENT(V)^{LONG}	IDENT-IO (F)
a. ☞ [f o d a]			*
b. [f o z a]	*!		*
C, [f ɜ: ð ə]	*!	*!	

There are three potential candidates in the tableau. The Hausa broadcasters choose Markedness constraints *IDENT^{CONT} and *IDENT (V)^{LONG} . Candidate (b) violates one high rank constraint and the low rank constraint. RP disagrees with the two high rank constraints but accepts low rank constraint.

4.3.3 Discussions of the Findings

The majority of the respondents produce phonemes in a very unusual manner while handling voiced interdental fricative /ð/. The majority of the respondents use /d/ and /z/ as variants of a phoneme /ð/ while they are phonemes both in English and Hausa language. /d/ is a voiced alveolar plosive, /z/ is a voiced alveolar fricative while /ð/ is a voiced interdental fricative (c.f. p. 33) English phonemic inventory. Thus, one cannot be used in place of the other as variant(s).

Generally, the trend of consonant substitutions (stopping) in spoken English is not peculiar to Hausa speakers. Studies have shown that most of the non-native speakers of English have difficulties in articulating interdental fricative sounds [θ] and [ð], instead they use alveolar plosives [t] and [d]. These features have stood out as major characteristics of new Englishes around the world (Kachru, 1983). These features are also pronounced in Caribbean English where interdental fricative sounds are usually substituted with [t] and [d] (Olajide & Olaniyi, 2013). Similarly, it is also reported that the above features manifest in Asian English (Deterding & Poedjosoedarmo, 1998). In West Africa, the situation is the same while alveolar fricatives [s] and [z] are used in East Africa English (Spencer, 1971). Though in Kenya, some speakers of English also use alveolar plosive [d] in a word like t*hree.*

The findings also correlate significantly with studies conducted in Nigeria. Scholars have persuasively identified elements of restructuring of phonemes in the English spoken in Nigeria by importing some phonological feature of native languages (Bamgbose (1971, 1995; Banjo, 1979, 1996 & Egbe 1979). This has resulted in phonological variations in English spoken in Nigeria (Jibril, 1979 & Brann, 2006). Similarly, the finding is consistent with Opanachi (2013) who postulates that interdental fricatives sounds [θ] and [ð] are problematic to most of the Igala speakers of English in Nigeria, instead they use alveolar plosives [t] and [d] as alternatives.

The results also agree with the findings of Emeka-Nwobia, (2013) who reports that interdental fricative sounds [θ] and [ð] are difficult to articulate by Igbo broadcasters of English in Ebonyi Broadcasting Corporation in Nigeria. The broadcasters use [t] and [d] as Hausa broadcaster do in their news renditions. These similarities of the findings are as a result of common linguistic features that are found in African languages. Certain English phoneme like dental sounds are not present in most of the African languages.

4.4 Hausa English Consonant Articulations /ʒ/

/ʒ/ is a consonant which is produced when the tongue is further back between alveolar ridge and velum. It is labelled as voiced palato alveolar fricative and occurs frequently in word medial position, occasionally in word initial and word final position. Most of the English words that begin with this sound are usually borrowed words from French (Roach, 2000).

4.4.1 Articulation of /ʒ/ in Word Medial Position

Table 4.17: The RP Phoneme /ʒ/ Realized as [ʃ] or [dʒ] in Word Medial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICARION
Measure / m e ʒ ə/	[m e dʒ o] [m e dʒ a]	/ ʒ/ → [dʒ]	Semantic alteration
Television / t e l ɪ v ɪ ʒ ə n/	[t e l e v ɪ ʃ o n] [t e l e v ɪ dʒ ɪ n]	/ ʒ/ → [ʃ] / ʒ/ → [dʒ]	Accent marker
Leisure / l e ʒ ə/	[l e dʒ o]	/ ʒ/ → [dʒ]	Semantic alteration
Pleasure / p l e ʒ ə/	[ɸ ɪ l e dʒ o]	/ ʒ/ → [dʒ]	Accent marker
Closure /k l ə ʊ ʒ ə/	[k ʊ l o dʒ o]	/ ʒ/ → [dʒ]	Accent marker
Confusion /k ə n fj u: ʒ ə n/	[k o fj u ʃ o n]	/ ʒ/ → [ʃ]	Accent marker
Decision / d ɪ s ɪ ʒ ə n/	[d ɪ s ɪ ʃ o n]	/ ʒ/ → [ʃ]	Accent marker
Division / d ɪ v ɪ ʒ ə n/	[d ɪ v ɪ ʃ o n] [d ɪ v ɪ dʒ o n]	/ ʒ/ → [ʃ] / ʒ/ → [dʒ]	Accent marker
Illusion / ɪ l u: ʒ ə n/	[ɪ l ʊ ʃ o n]	/ ʒ/ → [ʃ]	Accent marker

Table 4.17: shows that voiced palato alveolar fricative /ʒ/ became voiceless palato alveolar fricative [ʃ] or voiced palato alveolar affricate [dʒ] in word medial position. Sometimes, this realization happens when it occurs after a syllable with labiodental onset or in a final syllable with nasal coda. These processes are affrication and devoicing which produce semantic alteration and accent marker in the speech of the respondents. There are 13 words in the table and 11 words representing 85% of the

speech produced show accent marker which indicates Hausa English accent when /ʒ/ is realized as [dʒ] or [ʃ] in word medial position. Examples are *television*, *pleasure* and *collision*. On the other hand, 2 words representing 15% indicate semantic alteration which changes the meaning of word when /ʒ/ is substituted with [dʒ] in word medial position. Examples, *measure* changes to *major* and l*eisure* also changes to *ledger*. Therefore, the affrication employed by the respondents may be confusing in speech broadcast since it leads to change of meaning and consequently conveys unintended message.

The affrication and devoicing processes used by the respondents make the speech of the respondents to sound different from RP English. The processes made the speech to produce accent marker where English is spoken in Hausa accent. It also produced alteration in meaning which shows incomprehensibility. This is caused by affrication and devoicing rules and are shown below:

$$/\text{ʒ}/ \longrightarrow \left\{ \begin{array}{c} [\text{dʒ}] \\ [\text{ʃ}] \end{array} \right\} / \ \# \ \_\_\_\_ \ \#$$

The voiced palato alveolar fricative becomes voiced palato alveolar affricate and voiceless palato alveolar fricative in word medial position.

Table 4.18 Frequency and Percentage of /ʒ/   /ʃ/ and /dʒ/ in Word Medial Position

PHONEME SEQUENCE	NO. OF WORDS	/ʒ/	/ʃ/	/dʒ/
/əʒu/	2	5	111	71
/ɪʒɪ/	5	14	-	110
/ɪʒu/	1	-	-	21
/oʒu/	2	2	44	41
/uʒɪ/	2	4	22	-
/oʒɪ/	1	5	-	-
Total Frequency	**13**	**30**	**177**	**243**
Total Percentage	**100%**	**6.7%**	**39.3%**	**54%**

Table 4.18 above indicates /ʒ/, /ʃ/ and /dʒ/ are used by the respondents, however, /dʒ/ is used more frequently than /ʒ/ and /ʃ/. /dʒ/ forms the highest count of 243, representing 54% of the data. It is followed by /ʃ/ with 177, at 39.3%. /ʒ/ is the least with 30, at 6.7%. In pronouncing the word t*elevision,* /dʒ/ is also the highest with 65 tokens 67%, 27 tokens at 28% are realized by /ʃ/. The phoneme /ʒ/ stood at 5%.

The majority of the respondents produce /dʒ/. There are some who produce /ʃ/. The few respondents who produce /ʒ/ have shown a clear demonstration of their familiarity with RP. A close scrutiny of Nigeria English by Olajide and Olaniyi (2013) reveal that /ʒ/ does not exist as it does in Standard British English. Therefore, /dʒ/ and /ʃ/ are produced instead of /ʒ/. This has further confirmed the usual speech patterns of Hausa broadcasters which is in conformity with the Nigerian English accent.

4.4.1.1 OT Analysis

*IDENT ^{CONT} : No feature continuant in the output.

*IDENT ^{BACK} : No feature vowel (back) in the output.

DEP-IO: Every segments in the output should have input correspondents

(No insertion).

OT Evaluation of affrication of the word medial sound /ʒ/ in the RP English word *closure* in Hausa English.

(17) Input / k l ə ʊ ʒ ə/

Output [k ʊ l o dʒ o]

Input / k l ə ʊ ʒə/	*IDENT^{CONT}	*IDENT^{BACK}	DEP-IO
a. ☞ [k ʊ l o dʒ o]			*
b. [k l ə ʊ ʒ ə]	*!	*	
c. [k ʊ l o ʃ o]	*!		*

Hausa English output obeys the higher ranked constraints, and violate DEP –IO, a constraint that hinders insertion in the output. On the contrary, RP output disagrees with *IDENT ^{CONT}, a constraint that forbids the realization of a continuant /ʒ/ in Hausa (Sani, 2005), and *IDENT^{BACK} that disallows schwa vowel to appear in Hausa (Newman, 2000). Candidate (c) also incurs a serious violation of *IDENT ^{CONT} and DEP -IO.

OT Evaluation of affrication of the word initial sound /ʒ/ in the RP English word *genre* in Hausa English.

.OT Evaluation of affrication of the word final sound /ʒ/ in the RP English word *garage* in Hausa English.

(18) Input /g æ r ɑ: ʒ/

Output [g a r e dʒ]

Input /g æ r ɑ: ʒ/	*IDENT ^{CONT}	*IDENT ^{LOW}	*IDENT (V)^{LONG}
a. g æ r ɑ: ʒ	*!	*!	*
b. ☞ g a r e dʒ			

The candidate in tem (a) prefers the use of feature continuant, low and long vowel. These linguistic features contradicts the high rank constraints. *IDENT ^{CONT} bars the appearance of a continuant /ʒ/ in Hausa (Sani, 2005) and *IDENT^{LOW} disallows the realization of low vowel /æ/ in Hausa (Newman, 2000). It also violates *IDENT (V) ^{LONG} which is not allowed in the speech of Hausa broadcasters. The speech of Hausa broadcasters agree with all the constraints.

4.4.2 Discussions of the Findings

The affrication and devoicing processes used by the majority of the respondents may be confusing in speech broadcast since it leads to change of meaning and consequently conveys unintended message.

The findings are consistent with Adedimeji (2007) who reports that Nigerian speakers of English are identified in their articulations of certain segmental phonemes. /ʃ/is used for /ʒ/ or /tʃ/ and the situation is similar to what is obtained in the speech of Hausa broadcasters because they are part of the Nigerian speakers of English. Similarly, the study also shows support to Emeka-Nwobia (2013) who claims that the Igbo broadcasters of English in Ebonyi Broadcasting Corporation South-East Nigeria often use /ʃ/ in place of /ʒ/ as Hausa speakers do. Though the Hausa broadcasters use /ʃ/ and /dʒ/ as substitute for /ʒ/. The similarities in the results of the two studies are associated with the respondents of the studies. The respondents of the studies are similar in terms of nationality as Nigerians and they are similar in terms of professionalism as broadcasters.

Generally, /ʒ/ appears to be the most problematic phoneme in the speech of the respondents as only 4% of the speech productions captured the sound correctly. The sound /θ/ is another troublesome phoneme in the articulation of the respondents. The data show that the accurate articulation of the sound is at 7%. The voiced counterpart of the phoneme /θ/ is /ð/ and the level of its appropriateness in the speech of the respondents stands at 9%. The data also reveal that /p/ records the highest percentage of accuracy. The level is 15%.

4.5 Chapter Summary

The chapter has provided the articulations patterns of consonants in the speech of Hausa broadcasters. This is in response to the research question one of the study. The consonants presented, discussed and analysed are /p/, /θ/, /ð/ and /ʒ/. These phonemes are problematic to Hausa speakers because they do not exist in the Hausa phonemic inventory. The findings have shown that /p/ is usually substituted with /ɸ/, a non-English phoneme imported from Hausa into Hausa English by the majority of the respondents. Moreover, /θ/ is substituted with /t/, /d/ or /s/ depending on the phonetic environment of a word. Similarly, /ð/ is realized as /d/ or /z/ depending on phonetic environment of a word. /ʒ/ is produced /dʒ/ or /ʃ/ depending on the phonetic environment of a word. These problems are attributed to phonological processes such as frication, stopping, affrication and devoicing. The use of these processes by the majority of the respondents has produced two implications, namely semantic alteration which changes the meaning of word and Hausa English accent which need to be addressed, particularly semantic alteration that alters the meanings of words. The majority of the respondents also show preference on Markedness constraints over Faithfulness.

CHAPTER FIVE

DATA PRESENTATION ANALYSIS AND DISCUSSION OF LONG VOWELS ARTICULATIONS

5. 0 Introduction

This chapter deals with vowels articulations. It presents and analyzes Hausa English vowels articulations based on the speech of Hausa broadcasters. The analysis focuses on RP English long vowels articulations on the basis of three parameters. These are semantic alteration which changes the meaning of word and accent marker which indicates Hausa English accent as seen in chapter four. The analysis also focuses on auditory count of the pronunciations to determine the number of RP and non RP realizations of the speech sounds. Moreover, OT constrains interactions and their rankings in the grammar of Hausa language have also been provided to explicate the deviations in the speech of the respondents. The analysis presented in this chapter is provided in response to research question two This chapter presents the analysis of the following vowels /iː/, /ɔː/, /uː /, /ɑː/ and /ɜː/.

5.1 Articulation of a Long Vowel /i: /

Vowels articulations are characterized by the position of the tongue and relative gesture of the lips. The vowel /iː/ is produced at the front of the tongue with the lips slightly spread. It is described as high, front tense. This sound occur freely in word initial, medial and final positions. It is, however, articulated as high front lax [ɪ] in

Hausa English. The [ɪ] being produced by speakers of Hausa English is a short vowel which is articulated with mouth half close.

5.1.1 Articulation of /i:/ in word Initial Position

Table 5.1: The RP English Vowel /i:/ Realized as [ɪ] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	LONG VOWEL REDUCTION	IMPLICATION
Eel / i: l/	[ɪ l]	/i:/ $\longrightarrow$ [ɪ]	Semantic alterarion
Ease /i: z/	[ɪ z]	/i:/ $\longrightarrow$ [ɪ]	Semantic alterarion
East /i: s t/	[ɪ s]	/i:/ $\longrightarrow$ [ɪ]	Semantic alteration

Table 5.1 shows how high front tense /i:/ is realized high front lax [ɪ] in word initial position in the speech of Hausa broadcasters. The long vowel /i:/ is not used in the speech of Hausa broadcasters hence the realization of [ɪ]. This process is called long vowel reduction. In the data, it occurs in word initial position. This has produced semantic alteration. There are 3 words in the table and all of them denote semantic alteration which changes the meaning of word when /i:/ is reduced to [ɪ] in word initial position. For instance, *eel* is altered to *ill* while *east* changes to *is.*

The speech produced by the respondents is different from RP because of semantic alteration which changes the meaning of word. This is as a result of long vowel reduction used by the subjects. The rule is presented as:

/i:/ ⟶ [ɪ] / # ____

A high front long vowel becomes short in word initial position.

Table 5.2 Frequency and Percentage of /i:/ and / ɪ/ in Word Initial Position

PHONEME SEQUENCE	NO. OF WORDS	/i:/	/ɪ/
/i:l/	1	3	29
/i:z/	1	2	15
/i:st/	1	5	34
Total Frequency	**3**	**10**	**78**
Total Percentage	**100%**	**11.4%**	**88.6%**

Table 5.2 indicates that both /i:/ and /ɪ/ are used by the respondents. However, the use of/ɪ/ is more prevalent compared to /i:/. Kachru and Smith (2008) state that one of the features of non-native English around the world is long vowel reduction. The RP long vowels are usually reduced to short. The English spoken by Nigerians in general and Hausa broadcasters in particular is part of the new Englishes. It is, therefore, not surprising for the subjects to produce the vowels without the feature length.

The findings show that the high front long vowel /i:/ is reduced to a short /ɪ/. This is because in the speech of Hausa broadcasters the long vowel /i:/ is not permitted thereby resorting to the short form which is convenient to them in articulation.

5.1.1.1 OT Analysis

*IDENT (V) $^{\text{LONG}}$: No long vowels in the Hausa broadcasters' English.

MAX-IO: Every segments in the input must have output correspondents

(No deletion) (McCarthy and Prince 1995).

Consider the OT Evaluation of long vowel reduction of the word initial sound /i:/ in the RP English word *east* in Hausa English.

(19) Input /i: s t/

Output [ɪ s]

Input /i: s t/	*IDENT (V) ^{LONG}	MAX-IO
a. [i: s t]	*!	
b. ☞ [ɪ s]		*!

The RP output is interested in the realization of a long vowel. This choice violates *IDENT (V) ^{LONG}, a constraint that forbids the appearance of a long vowel in the grammar of Hausa broadcasters. It is ruled out despite being faithful to MAX-I O. Hausa English output obeys the higher ranked constraints *IDENT (V)^{LONG}. The candidate delete a segment in the output which is contrary to MAX-IO. This constraint requires every segment in the output to have equivalence in the output (No deletion). The constraint ranking is presented as *IDENT (V) ^{LONG} >> MAX-IO.

OT Evaluation of long vowel reduction of the word initial sound /i:/ in the RP English word *ill* in Hausa English.

(20) Input /i: l/

Output [ɪ l]

Input /i: l/	*IDENT (V) LONG	IDENT-IO (F)
a. [i: l]	*!	
b. ☞ [ɪ l]		*!

The table presents a context between Markedness and Faithfulness constraints. The RP prefers to preserve the features of input in the output. This resulted into violation of a high rank constraint. The output of Hausa broadcasters on the other hands is concerned with the output irrespective of its identity relation with the input.

5.1.2 Articulation of /i:/ in Word Medial Position

Table 5.3: The RP English Vowel /i:/ Realized as [ɪ] in Word Medial Position

RP ENGLISH	**HAUSA ENGLISH**	**LONG VOWEL REDUCTION**	**IMPLICATION**
Leave / l i: v/	[l ɪ v]	/i:/ ⟶ [ɪ]	Semantic Alteration
Reach / r i: tʃ/	[r ɪ tʃ]	/i:/ ⟶ [ɪ]	Semantic alteration
People / p i: p ə l/	[ɸ ɪ ɸ ʊ l]	/i:/ ⟶ [ɪ]	Accent marker
Senior / s i: n ɪ ə/	[s ɪ n ɪ j o]	/i:/ ⟶ [ɪ]	Accent marker
Feature / f i: tʃ ə/	[f ɪ j tʃ o]	/i:/ ⟶ [ɪ]	Accent marker

Table 5.3 indicates that high front tense vowel /i:/ becomes high front lax [ɪ] in a word medial position. The process is called long vowel reduction and has produced accent marker and semantic alteration. There are 22 words in the total and 8 words representing 36% of the speech production indicate accent marker of Hausa English because it does not interfere with the meaning when /i:/ is reduced to [ɪ] in word medial position, e.g. *people* and *police.* 14 words representing 64% denote semantic alteration which affects the meaning of the words when /i:/ is reduced to [ɪ] in word medial position. Examples, *leave* is altered to *live*, *reach* changes to *rich* and *seat* changes to *sit.*

The speech of the subjects is different from RP because it is marked by Hausa accent. It is also marked by semantic alteration which alters the intended meaning of words.

The vowel reduction rule

/i:/ $\longrightarrow$ [ɪ] / C__C

A high front short long vowel becomes short in word medial position.

Table 5.4 Frequency and Percentage of /i:/ and /ɪ/ in Word Medial Position

PHONEME SWQUENCE	NO. OF WORDS	/i:/	/ɪ/
/li:/	2	10	65
/ri:/	1	5	38
/pi:/	4	27	154
/si:/	6	30	115
/fi:/	1	4	22
/mi:/	3	13	118
/hi:/	1	2	13
/zi:/	1	3	16
/ki:/	1	-	7
/ti:/	2	10	28
Total Frequency	**22**	**94**	**576**
Total Percentage	**100%**	**14%**	**86%**

The frequency and percentage table indicates that both /i:/ and /ɪ/ are used by the respondents, but the level of usage vary considerably. /ɪ/ attracts 576, at 86%. /i:/ generates 94, representing 14%. The level of usage at the individual words indicates that the word *medium* is dominant with /ɪ/ 91% from 79 tokens whereas /i:/ stands at 9% from 8 tokens..

The higher frequency shows the level of articulation produced by the majority of the respondents whereas the low frequency demonstrates the articulation produced by few of the respondents. Their exposure to RP makes them produce the vowel with its feature length. The feature length in RP long vowels is not usually produced by Nigerian speakers of English as noted by Opanachi (2013) this pattern of speech is also demonstrated by Igala speakers of English in Nigeria which is similar to the pattern produced by Hausa broadcasters.

Evidence from the analysis shows that the majority of the respondents produce /ɪ/ instead of /i:/ in word medial position. Despite the fact that the sounds are high front unrounded vowels, they are different in terms of length and one cannot be used in place of another as a variant.

5.1.2.1 OT Analysis

*IDENT (V) LONG No long vowels in the Hausa broadcasters' English.

DEP-IO: Every segments in the output should have input correspondents (No insertion).

OT Evaluation of long vowel reduction of the word medial sound /i:/ in the RP English word *reach* in Hausa English.

(21) Input /r i: tʃ/

Output [r ɪ tʃ]

Input /r i: tʃ/	*IDENT (V) LONG	DEP–IO
a.[r i: tʃ]	*!	
b. [r ɪ j tʃ]		*!
c. ☞[r ɪ tʃ]		

The tableau above shows that candidate (a) could have emerged as the optimal output but it violates *IDENT (V) LONG, a higher ranked constraint which disallows the long vowel from appearing in the grammar of Hausa broadcasters. Though it obeys DEP –IO, it is a loser. Candidate (b) is also a loser in the sense that it contravenes DEP –IO which bars the insertion of a segment in the output. It obeys

*IDENT (V) ^{LONG}. Candidate (c) observes all the constraints. The constraints are ranked as *IDENT (V) ^{LONG} >> DEP –IO.

OT Evaluation of long vowel reduction of the word medial sound /i:/ in the RP English word *live* in Hausa English.

(22) Input /l i: v/

Output [l ɪ v]

Input /l i: v/	*IDENT (V)^{LONG}	DENT-IO (F)
a. ☞ [l ɪ v]	*!	
b. [l i: v]		*!

The Hausa English prefers to use a short vowel instead of long. Such realization conforms to the grammar of Hausa broadcasters which does not permit long vowel. On the contrary, RP allows for the realization of a long vowel in order to be faithful to the low rank constraint DENT-IO (F).

5.1.3 Articulation of /i:/ in Word Final Position

Table 5. 5: The RP English Vowel /i:/ Realized as [ɪ] in Word Final Position

RP ENGLISH	HAUSA ENGLISH	LONG VOWEL REDUCTION	IMPLICATION
Three /θ r i:/	[t ɪ r ɪ]	/i:/ ⟶ [ɪ]	Accent marker
Tree /t r i:/	[t ɪ r ɪ]	/i:/ ⟶ [ɪ]	Accent marker
Free f r i:/	[f ɪ r ɪ]	/i:/ ⟶ [ɪ]	Accent marker
Sea /s i:/	[s ɪ]	/i:/ ⟶ [ɪ]	Accent marker
Key /k i:/	[k ɪ]	/i:/ ⟶ [ɪ]	Accent marker

The table 5.5 shows that a high front long vowel /i:/ is realized as high front short vowel [ɪ] in word final position in the speech of Hausa broadcasters. This has produced Hausa English accent. The long vowel reduction is accent marker. Semantically the meaning is not altered. Nevertheless, the respondents are encouraged to improve towards the right model of RP English.

The vowel reduction rule

/i:/ ⟶ [ɪ] / ______ #

A high front long vowel becomes short when occurs in word final position.

Table 5.6 Frequency and Percentage of /ɪ/ and /i:/ in Word Final Position

PHONEME SEQUENCE	**NO. OF WORDS**	**/i:/**	**/ɪ/**
/θri:/	1	6	32
/tri:/	1	2	21
/fri:/	1	3	29
/si:/	1	1	11
/ki:/	1	2	13
Total Frequency	**5**	**14**	**106**
Total Percentage	**100%**	**11.7%**	**88.3%**

Table 5.6 shows that both /i:/ and /ɪ/ are used by the respondents. The vowel /ɪ/ is used by the respondents in 106 cases representing, or 88.3% of the total reponses. The realization of /i:/ in the speech of the respondents stands at 14 cases or 11.7%. This is also evident at the level of individual words. /ɪ/ generates 32 tokens, 84% in the production of the word *three*. The sound /i:/ forms 6 tokens at 16%.

The higher frequency indicates that the majority of the respondents produce /ɪ/ in place of /i:/. The lower frequency is informed by the few respondents who produce the vowel with its feature length. Their appropriateness in articulation is the product of their exposure to RP model. Olaniyi and Josiah (2013) reveal that all the RP long vowels have their cognate in Hausa. Therefore, Hausa speakers of English are to produce RP long vowels. Surprisingly, the majority of the Hausa broadcasters do not produce the RP long vowels with their feature length.

The findings show that the majority of the Hausa broadcasters prefer to produce /ɪ/ instead of /i:/ despite the fact that the two sounds vary on the basis of lengthening in articulation..

5.1.3.1 OT Analysis

*COMPLEX ^{ONSET}: Onset is simple.

*IDENT (V) ^{LONG} : No long vowels in the Hausa broadcasters' English.

DEP-IO: Every segments in the output should have input correspondents

(No insertion).

Example 23 shows OT Evaluation of long vowel reduction of the word final sound /i:/ in the RP English word *free* in Hausa English.

(23) Input / f r i: /

Output [f ɪ r ɪ]

Input / f r i: /	*COMPLEX ONSET	*IDENT (V) LONG	DEP –IO
a. [f r i:]	*!	*	
b. ☞ [f ɪ r ɪ]			*

*COMPLEX ONSET is a high rank constraint that bars the occurrence of consonant cluster at the onset. *IDENT (V) LONG is also a high rank constraint which prohibits the appearance of long vowel in the grammar of Hausa broadcasters. These constrains have been violated by the RP English candidate. The Hausa English output satisfied the two high rank constraints *COMPLEXONSET and *IDENT (V) LONG that are higher than DEP –IO. Although it disobeys DEP–IO which prohibits the insertion of a segment in the output, but it is lowly ranked.

OT Evaluation of long vowel reduction of the word final sound / i:/ in the RP English word *sea* in Hausa English.

(24) Input / s i:/

Output [s ɪ]

Input /s i:/	*IDENT (V) LONG	IDENT-IO (F)
a. [s i:]	*!	
b. ☞ [s ɪ]		*!

The RP prefers IDENT-IO (F) over *IDENT (V) ^{LONG} while Hausa broadcasters consider short vowel as against the long vowels used by RP. These indicate the differences between the two varieties in constraints marking.

5.1.4 Discussions of the Findings

It is clear that the high front long vowel /i:/ is produced as high front short vowel /ɪ/ in all the phonetic environments (initial, medial and final). This is because in Hausa language vowel lengthening is marked on tones and English does have stress rather tones (Kenstowicz, 2006). This might have been the reason why the majority of the respondents do not produce feature length in their English speech.

The two sounds /i:/ and /ɪ/ are not allophones, they are phonemes which are distinguishable by feature length. In Hausa language, the two sounds are also phonemic, however, the vowel /i:/ is handled in a very unusual way by Hausa broadcasters. It is noted that the respondents use the strategy of long vowel reduction to ease their pronunciation. This has also culminated in lack of distinctions between some pairs of English words such as s*eat* and *sit*, *leave* and *live.* Thus, lengthening in vowels is a feature which brings about distinction between identical words.

However, the language of the media should facilitate effective communication between the encoder and the decoder. The misarticulations of English phonemes in a second language environment of English is recognized. There is transfer of certain linguistic elements from the first language to English, nevertheless, information in broadcasting industry are disseminated via a comprehensible language to the receivers (Emeka-Nwobia, 2013).

5.2 Articulation of the Long Vowel /ɔ:/

/ɔ:/ is produced with the mouth slightly opened which creates a good space between upper and lower teeth. The tip of the tongue is brought down behind the lower teeth and the shape of the mouth is rounded. It is described as mid back tense rounded vowel. It is, however, articulated as a shorter form in Hausa English [o].

5.2.1 Articulation of /ɔ:/ in Word Initial Position

Table 5.7: The RP English Vowel /ɔ:/ Realized as [o] in Word Initial Position

RP ENGLISH	**HAUSA ENGLISH**	**LONG VOWEL REDUCTION**	**IMPLICATION**
Authority [ɔ: θ ɒ r ə t ɪ]	[o t o r ɪ t ɪ]	/ɔ:/ → [o]	Accent marker
Order / ɔ: d ə /	[o d a]	/ɔ:/ → [o]	Accent marker
Orientation /ɔ: r i ə n t e ɪ ʃ ə n/	[o r ɪ a n t e ʃ o n]	/ɔ:/ → [o]	Accent marker
Organization /ɔ: g ə n a z e ɪ ʃ ə n/	[o g a n a z e ʃ o n]	/ɔ:/ → [o]	Accent marker

The mid back long rounded vowel /ɔ:/ is realized as mid back short rounded vowel [o] in word initial position in the speech of Hausa English broadcasters. This process is called long vowel reduction which produced Hausa English accent. The long vowel reduction is accent marker, which means that semantically the meaning is not altered.

The speech of the respondents is different from RP English because of the accent marker which is caused by long vowel reduction rule and it is shown as:

/ɔ:/ $\longrightarrow$ [o] / # ______

A mid back long rounded vowel becomes short in word initial position.

Table 5.8 Frequency and Percentage of /ɔ:/ and /o/ in Word Initial Position

PHONEME SEQUENCE	NO. OF WORDS	/ɔ:/	/o/
/ɔ:θ/		8	76
/ɔ:d/		5	34
/ɔ:r/		3	21
/ɔ:rg/		6	43
Total Frequency		**22**	**174**
Total Percentage		**11.2%**	**88.2%**

/ɔ:/ and /o/ are used by the respondents as shown in the table above, however, the rates of occurrence are different. 174 tokens at 88.8% show the rate of usage of /o/. /ɔ:/ on the other hand, forms 22, at 11.2 % . In terms of individual words, 76 tokens at 90% are in favour of the vowel /o/ in pronouncing the word *authority*. /ɔ:/ realizes 8 tokens at 10%. The higher frequency is informed by the articulation of the vowel based on Hausa English whereas the low frequency is the result of exposure to RP which makes them produce the sound based on RP.

The findings reveal that the majority of the respondents articulate mid back long rounded vowel /ɔ:/ as mid back short rounded vowel /o/. It shows lack of distinction between short and long vowels in the speech of most of the respondents.

5.2.1.1 OT Analysis

*IDENT (V) ^{LONG}: No long vowels in the Hausa broadcasters' English.

*IDENT ^{BACK} : No feature vowel (back) in the output.

REDUCE (V): Vowel reduction is permitted.

OT Evaluation of long vowel reduction of the word initial sound /ɔ:/ in the RP English word *order* in Hausa English.

(25) Input /ɔ: d ə/

Output [o d a]

Input /ɔ: d ə /	*IDENT (V) ^{LONG}	*IDENT ^{BACK}
a. ☞ [o d a]		
b. [ɔ: d ə]	*!	*

Hausa English output agree with all the constraints *IDENT (V) ^{LONG} and *IDENT^{BACK} which bars the appearance of a schwa vowel in Hausa. RP production disobeys higher ranked constraint *IDENT (V) ^{LONG}, a constraint that disallows the realization of a long vowel in the grammar of Hausa broadcasters (Newman, 2000) and *IDENT^{BACK}. The constraints are ranked as *IDENT (V) ^{LONG} >> *IDENT ^{BACK}.

OT Evaluation of long vowel reduction of the word initial sound /ɔ:/ in the RP English word *organization* in Hausa English.

(26) Input /ɔ: g ə n a z e ɪ ʃ ə n/

Output [o g a n a z e ʃ o n]

Input /ɔ: g ə n a z e ɪ ʃ ə n/	*IDENT (V) LONG	REDUCE
a. [ɔ: g ə n a z e ɪ ʃ ə n]	*!	*!
b. ☞ [o g a n a z e ʃ o n]		

The first constraint deals with the long vowel reduction while the second constraint handle reduction of diphthong to monophthong. The tableau shows the fatal violations of the two constraints by the RP. The Hausa broadcasters respect all the constraints by dropping the long vowel and diphthong in their output.

5.2.2 Articulation of /ɔ:/ in Word Medial Position

Table 5.9: The RP English Vowel /ɔ:/ Realized as [o] in Word Medial Position

RP ENGLISH	HAUSA ENGLISH	LONG VOWEL REDUCTION	IMPLICATION
Port /p ɔ: t/	, [ɸ o t]	/ɔ:/ ⟶ [o]	Semantic alteration
Court /k ɔ: t/	[k o t]	/ɔ:/ ⟶ [o]	Semantic alteration
North /n ɔ: θ/	[n o t] [n o d]	/ɔ:/ ⟶ [o]	Semantic alteration
More than /m ɔ: ð æ n/	[m o d a n]	/ɔ:/ ⟶ [o]	Semantic alteration
Forth /f ɔ: θ/	[f o t]	/ɔ:/ ⟶ [o]	Semantic alteration
Form / f ɔ: m/	[f o m]	/ɔ:/ ⟶ [o]	Accent marker
Fork / f ɔ: k/	[f o k]	/ɔ:/ ⟶ [o]	Accent marker

Table 5.9 shows that /ɔ:/ becomes [o] in word medial position in the speech of Hausa broadcasters. This process is called long vowel reduction and has produced two dimensions: Accent marker which shows Hausa English accent and semantic

alteration which changes the meaning of word. There are 10 words in the production and 2 words representing 20% of the speech show accent marker when /ɔ:/ is reduced to [o] in word medial position. Some examples are *forms* and *fork*. On the other hand, 8 words representing 80% indicate semantic alteration which changes the meaning of a word when /ɔ:/ is reduced [o] in word medial position. For examples, *port* is altered to *pot*, *court* is realized as *cot*, *more than* to *modern*, *sport* changes to *spot* and *taught* changes to t*ot*.

The respondents produce speech which is different from RP English because of accent marker. It is also different from RP because of semantic alteration which affects the meaning of the words. The vowel reduction rule is presented as:

/ɔ:/ $\longrightarrow$ [o] / C__C

A mid back long rounded vowel becomes short in word medial position.

Table 5.10 Frequency and Percentage of /ɔ:/ and /o/ in Word Medial Position

SPHONEME SEQUENCE	**NO. OF WORDS**	**/ɔ:/**	**/o/**
/pɔ:k/	2	5	63
/kɔ:r/	1	5	46
/n ɔ:r/	1	3	34
/mɔ:r/	1	2	23
/f ɔ:r/	4	10	83
/t ɔ:u/	1	2	21
Total Frequency	**10**	**27**	**270**
Total Percentage	**100%**	**9.1%**	**90.9%**

Table 5.10 indicates that there are two vowels /ɔ:/ and /o/ used by the respondents. The vowel /o/ appears 270 times at 90.9% of the speech production. /ɔ:/ realizes 27

tokens 9.1%. At the level of individual word, the word *court* attracts highest tokens. /o/ produces 46 tokens at 90% whereas /ɔ:/ forms 5 tokens at 10%. The higher frequency is realized as a result of importation of the vowel /o/ from Hausa. On the other hand, the low frequency emerges as a result of exposure to RP model by few respondents. These make them to articulate the vowel with the feature length.

Data from the analysis reveal that the majority of the respondents produce mid back long vowel /ɔ:/ as a short /o/. This shows the long vowel reduction phenomenon that is characterized by their spoken English. Even though the two vowels are distinct, that only a few recognize the difference.

5.2.2.1 OT Analysis

*IDENT (V) ^{LONG} : No long vowels in the Hausa broadcasters' English.

IDENT ^{CONT} : Feature continuant is required in the output.

OT Evaluation of long vowel reduction of the word medial sound /ɔ:/ in the RP English word *port* in Hausa English.

(27) Input / p ɔ: t /

Output [ɸ o t]

Input / p ɔ: t /	*IDENT (V) ^{LONG}	IDENT ^{CONT}
a. ☞ [ɸ o t]		
b. [p ɔ: t]	*!	*!
c. [f ɔ: t]	*!	

Hausa English output produces short vowel and continuant from the phonemic inventory of Hausa to emerge as an optimal candidate. The RP production does the opposite by producing a long vowel which is a serious violations of higher ranked constraint: *IDENT (V) $^{LONG.}$ The constraint bars long vowel from appearing in the grammar of Hausa broadcasters. The candidate also violates IDENT ^{CONT} that allows the realization of a continuant sound in the output. Candidate (c) is also ruled out because of the violations of *IDENT (V) ^{LONG}, though it satisfies *IDENT ^{CONT}.

OT Evaluation of long vowel reduction of the word medial sound /ɔ:/ in the RP English word *form* in Hausa English.

(28) Input / f ɔ: m/

Output [f o m]

Input /f ɔ: m/	*IDENT (V) ^{LONG}	IDENT-IO (F)
a. ☞ [f o m]		*!
b. [f ɔ: m]	*!	

*IDENT (V) ^{LONG} is ranked higher than the IDENT-IO (F). This paved the way for the Hausa broadcasters because the winner has to avoid the realization of long vowel. The RP prefers long vowel in the output in order to be faithful to IDENT-IO (F). This constraint is lowly ranked in the tableau.

5.2.3 Articulation of /ɔ:/ in Word Final Position

Table 5.11: The RP English Vowel /ɔ:/ Realized as [o] in Word Final Position

RP ENGLISH	HAUSA ENGLISH	LONG VOWEL REDUCTION	IMPLICATION
For /f ɔ:/	[f o]	/ɔ:/ → [o]	Accent marker
Law /l ɔ:/	[l o]	/ɔ:/ → [o]	Semantic alteration
Pour /p ɔ:	[ɸ o]	/ɔ:/ → [o]	Semantic alteration
Door /d ɔ:/	[d o]	/ɔ:/ → [o]	Semantic alteration
Core /k ɔ:/	[k o]	/ɔ:/ → [o]	Accent marker
Nor /n ɔ:/	[n o]	/ɔ:/ → [o]	Semantic alteration

It is clear that in the word final position the length of the long vowel /ɔ:/ is also considerably reduced to become [o] in the speech of Hausa broadcasters. This process is called long vowel reduction and has produced accent marker and semantic alteration in their speech. There are 8 words in the speech production and 3 words representing 37% of the pronunciation show Hausa English accent when /ɔ:/ is reduced to [o] in word final position. Examples are *core* and *for*. On the other hand, 5 words representing 63% indicate semantic alteration which changes the meaning of word when /ɔ:/ is reduced to [o] in word final position. For instance, *saw* is altered to *so*. It is therefore important to improve on these. The speech of the respondents is characterized by accent marker and semantic alteration. These features mark it as different from RP English.

The vowel reduction rule is shown as:

$/ɔː/ \longrightarrow [o] \, / \, \_\_\_\_\_ \; \#$

A mid back long rounded vowel becomes short in word final position.

Table 5.12 Frequency and Percentage of /ɔː/ and /o/ in Word Final Position

PHONEME SEQUENCE	**NO. OF WORDS**	**/ɔː/**	**/o/**
/fɔː/	1	4	31
/lɔː/	1	6	42
/pɔː/	1	2	23
/dɔː/	1	1	12
/kɔː/	1	2	25
/nɔː/	1	3	16
/rɔː/	1	2	20
/rɔː/	1	3	29
Total Frequency	**8**	**23**	**198**
Total Percentage	**100%**	**10.4%**	**89.6%**

Table 5.12 above shows that both /ɔː/ and /o/ are used by the respondents, but /o/ is dominant over /ɔː/. The level of dominance indicates that the vowel /o/ is realized in 198 cases which represent 89.6%. On the other hand, 23 cases representing 10.4% use /ɔː/. The use of the short vowel over the long vowel is also demonstrated at the individual words. In the word *law*, /o/ produces 42 tokens representing 88% of the total while the remaining 6 tokens representing 12% use /ɔː/.

The higher frequency is caused by the transfer of vowel /o/ from Hausa phonemic inventory which make the majority of the respondents to produce the vowel based on Hausa English while the low frequency is the result of exposure to RP by few respondents who have produced the vowel based on RP.

Evidence from the analysis reveal that most of the respondents articulate mid back long rounded vowel /ɔ:/ as a short vowel. This justifies the long vowel reduction produced by the large proportion of the respondents. The distinction between the two vowels is recognized by a few respondents.

5.2.3.1 OT Analysis

*IDENT (V) ^{LONG} : No long vowels in the Hausa broadcasters' English.

IDENT-IO (F): Every feature segment in the input should have correspondent of the same value in the output.

Below is 29 on the OT Evaluation of long vowel reduction of the word final sound /ɔ:/ in the RP English word *low* in Hausa English.

(29) Input / l ɔ: /

Output [l o]

Input /l ɔ: /	*IDENT (V) ^{LONG}	IDENT-IO (F):
a. ☞ [l o]		*
b. [l ɔ:]	*!	

The constraints rankings in the tableau is presented as *IDENT (V) ^{LONG} >>. IDENT-IO (F). Candidate (a) is the optimal candidate because it obeys *IDENT (V) ^{LONG}. Candidate (b) is the RP output is the loser in the sense that it contravenes a higher ranked constraint *IDENT (V) ^{LONG} that disallows the appearance of long vowel in the grammar of Hausa broadcasters. Even though it obeys IDENT-IO (F), a constraint that requires every segment in the output must have an identical segment of same value in the input, yet it is ruled out.

OT Evaluation of long vowel reduction of the word final sound /ɔ:/ in the RP English word *nor* in Hausa English.

(30) Input /n ɔ:/

Output [n o]

Input /n ɔ:/	*IDENT (V) LONG	IDENT-IO (F)
a. ☞ [n o]		*!
b. [n ɔ:]	*!	

The constraint *IDENT (V) LONG is the most important constraint in the tableau. It prohibits the realization of a long vowel in the output. This rule is obeyed by the Hausa broadcasters. It is however, ignored by the RP which chooses to be faithful to IDENT-IO (F).

5.2.4 Discussions of the Findings

Based on the analysis presented above, it appears that the majority of the respondents produce mid back long rounded vowel /ɔ:/ as mid back short rounded vowel in initial, medial and final positions Having realized that there is lack of distinction between long and short /o/ in the speech of the respondents, it should be noted that the vowels /ɔ:/ and /o/ are distinctive. /o/ is a vowel imported from Hausa while /ɔ:/ is an RP vowel. Therefore, one cannot be used in place of the other.

5.3 Articulation of Long Vowel /u:/

The sound /u:/ is articulated when the tongue moves backward and the shape of the lips is relatively rounded and the air escapes through the mouth. It is, therefore, described as high back tense rounded vowel. It is, however, articulated as /u/ in Hausa English. /u/ is a high back rounded short vowel and it does not exist in RP. Unlike /u:/, /u/ is articulated by placing the tongue tip down, draw the lips into soft area and the air passes through the mouth. The sound occurs frequently in word medial and final position, but it occurs with /j/ in word initial, eg in *unity, uniform university*.

5.3.1 Articulation of /u:/ in Word Medial Position

Table 5.13: The RP English Vowel /u:/ Realized as [u] in Word Medial Position

RP ENGLISH	**HAUSA ENGLISH**	**LONG VOWEL REDUCTION**	**IMPLICATION**
Fool / f u: l/	[f u l]	/u:/ ⟶ [u]	Semantic alteration
Wooed / w u: d/	[w u d]	/u:/ ⟶ [u]	Semantic alteration
Junior /dʒ u: n i ə/	[dʒ u n ɪ jo]	/u:/ ⟶ [u]	Accent marker
Future /f ju: tʃ ə/	[f ɪ j u tʃ o]	/u:/ ⟶ [u]	Accent marker
Pupil /p j u: p ə l/	[ɸ u ɸ u l]	/u:/ ⟶ [u]	Accent marker
Tuesday /tʃ u: z d e ɪ	[t u s d e]	/u:/ ⟶ [u]	Accent marker
Pool /p u: l/	[ɸ u l]	/u:/ ⟶ [u]	Semantic alteration

Table 5.13 provides examples where high back long vowel /u:/ becomes a short /u/ in word medial position. The process is called long vowel reduction and has produced accent marker and semantic alteration. There are 15 words in the production and 6 words representing 40% of the speech indicate accent marker which shows Hausa English accent when /u:/ is reduced to /u/ in word medial position. Examples are *tune, future* and *pupil.* Similarly, 9 words representing 60% show semantic alteration which changes the meaning of word when /u:/ is reduced to /u/ in word medial position. For instance, *fool* is altered to *full, wooed* to *would, Luke* changes to *look,* and *pool* is realized as *pull*. Therefore, these and other related words need to be handled appropriately.

The study observes that the speech of the respondents is marked accent marker, and semantic alteration. It is therefore different from RP English. This is as a result of vowel reduction and the rule is presented as:

/u:/ ⟶ [u] / C_C

A high back long vowel becomes short in word medial position.

Table 5.14 Frequency and Percentage of /u:/ and /u/ in Word Medial Position

PHONEME SEQUENCE	**NO. OF WORDS**	**/u:/**	**/u/**
/fu:d/	2	7	56
/wu:d/	1	2	19
/du:r/	1	2	16
/pu:l/	2	9	58
/tu:l/	2	6	42
/lu:k/	1	-	12
/ku:l/	1	2	20
bu:k/	1	-	9
/mu:n/	1	3	23
nu:n/	1	5	26
/su:n/	1	-	10
Total Frequency	**14**	**36**	**293**
Total Percentage	**100%**	**10.9**	**89.1%**

Based on the table 5.14, both /u:/ and /u/ are used by the respondents. The RP English vowel /u/ was generated in 293 cases which represent 89.1% of the total output. 14 tokens at 10.9% are realized by /u:/. The word *pupil* provides an example of the output of the respondents at the level of individual word. /u/ forms 31 tokens at 86% while 5 tokens at 14% are in favour of /u:/. It is observed that most of the respondents produce high back long rounded vowel /u:/ as /u/. This suggests that only few of the respondents recognize the feature *length* in the RP vowel.

5. 3.1.1 OT Analysis

*IDENT (V) ^{LONG} : No long vowels in the Hausa broadcasters' English.

DEP-IO: Every segments in the output should have input correspondents

(No insertion).

Consider the OT Evaluation of long vowel reduction of the word medial sound /u:/ in the RP English word *Junior* in Hausa English.

(31) Input / dʒ u: n i ə/

Output [dʒ u n ɪ j o]

Input / dʒ u: n i ə/	*IDENT (V) LONG	DEP-IO
a. ☞ [dʒ u n ɪ j o]		*
b. [dʒ u: n i ə]	*!	

The higher ranked constraint is marked on the basis of prohibition of long vowel in the output. This constraint *IDENT (V) LONG agrees with speech of Hausa broadcasters. The output of Hausa broadcasters fatally violates DEP-IO, a constraints which prohibits the insertion of a segment in the output. On the other hand, DEP-IO is in line with the RP, but the RP candidate violates *IDENT (V) LONG which disallows the appearance of long vowel in the grammar of Hausa broadcasters.

OT Evaluation of long vowel reduction of the word medial sound /u:/ in the RP English word *moon* in Hausa English.

(32) Input /m u: n/

Output [m u n]

Input /m u: n /	*IDENT (V) LONG	IDENT-IO (F)
a. ☞ [m u n]		*
b. [m u: n]	*!	

The two candidates vary in constraints marking, Hausa broadcasters marked *IDENT (V) ^{LONG} higher than IDENT-IO (F) whereas RP ranked IDENT-IO (F) higher over *IDENT (V) ^{LONG,} The tableau is presented based on Markedness over Faithfulness.

5.3.2 Articulation of /u:/ in Word Final Position

Table 5.15: The RP English Vowel /u:/ Realized as [u] in Word Final Position

RP ENGLISH	HAUSA ENGLISH	LONG VOWEL REDUCTION	IMPLICATION
Through /θ r u:/	[t u r u]	/u:/ ⟶ [u]	Accent marker
Shoe /ʃ u:/	[ʃ u]	/u:/ ⟶ [u]	Accent marker
Woo /w u:/	[w u]	/u:/ ⟶ [u]	Accent marker
Goo /g u:/	[g u]	/u:/ ⟶ [u]	Accent marker

Table 5.15 indicates that the high back long rounded vowel /u:/ becomes short [u] in word final position. This process is called long vowel reduction has produced accent marker. Semantically the meaning is not altered and the words are pronounced close to RP. Nevertheless, the respondents are encouraged to improve towards the right model of RP English.

The speech of the respondents is different from RP English because it is marked by accent marker. This is as a result of long vowel reduction used by the respondents. The rule is presented as:

/u:/ $\longrightarrow$ [u] / ______ #

A high back long vowel becomes short in word final positions.

Table 5.16 Frequency and Percentage of /u:/ and /u/ in Word Final Position

PHONEME SEQUENCE	NO. OF WORDS	/u:/	/u/
/θu:/	1	5	32
/su:/	1	2	14
/wu:/	1	2	20
/ku:/	1	-	16
/gu:/	1	-	6
Total Frequency	**5**	**9**	**88**
Total Percentage	**100%**	**9.3%**	**90.7%**

Table 5.16 shows the use of /u:/ and /u/. The articulation of non RP /u/ forms 88 tokens at 90.7% of the pronunciation. 9 tokens at 9.3% are labelled as RP /u:/. The word *through* is considered highest in terms of individual words. /u/ stands at 32 tokens, 86%. 5 tokens at 14% features with /u:/. The importation of vowel /u/ from Hausa phonemic inventory makes the majority of the respondents produce the vowel based on Hausa English while the low frequency is the product exposure to RP by few of the respondents. This makes them produce the vowel based on RP. Evidence from the analysis shows that the majority of the respondents produce high back long rounded vowel /u:/ as high back short rounded vowel /u/.

5.3.2.1 OT Analysis

*IDENT (V) ^{LONG} : No long vowels in the Hausa broadcasters' English.

*COMPLEX ^{ONSET} : Onset is simple.

*IDENT ^{CONT} : No feature continuant in the output.

DEP-IO: Every segments in the output should have input correspondents

(No insertion).

OT Evaluation of long vowel reduction of the word final sound /u:/ in the RP English word *through* in Hausa English.

(33) Input /θ r u:/

Output [t u r u]

Input /θ r u:/	*COMPLEX^{ONSET}	*IDENT(V)^{LONG}	*IDENT ^{CONT}	DEP-IO
a. [θ r u:]	*!	*!	*	
b. [s u r u]			*	*
c. ☞ [t u r u]				*

RP English vowel fatally disobeys higher ranked constraints. These include *COMPLEX ^{ONSET}, a constraint that disallows the occurrence of a consonant cluster onset (Kager, 1999), *IDENT (V) ^{LONG} that prohibits the realization of a long vowel in the grammar of Hausa broadcasters and *IDENT ^{CONT} which bars the appearance of a continuant /θ/ in Hausa (Barlow, 2001 & Sani, 2005). It is therefore ruled out.

Candidate (b) is also a loser, it violates *IDENT^{CONT} and DEP-IO which disallows epenthesis in the output. Candidate (c) is the Hausa English output and emerges as an optimal output because it violates DEP-IO which is a lower ranked constraints.

OT Evaluation of long vowel reduction of the word final sound /u:/ in the RP English word *woo* in Hausa English.

(34) Input /w u:/

Output [w u]

Input /w u:/	*IDENT(V)^{LONG}	IDENT-IO (F)
a. ☞ [w u]		*
b. [w u:]	*!	

Hausa broadcasters output prefers short vowel in agreement to the higher ranked constraint. This makes the candidate to break the rule of the lower ranked constraint. The RP adheres to the lower ranked constraint and violates the higher ranked constraint.

5.3.3 Discussions of the Findings

The study notes that the high back long rounded vowel /u:/ rarely occurs in word initial position. Nevertheless, it occurs frequently in word medial and final positions. A close scrutiny into the articulation of /u:/ in word medial and final positions by the majority of the respondents reveals that the length of the vowel is usually reduced to articulate it as high back short rounded vowel /u/ by the majority of the respondents. The vowel /u:/ is an RP vowel while /u/ is a phoneme in Hausa. However, based on the evidence available, the majority of the Hausa broadcasters handle the vowel /u: / in a very unusual way by introducing the short vowel /u/ from Hausa.

There is close nexus between language and communication. This is because thought and ideas are disseminated in a way that can be understood by the audience. However, there are certain constraints in this process which tend to tamper with the chain of communication. One of which is caused by misarticulation of phonemes (Akpan 2012). Therefore, there is the need for drill and exercises that would improve sound articulation.

5.4 Articulation of a Long Vowel /ɑ:/

/ɑ:/ sound is produced by opening the jaw and keeping the tongue down. The resonating cavity is enlarged. It is described as low back tense unrounded vowel. It is, however, articulated as [a] in Hausa English which is shorter in duration of articulation. The sound occurs freely as word initial, medial and word final position.

5.4.1 Articulation of /ɑ:/ in Word Initial Position

Table 5.17: The RP English Vowel /ɑ:/ Realized as [a] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	LONG VOWEL REDUCTION	IMPLICATION
Arm / ɑ: m/	[a m]	/ɑ:/ → [a]	Semantic alteration
Arch / ɑ: tʃ/	[a k]	/ɑ:/ → [a]	Accent marker
Art / ɑ: t/	[a t]	/ɑ:/ → [a]	Semantic alteration
Archaic / ɑ: k e ɪ k/	[a k a ɪ k]	/ɑ:/ → [a]	Accent marker
Armour / ɑ: m ə/	[a m o]	/ɑ:/ → [a]	Accent marker

Table 5.17 shows that the length of low back tense vowel /ɑ:/ is considerably reduced to a short sound in word initial position in the speech of Hausa broadcasters. The process is called long vowel reduction and it leads to accent marker and semantic alteration. There are 5 words in the table and 3 words representing 60% show accent marker which indicates Hausa English accent when /ɑ:/ is reduced to [a] in word initial position. Examples are *archaic* and *armour.* 2 words representing 40% indicate semantic alteration which changes the meaning of a word when /ɑ:/ is reduced to [a] in word initial position. Examples, *arm* changes to *am* and *art* changes *at*.

The speech patterns of the respondents is different from RP English because of semantic alteration where the vowel reduction used by the subjects changes the meaning of word. It is also different from RP because of accent marker where the

English produced is characterized by Hausa accent. These are as a result of long vowel reduction used by the respondents and the rule is presented as:

/ɑ:/ $\longrightarrow$ [a] / # ______

A low back long vowel becomes short in word initial position.

Table 5.18 Frequency and Percentage of /ɑ:/ and /a/ in Word Initial Position

PHONEME SWQUENCE	**NO. OF WORD**	**/ɑ:/**	**/a/**
/ɑ:m/	1	2	23
/ɑ:k/	1	2	16
/ɑ:t/	1	-	12
/ɑ:tʃ/	1	3	15
/ɑ:rm/	1	4	19
Total Frequency	**5**	**11**	**85**
Total Percentage	**100%**	**11.5%**	**88.5%**

The table 5.18 shows that both /ɑ:/ and /a/ are used by the broadcasters, /a/ is imported from Hausa language and it generates 85 tokens at 88.5%. The RP /ɑ:/ produces 11 tokens at 11.5%. At the word level, 23 tokens at 92% indicate /a/ and 2 tokens at 8% show /ɑ:/. The data were generated in pronouncing the word *arm.* The introduction of /a/ make the majority of the respondents produce the sound based on Hausa English whereas the low frequency is the product of exposure to RP by few respondents who produce the sound based on RP.

The majority of the respondents produce low back long vowel /ɑ:/ as low back short vowel /a/ in word initial position. This is usually achieved through the use of long vowel reduction strategy which allows the reduction of the length of a vowel to short.

5.4.1.1 OT Analysis

*IDENT (V) ^{LONG} : No long vowels in the Hausa broadcasters' English.

IDENT IO [+back -round]: No change of feature vowel.

OT Evaluation of long vowel reduction of the word initial sound /ɑ:/ in the RP English word *amour* in Hausa English.

(35) Input / ɑ: m ə /

Output [a m o]

Input /ɑ: m/	*IDENT (V) ^{LONG}	IDENT-IO ^{BACK}
a. ☞ [a m o]		*
b. [ɑ: m ə]	*!	

The constraints ranking in the tableau is presented as *IDENT (V) ^{LONG}>> IDENT-IO ^{BACK}. Hausa English output adheres to the higher ranked constraint *IDENT (V) ^{LONG} which disallows long vowel from appearing in the grammar of Hausa broadcasters. On the contrary, the RP output disagrees with the higher ranked constraint IDENT (V) ^{LONG} despite being faithful to IDENT IO ^{BACK} which requires the realization of back unrounded vowel in the output.

OT Evaluation of long vowel reduction of the word initial sound /ɑ:/ in the RP English word *archaic* in Hausa English.

(36) Input /ɑ: k e ɪ k/

Output [a k a ɪ k]

Input /ɑ: k e ɪ k/	*IDENT (V) LONG	IDENT-IO (F)
a. ☞ [a k a ɪ k]		*!
b. [ɑ: k e ɪ k]	*!	

*IDENT (V) LONG dominates IDENT-IO (F). Hausa English is considered as optimal output based on the domination of constraint one over constraint two. The RP prefers constraint two and abandons constraint one which is indomitable.

5.4.2 Articulation of /ɑ:/ in Word Medial Position

Table 5.19: The RP English Vowel /ɑ:/ Realized as [a] in Word Medial Position

RP ENGLISH	**HAUSA ENGLISH**	**LONG VOWEL REDUCTION**	**IMPLICATION**
Market /m ɑ: k ɪ t/	[m a k e t]	/ɑ:/ → [a]	Accent marker
Pardon /p ɑ: d ə n/	[ɸ a d o n]	/ɑ:/ → [a]	Accent marker
Grass / g r ɑ: s/	[g ɪ r a s]	/ɑ:/ → [a]	Accent marker
Participation /p ɑ: t ɪ s ɪ p e ɪ ʃ ə n/	[ɸ a t ɪ s ɪ ɸ e ʃ o n]	/ɑ:/ → [a]	Accent marker
March / m ɑ: tʃ/	[m a tʃ]	/ɑ:/ → [a]	Semantic alteration

The data in the table 5.19 indicates that low back long vowel /ɑ:/ becomes short [a] in word medial position. This process is called long vowel reduction and has led to the realizations of accent marker and semantic alteration. There are 19 words in the production 18 words representing 95% of the speech produced show accent marker which indicate Hausa English accent when /ɑ:/ is realized as [a] in word medial position. Examples are *glass*, *pardon* and *participation.* 1 word representing 5% is realized by semantic alteration which changes the meaning of word when /ɑ:/ is reduced to [a]. Example, *March* changes to *match*.

The study observes that the speech of the respondents is different from RP in view of their speech patterns which are marked by Hausa accent and semantic alteration. The vowel reduction rule is presented as:

/ɑ:/ ⟶ [a] / C_C

A low back long vowel becomes short in word medial position.

Table 5.20 Frequency and Percentage of /ɑ:/ and /a/ in Word Medial Position

PHONEME SEQUENCE	**NO. OF WORDS**	**/ɑ:/**	**/a/**
/mɑ:r/	2	5	41
/p ɑ:r/	4	6	23
grɑ:/	2	2	15
/f ɑ:r/	1	7	28
/kɑ:r/	3	1	10
/h ɑ:l/	2	6	16
/l ɑ:r/	1	2	20
/sɑ:r	3	3	17
/b ɑ:r/	1	4	25
Total Frequency	**19**	**52**	**339**
Total Percentage	**100%**	**13,3%**	**86.7%**

There are sounds /ɑ:/ and /a/ as used by the respondents in the table 5.20 above. The level of usage differs significantly with 339 cases which represent 86.7% using /a/ and 52 tokens representing 13.3% using vowel /ɑ:/. Similarly, the individual words also produce similar outcome where the word *market* featured with /a/ 41 cases at 89% and 5 tokens at 11% captured /ɑ:/.

The low frequency shows the articulation of few respondents who produce the sound based on RP English. The high frequency is based on the transfer of the vowel /a/ from Hausa which made the majority of the respondents produce the vowel based on Hausa English.

Based on the results presented, it appears that the majority of the respondents produce low back long vowel /ɑ: / as low back short vowel /a/ in word medial position. Only a few of the respondents recognize the difference between the two vowel phonemes.

5.4.2.1 OT Analysis

*IDENT (V) ^{LONG} No long vowels in the Hausa broadcasters' English.

*COMPLEX ^{ONSET} : Onset is simple.

DEP-IO: Every segments in the output should have input correspondents

(No insertion).

OT Evaluation of long vowel reduction of the word medial sound / ɑ:/ in the RP English word *class* in Hausa English.

(37) Input / k l ɑ: s/

Output [k ɪ l a s]

Input // k l ɑ: s/	* COMPLEX ^{ONSET}	*IDENT (V) ^{LONG}	DEP –IO
a. [k l ɑ: s]	*!	*!	
b. ☞ [k ɪ l a s]			*

Candidate (a) is the RP output and it breaks higher ranked constraints: *COMPLEX ^{ONSET} which forbids the occurrence of consonant cluster onset and *IDENT (V) ^{LONG}, a constraint that prevents the realization of a long vowel in the grammar of Hausa broadcasters. It is, therefore, ruled out despite being faithful to DEP –IO. Candidate (b) is the Hausa English output and it is faithful to the higher ranked constraints *COMPLEX ^{ONSET} and *IDENT (V) ^{LONG}. Even though it disobeys DEP –IO which bans the insertion of a segment in the output, yet it is the winner because DEP –IO is a lower ranked constraint.

OT Evaluation of long vowel reduction of the word medial sound /ɑ:/ in the RP English word *sergeant* in Hausa English.

(38) Input /s ɑ: dʒ ə n t/

Output [s a dʒ e n]

Input /s ɑ: dʒ ə n t/	*COMPLEX ^{CODA}	*IDENT (V) ^{LONG}	DEP –IO
a. ☞ [s a dʒ e n]			*!
b. [s ɑ: dʒ ə n t]	*!	*!	

Unlike in the immediate tableau where we had *COMPLEX^{ONSET,} this tableau presents *COMPLEX $^{CODA.}$ This constraint prohibits the occurrence of consonant cluster in the coda. The rule is obeyed by the Hausa broadcasters alongside the rule for the prohibition of long vowel in the output. The RP could not adhere to the rule instead the candidate agree with the DEP-IO.

5.4.3 Articulation of /ɑ: / in Word Final Position

Table 5.21: The RP English Vowel /ɑ:/ Realized as [a] in Word Final Position

RP ENGLISH	HAUSA ENGLISH	LONG VOWEL REDUCTION	IMPLICATION
Car /k ɑ: /	[k a]	/ɑ:/ ⟶ [a]	Accent marker
Bar /b ɑ: /	[b a]	/ɑ:/ ⟶ [a]	Accent marker
Far / f ɑ: /	[f a]	/ɑ:/ ⟶ [a]	Accent marker
Jar / dʒ ɑ: /	[dʒ a]	/ɑ:/ ⟶ [a]	Accent marker

Table 5.21 features long vowel reduction where /ɑ:/ became [a] in word final position in the speech of Hausa broadcasters. This process is labelled as long vowel reduction which produces Hausa English accent. The long vowel reduction is accent

marker, semantically the meaning is not altered and the words are pronounced close to RP English.

The speech of the respondents is different from RP English because it has produced Hausa English accent. This is as a result of long vowel reduction used by the subjects. The vowel reduction rule is presented below.

/ɑ: / $\longrightarrow$ [a] / ______ #

A low back long vowel becomes short in word final position.

Table 5.22 Frequency and Percentage of /ɑ:/ and /a/ in Word Final Position

PHONEME SEQUENCE	NO. OF WORDS	/ɑ:/	/a/
/kɑ:/	1	3	31
/bɑ:/	1	2	20
/fɑ:/	1	2	16
/dʒɑ:/	1	-	12
Total Frequency	**4**	**7**	**79**
Total Percentage	**100%**	**8.1%**	**91.9**

Table 5.22 above indicates the use of both /ɑ:/ and /a/ by the respondents. The two vowel exhibit different levels of realizations. The occurrence of /a/ appeared to be dominant with 79 tokens at 91.9%. The realization of /ɑ:/ forms 7 tokens at 8.1%. For the purpose of exemplification, the study consider the word *car*. The word also shows two realizations of the vowel. /a/ generates 31 cases at 91% and /ɑ:/ features 3 tokens at 9%. It is observed that there is an introduction of non RP vowel /a/ from Hausa phonemic inventory to Hausa English. This influences the sound articulation of the majority of the respondents. On the other hand, the low frequency is the

product of exposure to RP model which makes few of the respondents produce the sound with its feature length.

5.4.3.1 OT Analysis

*IDENT (V) ^{LONG} No long vowels in the Hausa broadcasters' English.

IDENT-IO (F):   If a segment has a feature [αF] in the input, then it must be specified as [αF] in the output.

OT Evaluation of long vowel reduction of the word initial sound /ɑ:/ in the RP English word *car* in Hausa English.

(39) Input /k ɑ:/

Output [k a]

Input /k ɑ:/	*IDENT (V) ^{LONG}	IDENT-IO (F)
a. ☞[k a]		*
b. [k ɑ:]	*!	

There are two candidates in the tableau, they are RP English and Hausa English. The Hausa English conforms to a higher ranked constraints *IDENT (V) ^{LONG} which bans the appearance of a long vowel in the grammar of Hausa broadcasters and disobeys a lower ranked constraint IDENT-IO (F) which forbids the change of any segment in the output. On the contrary, the RP output fails to comply with a higher ranked constrains *IDENT (V) ^{LONG} and obeys a lower ranked constraint IDENT-IO (F).

OT Evaluation of long vowel reduction of the word initial sound /ɑ:/ in the RP English word *bar* in Hausa English.

(40) Input / b ɑ:/

Output [b a]

Input / b ɑ:/	*IDENT (V) ^{LONG}	IDENT-IO (F)
a. ☞[b a]		*
b. [b ɑ:]	*!	

The restriction for the appearance of a long vowel in the output is considered crucial. Any candidate with a feature long vowel in the output shall not be considered as optimal output. This ranking paved the way for the candidate of Hausa broadcasters to emerge. The realization of the long vowel in RP made the candidate to suffer serious violation of the higher ranked constraint.

5.4.4 Discussions of the Findings

From the forgoing, it is clear that the low back unrounded long vowel /ɑ: / is mostly realized as short /a/ in all the phonetic environments. This implies that the length of the vowel is usually reduced via long vowel reduction. In fact, the two vowels /ɑ:/ and /a/ are not allophones of same phoneme. They are however, handled as variants by the respondents which is alien to the norms of RP English. This is informed by the fact that Vowel lengthening in Hausa is associated with tone patterns (Leben, 1996 & Kenstowicz, 2006) whereas English is a stress language. Moreover, tones are marked on vowels while stress is on consonant. These could have been the reason why it is not observed in the speech of Hausa broadcasters.

5.5 Articulation of Vowel /ɜ:/

The vowel /ɜ: / is produced by raising the tongue towards the soft palate. The mouth is spread and the air passes through the mouth. It is described as mid central long unrounded vowel. The sound is, however, articulated as mid back short vowel [o], low central unrounded short vowel [a] or mid front unrounded short vowel [e] in Hausa English.

5.5.1 Articulation of /ɜ:/ in Word Medial Position

Table 5.23: The RP English Vowel /ɜ:/ Realized as [o] [a] or [e] in Word Medial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Birth / b ɜ: θ/	[b a t] [b a d[	/ɜ:/ ⟶ [a]	Semantic alteration
Bird / b ɜ: d/	[b a d]	/ɜ:/ ⟶ [a]	Semantic alteration
First / f ɜ: s t/	[f o s] [f e s]	/ɜ:/ ⟶ [o] /ɜ:/ ⟶ [e]	Semantic alteration
Word / w ɜ: d/	[w o d] [w a d]	/ɜ:/ ⟶ [o] /ɜ:/ ⟶ [a]	Semantic alteration
Birthday / b ɜ: θ d e ɪ/	[b a d d e]	/ɜ:/ ⟶ [a]	Semantic alteration
Person / p ɜ: s n/	[ɸ e s o n]	/ɜ:/ ⟶ [e]	Accent marker
Journey / dʒ ɜ: n i/	[dʒ o n ɪ]	/ɜ:/ ⟶ [o]	Accent marker
Work / w ɜ: k/	[w o k]	/ɜ:/ ⟶ [o]	Semantic alteration

Table 5.23 above shows that the vowel /ɜ:/ came with three variants [o], [a] and [e] in word medial position in the speech of Hausa broadcasters. This process is called vowel substitution and has produced two dimensions: accent marker and semantic alteration. There are 21 words in speech productions and 11 words representing 52% to indicate accent marker which shows Hausa English accent when /ɜ:/ is substituted with [o], [a] or [e] in word medial position, eg, *church*, *thirty* and *firm*. On the other hand, 10 words representing 48% show semantic alteration which changes the meaning of word when /ɜ:/ is realized as [o], [a] or [e]. Examples, *bird* changes to *bad*, *word* shifts to *ward*, *first* is realized as f*es* and *world* is altered to *wall*.

The speech patterns of the respondents is different from RP English because of semantic alteration where the substitution process used by the subjects changes the meaning of words. It is also different from RP because of accent marker where the English produced is characterized by Hausa accent. The substitution rule used by the respondents is presented as:

(a) $/\text{ɜ:}/ \longrightarrow [\text{o}] \; / \; \text{C\_C}$

The schemata is presented as mid central long vowel becomes mid back short rounded vowel in word medial position.

(b) $/\text{ɜ:}/ \longrightarrow [\text{e}] \; / \left\{ \begin{matrix} [\text{p}] \\ [\text{f}] \end{matrix} \right\} -$

A mid central long vowel becomes mid front short vowel when it occurs after voiceless labials.

(c) /ɜ:/ $\longrightarrow$ [a] / - $\left\{ \begin{array}{c} [t] \\ [d] \\ [\theta] \end{array} \right\}$

A mid central long vowel becomes low central short vowel when it occurs before alveolar plosive and voiceless dental.

Table 5.24 Frequency and Percentage of /ɜ:/, /e/ /a/ and /o/ in Word Medial Position

PHONEME SEQUENCE	**NO. OF WORDS**	**/ɜ:/**	**/e/**	**/a/**	**/o/**
/bɜ:r/	3	15	-	71	-
/fɜ:r/	2	9	103	-	69
/wɜ:r/	6	26	-	22	182
/pɜ:r/	1	-	21	-	-
/dʒɜ:r/	1	3	-	-	29
/θɜ:r/	3	6	-	42	28
/sɜ:r/	1	-	-	-	15
/rɜ:r/	1	2	-	-	29
/kɜ:r/	1	3	-	-	32
/hɜ:r/	2	2	-	31	9
Total Frequency	**21**	**66**	**124**	**166**	**393**
Total Percentage		**8.8%**	**16.6%**	**22.2%**	**52.5%**

It is established that /ɜ:/ /e/ /a/ and /o/ are used by the respondents. Nevertheless, /o/ is used more than the rest of the vowels. /o/ forms 393 tokens representing 52.5% of the speech, /a/ covers 166 cases at 22. 2%, /e/ generates 124 tokens at 16.6% and /ɜ:/ features 66 cases representing 8.8%. The individual words also show similar result. 69 tokens at 63% indicates /o/ in the production of the word f*irst*. /e/ stands at 41, 36% and /ɜ:/ covers 4 tokens at 3%.

Moreover, /o/ is realized with a higher frequency level. It is followed by /a/ and /a/ is closer to /ɜ: / in terms of central position of the tongue, /e/ is also realized. The lower frequency realized by /ɜ: / is considered RP. The appropriateness is the result of exposure to RP which makes them produce the sound.

This vowel phoneme produces more vowels which are considered as variants of /ɜ:/ in the speech of the respondents. There is a preference for the use of /o/ over /a/, /e/ and even /ɜ:/. These vowels /o,/ /a/ and /e/ are used as substitutes for /ɜ:/. The substitution process is used as a result of the non-availability of /ɜ:/ in the phonemic inventory of Hausa language which necessitates the use /o, /a/ and /e/ as variants. It should, however, be noted that these vowels are phonemes. They cannot be regarded as variants of the same phoneme. They differ based on position of the tongue, length and roundness. /ɜ:/ is a mid-central tense unrounded, while/o/ is a mid-back short rounded. Moreover, /a/ also differs from /ɜ:/ in terms of position of the tongue and length. /a/ is low central short vowel. /e/ is different from /ɜ:/ on ground of position of the tongue and length. /e/ is a mid-front short vowel (c.f. p 28-29) for RP vowel trapezium (Roach, 2004).

5.5.1.1 OT Analysis

*COMPLEX CODA : Coda is simple.

*IDENT (V) LONG : NO long vowel in the speech of Hausa broadcasters.

MAX- IO: Every segments in the input must have output correspondents

(No deletion).

OT Evaluation of vowel substitution of the word medial sound /ɜ:/ in the RP English word *world* in Hausa English.

(41) Input /w ɜ: l d /

Output [w o l]

Input /w ɜ: l d /	*COMPLEX CODA	*IDENT(V)LONG	MAX- IO
a. ☞ [w o l]			*
b. [w ɜ: l d]	*!	*!	
c. [w a l d]	*!		
d. [w e l d]	*!		

Hausa English output adheres to higher ranked constraints: *COMPLEXCODA and *IDENT (V) LONG and violates MAX- IO a constraint which forbids the deletion of any segment in the output. RP output fails to conform to higher ranked constraints: *COMPLEX CODA which bans the occurrence of consonant cluster in coda position (Kager, 1999) and *IDENT (V) LONG which prevents the appearance of a long vowel in the speech of Hausa broadcasters. Candidate (c) also fails to adhere to

*COMPLEX ^{CODA} and it is therefore ruled out. Candidate (d) is also a loser because it fatally violates the higher ranked constraint *COMPLEX ^{CODA}.

OT Evaluation of vowel substitution of the word medial sound /ɜ:/ in the RP English word *hurl* in Hausa English.

(42) Input / h ɜ: l/

Output [h o l]

Input /h ɜ: l /	*IDENT(V)^{LONG}	IDENT-IO (F)
a. ☞ [h o l]		*
b. [h ɜ: l]	*!	

Markedness *IDENT (V) ^{LONG} dominates Faithfulness IDENT-IO (F). The two candidates show different preference on constraints marking. While the Hausa broadcasters rank Markedness constraint higher than the Faithfulness constraint, the RP prefers Faithfulness over Markedness.

5.5.2 Discussions of the Findings

It is noted that the mid central long unrounded vowel /ɜ: / is realized as mid front short unrounded vowel [e], mid central short unrounded vowel [a] or mid back short rounded vowel [o] in word medial position. There is a preference of using /o/ over /a/,/e/ and /ɜ:/. Even though, the sounds are phonemes, but the respondents handle them in a very unusual way as variants of a vowel /ɜ:/. The substitution process used by the majority of the respondents is due to the absence of /ɜ:/ in Hausa sound system and is likely to convey unintended meaning. Thus, Hausa broadcasters should endeavor to overcome such substitutions that lead to change of meaning.

Broadly speaking, the idea of broadcasting industry is to inform, educate, entertain and mobilize the public on issues that affect them. Communication is said to be successful when the decoder decodes the exact message(s) encoded by the encoder. The smooth transition of a message between the encoder and the decoder is premised upon careful selection of language that can be understood by the interlocutors. Therefore, broadcasters are expected to manipulate the sounds of language to be able to communicate effectively (Akpan et al. 2012). In order to ensure intelligible English speech and effective communication, the Hausa broadcasters should pay attention to their articulations.

Long vowel reduction is not only peculiar to Hausa speakers of English. There are such features amongst some native speakers of English. In Scottish English which includes Scots and Gaelic, the high back rounded long vowel /u:/ is usually articulated as /u/ and likewise mid back rounded long vowel /ɔ:/ is rendered as short /o/. These features have been identified as a variety of Standard Scottish English (Cruttenden, 2008). The same thing amongst young Black Americans in New York and other northern cities in US where long vowel /i:/ is usually reduced to /ɪ/ and /ɔ:/ is reduced to /ɒ/ (Labov, 1973). The deviation from the norms of RP in vowels articulations have been identified as a marker of non-native English. This is as a result of idiosyncrasies of non-native speakers of English to manipulate English phonemes to achieve their communicative needs. Basically, /iː/, /uː/, /ɔː/ and /ɑː/ are articulated as short sounds /ɪ/, /u,/ /o/ and /a/ respectively (Atechi, 2006). The nurse vowel /ɜː/ is produced with allophonic variation as /ɔ/, /ɛ/ or /a/ in West African English (Simo Bobda, 2000).

Similarly, the result also share similarities with the outcome of research survey carried out by Olajide and Olaniyi (2013) on the pronunciation patterns of educated Nigerian speakers of English where they discovered that most educated Nigerian speakers of English articulate RP long vowels as short by reducing the quality of lengthening. The two findings correlate significantly because the participants of the study are educated Nigerian and some of them are broadcasters drawn from media outlets. Additionally, the outcome of this research shows agreement with the findings of investigation conducted on Igala speakers of English in Nigeria. The participants pronounce words like *seat* as *sit* which denote that there is no difference between /iː/ and /ɪ / while ɜː/ is articulated as /ɔ/ or /a/. The same things applied to all the RP long vowels (Opanachi, 2013). Similarly,/ɜː/ is substituted with /ɒ/ in the speech of Wapan speakers of English in Nigeria (Tsojo & Aji, 2014). Moreover, Emeka-Nwobia (2013) claims that /ɜː/ is rendered as /ɔː/ in news broadcast of Igbo newscasters of English in Nigeria.

One of the parameters of identifying and describing vowels is lengthening which distinguishes two vowels of similar features, thereby serving as a yardstick of recognizing minimal pairs in a language. Moreover, differences in vowel length is contrastive in nature because it is phonemic not allophonic. This phenomenon has been treated as an accent marker of new Englishes around the world of which Hausa English is inclusive (Kachru & Smith, 2008). It is, however, important to note that Hausa broadcasters should pay attention to these areas where reduction in the quality of long vowel brings about changes in meaning. This may lead to communication breakdown.

The troublesome RP long vowels to the Hausa broadcasters discussed in this chapter are /iː/, /ɔː/, /uː/,/ɑː/ and /ɜː/. The level of difficulties in the articulation differs. The nurse vowel /ɜː/ appears as the most difficult in the articulations. Only 8% of the speech production captured the right vowel. It is followed by /uː/ where the appropriate articulations stand at 9%. The vowel /ɔː/ also indicates difficulties in the articulation of the respondents. The level of accuracy is 11%. Another troublesome vowel is /ɑː/ and 13% of the articulations are correct. The less problematic in the list of the RP long vowels is /iː/ which has 14% of accurate articulations.

5.6 Chapter Summary

The chapter has provided articulations patterns of vowels in the speech of Hausa newscasters. This is in response to research question two of the study. Four RP long vowels have been presented, discussed and analyzed. These include /iː/, /ɔː/, /uː/,/ɑː/ and /ɜː/. The findings reveal that the RP long vowels /iː/, /ɔː/, /uː/ and /ɑː /are reduced to short vowels /ɪ/, /o/, /u/ and /a/ while /ɜː/ is realized as /o/, /a/ or /e/ in the speech of the majority of the respondents. This is caused by long vowel reduction and vowel substitution processes which led to the realization of semantic alteration and accent marker. Moreover, the majority of the respondents show preference for Markedness constraints over Faithfulness.

CHAPTER SIX

DATA PRESENTATION ANALYSIS AND DISCUSSION OF SHORT VOWEL AND DIPHTHONG ARTICULATIONS

6.0 Introduction

This chapter deals with the short vowels and diphthongs articulations. It presents and analyzes Hausa English vowel articulations based on the speech of Hausa broadcasters. These include central, front vowels and diphthongs. The articulations of the respondents are analyzed on the basis of semantic alteration which changes the meaning of a word and accent marker which shows Hausa English accent. The analysis also focuses on auditory count of the pronunciations to determine the number of realizations of RP and Hausa English sound articulation. Moreover, OT constrains interactions and their rankings in the grammar of Hausa language have also been provided to explicate the deviations in the speech of the respondents. The analysis presented in this chapter is provided in response to research question two and the following vowels are identified and treated /ə/, /ʌ/, /æ/, /ɪ/, /eɪ/, /əʊ/ and /eə/.

6.1 Articulation of the Vowel /ə/

The sound /ə/ is produced by raising the tongue towards the soft palate. The lips are spread and the air passes through a narrow opening through the mouth. It is described as mid central short unrounded vowel. It is, however, articulated as mid back short rounded vowel /o/ or low back central spread unrounded vowel /a/ in Hausa English. The vowel occurs freely in English as a word initial, media and final position.

6.1.1 Articulation of a Vowel /ə/ in Word Initial Position

Table 6.1: The RP English Vowel /ə/ Realized as [o] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Of /ə v/	[o f]	/ə/ $\longrightarrow$ [o]	Semantic alteration
Undue /ə n dju: /	[o n dju]	/ə/ $\longrightarrow$ [o]	Accent marker
Unless / ə n l e s/	[o n l e s]	/ə/ $\longrightarrow$ [o]	Accent marker
Until / ə n t ɪ l/	[o n t ɪ l]	/ə/ $\longrightarrow$ [o]	Accent marker

Table 6.1 above indicates that the mid central short unrounded vowel /ə/ became mid back short rounded vowel [o] in word initial position. This is because the schwa vowel does not exist in Hausa phonemic inventory (Caron, 2013). The process is called vowel substitutions and has produced accent marker and semantic alteration. There are 4 words in the table and 3 words of the speech indicate accent marker which shows Hausa English accent when /ə/ is substituted with [o] in word initial position. Some of the examples are *undue, unless* and *until*. On the other hand, one word shows semantic alteration which changes the meaning of a word when /ə/ is realized as [o]. Example, *of* changes to *off*.

The speech patterns of the respondents is different from RP English because of semantic alteration where the substitution process used by the subjects changes the meaning of a word. It is also different from RP because of accent marker where the English produced is characterized by Hausa accent.

The vowel substitution rule

/ə/ $\longrightarrow$ [o] / # ______

A mid-central short vowel becomes mid back short rounded vowel in word initial position.

Table 6.2 Frequency and Percentage of /ə/ and /o/ in Word Initial Position

PHONEME SEQUENCE	**NO. OF WORDS**	**/ə/**	**/o/**
/əf/	1	6	71
/ənd/	1	3	9
/ənl/	1	4	32
/ ənt/	1	2	22
Total Frequency	**4**	**15**	**154**
Total Percentage	**100%**	**.9%**	**91.1%**

The table shows that both /ə/ and /o/ are used by the respondents. /o/ contains 154 tokens which represent 91.1% of the speech production. On the other hand, /ə/ is realized in 15 instances or 8.9% of the total. This result is similar to the result at word level. /o/ generates 71 tokens at 92% while 6 tokens at 8% indicate /ə/.

Evidence emerged from the analysis reveals that the majority of the respondents substitute mid central short vowel /ə/ with high back short rounded vowel /o/. It should be noted that the two sounds vary considerably based on certain parameters. /ə/ is a mid-central short rounded vowel while /o/ is mid-back short rounded vowel. The former belongs to RP while that later is a vowel in Hausa language.

6.1.1.1 OT Analysis

The following constraints are applied

IDENT -IO ^{ROUND}: Rounded vowel must be required in the output.

IDENT –IO (voice): The value of the feature [voice] of an input segment must be preserved in the output correspondent (Kager, 1999).

OT Evaluation of vowel substitution of the word initial sound /ə / in the RP English word *of* in Hausa English.

(43) Input /ə v/

Output [o f]

Input /ə v/	IDENT -IO ^{ROUND}	IDENT–IO (voice)
a. [ə v]	*!	
b. ☞ [o f]		*

The IDENT-IO^{ROUND} requires that a rounded vowel must appear in the output. This constraint is considered higher than the IDENT–IO (voice) which requires that the identity of a feature voice must be preserved in the output The Hausa broadcasters obey the higher ranked constraints by realizing a rounded vowel /o/ in the output. The RP English produced schwa vowel which is not in conformity to the higher ranked constraint. The candidate agrees with IDENT–IO (voice) which is dominated by the IDENT-IO$^{ROUND.}$

OT Evaluation of vowel substitution of the word initial sound /ə / in the RP English word *until* in Hausa English

(44) Input /ə n t ɪ l/

Output [o n t ɪ l]

Input /ə n t ɪ l/	IDENT-IO ROUND	IDENT–IO (voice)
a. ☞ [o n t ɪ l]		
b. [ə n t ɪ l]	*!	*

IDENT-IO ROUND dominates IDENT–IO (voice). The candidate for Hausa English chooses rounded vowel /o/ in the output while the RP prefers a schwa vowel. These indicate differences in the pronunciation of the respondents.

6.1.2 Articulation of Vowel /ə/ in Word Medial Position

Table 6.3: The English RP Vowel /ə/ Realized as [o] in Word Medial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Question / k w e s tʃ ə n/	[k w a ɪ ʃ o n]	/ə/ → [o]	Accent marker
Corruption / k ə r ʌ p ʃ ə n /	[k o r o ɸ ʃ o n]	/ə/ → [o]	Accent marker
Television / t e l ɪ v ɪ ʒ ə n/	[t e l e v ɪ ʃ o n]	/ə/ → [o]	Accent marker
Police / p ə l i: s/	[ɸ o l ɪ s]	/ə/ → [o]	Accent marker
Pupil / p j u: p ə l/	[ɸ ʊ ɸ o l]	/ə/ → [o]	Accent marker
Medium / m i: d i ə m/	[m ɪ d ɪ j o m]	/ə/ → [o]	Accent marker
Cupboard / k ʌ b ə d/	[k a b o d]	/ə/ → [o]	Accent marker

Table 6.3 shows that mid central short unrounded vowel /ə/ is usually articulated as mid back short rounded vowel [o] in word medial position. The process realized is vowel substitutions and has yielded Hausa English accent which does not affect the meaning of the words produced but rather spoken contrary to RP English. The vowel substitution is accent marker, semantically the meaning is not altered.

The speech pattern of the respondents is different from RP English because of accent marker where the English produced is characterized by Hausa accent. This can be attributed to substitution rule used by the respondents and it is presented as:

/ə/ ⟶ [o] / C_C

A mid central short vowel becomes mid back short rounded word in word medial position.

Table 6.4 Frequency and Percentage of /ə/ and /o/ in Word Medial Position

PHONEME SEQUENCE	NO. OF WORDS	/ə/	/o/
/ʃ ən/	3	23	153
/p ə/	2	14	103
/dəm/	1	3	35
/bəd/	1	-	14
/səg/	1	2	26
Total Frequency	**8**	**42**	**330**
Total Percentage	**100%**	**11.3%**	**88.7%**

The table above shows that both /ə/ and /o/ are used by the respondents, however, /o/ is used more often. /o/ covers 330 cases at 88.7%. 42 tokens at 11. 3% show support to schwa /ə/. The dominance of /o/ over /ə/ is also evident in the production of the word *television.* /o/ stands 92% with 89 tokens and /ə / forms 8 tokens at 8%.

The findings show that the majority of the respondents articulate mid central short vowel /ə/ as mid back short rounded vowel /o/ in word medial position. This indicates that only few of the respondents produce the right phoneme. It is clear that the two sounds are phonemic not allophonic and they are different based on certain features. /ə/ is a mid-central unrounded vowel while /o/ is a mid-back rounded vowel (c.f. p 30 – 36) for English and Hausa vowel trapeziums.

6.1.2.1 OT Analysis

IDENT-IO^{ROUND} Rounded vowel must be required in the output.

MAX- IO: Every segments in the input must have output correspondents (No deletion).

OT Evaluation of vowel substitution of the word medial sound /ə / in the RP English word *suggest* in Hausa English.

(45) Input /s ə dʒ e s t/

Output [s o dʒ e s]

Input /s ə dʒ e s t/	IDENT-IO ^{ROUND}	MAX IO
a. ☞ [s o dʒ e s]		*
b. [s ə dʒ e s t]	*!	

Hausa English output obeys a higher tanked constraint IDENT–IO ^{ROUND} disobeys a lower ranked constraint MAX IO which forbids deletion in the output. RP output disagrees with IDENT-IO ^{ROUND} which compels the appearance of a rounded vowel in Hausa and obeys MAX-IO which is dominated by a higher ranked constraint. The constraints ranking is presented as IDENT-IO^{ROUND} >> MAX IO.

OT Evaluation of vowel substitution of the word medial sound /ə / in the RP English word *cupboard* in Hausa English.

(46) Input / k ʌ b ə d/

Output [k a b o d]

Input /k ʌ b ə d/	IDENT-IO ^{ROUND}	IDENT-IO (F)
a. ☞ [k a b o d]		*
b. [k ʌ b ə d]	*!	

A rounded vowel /o/ is preferred in the speech of Hausa broadcasters. This made the IDENT-IO ^{ROUND} a higher ranked constraint in the tableau and it is obeyed by the Hausa broadcasters. On the other hand, the constraint is violated by RP and they prefer IDENT-IO (F). to maintain the schwa vowel.

6.1.3 Articulation of Vowel /ə/ in Word Final Position

Table 6.5: The RP English Vowel /ə/ Realized [o], [e] or [a] in Word Final Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
The / ð ə/	[d e]	/ə/ → [e]	Accent marker
Measure / m e ʒ ə/	[m e dʒ o]	/ə/ → [o]	Semantic alteration
Feature / f i: tʃ ə/	[f ɪ j tʃ o] [f ɪ j tʃ a]	/ə/ → [o] /ə/→ [a]	Accent marker
Together /t ə g e ð ə/	[t u g e d a]	/ə/ → [a]	Accent marker
Figure /f ɪ g ə/	[f ɪ g o[	/ə/ → [o]	Accent marker
Senior /s i: n ɪ ə/	[s i n i j o]	/ə/ → [o]	Accent marker
Mirror / m ɪ r ə/	[m i r o]	/ə/ → [o]	Accent marker

In the word final position, the mid central short unrounded /ə/ is realized as mid front short unrounded vowel [e] only in a word t*he*. It is also realized as mid back short rounded vowel [o] or low central vowel [a]. The process is called vowel substitution and has produced two dimensions: semantic alteration and accent marker. There are 19 words in the production and 18 words representing 95% of the speech indicate accent marker which shows Hausa English accent when /ə/ is substituted with [o], [a] or [e] in word final position. Some of the examples are *doctor, future* and *the*. One word representing 5% shows semantic alteration which changes the meaning of a word when /ə/ is realized as [o] in word final position. Example, *measure* changes to *major*.

The speech patterns of the respondents is different from RP English because of semantic alteration where the vowel substitution process used by the subjects changes the meaning of a words. It is also different from RP because of accent marker where the English produced is characterized by Hausa accent.

The vowel substitution rule

(a) $/\text{ə}/ \longrightarrow [\text{o}] \ / \ \_\_\_\_\_ \ \#$

The vowel substitution rule is presented as mid central short vowel becomes mid back short rounded vowel in word final position.

$$(\text{b}) \quad /\text{ə}/ \longrightarrow \left\{ \begin{matrix} [\text{e}] \\ {[\text{a}]} \end{matrix} \right\} \ / \ - \left\{ [\text{ð}] \right\}$$

A mid central short vowel becomes mid front short vowel and low central short vowel when it occurs after voiced interdental.

$$(\text{c}) \ /\text{ə}/ \longrightarrow [\text{a}] \ / \ - \left\{ [\text{tʃ}] \right\}$$

A mid central short vowel becomes low central short vowel when it occurs after voiceless affricate.

Table 6.6 Frequency and Percentage of /ə/ /a/ /e/ and /o/ in Word Final Position

PHONEME SEQUENCE	NO. OF WORDS	/ə/	/a/	/e/	/o/
/ðə/	3	10	34	109	-
/rə/	5	25	45	-	151
/ər/	11	25	20	-	348
Total Frequency	**19**	**60**	**79**	**109**	**499**
Total Percentage	**100%**	**8%**	**10.6%**	**14.5%**	**66.9%**

/ə/, /a/, /e/ and /o/ appear in the Table 6.6 above. Their level of appearance vary. 499 cases which represent 66.9% of the total output indicate production of /o/. There are 109 tokens at 14.5% in fevour of /e/. Others are /a/ generates 79 cases representing 10.6% and /ə/ forms 60 tokens at 8%. Similarly, the word *feature* has the highest number of tokens. It also features different realizations. /o/ has 61 tokens 71%. 20 tokens at 23% features with /a/ and /ə/ has 5 tokens at 6%.

The result of the articulation of mid central short vowel by the respondents produce a number of variants: /a/, /e/ and /o/ as substitute for /ə/. However, only a few of the respondents articulate the RP phoneme. It is clear that /a/ /e/ and /o/ are not allophones both in English and Hausa language. Thus, one cannot be used in place of another as a variant.

6.1.3.1 OT Analysis

IDENT -IO $^{\text{ROUND}}$: Rounded vowel must be required in the output

IDENT-IO (F): The value of the feature [vowel] of an input segment must be preserved in the output correspondent.

Consider the OT Evaluation of vowel substitution of the word final sound /ə/ in the RP English word *editor* in Hausa English.

(47) Input /e d ɪ t ə /

Output [e d ɪ t o]

Input /e d ɪ t ə /	IDENT-IO ^{ROUND}	IDENT-IO (F)
a. ☞ [e d ɪ t o]		*
b. [e d ɪ t ə]	*!	
c. [e d ɪ t a]	*!	*

The tableau presents three candidates with three different realizations of vowels in word final position. Hausa English output produces a rounded vowel /o/ to obey the higher ranked constraint IDENT-IO^{ROUND}. RP presents schwa vowel in order to be faithful to IDENT-IO (F) which requires every vowel in the output to have a replica of the same value in the input. The other potential candidates violates both the IDENT-IO ^{ROUND} and IDENT-IO (F).

OT Evaluation of vowel substitution of the word final sound /ə/ in the RP English word *minor* in Hausa English.

(48) Input /m a ɪ n ə/

Output [m a ɪ n o]

Input /m a ɪ n ə/	IDENT-IO ^{ROUND}	IDENT-IO (F)
a. ☞ [m a ɪ n o]		*
b. [m a ɪ n ə]	*!	

The area of difference between the two candidates is vowel of the word final position. The Hausa broadcasters prefer a rounded vowel while the RP chooses schwa. This difference made the candidates to rank the constraints differently. The Hausa broadcasters ranked IDENT-IO ^{ROUND} higher while the RP ranked IDENT-IO (F) higher.

6.1.4 Discussions of the Findings

The RP English vowel /ə/ is realized as mid back short rounded vowel [o] in word initial and medial positions, and it is also realized as mid front short unrounded vowel [e], mid central short unrounded vowel [a] or mid back short rounded vowel [o] in word final position. Basically, the vowels /o/, /e/, /a/ and /ə / are not allophones, they are phoneme. /o/ and /a/ do not belong to RP, they are vowels imported from Hausa vowel trapezium to Hausa English. However, the majority of the respondents handle them like allophones in their speech broadcast. Aladeyomi (2013) noticed some level of inconsistencies in the articulation of central vowels by the broadcasters of Nigerian Television Authority which is attributed to first language transfer. The broadcasters often substitute the RP central vowels with vowels from the native language.

6.2 Articulation of a vowel /ʌ/

The RP English vowel /ʌ/ is articulated n a position between front and back vowels, with the body of the tongue raised towards the roof of the mouth in the area where the hard and soft palates fuse (Roach, 2009). It is, therefore, described as low central short unrounded vowel. The vowel is, however, articulated as mid back short rounded vowel [o] in Hausa English. The sound usually found in word initial and medial position.

6.2.1 Articulation of /ʌ/ in Word Initial Position

Table 6.7: The RP English Vowel /ʌ/ Realized as [o] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Under / ʌ n d ə/	[o n d a]	/ʌ/ ⟶ [o]	Accent marker
Uncover /ʌ n k ʌ v ə/	[o n k o v a]	/ʌ/ ⟶ [o]	Accent marker
Upper / ʌ p ə/	[o ɸ a]	/ʌ/ ⟶ [o]	Semantic alteration
Undergo /ʌ n d ə g ə ʊ/	[o n d a g o]	/ʌ/ ⟶ [o]	Accent marker

Table 6.7 shows that the articulations of Hausa broadcasters where the low central short unrounded vowel /ʌ/ is realized as mid back short rounded vowel [o]. This is because the vowel /ʌ/ is an unregistered segment in Hausa (Newman, 2000) hence the realization of /o/ as a replacement. This process is labelled as vowel substitution and has produced accent marker of Hausa English and semantic alteration. There are 4 words in the table and 3 of these words indicate accent marker of Hausa English when /ʌ/ is realized as [o] in word initial position. Examples are *under, uncover a*nd *undergo*. On the other hand, 1 word indicates semantic alteration which changes the meaning of a word when /ʌ/ is realized as [o] in word initial position. For instance, the word *upper* changes to *offer*.

The speech patterns of the respondents is different from RP English because of semantic alteration where the substitution process used by the subjects changes the meaning of words. It is also different from RP because of accent marker where the English produced is characterized by Hausa accent.

Vowel substitution rule

/ʌ/ $\longrightarrow$ [o] / # ______

A low central short vowel becomes mid back short rounded vowel in word initial position.

Table 6.8 Frequency and Percentage of /ʌ/ and /o/ in Word Initial Position

PHONEME SEQUENCE	**NO. OF WORDS**	**/ʌ/**	**/o/**
/ʌnd/	1	7	25
/ʌnk/	1	5	39
/ʌp/	1	8	74
/nʌ/	1	3	20`
Total Frequency	**4**	**23**	**158**
Total Percentage	**100%**	**12.3%**	**83.7%**

Table 6.8 above indicates the use of RP caret vowel /ʌ/ and Hausa language rounded vowel. The imported vowel /o/ from Hausa language generates 158 tokens at 83.7%. On the other hand, the RP caret vowel /ʌ/ covers 23 cases at 12.3%. For the purpose of justification, the study consider the word *upper* which has 82 tokens. 90% at 74 tokens show support to the use of /o/ and 8 tokens at 10% indicate /ʌ/.

Evidence from the findings show that the majority of the respondents substitute low central short vowel /ʌ/ with mid back short rounded vowel /o/ in word initial position. It should be noted that the two sounds /ʌ/ and /o/ are phonemes not allophones and one cannot be used in place of another as a variant.

6.2.1.1 OT Analysis

*IDENT -IO [+ low]: No feature low vowel in the output.

IDENT-IO (F): The value of the feature [vowel] of an input segment must be preserved in the output correspondent.

Consider the OT Evaluation of vowel substitution of the word initial sound /ʌ/ in the RP English word *uncover* in Hausa English.

(49) Input /ʌ n k ʌ v ə/

Output [o n k o v a]

Input /ʌ n k ʌ v ə/	*IDENT –IO [+low]	IDENT-IO (F)
a. ☞ [o n k o v a]	*!	*
b. [ʌ n k ʌ v ə]	**!	

Hausa English output incurs minimum violation of a higher ranked constraint *IDENT –IO [+low]. It also violates a lower ranked constraint IDENT- IO (F) which requires every vowel in the output to have an identical segment in the input. RP output suffers fatal violation of a high ranked constraint twice *IDENT–IO [+low] which bans the appearance of a low vowel in the output and obeys IDENT –IO (F). The constraints ranking is presented as IDENT–IO [+ low] >> IDENT –IO (F) M>>F.

OT Evaluation of vowel substitution of the word initial sound /ʌ/ in the RP English word *under* in Hausa English.

(50) Input /ʌ n d ə/

Output [o n d a]

Input /ʌ n d ə/	IDENT-IO ^{ROUND}	IDENT-IO (F)
a. ☞ [o n d a]		*
b. [ʌ n d ə]	*!	

The higher ranked constraint IDENT-IO ^{ROUND} requires the realization of a rounded vowel in word initial position. Hausa broadcasters produced the rounded vowel as required by the higher constraint.

6.2.2 Articulation of /ʌ/ in Word Medial Position

Table 6.9: The RP English Vowel /ʌ/ Realized as [o] in Word Medial Position

RP ENGLISH	**HAUSA ENGLISH**	**SUBSTITUTION**	**IMPLICATION**
Mother /m ʌ ð ə/	[m o d a]	/ʌ/ ⟶ [o]	Semantic alteration
Brother / b r ʌ ð ə/	[b u r o d a]	/ʌ/ ⟶ [o]	Semantic alteration
Hut / h ʌ t/	[h o t]	/ʌ/ ⟶ [o]	Semantic alteration
Bus / b ʌ s/	[b o s]	/ʌ/ ⟶ [o]	Semantic alteration
Government / g ʌ v ə n m ə n t/	[g o v m e n t]	`/ʌ/ ⟶ [o]	Accent marker
Something / s ʌ m θ ɪ ŋ/	[s o m t ɪ n]	/ʌ/ ⟶ [o]	Accent marker

Table 6.9 above shows that the low central short unrounded vowel /ʌ/ became mid back short rounded vowel [o]. The process is called vowel substitution and has produced accent marker and semantic alteration. There are 39 words in the speech of the respondents and 28 words representing 72% of the speech indicate accent marker of Hausa English when /ʌ/ is articulated as [o] in word medial position. Examples are *budget*, *current* and *Monday*. On the other hand, 11 words representing 28% show semantic alteration which changes the meaning of a word when /ʌ/ is produced as [o] in word medial position. For instance, *bus* changes to *boss*, *hut* is altered to *hot*, *cup* to *cop*, *luck* changes to *lock* and *cut* changes to *cot*. Thus, broadcasters are expected to adhere to the appropriate pronunciation that will convey the intended meaning.

The speech patterns of the respondents is different from RP English because of semantic alteration where the substitution process used by the subjects changes the meaning of a word. It is also different from RP because of accent marker where the English produced is characterized by Hausa accent.

Vowel substitution rule

/ʌ/ ⟶ [o] / C_C

A low central short vowel becomes mid back short rounded vowel in word medial position.

Table 6.10 Frequency and Percentage of /ʌ/ and /o/ in Word Medial Position

PHONEME SEQUENCE	**NO. OF WORDS**	**/ʌ/**	**/o/**
/mʌm/	8	8	30
/bʌn/	12	4	34
/gʌv/	4	5	23
/sʌm/	5	4	25
/kʌm/	10	7	96
Total Frequency	**39**	**119**	**1004**
Total Percentage	**100%**	**10.6%**	**89.4%**

Table 6.10 above shows two vowels. The RP caret vowel /ʌ/ and the Hausa rounded vowel /o/. This table presents more tokens compared to the tokens in the word initial position. 1004 cases at 89.4% of the speech indicate /o/. The caret vowel /ʌ/ generates 199 tokens at 10.6%. In respect to the individual words, the word *government* has the highest number of tokens. /o/ forms 96 tokens at 93% whereas /ʌ/ gets 7 cases at 7%.

The findings reveal that the majority of the respondents articulate the low central short vowel /ʌ/ as mid back short rounded vowel /o/. This suggests that the respondents handle the vowel in an unusual way. The two sounds /ʌ/ and /o/ are phonemic not allophonic.

6.2.2.1 OT Analysis

*COMPLEX $^{\text{CODA}}$: Coda is simple.

*IDENT-IO [low]: No feature low vowel in the output.

MAX IO: Every segments in the input must have output correspondents (No deletion).

Consider the OT Evaluation of vowel substitution of the word medial sound /ʌ/ in the RP English word *current* in Hausa English.

(51) Input / k ʌ r ə n t/

Output [k o r e n]

Input / k ʌ r ə n t/	*COMPLEX CODA	*IDENT –IO [low]	MAX –IO
a. ☞ [k o r e n]			*
b. [k ʌ r ə n t]	*!	*!	

*COMPLEX CODA is a higher ranked constraint in the grammar of Hausa. Hausa broadcasters fulfilled a higher ranked constraints *COMPLEX CODA and *IDENT-IO [low] and disobeys MAX- IO which bans the deletion of a segment in the output. RP output fails to obey the higher ranked constraints: *COMPLEX CODA which forbids the occurrence of consonant cluster in coda position and *IDENT–IO [low] that prevents low vowel from appearing in the output.

OT Evaluation of vowel substitution of the word medial sound /ʌ/ in the RP English word *luck* in Hausa English.

(52) Input / l ʌ k/

Output [l o k]

Input /l ʌ k/	*IDENT–IO [low]	IDENT-IO(F)
a. ☞ [l o k]		*
b. [l ʌ k]	*!	

Markedness constraints *IDENT–IO [low] prohibits the appearance of a low vowel in the output. This constraint is fatally violated by the RP candidate which obeys

Faithfulness IDENT-IO (F). Hausa broadcasters agree with the Markedness constraint which is higher than the Faithfulness constraint.

6.2.3 Discussions of the Findings

The low central short unrounded vowel /ʌ/ is realized as mid back short rounded vowel [o] in word initial as well as in word medial positions, even though, the study could not trace the occurrence of /ʌ/ in word final position. It is important to note that the two vowels /ʌ/ and /o/ are distinctive on the basis of two parameters. /ʌ/ is central and unrounded while /o/ is back and rounded. These features mark them out as distinctive and they cannot be used interchangeably. Malah and Rashid (2015) reveal that the English caret vowel /ʌ/ has no cognate in Hausa, therefore, the Hausa speakers of English are likely to substitute it with another vowel from Hausa. This is really what has turned out in the present study. However, the substitution of one vowel with the other as variant can sometimes lead to change or loss of meaning.

6.3 Articulation of /æ/

The RP English vowel /æ/ is articulated when front part of the tongue is raised. The tongue is in low position with the jaw also being lowered. The lips are slightly spread (Roach, 2009). The sound is described as low front short unrounded vowel. It is, however, produced as low central short unrounded vowel [a].

6.3.1 Articulation of /æ/ in Word Initial Position

Table 6.11: The RP English Vowel /æ/ Realized as [a] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
And /æ n d/	[a n]	/æ/ → [a]	Semantic alteration
Am /æ m/	[a m]	/æ/ → [a]	Accent marker
Ambassador /æ m b æ s ə d ə/	[a m b a s a d o]	/æ/ → [a]	Accent marker
Admin /æ d m ɪ n/	[a d ɪ m ɪ n]	/æ/ → [a]	Accent marke
Amber / æ m b ə/	[a m b a]	/æ/ → [a]	Accent marker
Anger / æ ŋ g ə/	[a ŋ g a]	/æ/ → [a]	Accent marker
Action / æ k ʃ ə n/	[a kʃ o n]	/æ/ → [a]	Accent marker
Active /æ k t ɪ v/	[a k t ɪ v]	/æ/ → [a]	Accent marker

Table 6.11 above reveals that the low front short vowel /æ/ is usually realized as low central short unrounded vowel [a] in word initial position. This is because the vowel /æ/ is an unregistered vowel phoneme in Hausa and hence the substitution with another that shares similar articulatory features. This is caused by vowel substitution process and has produced two dimensions: accent marker and semantic alteration. There are 8 words in the table and 7 words representing 88% of the speech produce Hausa English accent when /æ/ is realized as [a] in word initial position. Examples are *action*, *anger* and *admin.* On the other hand, 1 word representing 12% indicates semantic alteration which changes the meaning of a word when /æ/ is realized as [a] in word initial position, for example, *and* changes to *an*.

The speech pattern of the respondents is different from RP English because of semantic alteration where the substitution process used by the subjects changes the meaning of word. It is also different from RP because of accent marker where the English produced is characterized by Hausa accent.

Vowel substitution rule

/æ/ ⟶ [a] / # ______

A low front short vowel becomes low central short vowel in word initial position.

Table 6. 12 Frequency and Percentage of /æ/ and /a/ in Word Initial Position

PHONEME SEQUENCE	**NO. OF WORDS**	**/æ/**	**/a/**
/æn/	2	8	95
/æm/	4	8	121
/æk/	2	6	45
Total Frequency	**8**	**22**	**261**
Total Percentage	**100%**	**7.8%**	**92.2%**

The vowels realized are /æ/ and /a/ in the table above. /a/ is a non RP vowel. It is imported from the vowel trapezium of Hausa language. The vowel /a/ constitutes 261 tokens which represent 92.2%. The RP vowel /æ/ covers 22 cases represent 7.8%. In terms of occurrence of the individual words, the word *and* occurs more than the rest of the words. /a/ features 73 tokens at 90% and /æ/ appears 8 cases at 10%.

Evidence from the analysis shows the realization of low central short vowel /a/ in place of low front short vowel /æ/ by the majority of the respondents in word initial position. This is caused by the use of substitution process which paves the way for the Hausa broadcasters to import a vowel from Hausa phonemic inventory which has similar articulatory features with English /æ/.

6.3.1.1 OT Analysis

*COMPLEX ^{CODA} : Coda is simple.
*IDENT-IO [low]: No feature low vowel in the output.
MAX- IO: Every segments in the input must have output correspondents (No deletion).

Consider the OT Evaluation of vowel substitution of the word initial sound / æ/ in the RP English word *and* in Hausa English.

(53) Input /æ n d/

Output [a n]

Input /æ n d/	*COMPLEX ^{CODA}	*IDENT –IO (Low)	MAX –IO
a. ☞[a n]			*
b. [æ n d]	*!	*!	

*COMPLEX ^{CODA} and *IDENT –IO (Low) are considered higher than MAX-IO. Hausa English output satisfied the conditions the higher ranked constraints *COMPLEX ^{CODA} *IDENT-IO (low). On the other hand, RP candidate seriously violates the higher ranked constraints: *COMPLEX ^{CODA} which forbids the occurrence of consonant cluster in coda position and *IDENT (low), a constraint that prevents the appearance of a low front vowel /æ/.

Consider the OT Evaluation of vowel substitution of the word initial sound /æ/ in the RP English word *action* in Hausa English.

(54) Input /æ k ʃ ə n/

Output [a k ʃ o n]

Input /æ k ʃ ə n/	*IDENT –IO (Low)	IDENT-IO (F)
a. ☞[a k ʃ o n]		*
b. [æ k ʃ ə n]	*!	

The realization of the low vowel /æ/ is not allowed in the grammar of Hausa language. This constraint is labelled as a higher constraint. RP fails to obey the higher ranked constraint by realizing the RP vowel æ/ in word initial position. Hausa English obeys the rule of the higher ranked constraint and emerges as an optimal output.

6.3.2 Articulation of /æ/ in Word Medial Position

Table 6.13: The RP English Vowel /æ/ Realized as [a] in Word Medial Position

RP ENGLISH	**HAUSA ENGLISH**	**SUBSTITUTION**	**IMPLICATION**
Math /m æ θ/	[m a s]	/æ/ ⟶ [a]	Semantic alteration
Van /v æ n/	[v a n]	/æ/ ⟶ [a]	Accent marker
Happy /h æ p ɪ/	[h a ɸ ɪ]	/æ/ ⟶ [a]	Accent marker
Understand /ʌ n d ə s t æ n d/	[o n d a s t a n]	/æ/ ⟶ [a]	Accent marker
Passion / p æ ʃ ə n/	[ɸ a ʃ o n]	/æ/ ⟶ [a]	Semantic alteration

Table 6.13 table above indicates that the low front short unrounded vowel /æ/ became low central short [a] in word medial position in the speech of Hausa broadcasters. This process is called vowel substitution and has led to semantic alteration and accent marker. There are 23 words in the production and 20 words representing 87% of the speech indicate accent marker which shows Hausa English accent when /æ/ is articulated as [a] in word medial position. Examples are *man, gas* and *mat*. On the other hand, 3 words representing13% indicates semantic alteration when /æ/ is realized as [a] in word medial position. Examples, *math* changes to *mas* and *passion* changes to *fashion*.

The vowel substitution rule

/æ/ $\longrightarrow$ [a] / C_C

A low front short vowel becomes low central short vowel in word medial position.

Table 6.14 Frequency and Percentage of /æ/ and /a/ in Word Medial Position

PHONEME SEQUENCE	NO. OF WORDS	/æ/	/a/
/mæt/	4	13	193
/væn/	1	3	13
/hæn/	3	3	20
/tæn/	3	5	15
/pæn/	3	9	19
/kæn/	2	7	42
/sæm/	4	15	225
/fæn/	1	4	26
/bæn/	2	3	23
Total Frequency	**23**	**62**	**576**
Total Percentage	**100%**	**9.7%**	**90.3%**

There is evidence of using /æ/ and /a/ by the respondents. However, the vowel /a/ is used more often. The vowel /a/ is realized in 576 tokens which represent 90.3% while 62 tokens at 9.7% constitute /æ/. The word with the highest number of occurrence is *man.* It occurs with /a/ 41 times at 95% and 2 tokens at 5% features with /æ/.

The majority of the respondents prefer to use low central short vowel /a/ in place of low front short vowel in word medial position. The vowels are different. However, the majority of the respondents use it as allophone of a phoneme /æ/. /æ/ is a vowel in RP and it is described as low front short vowel. /a/ on the other hand is a vowel in Hausa and it is labelled as low central short vowel. Thus, one cannot be used in place of another as a variant.

6.3.2.1 OT Analysis

*COMPLEX $^{\text{CODA}}$: Coda is simple.

*IDENT-IO (low) : No feature low vowel in the output. .

MAX- IO: Every segments in the input must have output correspondents

(No deletion).

Consider the OT Evaluation of vowel substitution of the word medial sound /æ/ in the RP English word *lamp* in Hausa English.

(55) Input /l æ m p/

Output [l a m]

Input / l æ m p/	*COMPLEX CODA	*IDENT-IO (Low)	MAX –IO
a. [l æ m p]	*!	*!	
b. [l e m p]	*!		
c. ☞ [l a m]			*

The RP English output violates the higher ranked constraints: *COMPLEX CODA which bars the occurrence of consonant cluster in coda position and *IDENT-IO (Low), a constraint that forbids the appearance of a low front vowel /æ/ in Hausa. Candidate (b) also fails to satisfy one of the higher ranked constraint *COMPLEX CODA and obeyed *IDENT (Low) and MAX-IO. Hausa English is faithful to the higher ranked constraints and breaks the rule of a lower ranked constraint MAX- IO which forbids the deletion of a segment in the output.

OT Evaluation of vowel substitution of the word medial sound / æ/ in the RP English word *mat* in Hausa English.

(56) Input /m æ t/

Output [m a t]

Input /m æ t/	*IDENT-IO (Low)	IDENT–IO (F)
a. [m æ t]	*!	
b. ☞ [m a t]		*

The appearance of a low vowel in the output is prohibited according Markedness constraint *IDENT-IO (Low). This constraint is fatally violated by the RP candidate. The candidate is faithful to Faithfulness constraint IDENT–IO (F). Hausa broadcasters disagree with RP. The candidate prefers Markedness over Faithfulness.

6.3.3 Discussions of the findings

There is evidence of the RP English vowel /æ/ being realized as /a/ in word initial position and medial position in the speech of Hausa broadcasters. However, there is no evidence of word with /æ/ in word final position in the data obtained. From the analysis above, the study shows that the majority of the respondents find it difficult to articulate /æ/ in word initial and medial positions thereby transferring a non-English vowel /a/ as a substitute. Even though the vowels /æ/ and /a/ are short vowels and are in a low position as well, they are not allophones. Jowit (2007) points out that there are some segmental features of RP which do not exist in Nigerian languages, these phonemes are usually replaced with phonemes from Nigerian language which make the English spoken in Nigeria to sound different from RP. Thus, the use of one in place of another is likely to lead to miscommunication.

6.4 Articulation of vowel /ɪ/

The RP English vowel /ɪ/ is produced when the body of the tongue pushed forward and raised towards the front of the oral cavity (Roach, 2009). The vowel is described as high front short unrounded vowel. It is sometimes articulated as mid front short unrounded vowel [e] in word initial and medial position in the speech of Hausa broadcasters.

6.4.1 Articulation of /ɪ/ in Word Initial Position

Table 6.15: The RP English Vowel /ɪ/ Realized as [e] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Expose /ɪ k s p ə ʊ z/	[e s ɸ o z]	/ɪ/ ⟶ [e]	Accent marker
Exchange /ɪ k s tʃ e ɪ n dʒ/	[e s tʃ e n dʒ]	/ɪ/ ⟶ [e]	Accent marker
Express /ɪ k s p r e s/	[e s ɸ ɪ r e s]	/ɪ/ ⟶ [e]	Accent marker
Excel / ɪ k s e l/	[e s e l]	/ɪ/ ⟶ [e]	Accent marker
Except /ɪ k s e p t/	[e s e ɸ]	/ɪ/ ⟶ [e]	Accent marker
Exact / ɪ g z æ k t/	[e g z a t]	/ɪ/ ⟶ [e]	Accent marker
Experience / ɪ k s p ɪ ə r ɪ ə n s/	[e s ɸ ɪ r ɪ j a n s]	/ɪ/ ⟶ [e]	Accent marker

Table 6.15 reveals that the high front short unrounded vowel /ɪ/ is usually realized as mid front short unrounded vowel [e] in word initial position in the speech of Hausa broadcasters. This is as a result of orthographical representation which sometimes influences the pronunciation patterns of second language speakers of English. The process is vowel substitution and has produced Hausa English accent which does not change the meaning of the words. The vowel substitution is an accent marker, semantically the meaning is not altered.

The speech pattern of the respondents is different from RP English because of accent marker where the English produced is characterized by Hausa accent.

Vowel substitution rule

/ɪ/ ——→ [e] / #____

A high front short vowel becomes mid front short vowel in word initial position.

Table 6.16 Frequency and Percentage of //ɪ/ and /e/ in Word Initial Position

PHONEME SEQUENCE	**NO. OF WORDS**	**/ɪ/**	**/e/**
/ɪk/	8	19	262
/ɪm/	1	3	19
Total Frequency	**9**	**22**	**281**
Total Percentage	**100%**	**7.3%**	**97.2%**

Table 6.16 shows that both /ɪ/ and /e/ are used by the respondents and /e/ is used more often. The realization of /e/ appears dominant with 281 tokens at 97.2%. /ɪ/ covers only 22 times at 7.3%. The appearance of the word *express* in the list of words is considered highest. The vowel /e/ also appears dominant with 62 tokens at 95% and /ɪ/ features only 4 times at 5%.

The majority of the respondents show preference to mid front short vowel e/ over high front short vowel /ɪ/ in word initial position. The two vowels do exist both in English and Hausa. However, the respondents prefer /e/ as a result of spellings which sometimes influence the pronunciation patterns of second language speakers of English (Tsojon & Aji, 2014).

6.4.1.1 OT Analysis

*COMPLEX $^{\text{CODA}}$: Coda is simple.

*IDENT-IO (high): No feature vowel (high) in the output.

MAX- IO: Every segments in the input must have output correspondents (No deletion).

Consider the OT Evaluation of vowel substitution of the word initial sound /ɪ/ in the RP English word *except* in Hausa English.

(57) Input /ɪ k s e p t/

Output [e s e ɸ]

Input /ɪ k s e p t/	*COMPLEX CODA	*IDENT-IO (high)	MAX-IO
a. [ɪ k s e p t]	*!	*!	
b. ☞ [e s e ɸ]			*

The constraints are presented as *COMPLEX CODA *IDENT-IO (high) >>MAX-IO. RP fails to satisfy the higher ranked constraints: *COMPLEX CODA which forbids the occurrence of consonant cluster in coda position and *IDENT-IO (high) which prevents high front vowel /ɪ/ from appearing in the output. Hausa English output fulfills the higher ranked constraints: *COMPLEX CODA and *IDENT-IO (high). The candidates violates only MAX- IO which does not permit deletion of a segment in the output.

OT Evaluation of vowel substitution of the word initial sound /ɪ/ in the RP English word *exert* in Hausa English.

(58) Input /ɪ g z æ k t/

Output [e g z a t]

Input ɪ g z æ k t/	*COMPLEX CODA	*IDENT-IO (high)	MAX-IO
a. [ɪ g z æ k t]	*!	*!	
b. ☞ [e g z a t]			*

The two candidates show different constraints ranking. Hausa English prefers Markedness constraints *COMPLEX^{CODA} and *IDENT-IO (high) while RP satisfies Faithfulness constraint MAX-IO. Markedness dominates Faithfulness.

6.4.2 Articulation of /ɪ/ in Word Medial Position

Table 6.17: The RP English Vowel /ɪ/ Realized as [e] in Word Medial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Market /m ɑ: k ɪ t/	[m a k e t]	/ɪ/ → [e]	Accent marker
Wanted /w ɒ n t ɪ d/	[w a n t e d]	/ɪ/ → [e]	Accent marker
Heritage /h e r ɪ t ɪ dʒ/	[h e r ɪ t e dʒ]	/ɪ/ → [e]	Accent marker
Marriage / m æ r ɪ dʒ/	[M a r e dʒ]	/ɪ/ → [e]	Accent marker
Miscarriage /m ɪ s k æ r ɪ dʒ	[m ɪ s k a r e dʒ]	/ɪ/ → [e]	Accent marker
Limited / / l ɪ m ɪ t ɪ d/	[l ɪ m ɪ t e d]	/ɪ/ → [e]	Accent marker
Loaded / l ə ʊ d ɪ d/	[l o d e d]	/ɪ/ → [e]	Accent marker
Wounded /w u: n d ɪ d/	[w u n d e d]	/ɪ/ → [e]	Accent marker
Wicked /w ɪ k ɪ d/	[w u k e d]	/ɪ/ → [e]	Accent marker
Jacket / dʒ æ k ɪ t/	[dʒ a k e t]	/ɪ/ → [e]	Accent marker
Forest /f ɒ r ɪ s t/	[f o r e s]	/ɪ/ → [e]	Accent marker
Cricket / k r ɪ k ɪ t/	[k ɪ r e k e t]	/ɪ/ → [e]	Accent marker
Courage / k ʌ r ɪ dʒ/	[k o r e dʒ]	/ɪ/ → [e]	Accent marker
Manage / m æ n ɪ dʒ/	[m a n e dʒ]	/ɪ/ → [e]	Accent marker

Table 6.17 above showcases the realization of mid front short unrounded vowel [e] in place of high front short unrounded vowel in word medial position in the speech of Hausa broadcasters. This process is labelled as vowel substitution and has produced Hausa English accent which does not alter the meanings of the words. The vowel substitution is accent marker, semantically the meaning is not altered.

The vowel substitution rule

/ɪ/ $\longrightarrow$ [e] / C_C

A high front short vowel become mid front short vowel in word medial position.

Table 6.18 Frequency and Percentage of /ɪ/ and /e/ in Word Medial Position

PHONEME SEQUENCE	**NO. OF WORDS**	**/ɪ/**	**/e/**
/dɪd/	4	7	105
/kɪt/	5	12	128
/tɪdʒ/	5	7	177
Total Frequency	**14**	**36**	**410**
Total Percentage	**100%**	**8.1%**	**91.9%**

Table 6.18 shows the appearance of both /ɪ/ and /e/ as produced by the subjects. 410 tokens at 91.9% appear with /e/ and /ɪ/ covers 36 tokens at 8.1%. In terms of individual words, the word *market* features with /e/ 63 times at 93% and /ɪ/ forms 5 tokens at 7%.

There is a significant relationships between the findings at word initial and medial positions considering the realization of /e/ in place of /ɪ/. Even though the two sounds are phonemic in English and Hausa language, the majority of the respondents are influenced by letter ‘E’ in spelling of the words presented in the analysis.

6.4.2.1 OT Analysis

*COMPLEX ^{CODA} : Coda is simple.

*IDENT-IO (high): No feature vowel (high) in the output.

MAX- IO: Every segments in the input must have output correspondents

(No deletion).

Below is the OT Evaluation of vowel substitution of the word medial sound /ɪ/ in the RP English word *forest* in Hausa English.

(59) Input /f ɒ r ɪ s t /

Output [f o r e s]

Input /f ɒ r ɪ s t /	*COMPLEX ^{CODA}	*IDENT-IO (high)	MAX-IO
a. ☞[f o r e s]			*
b. [f ɒ r ɪ s t]	*!	*!	

The tableau ranked *COMPLEX ^{CODA} and *IDENT-IO (high) higher than MAX-IO. Hausa English output obeys higher ranked constraints: *COMPLEX ^{CODA} and *IDENT-IO (high) as prescribed in the tableau. RP output disagrees with the prescriptions of the tableau. It violates higher ranked constraints: *COMPLEX ^{CODA} which bans the occurrence of consonant cluster in coda position and *IDENT-IO (high) which forbids high front vowel /ɪ/ from appearing in the output. Though it obeys MAX IO, but it is a lower ranked constraint.

Below is the OT Evaluation of vowel substitution of the word medial sound /ɪ/ in the RP English word *market* in Hausa English.

(60) Input /m ɑ: k ɪ t/

Output [m a k e t]

Input /m ɑ: k ɪ t/	*IDENT-IO (high)	IDENT-IO (F)
a. ☞[m a k e t]		*
b. [m ɑ: k ɪ t]	*!	

*IDENT-IO (high) is a Markedness constraint that forbids the realization of a high vowel in the output. RP candidate produces a high vowel in the output which is contrary to the rule of Markedness constraint. Hausa English follows the rule of the Markedness constraint and violates Faithfulness constraint IDENT-IO (F).

6.4.3 Discussions of the Findings

Evidence from the analysis reveals the patterns of articulations of /ɪ/ in word initial and medial positions of words which saw realization of /e/ as a substitute to /ɪ/ by the majority of the respondents. However, there is no case of deviations from the RP in word final position.

Basically, there is a dominant use of /e/ over /ɪ/ in all the phonetic environments. The findings suggest that only few number of the respondents articulate the vowel correctly as RP speakers do. What appears to preoccupy their patterns of articulation is accent marker of Hausa English. This section has presented elements of deviations in Hausa English from RP which do not temper with the original meanings of the words. Despite the substitutions of /ɪ/ with /e/, the meanings are retained. It is, therefore, labelled as a variety of English spoken by the Hausaists. Ekundayo (2016) notes that the realization of /e/ in place of /ɪ/ by educated Nigerian speakers of English typifies accent marker of English spoken in Nigeria.

From the discussions so far, the study has also presented and analyzed 2 RP central vowels /ə/ and /ʌ/ and 2 front vowels /æ/ and /ɪ/. The central vowels /ə/ and /ʌ/ are usually substituted with /o/, /a/ and /e/ respectively while /æ/ is realized as /a/ and /ɪ/ is substituted with /e/. The patterns of articulations demonstrated by the majority of the respondents are markedly different from RP English. This phenomena has been attributed to the second language environment of English (Olaniyi & Josiah, 2013). For instance, the schwa vowel /ə/ is usually substituted with /a/ in South and East African English while caret vowel / ʌ/ is realized as /a/ in West African English. Simo Bobda (2000) claims that variations in articulations are determined by some variables of age, exposure and ethnic nationality. This is similar to what is available in the findings of the present study where exposure has appeared to be a major factor responsible for phonological accuracy of the respondents.

Similarly, there is also lack of distinction between /i/ and /e/ before nasal (pin is equal to pen) has become a marker of black group in New York City (Labov, 1973). In a similar vein, newscasters in the inner circle (native speakers) pronounce exgraph words with both /ɪ/ and /e/ as in *exact* /ɪ k z ʌ t/ or /e k z ʌ t/. This substitution is regarded as dialectal variations rather than error (Soneye, 2007). Moreover, the /æ/ is usually replaced by /ɑ:/ in Australian English which according to them is closer to RP (Cruttenden, 2008). Consequently, the findings corroborate with Josiah et al. (2012) who reports that Nigerian speakers of English usually substitute RP phonemes with those that have similar articulatory features in their native languages. The correlations of the two findings are associated with the use of similar instruments in obtaining the data from Production Test. The results also support Olaniyi and Josiah (2013) who note that the majority of educated Hausa speakers of English replace /ʌ/ with /a/ and according to the researchers the sound /a/ is closer to RP wedged vowel. The agreements of the two findings is in connection with the tape recording of voices of the subjects employed in both studies.

Additionally, the results also demonstrate support to the findings of Tsojon and Aji (2014) who observe that/ ʌ/ is realized as /ɒ/ while /ə/ is usually replaced by /a/ in the speech of Wapan speakers of English in Nigeria. The similarities in the findings of the two studies are influenced by the subjects who are educated speakers of English in Nigeria which Udofot (2004) describes as speakers of sophisticated English in Nigeria. These characteristics make them to exhibit some common patterns in their articulation (Olajide & Olaniyi, 2013). Concurrently, the findings of the research also concur with Opanachi (2013) who reports that the RP central vowels /ə/ and /ʌ/ are pronounced as /ɔ/ and /a/, while /æ/ is articulated as /a:/ respectively, in the speech of Igala speakers of English in Nigeria. The concurrence of the results is premised upon non availability of RP central vowels in the vowel trapezium of Igala language as it happens in the vowel system of Hausa language.

Furthermore, the results are also in line with the findings of studies carried out on errors in pronunciation patterns of broadcasters in Nigeria. In this regard, the findings agree with Emeka-Nwobia (2013). He points out that the schwa vowel /ə/ is produced as /a/ in the news renditions of Igbo newsreaders on radio. The two findings agree on the basis of use of similar instruments and tools used in eliciting the data which is tape recordings of news broadcast on air. In the same vein, the findings also correlate significantly with Aladeyomi (2013) who reports that the high front short vowel /ɪ/ is articulated as mid front short vowel /e/ in the speech of television broadcasters in Nigeria. The correlations of the two findings are attributed to the use of similar instrument in obtaining the data which is recording of news rendition.

In Nigerian context, it is also observed that the non-realization of RP central vowels constitute a dilemma in the Nigerian phonology of English, likewise in Hausa English. We can, therefore, deduce that the RP central vowels are not present in most of the Nigerian languages as Emeka-Nwobia (2013) rightly said, and is also occasioned by lack of exposure to RP vowels by the broadcasters.

6.5 Articulation of Diphthong / eɪ/

The /eɪ/ sound is produced when the tongue moves towards the position of /e/ and further forward to the direction of half-closed sound. The movement leaves the mouth in a closing shape which makes the sound to be labelled as a closing diphthong.

6.5.1 Articulation of /eɪ/ in Word Initial Position

Table 6.19: The RP English Vowel /eɪ/ Realized as [e] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	MONOPHTHONGIZATION OF DIPHTHONG	IMPLICATION
Age e ɪ dʒ/	[e dʒ]	/eɪ/ → [e]	Accent marker
Eight /e ɪ t/	[e t]	/eɪ/ → [e]	Accent marker
Agency /e ɪ dʒ ə n s ɪ/	[e dʒ e n s ɪ]	/eɪ/ → [e]	Accent marker

The table 6.19 above shows that the diphthong /eɪ/ is realized as [e] in word initial position. This is because the diphthong /eɪ/ is an unregistered segment in Hausa (Malah & Rashid, 2015) hence the realization of /e/. This process is monophthongization of the diphthong and has produced Hausa English accent. The monophthongization of diphthong is accent marker, semantically the meaning of the words are not affected. The words are pronounced closer to RP.

The speech pattern of the respondents is different from RP English because of Hausa English accent.

This monophthongization of diphthong rule

/eɪ/ $\longrightarrow$ [e] / # ______

A closing diphthong /eɪ/ becomes mid front short vowel in word initial position.

Table 6.20 Frequency and Percentage of /eɪ/ and /e/ in Word Initial Position

PHONEME SEQUENCE	NO. OF WORDS	/eɪ/	/e/
/eɪdʒ/	1	6	32
/eɪt/	1	2	21
/eɪdʒn/	1	4	15
Total Frequency	**3**	**12**	**68**
Total Percentage	**100%**	**15%**	**85%**

Table 6.20 above establishes the realization of /eɪ/ and /e/ by the respondents. The use of monophthong /e/ generates 68 tokens representing 85%. The diphthong /eɪ/ covers 12 tokens at 15%. The appearance of the two vowels at the word level also show similar result. In the pronunciation of the word a*ge*, /e/ prevails at 84%, 32 tokens. On the other hand, 12 tokens at 16% support /eɪ/.

Certainly, majority of the respondents use the monophthong /e/ in place of a diphthong /eɪ/. This is usually caused by the use of monophongization of diphthong where only one part of the vowel is produced during the articulation. The two vowels are different in nature. While /eɪ/ is two successive articulatory gesture which is realized as a phoneme, /e/ is a single segment which is labelled as a phoneme.

6.5.1.1 OT Analysis

REDUCE (V): Vowel reduction is permitted.

IDENT-IO (F): Output correspondents of an input [ɣF] segment are also [ɣF].

Consider the OT Evaluation of vowel substitution of the word initial sound / eɪ/ in the RP English word *age* in Hausa English.

(61) Input /eɪ dʒ /

Output [e dʒ]

Input /e ɪ dʒ /	REDUCE (V)	IDENT –IO (F)
a. ☞ [e dʒ]		*
b. [eɪ dʒ]	*!	

REDUCE (V) is considered a higher ranked constraint in the tableau. Hausa English obeys the higher ranked constraint REDUCE (V) and disobeys IDENT-IO (F) which requires every segments in the output to have an identical segment of the same value in the input. RP output fails to conform to the higher ranked constraint REDUCE (V) which allows the reduction of a closing diphthong /eɪ/ to monophthong /e/ in Hausa and obeys a lower ranked constraint IDENT-IO (F). The ranking is presented as REDUCE (V)>> IDENT –IO (F).

OT Evaluation of vowel substitution of the word initial sound / eɪ/ in the RP English word *eight* in Hausa English.

(62) Input /eɪt/

Output [e t]

Input /eɪt/	REDUCE (V)	IDENT–IO (F)
a. ☞ [et]		*
b. [eɪt]	*!	

RP candidate is faithful to IDENT-IO (F) and fatally violates REDUCE (V) which requires the reduction of diphthong to monophthong. Hausa English output does the opposite by obeying the REDUCE (V) and denying the IDENT–IO (F).

6.5.2 Articulation of /eɪ/ in Word Medial Position

Table 6.21: The RP English Vowel /eɪ/ Realized as [e] in Word Medial Position

RP ENGLISH	HAUSA ENGLISH	MONOPHTHONGIZATION OF DIPHTHONG	IMPLICATION
Pain /p eɪ n/	[ɸ e n]	/eɪ/ → [e]	Semantic alteration
Braid / b r eɪ d/	[b u r e d]	/eɪ/ → [e]	Semantic alteration
Data / d eɪ t ə/	[d a t a]	/eɪ/ → [e]	Accent marker
Favour / f e ɪ v ə/	[f e v o]	/eɪ/ → [e]	Accent marker
Date /d eɪ t/	[d e t]	/eɪ/ → [e]	Accent marker
Late / l eɪ t/	[l e t]	/ eɪ/ → [e]	Semantic alteration
Saint / s eɪ n t/	[s e n t]	/eɪ/ → [e]	Semantic alteration
Taste / t eɪ s t/	[t e s t]	/eɪ/ → [e]	Semantic alteration

Table 6.21 above indicates that the diphthong /eɪ/ is realized as [e] in word medial position. The process is labelled as monophthongization of a diphthong and has produced two features: semantic alteration and accent marker. There are 15 words in the production and 6 words representing 40% indicate accent marker which shows Hausa English accent when /eɪ/ is reduced to [e] in word medial position. Examples are *labour, jail* and *table*. 9 words representing 60% show semantic alteration which changes the meaning of words when /eɪ/ is reduced to [e] in word medial position.

Examples, *pain* is altered to *pen*, *braid* to *bread*, *late* changes to *let*, *taste* is realized as *test* and *main* changes to *men.*

/e ɪ/ $\longrightarrow$ [e] / C_C

A closing diphthong /eɪ/ becomes mid front short vowel /e/ in word medial position.

Table 6.22 Frequency and Percentage of /eɪ/ and /e/ in Word Medial Position

GROUP OF WORDS	NO. OF WORDS	/eɪ/	/e/
/peɪn/	3	13	99
/reɪd/	3	10	62
/leɪt/	4	18	163
meɪn/	2	2	31
/feɪv/	1	1	11
/teɪs/	2	6	77
Total Frequency	**15**	**50**	**443**
Total Percentage	**100%**	**10.1%**	**89.9%**

There are similarities between the atriculations of diphthong **/eɪ/** in word initial and medial positions. The respondents produce both /eɪ/ and /e/, however, /e/ is used more frequently. The articulation of /e/ provides 443 tokens at 89.9%. /eɪ/ indicates only 50 at 10.1%. The dominance of /e/ over eɪ/ is also demonstrated at individual word level. The word *date* indicates the realization of /e/ 78 times at 92% and /eɪ/ 7 instances at 7%.

The majority of the respondents demonstrate the use of monophthongization of diphthong process in articulating /eɪ/ where only initial part of the vowel is articulated that is /e/.

6.5.2.1 OT Analysis

$*COMPLEX^{ONSET}$: Onset is simple.

$*COMPLEX^{VOW}$: Vowel is simple.

DEP-IO: Every segment in the output must have input correspondents (No insertion).

Below is OT Evaluation of vowel substitution of the word medial sound / eɪ/ in the RP English word *bread* in Hausa English.

(63) Input / b r e ɪ d/

Output [b u r e d]

Input / b r e ɪ d/	$*COMPLEX^{ONSET}$	$*COMPLEX^{VOW}$	DEP- IO
a. [b r e ɪ d]	*!	*!	
b. ☞ [b u r e d]			*

The constraints rankings are presented as $*COMPLEX^{ONSET}$ $*COMPLEX^{VOW}$>> DEP-IO. RP output breaks the rules of the higher ranked constraints: $*COMPLEX^{ONSET}$ which bans the occurrence of consonant cluster at the onset and $*COMPLEX^{VOW}$, a constraint that forbids the appearance of a closing diphthong in Hausa. Hausa English output considers the higher ranked constraints: $*COMPLEX^{ONSET}$ and $*COMPLEX^{VOW}$.

OT Evaluation of vowel substitution of the word medial sound / eɪ/ in the RP English word *main* in Hausa English.

(64) Input /m e ɪ n/

Output [m e n]

Input /m e ɪ n/	*COMPLEX^{VOW}	IDENT- IO (F)
a. [m e ɪ n]	*!	
b. ☞ [m e n]		*

*COMPLEX^{VOW} forbids the appearance of a diphthong in the output and it is ranked higher than IDENT- IO (F). RP output fails to adhere to the higher ranked constraint. The candidate obeys the lower ranked constraint. Hausa English agrees with the *COMPLEX^{VOW} and fails to follow the rule of the IDENT- IO (F).

6.5.3 Articulation of /eɪ/ in Word Final Position

Table 6.23: The RP English Vowel /eɪ/ Realized as [e] in Word Final Position

RP ENGLISH	**HAUSA RNGLISH**	**MONOPHTHONGIZATION OF DIPHTHONG**	**IMPLICATION**
Monday /m ʌ n d e ɪ	[m o n d e]	/eɪ/ → [e]	Accent marker
Tuesday /tʃ u: z d e ɪ/	[t u s d e]	/eɪ/ → [e]	Accent marker
Thursday / θ ɜ: z d e ɪ/	[t o s d e/]	/eɪ/ → [e]	Accent marker
Way /w e ɪ/	[w e]	/eɪ/ → [e]	Accent marker
Pay /p e ɪ/	[ɸ e]	/eɪ/ → [e]	Accent marker
Lay / l e ɪ/	[l e]	/eɪ/ → [e]	Accent marker

Table 6.23 denotes that the RP English diphthong /eɪ/ is realized as [e] in word final position. The process is called monophthongization of diphthong and has produced accent marker. The monophthongization of diphthong is Hausa English accent and semantically the meaning is not altered. The words are pronounced close to RP.

The monophthongization of the diphthong process used by the respondents is presented as:

/eɪ/ $\longrightarrow$ [e] / ____ #

A closing diphthong /eɪ/ becomes mid front short vowel in word final position.

Table 6.24 Frequency and Percentage of /eɪ/ and /e/ in Word Final Position

PHONEME SEQUENCE	**NO. OF WORDS**	**/eɪ/**	**/e/**
/deɪ/	3	5	66
/weɪ/	1	1	12
/peɪ/	1	2	14
/leɪ/	1	1	6
Total Frequency	**6**	**9**	**98**
Total Percentage	**100%**	**8.4%**	**91.6%**

There are realizations of /eɪ/ and /e/ in the Table 6.24 above. The level of usage of the two vowels vary considerably. 98 tokens at 91.6% features with /e/ and /eɪ/ constitutes 9 tokens at 8.4%. The word *Thursday* appears highest at the word level, /e/ also dominated /eɪ/ with 30 appearances at 94% against 2 appearances at 6%.

The findings from this section is similar to what is recorded in word initial and medial positions. The majority of the respondents prefer to use monophthong /e/ in place of a diphthong /eɪ/, even though the vowels belong to different groups of vowels. /eɪ/ belongs to the group of closing diphthong whereas /e/ is a mid-front monophthong.

6.5.3.1 OT Analysis

REDUCE (V): Vowel reduction is permitted.

IDENT-IO (F): Output correspondents of an input [ɣF] segment are also [ɣF].

Below is the OT Evaluation of vowel substitution of the word final sound / eɪ/ in the RP English word *way* in Hausa English.

(65) Input /w e ɪ/

Output [w e]

Input /w e ɪ /	REDUCE (V)	IDENT-IO (F)
a. ☞ [w e]		*
b. [w e ɪ]	*!	

The appearance of REDUCE (V) as a higher ranked constraint allowed Hausa broadcasters to use a monophthong /e/ instead of a diphthong /eɪ/. The candidate violates lower ranked constraint IDENT-IO (F) which requires every segment in the output to have a replica segment of same value in the input. RP output disobeys the higher ranked constraint REDUCE (V) which allows the reduction of a closing diphthong /eɪ/ in Hausa and obeys a lower ranked constraint IDENT- IO (F).

OT Evaluation of vowel substitution of the word final sound / eɪ/ in the RP English word *lay* in Hausa English.

(66) Input /l e ɪ /

Output [l e]

Input /l e ɪ/	REDUCE (V)	IDENT-IO (F)
a. ☞ [l e]		*
b. [l e ɪ]	*!	

RP English and Hausa show differences in ranking of the two constraints. The RP respects IDENT-IO (F) by producing the diphthong /eɪ/. Hausa English on the other hand follows REDUCE (V) to emerge as an optimal output by realizing the monophthong /e/.

6. 5.4 Discussions of the Findings

The majority of the respondents prefer to use /e/ in place of /eɪ/ in all the phonetic environments (word initially, medially and finally). This is usually achieved through the use of monophthongization of the diphthong which reduces the quality of a diphthong to a monophthong. The monophthongization of diphthong employed by the majority of the respondents is as a result of the non-availability of a closing diphthong /eɪ/ in the phonemic inventory of Hausa language (Sani, 2005; Newman, 2000). This informed the decision of the majority of the respondents to reduce the quality of the diphthong to monophthong. This process is likely to alter the meaning of words and subsequently distort the communication process. It is sacrosanct for the broadcasters to improve on this area in order to avoid ambiguity and miscommunication.

6.6 Articulation of /əʊ/

/əʊ/ begins with articulation towards the direction of /ə/ and the tongue glides in the direction of /ʊ/ thereby culminating in a smaller lip rounding at the completion of the production. The sound occurs at word initial, medial and final positions. It is, however, produced as [o] in Hausa English.

6.6.1 Articulation of /əʊ/ in Word Initial Position

Table 6.25: The RP English Vowel /əʊ/ Realized as [o] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	MONOPHTHONGIZATION OF DIPHTHONG	IMPLICATION
Old /ə ʊ l d/	[o l]	/ə ʊ/ $\longrightarrow$ [o]	Semantic alteration
Oasis /ə ʊ e ɪ s ɪ s/	[o s ɪ s]	/ə ʊ/ $\longrightarrow$ [o]	Accent marker
Over //ə ʊ v ə/	[o v a]	/ə ʊ/ $\longrightarrow$ [o]	Accent marker

It is established that the diphthong /əʊ/ is pronounced as the monophthong [o] in word initial position. This is associated with the fact that the diphthong /əʊ/ is an unregistered segment in Hausa language (Sani 2005; Newman, 2000) and hence the realization of /o/ as a replacement. This process is called monophthongization of a diphthong and has led to accent marker and semantic alteration. There are 3 words in the table and 2 words indicate accent marker of Hausa English when /əʊ/ is reduced to [o] in word initial position. Examples are *over* and *oasis.* On the other hand, 1 word denotes semantic alteration which changes the meaning of a word when /əʊ/ is reduced to [o] in word initial position. Example, *old* changes to *all.*

/əʊ/ ⟶ [o] / #____

A closing diphthong /əʊ/ becomes mid back short vowel in word initial position.

Table 6.26 Frequency and Percentage of /əʊ/ and /o/ in Word Initial Position

PHONEME SEQUENCE	NO. OF WORDS	/əʊ/	/o/
/əʊl/	1	3	27
/əʊs/	1	-	6
/əʊv/	1	2	22
Total Frequency	**3**	**5**	**55**
Total Percentage	**100%**	**8.3%**	**91.7%**

Table 6.26 above indicates the use of /əʊ/ and /o/ which shows different forms of articulations. There are 55 tokens which represent 91.7% favouring /o/ while 5 which represent 8.3% labelled as /əʊ/. The vowel /o/ also appears 27 times at 90% in the pronunciation of the word *old.* /əʊ/ features 3 times at 10%.

The findings suggest that only a few of Hausa broadcasters are able to produce the diphthong /əʊ/. This is because a large portion of the respondents prefer to use /o/ as a substitute for /ə ʊ/. This is usually caused by the use of monophthongization of a diphthong which reduces the quality of a diphthong to monophthong. It should be noted that /əʊ/ is a closing diphthong whereas /o/ is a mid-back rounded monophthong.

6.6.1.1 OT Analysis

*COMPLEX ^{CODA}: coda is simple.

*COMPLEX ^{VOW}: vowel is simple.

MAX-IO: Every segments in the output must have input correspondents (No deletion).

OT Evaluation of vowel substitution of the word initial sound /əʊ/ of the RP English word *old* in Hausa English.

(67) Input /ə ʊ l d/

Output [o l]

Input /ə ʊ l d/	*COMPLEX^{CODA}	*COMPLEX ^{VOW}	MAX- IO
a. ☞ [o l]			*
b. [ə ʊ l d]	*!	*!	

Markedness constraints *COMPLEX^{CODA} and *COMPLEX^{VOW} dominates Faithfulness constraint MAX- IO. The higher ranked constraints *COMPLEX^{CODA} and *COMPLEX^{VOW} have been obeyed by Hausa English output. The candidates fatally disobeys the lower ranked constraint MAX-IO which does not permit deletion of a segment in the output. The appearance of a diphthong and consonant cluster in the output of RP make the candidate to violate the higher ranked constraints: *COMPLEX^{CODA}, a constraint that disallows the occurrence of consonant cluster in coda position and *COMPLEX ^{VOW} which forbids the appearance of a closing diphthong /əʊ/ in Hausa.

OT Evaluation of vowel substitution of the word initial sound /əʊ/ in the RP English word *Oasis* in Hausa English.

(68) Input /əʊ eɪ s ɪ s/

Output [o s ɪ s]

Input /ə ʊ e ɪ s ɪ s/	REDUCE (V)	IDENT-IO (F)
a. ☞ [o s ɪ s]		*
b. [ə ʊ e ɪ s ɪ s]	**!	

RP output incurs serious violations of REDUCE (V) twice because of the appearance of diphthongs in the tableau. Hausa English is faithful to the REDUCE (V) and violates IDENT-IO (F).

6.6.2 Articulation of /əʊ/ in Word Medial Position

Table 6.27: The RP English Vowel /əʊ/ Realized as [o] in Word Medial Position

RP ENGLISH	**HAUSA ENGLISH**	**MONOPHTHONGIZATION OF DIPHTHONG**	**IMPLICATION**
Both / b ə ʊ θ/	[b o d]	/əʊ/ → [o]	Semantic alteration
Coat / k ə ʊ t/	[k o t]	/əʊ/ → [o]	Semantic alteration
Road / r ə ʊ d/	[r o d]	/əʊ/ → [o]	Semantic alteration
Wrote /r ə ʊ t/	[r o t]	/əʊ/ → [o]	Semantic alteration
Code / k ə ʊ d/	[k o d]	/əʊ/ → [o]	Accent marker
Close / k l ə ʊ z/	[k u l o z]	/əʊ/ → [o]	Accent marker
Shoulder /ʃ ə ʊ l d ə/	[ʃ o l d a]	/əʊ/ → [o]	Accent marker

Table 6.27 shows a similar trend of the preceding section where /əʊ/ became [o] in word medial position. There are 12 words in the production and 3 word representing 25% indicates accent marker of Hausa English when /ə ʊ/ is reduced to [o] in word medial position. Example are *close* and *shoulder*. 9 words representing 75% of the speech production indicate semantic alteration which changes the meaning of word when /əʊ/ is reduced to [o] in word medial position For instance, *goat* changes to *got*, *coat* is altered to *cot*, *hope* to *hop*, *road* to *rod*, *coast* is realized as *cost* and *wrote* as *rot*.

The monophthongization of diphthong process used by the respondents is presented as:

/ə ʊ/ $\longrightarrow$ [o] / C_C

A closing diphthong /əʊ/ becomes mid back short vowel in word medial position.

Table 6.28 Frequency and Percentage of /əʊ/ and /o/ in Word Medial Position

PHONEME SEQUENCE	NO. OF WORDS	/əʊ/	/o/
/həʊp/	1	2	26
/gəʊt/	4	9	102
/kəʊst/	3	4	45
/ʃəʊl/	2	8	89
/kəʊd/	1	1	15
/ləʊz/	1	3	16
Total Frequency	**12**	**27**	**293**
Total Percentage	**100%**	**8.4%**	**91.6%**

The data in table 6.28 indicate the realization of a diphthong /əʊ/ and monophthong /o/. The /əʊ/ covers 27 tokens at 8.4% and /o/ prevails with 293 instances representing 91.6%. The dominance of /o/ can also be seen in the word *road* where 62 tokens at 93% show support to /o/ and 5 times at 7% are in favour of /əʊ/.

The majority of the respondents prefer the use of a monophthong /o/ in place of a diphthong /əʊ/ in word medial position. This articulation is influenced by the use of monophthongization of the diphthong which reduces the quality of a diphthong to a monophthong.

6.6.2.1 OT Analysis

*COMPLEX^{ONSET}: Onset is simple.

REDUCE (V): Vowel reduction is permitted.

DEP-IO: Every segments in the output must have input correspondents

(No insertion).

OT Evaluation of vowel substitution of the word media sound /əʊ/ of the RP English word *close* in Hausa English.

(69) Input /k l ə ʊ z /

Output [k u l o z]

Input / k l ə ʊ z/	*COMPLEX ^{ONSET}	REDUCE (V)	DEP- IO
a. [k l ə ʊ z]	*!	*!	
b. ☞ [k u l o z]			*

The appearance of consonant cluster at the onset is not allowed and the reduction of diphthong to monophthong is required in the output. The RP English output breaks the rules of higher ranked constraints: *COMPLEX^{ONSET}, a constraint that forbids the occurrence of a consonant cluster at the onset position and REDUCE (V) which allows the reduction of a closing diphthong /əʊ/ in Hausa. Though it obeys DEP-IO, it is a lower ranked constraint. Hausa output is in line with the higher ranked constraints: *COMPLEX^{ONSET} and REDUCE (V), It disobeys the lower ranked constraint DEP-IO which forbids insertion of a segment in the output.

OT Evaluation of vowel substitution of the word medial sound /əʊ/ in the RP English word *code* in Hausa English.

(70) Input /k əʊ d/

Output [k o d]

Input /k əʊ d/	REDUCE (V)	IDENT-IO (F)
a. [k əʊ d]	*!	
b. ☞ [k o d]		*

The constraint REDUCE (V) is higher than the IDENT-IO (F) based on the tableau. Hausa English reduced the diphthong to monophthong to satisfy the higher ranked constraint. RP produced diphthong to fulfil the lower ranked constraint.

6.6.3 Articulation of /əʊ/ in Word Final Position

Table 6.29: The RP English Vowel /əʊ/ Realized as [o] in Word Final Position

RP ENGLISH	HAUSA ENGLISH	MONOPHTHONGIZATION OF DIPHTHONG	IMPLICATION
Know /n əʊ/	[no]	/əʊ/ ⟶ [o]	Semantic alteration
Go /g əʊ/	[g o]	/əʊ/ ⟶ [o]	Accent marker
Undergo / ʌ n d ə g əʊ/	[o n d a g o]	/əʊ/ ⟶ [o]	Accent marker

Table 6.29 above also presents the monophthongization of a diphthong where /əʊ/ became [o] in word final position. There are 3 words in the table and 2 words indicate accent marker when /əʊ/ is reduced to [o] in word final position. Examples are *go* and *undergo*. 1 word denotes semantic alteration whish changes the meaning of a word when /əʊ/ is reduced to [o] in word final position. Example, *know* changes to *no.*

The monophthongization of a diphthong used by the respondents is presented as:

/əʊ/ ⟶ [o] / ____ #

A closing diphthong /əʊ/ becomes mid back short vowel in word final position.

Table 6.30 Frequency and Percentage of /əʊ/ and /o/ in Word Final Position

PHONEME SEQUENCE	NO. OF WORDS	/əʊ/	/o/
/nəʊ/	1	4	32
/gəʊ/	1	5	24
/rgəʊ/	1	3	11
Total Frequency	**3**	**12**	**67**
Total Percentage	**100%**	**15.2%**	**84.8**

The frequency and percentage shows the realization of /əʊ/ and /o/ in the speech of the respondents, although /o/ is used more often. 67 tokens at 84% features with /o/ and /əʊ/ covers 12 cases at 15.2%. The word *know* forms 32 tokens at 89% with /o/ and /əʊ/ stands at 4 instances 11%.

Evidence from the analysis reveals that the majority of the respondents use /o/ in place of /əʊ/ in word final position. Only few number of the respondents are able to articulate the vowel, even though they are the minority but they produce the sound as a diphthong.

6.6.3.1 OT Analysis

REDUCE (V): Vowel reduction is permitted.

IDENT-IO (F): Output correspondents of an input [ɣF] segment are also [ɣF].

(71) shows the OT Evaluation of vowel substitution of the word final sound /əʊ/ in the RP English word *go* in Hausa English.

(71) Input /g ə ʊ/

Output [g o]

Input /g ə ʊ/	REDUCE (V)	IDENT– IO (F)
a. [g ə ʊ]	*!	
b. ☞ [g o]		*

REDUCE (V) permits the reduction of a closing diphthong /əʊ/. This constraint is ranked higher than the IDENT-IO (F). The higher constraint is fatally violated by

RP candidate and obeys IDENT-IO (F) which is a lower ranked constraint. Hausa English output agrees with the higher ranked constraint REDUCE (V) and disobeys the lower ranked constraint IDENT-IO (F) which does not permit the change of any segment in the output (Barlow, 2001). The constraint ranking is presented as REDUCE (V) >> IDENT-IO (F).

OT Evaluation of vowel substitution of the word final sound /əʊ/ in the RP English word *now* in Hausa English.

(72) Input /n ə ʊ/

Output [n o]

Input /n ə ʊ/	REDUCE (V)	IDENT– IO (F)
a. [n ə ʊ]	*!	
b. ☞ [n o]		*

The tableau shows that Hausa English output prefers REDUCE (V) than IDENT–IO (F). RP candidate chooses IDENT– IO (F) over REDUCE (V). The differences in the choice of the constraints show the variations between the two outputs.

6.6. 4 Discussions of the Findings

It is established that there is a dominant use of /o/ in place of /əʊ/ in all the phonetic environments as word initial, medial and final positions in the speech of Hausa broadcasters. The reason for the use of /o/ by the majority of the respondents is because the diphthong /əʊ/ does not exist in the phonemic inventory of Hausa language which triggers them to monophthongnize the diphthong. It is important to note that no two phonemes are the same even if produced by one person. The use of one phoneme in place of another is likely to alter the meaning and distort the communication.

6.7 Articulation of /eə/

The sound /eə/ begins with the vowel sound /e/ and moves towards /ə/. The lips are neutrally open throughout (Roach, 2009). The sound is usually produced as [ɪa] and [ja] in Hausa English. The sound occurs as word initial, medial and word final position.

6.7.1 Articulation of /eə/ in Word Final Position

Table 6.31: The RP English Vowel /eə/ Realized as [ɪa] and [ja] in Word Final Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION / GLIDE EPENTHESIS	IMPLICATION
Rare / r e ə/	[r ɪ j a] [r ɪ a]	/e ə/ → [ja] /e ə/ → [ɪ a]	Semantic alteration
Hare / h e ə/	[h ɪ j a] [h ɪ a]	/e ə/ → [ja] /e ə/ → [ɪ a]	Semantic alteration
Dare / d e ə/	[d ɪ j a] [d ɪ a]	/e ə/ → [ja] /e ə/ → [ɪa]	Semantic alteration
Ware /w e ə/	[w ɪ a] [w ɪ a]	/e ə/ → [j] /e ə/ → [ɪa]	Semantic alteration
Scare /s k e ə/	[s ɪ k ɪ j a] [s ɪ k ɪ a]	/e ə/ → [ja] /e ə/ → [ɪa]	Accent marker
Square / s k w e ə/	[s ɪ k w a j a] [s ɪ k w ɪ a]	/e ə/ → [ja] e ə/ → [ɪa]	Accent marker
Beware / b ɪ w e ə/	[b ɪ w a j a]	/e ə/ → [ja] e ə/ → [ɪa]	Accent marker

Table 6.31 above provides data which saw the realization of [ɪa] and [ja] as substitutes to /e ə/ in word final position in the speech of Hausa. The processes are realized as substitution of diphthong with diphthong and glide epenthesis and have produced two implications. Accent marker and semantic alteration. There are 12 words in the table and 6 words representing 50% of the speech indicate accent marker which shows Hausa English accent when /eə/ is realized as [ɪa] or [ja] in word final position. Examples are *scare, there* and *beware*. On the other hand, 6 words representing 50% denote semantic alteration which changes the meaning of words when /eə/ is realized as [ɪa] or [ja] in word final position. For instance, *rare* changes to *rear, hare* to *here*, s*tare*, to *steer* and *dare* to *dear.*

The vowel substitution rule

$$/\text{eə}/ \longrightarrow \left\{ \begin{array}{c} [\text{ɪa}] \\ [\text{ja}] \end{array} \right\} / \_\_\_\_ - \#$$

A centering diphthong /eə/ becomes centering diphthong [ɪa] and glide [ja] in word final position.

Table 6.32: Frequency and Percentage of /eə/ /ja/ and /ɪa/ in Word Final Position

PHONEME SEQUENCE	NO, OF WORDS	/eə/	/ja/	/ɪa/
/reə/	9	27	121	179
/keə/	2	5	14	51
/beə/	1	3	5	40
Total Frequency	**12**	**32**	**140**	**270**
Total Percentage	**100%**	**7%**	**32%**	**61%**

There are diphthongs and glide in the articulations of the subjects as presented in table 6.32. These are /eə/, /ja/ and /ɪa/. /ɪa/ appears 270 times at 61% of the articulations. /ja/ covers 140 tokens at 32%. The realization of /eə/ stands at 32 instances at 7%. The appearance of the variants is also demonstrated at word level. /ɪa/ covers 32 tokens at 57% in the pronunciation of the word *rare*. The glide /ja/ stands at 21 times at 38% and 3 tokens at 5% are in support for /eə/.

Evidence from word final position reveals that the majority of the respondents use /ɪa / and /ja/ consistently in place of a diphthong /eə/. This suggests that only a few respondents who are less than 10% are able to articulate the vowel based on RP. The respondents handle the diphthong /eə/ in a very unusual way where they use /ɪa/ and /ja/ as its variants while they are not allophones. /eə/ is a centering diphthong whereas /ɪa/ is a non-English diphthong and does not exist in Hausa. It is formed and used by the respondents which is closer to centering diphthong/ɪə/. Moreover, the glide /ja/ is a palatal glide.

6.7.1.1 OT Analysis

$*COMPLEX^{VOW}$: Vowel is simple.

IDENT-IO (F): Output correspondents of an input [ɣF] segment are also [ɣF].

DEP-IO: Every segments in the output must have input correspondents (No insertion).

Consider the OT Evaluation of vowel substitution of the word final sound /eə/ in the RP English word *rare* in Hausa English.

(73) Input /r eə/

Output [r ɪ a]

Input /r eə/	$*COMPLEX^{VOW}$	DEP-IO	IDENT–IO(F)
a. [r e ə]	*!		
b. [r ɪ j a]		*!	*
c. ☞ [r ɪ a]			*

$*COMPLEX^{VOW}$ dominates DEP-IO and IDENT–IO (F) based on the hierarchy of the constraints. RP output incurs serious violation of a higher ranked constraint $*COMPLEX^{VOW}$ which prevents centering diphthong /eə/ from appearing in Hausa and obeys DEP- IO and IDENT-IO (F). Candidate (b) is also a loser because it disobeys another higher ranked constraint DEP- IO which does not permit the insertion of a segment in the output and IDENT-IO (F) that requires every segment in the output to have identical segment of same value in the input. Hausa English output is faithful to the higher ranked constraint: $*COMPLEX^{VOW}$ and DEP-IO, The tableau shows the OT Evaluation of vowel substitution of the word medial sound /eə/ in the RP English word *malaria* in Hausa English.

(74) Input /m ə l e ə r ɪ ə/

Output [m a l e r ɪ a]

Input /m ə l e ə r ɪ ə/	REDUCE (V)	DEP-IO	IDENT-IO (F)
a. m ə l e ə r ɪ ə	**!		
b. ☞ m a l e r ɪ j a			*
c. m a l e j r ɪ a	*!	*!	*

REDUCE (V) is a constraint which allows the reduction of a diphthong to monophthong that shows free variation. It is different from *COMPLEX^{VOW} which accounts for semantic change. RP output violates higher ranked constraint twice REDUCE (V) which permits the reduction of a centering diphthong /eə/ in Hausa. The candidate is faithful to DEP-IO and IDENT-IO (F). Hausa English output agrees with the higher ranked constraint REDUCE (V) and DEP-IO. It fails to respect IDENT–IO (F), a constraint which prevents any change of segment in the output. Candidate (c) disobeyed REDUCE (V), DEP-IO which forbids the insertion of a segment in the output and IDENT-IO (F).

6.7.2 Discussions of the Findings

The patterns of articulations demonstrated by the majority of the respondents in producing centering diphthong /eə/ is the realization of /ɪa/ and glide /ja/ in all the phonetic environments. The data presented are in word final position, however, OT analysis has accounted for the initial and medial position. The majority of the respondents prefer to use /ɪa/ and /ja/. This is because the diphthong /eə/ is not in the vowel trapezium of Hausa language thereby resorting to the formation of a new diphthong //ɪa/ from the vowels system of Hausa and use it. They also use glide /ja/ which has some elements of the feature front like /eə/. The polemical issue is that to what extent these sound segments can be used in place of /eɔ / in speech without affecting the meaning especially in broadcasting. It is observed that the substitution process used by the respondents is likely to interfere with communication. Evidence from the data show that there are words whereby meaning were altered as a result of the substitution. It is important to note that sometimes substitution is likely to change the meaning of a word and distort the communication process. This area needs to be taken into consideration in order to avoid communication breakdown.

The findings reveal that the diphthong /eɪ/ is usually realized as a mid-front short unrounded vowel [e] in all the environments as a word initial, medial and word final positions. Similarly, the diphthong /əʊ/ becomes mid back short rounded vowel /o/ in word initial, medial and in final positions. These show the rmonophthongization of diphthong used by the majority of the respondents in order to simplify the diphthongs which effects communication. Moreover, the diphthong /eə/ is realized as two variants [ɪa] or [ja] in all the phonetic environments. This indicates the use of substitution strategy where diphthong is substituted with another diphthong or glide.

Evidence from Cruttenden (2008) reveals that there is monophthongization of diphthongs in Standard Scottish English where /əʊ/ is regarded as /o:/ and substitution of diphthong with a diphthong in Caribbean English whereby /əʊ/ is produced as /au/. Principally, to Kachru and Smith (2008) the majority of the non-native speakers of English often simplify the diphthongs of RP English where /e ɪ/ is realized as [e] in word like *paid* and /əʊ/ becomes [o] in word like *bowl* This phenomenon has justified the earlier claim by Platt et al. (1984) who posits that diphthongs are usually shortened and pronounced as monophthong in African Englishes. The findings of the present study reinforce the results of Jibril (1982) and Bamgbose (i995 which identify /e/ as a substitute to RP / eɪ/ in Nigerian English. This has further consolidated the presupposition that educated Nigerian speakers of English share common features of articulations of some RP phonemes. Moreover, the findings also support the study of Emeka-Nwobia (2013) which shows that the RP /əʊ/ is considered [o] in the speech broadcast of Igbo newsreaders in Nigeria.

In terms of hierarchy, the troublesome vowels show different levels of problems of articulation. The most problematic vowel is /æ/ where only 7% captured the vowel appropriately. It is followed by /ɪ/ which the accuracy level is 8%. Similarly, the appropriateness of a schwa vowel /ə/ is also 8%. The caret/wedge vowel /ʌ/ is less problematic in the array of the short vowels discussed. 12% of the articulation of /ʌ/ is correct. The three diphthongs /eɪ/, /əʊ/ and /eə/ also vary in terms of hierarchy. The most troublesome diphthong is /eə/ in which 7% of the articulation is considered appropriate. /əʊ/ is 10% correct and /eɪ/ is 15% accurate and less problematic.

6.8 Chapter Summary

The chapter has provided articulation patterns of vowels in the speech of Hausa newscasters. This is in response to research question two of the study. Two sets of vowels have been presented, discussed and analyzed. These include RP short vowels and diphthongs. The findings reveal that the RP short central vowels /ə/ and /ʌ/ have also been analyzed and presented. The schwa vowel /ə/ is usually realized as /o/, /e/ or /a/ depending on the phonetic environmrnts. The wedge vowel /ʌ/ is produced as /o/. In the same vein, the low front vowel /æ/ is realized as /a/ or /e/ depending on the phonetic environment. The high front vowel /ɪ/ is sometimes produced as /e/. These have been attributed to the use of vowel substitutions. Additionally, the closing diphthong /eɪ/ is reduced to /e/ while /əʊ/ is realized as /o/ as a result of monophthongization of the diphthong. The centering diphthong /eə/ is substituted with /ɪa/ or glide /ja/. Three phonological processes such as vowel substitutions, monophthongization of diphthongs and glide epenthesis have emerged and have led to two dimensions of implications; semantic alteration which changes the meaning of word and accent marker which shows Hausa English accent. There is preference of using Markedness constraints over Faithfulness constraints.

CHAPTER SEVEN

DATA PRESENTATION ANALYSIS AND DISCUSSION OF CONSONANT CLUSTER ARTICULATION

7.0 Introduction

The chapter presents and analyzes the consonant cluster of Hausa English broadcasters' speech. It encompasses the description and analysis of two consonant clusters at the onset and coda, three consonant clusters at onset and coda and spelling pronunciation. The articulations of the respondents are analyzed on the basis of semantic alteration which changes the meaning of a word and accent marker which shows Hausa English accent. The analysis also focuses on auditory count of the pronunciations to determine the number of realizations of RP and Hausa English clusters articulation. Moreover, OT constrains interactions and their rankings in the grammar of Hausa language have also been provided to explicate the deviations in the speech of the respondents. The data in this chapter are presented in response to research question three which seeks to analyze the consonant clusters in the pronunciation of Hausa broadcasters.

7.1 Articulation of Two consonant Cluster Onset

In RP English, the occurrence of two consonants at the initial position of a syllable is described as a two consonant cluster onset. These successive consonants occur without any intervening segment between them and they are articulated successively. It is however found to be pronounced with an intervening segment in

Hausa English. The corpus generated from the data obtained and transcribed reveal the insertion of a segment between the two successive consonants.

Table 7.1 Two Consonant Cluster Onset

RP ENGLISH	HAUSA ENGLISH	INSERTED SEGMENT	IMPLICATION
Tree /t r i: /	[t ɪ . r ɪ]	/ɪ/	Accent marker
Progress /p r ə ʊ . g r e s/	[ɸ u. r o. g ɪ. r e s]	/u// /ɪ/	Accent marker
Prostitute /p r ɒ s . t ɪ . t ju: t/	[ɸ u . r o s. t ɪ . t u t/	/u/	Accent marker
Training /t r eɪ . n ɪ ŋ	[t ɪ. r e . n ɪ n]	ɪ/	Accent marker
State /s t e t/	[s ɪ . t e t]	ɪ/	Accent marker
Special /s p e . ʃ ə l/	[s ɪ . ɸ e. ʃ a l]	ɪ/	Accent marker
Ground /g r a ʊ n d/	[g ɪ . r a u n]	ɪ/	Accent marker
Project /p r ɒ . dʒ e k t/	[ɸ u. r o. dʒ e t]	/u/	Accent marker
Proper / p r ɒ . p ə/	[ɸ u . r o. f a]	/u/	Accent marker
Industry /ɪ n. d ə s. t r i/	[ɪ n . d a s. t ɪ . r ɪ]	/ ɪ/	Accent marker
Statement / s t e ɪ t . m ə n t/	[s ɪ . t e t. m e n]	/ɪ/	Accent marker
Introduce /ɪ n. t r ə. dj u: s/	[ɪ n. t u. r o. d u s]	/u/	Accent marker

Table 7.1 above shows the articulation of a two consonant cluster onset in which epenthetic vowels are introduced to break up the clusters. The CC is realized as CVC

by inserting a vowel to break up the cluster in all the CC onset. Kager (1999) points out that some languages of the world such as English allow for complex clusters while others do not permit. Hausa is amongst the languages which do not permit consonant clusters in the onset (Musa & Altakhaineh, 2015) due to *COMPLEX $^{\text{ONSET}}$, a phonotactic Markedness constraint which does not permit the occurrence of a consonant cluster in the onset (Kager, 1999 & Kadenge, 2012). This process employed by the subjects is called vowel epenthesis and has produced Hausa English accent. The epenthetic vowels introduced in the syllable is an accent marker, semantically the meaning of the words are not altered.

The study notes that the speech of the respondents is different from RP because it is characterized by the accent marker which denotes Hausa English accent. This is as a result of the epenthesis used by the respondents.

The insertion rule

(a) $\emptyset \longrightarrow$ [ɪ] / C_C

A high front short vowel is inserted in between two consonants cluster.

(b) $\emptyset \longrightarrow$ [u] / C_C

A high back short vowel is inserted in between two consonants cluster.

Table 7.2 Frequency and Percentage of CC and CVC in a Two Consonant Cluster Onset

PHONEME SEQUENCE	NO. OF WORDS	CC	CVC
/tr/	11	26	202
/sl/	2	12	116
/pr/	10	31	159
/st/	5	16	40
/sp/	6	6	28
/gr/	4	10	100
/tʃr/	1	7	120
/kl/	3	11	121
/fr/	2	12	133
/sk/	6	26	96
/br/	1	9	126
Total Frequency	**51**	**166**	**1241**
Total Percentage	**100%**	**11.8%**	**88.2%**

Table 7.2 above shows that the respondents pronounce the list of words above with CC and CVC syllable structure. However, CVC is the most common way of their pronunciations. CVC constitutes 1241 tokens at 88.2%. CC covers 166 cases representing 11.8%. This is also demonstrated in the word *programme* where CVC generates 103 tokens at 91% and 10 counts at 9% to CC.

It is clear that the majority of the respondents do not produce two consonant cluster CC at the onset, instead epenthetic vowels are introduced to break up the cluster and produce it as CV. The vowels introduced are usually high front /ɪ/ and high back /u/. Glide epenthesis which is another strategy of declusterization is also present in the data in word *graduate* //g r æ dʒ u ə t/ where it is pronounced as [g ɪ r a dʒ u j e t].

7.1.1 OT Analysis

The process of epenthesis is realized when a segment is inserted in a syllable. In the present study a segment is inserted in the onset to break up the CC cluster. The study uses the Markedness constraint *COMPLEX ^{ONSET} and Faithfulness constraint DEP-IO to account for constraint marking in the speech of Hausa broadcasters.

*COMPLEX ^{ONSET}: Onset is simple.

DEP-IO: Every segments in the output must have input correspondents (No insertion).

Tableau below gives OT Evaluation of vowel epenthesis at the onset of the RP English word *skin* in Hausa English.

(75) Input / s k ɪ n/

Output [s ɪ k ɪ n]

Input / s k ɪ n/	*COMPLEX ^{ONSET}	DEP-IO
a. [s k ɪ n]	*!	
b. ☞ [s ɪ . k ɪ n]		*

Markedness *COMPLEX ^{ONSET} is ranked higher than Faithfulness constraint DEP-IO. RP occurs with consonant cluster which violates higher ranked constraint *COMPLEX^{ONSET}. The constraint bans the occurrence of consonant cluster at the onset (Kager, 1999; McCarthy, 2008). The RP obeys a lower ranked constraint DEP-IO. Hausa English output respects the higher ranked constraint *COMPLEX ^{ONSET} and breaks the lower ranked constraint DEP-IO which forbids epenthesis of a segment in the output. The constraints ranking is presented as *COMPLEX^{ONSET}>> DEP- IO.

OT Evaluation of vowel epenthesis at the onset in the RP English word *class* in Hausa English.

(76) Input /k l ɑ: s/

Output [k ɪ. l a s]

Input /k l ɑ: s/	*COMPLEX ^{ONSET}	DEP-IO
a. [k l ɑ: s]	*!	
b. ☞ [k ɪ. l a s]		*

The two candidates RP and Hausa English show different preference on constraints rankings. The RP prefers Faithfulness constraint DEP-IO while Hausa English chooses Markedness constraint *COMPLEX $^{ONSET.}$

7. 2 Articulation of Two Consonant Cluster Coda

The occurrence of two successive consonants at final position of a syllable is said to be two consonant cluster coda. This is permissible in the syllable structure of English and the consonants are pronounced without any epenthetic element(s) or reduction in the syllable structure. It is however found to be different in the speech of Hausa broadcasters as most of the respondents of the study delete either of the final consonants to simplify the cluster to ease the pronunciation.

Table 7.3 Two Consonant Cluster Coda

RP ENGLISH	HAUSA ENGLISH	DELETED SEGMENT	IMPLICATION
Present /p r e . z ə n t/	ɸ ɪ. r e. z e n]	/t/	Accent marker
Statement /s t e ɪ t. m ə n t/	[s ɪ. t e t. m e n]	/t/	Accent marker
Expose /ɪ k s . p ə ʊ z/	[e s . ɸ o z]	/k/	Accent marker
Ground /g r a ʊ n d/	[g ɪ. r a. w u n]	/d/	Accent marker
Specialist /s p e. ʃ ə. l ɪ s t/	[s ɪ. ɸ e. ʃ a. l ɪ s]	/t/	Accent marker
Respect /r ɪ s . p e k t	[r e s . ɸ e t]	/k/	Accent marker
Dialect /d a ɪ ə. l e k t/	[d a ɪ . l e t]	/t/	Accent marker
Six /s ɪ k s/	[s ɪ s]	k/	Accent marker
Aspect /æ s . p e k t/	[a s . ɸ e t]	/k/	Accent marker
Difficult /d ɪ. f ɪ. k ə l t/	[d ɪ. f ɪ. k o l]	/t/	Accent marker
Express /ɪ k s . p r e s/	[e s. ɸ ɪ. r e s]	/k/	Accent marker
Exact / ɪ g. z æ k t/	[e g . z a t]	/k/	Accent marker
Experiment /ɪ k s. p e. r ɪ. m e n t/	[e s. ɸ a. r ɪ. m e n [	/t/	Accent marker

Table 7.3 shows that the respondents employed the use of final consonant deletion strategy in two consonant cluster coda to simplify the cluster. Some languages permit consonant coda, but never permit complex coda (Kager, 1999). This suggests the presence of *COMPLEX ^{CODA} in Hausa, a phonotactic constraint which does

not permit the occurrence of complex consonant cluster in coda position. This process is called deletion and has produced Hausa English accent. The results of deletion employed in coda position is accent marker; semantically the meaning of the words are not altered.

The study notes that the speech of the respondents is different from RP because it is characterized by accent marker which shows Hausa English accent. This is as a result of the deletion used by the respondents. The rule is presented below.

$$C \longrightarrow \emptyset / \quad CC$$

A consonant is deleted in two consonants cluster.

Table 7.4 Frequency and Percentage of CC and C in Two Consonant Cluster Coda

PHONEME SEQUENCE	**NO. OF WORDS**	**CC**	**C**
/nt/	3	16	140
/kt/	5	15	101
/ks/	3	11	117
/nd/	1	3	56
/st/	2	9	41
/lt/	1	4	82
/kt/	2	5	21
Total Frequency	**17**	**63**	**558**
Total Percentage	**100%**	**10.1%**	**89.9%**

There are realizations of two types of syllable structure in the speech of the respondents. These are CC and C and the larger portion of the data is dominated by C. The C forms 558 tokens at 89.9% of the speech productions and the CC covers only 63 cases at 10.1%.

Evidence from the analysis show that the majority of the respondents delete one consonant in the coda in order to declusterize the cluster**.** This suggests that only few of the respondents produce CC syllable at the coda. The clusters identified in the coda positions are /nk/, /kt/, /ks/, /nd/, /st/, /nt/, /nts/ and /lt/. It appears that most the respondents usually delete the plosive consonants that emerged in the coda to ease their pronunciation.

7.2.1 OT Analysis

The process of cluster reduction is realized when a segment is deleted in a syllable for simplification. In the present sample, final consonant(s) are deleted to reduce the cluster. The study uses the Markedness constraint *COMPLEX^{CODA} and Faithfulness constraint MAX-IO to account for constraint marking in the speech of Hausa broadcasters.

*COMPLEX ^{CODA}: Coda is simple.

MAX-IO: Every segments in the input must have output correspondents (No deletion).

Consider the following OT Evaluation of cluster reduction in coda of the RP English word *six* in Hausa

English.

(77) Input /s ɪ k s/

Output [s ɪ s]

Input /s ɪ k s/	*COMPLEX ^{CODA}	MAX IO
a. ☞[s ɪ s]		*
b. [s ɪ k s]	*!	

The optimal output is Hausa English because it obeys higher ranked constraint *COMPLEX ^{CODA} -and disobeys MAX -IO which prohibits deletion of a segment in the output. RP output suffers serious violation of the higher ranked constraint *COMPLEX ^{CODA} which forbids the occurrence of consonant cluster in coda and is faithful to MAX-IO which is a lower ranked constraint. The constraints raking is presented as *COMPLEX ^{CODA}>> MAX IO.

OT Evaluation of cluster reduction in coda in the RP English word *exact* in Hausa

English.

(78) Input /ɪ g. z æ k t/

Output [e g . z a t]

Input /ɪ g. z æ k t/	*COMPLEX ^{CODA}	MAX IO
a. [ɪ g. z æ k t]		*
b. ☞ [e g . z a t]	*!	

Markedness constraint dominates Faithfulness constraint. Markedness constraint *COMPLEX ^{CODA} is indomitable constraint and it is ranked higher than Faithfulness MAX-IO. Hausa English dominates RP through the adherence to the higher ranked constraint.

7.3 Articulation of Three Consonant Cluster Onset

English also allows the occurrence of three successive consonants at initial position of a syllable. This phenomenon is described as three consonant cluster onset. The sounds are pronounced continually without any epenthetic element(s). It is, however, found to be different in Hausa English as most of the respondents of the study employed the use of epenthetic vowels to break up the cluster for simplification.

Table 7.5 Three Consonant Cluster Onset

RP ENGLISH	**HAUSA ENGLISH**	**INSERTED SEGMENT**	**IMPLICATION**
Spray /s p r e ɪ/	[s ɪ ɸ . r e]	/ɪ/	Accent marker
Stray /s t r e ɪ/	[s ɪ t . r e]	/ɪ/	Accent marker
Strength / s t r e ŋ θ/	[s ɪ t . r e n]	/ɪ/	Accent marker
Stress / s t r e s/	[s ɪ t . r e s]	/ɪ/	Accent marker
Script /s k r ɪ p t/	[s ɪ k . r ɪ ɸ]	/ɪ/	Accent marker
Scratch /s k r æ tʃ/	[s ɪ k . r a tʃ]	/ɪ/	Accent marker
Screen /s k r i: n/	[s ɪ k . r ɪ n]	ɪ/	Accent marker
Spring /s p r ɪ ŋ/	[s ɪ ɸ . r ɪ ŋ]	ɪ/	Accent marker

Table 7.5 above shows the articulations of three consonant clusters in the onset in which epenthetic vowel /ɪ/ is introduced to break up the cluster in each of the words presented. This is because English accommodates CCC at the onset (Kager, 1999) whereas Hausa does not (Musa & Altakhaineh, 2015). This process is called vowel epenthesis and has produced Hausa English accent. It should be noted that despite the insertion of the vowels the meaning of the words are retained.

The study observes that the speech of the respondents is different from RP because it is characterized by accent marker which denote Hausa English accent. This is as a result of the epenthesis used by the respondents.

The insertion rule

$$\emptyset/ \longrightarrow [\text{ɪ}] \ / \ C\_CC$$

The rule is presented as a high front short vowel is inserted in between three consonants cluster.

Table 7.6 Frequency and Percentage of CCC and CVC in a Three Consonant Cluster Onset

PHONEME SEQUENCE	**NO. OF WORDS**	**CCC**	**CVC**
/spr/	2	5	44
/str/	4	20	128
/skr	3	9	71
/spl/	1	2	9
Total Frequency	**10**	**36**	**252**
Total Percentage	**100%**	**12.5%**	**87.5%**

Two forms of pronunciations emerged from the data presented in table 7.6 above. They are CCC and CVC. The frequent mode of articulation is CVC which generates 252 tokens equivalent to 87.5 of the speech productions. On the other hand, 36 tokens at 12.5% indicate CCC. In order to justify the dominance of CVC over CCC, 60 tokens at 87% are in favour of CVC in the production of the word *stress.* CCC forms 9 tokens at 18%.

The findings show that the majority of the respondents introduce epenthetic vowel /ɪ/ in three consonant cluster at the onset to make it CVC instead of CCC. This has further created another syllable within the words, and by extension, the realization of abutting consonant in the medial positions of the words where the first consonant is making the end of the first syllable and the second consonant is marking the beginning of another syllable e.g. /sɪt.res/. This linguistic phenomenon is permissible in the syllable structure of Hausa (Sani, 2005).

7.3.1 OT Analysis

The process of epenthesis is realized when a segment(s) is inserted in a syllable. In the present study a segment is inserted in the onset to break up the CCC cluster. The study uses the Markedness constraint *COMPLEX ^{ONSET} and Faithfulness constraint DEP-IO to account for constraint marking in the speech of Hausa broadcasters.

*COMPLEX ^{ONSET}: Onset is simple.

DEP-IO: Every segments in the output must have input correspondents (No insertion).

OT Evaluation of vowel epenthesis at the onset of the RP English word *stress* in Hausa English.

(79) Input /s t r e s/

Output /[s ɪ t r e s]

Input /s t r e s/	*COMPLEX ^{ONSET}	DEP-IO
a. [s t r e s]	*!	
b. ☞ [s ɪ t . r e s]		*

The constraints ranking in the tableau is presented as *COMPLEX ^{ONSET}>> DEP-IO. The RP English output fails to obey a higher ranked constraint *COMPLEX^{ONSET} which forbids the occurrence of consonant cluster at the onset (Kager, 1999 & McCarhty, 2008) and obeys a lower ranked constraint DEP-IO. Hausa English output is faithful to the higher ranked constraint *COMPLEX^{ONSET} and contravenes the lower ranked constraint DEP-IO which forbids the insertion of an epenthetic vowel in the output (Barlow, 2001).

OT Evaluation of vowel epenthesis at the onset of the RP English word *screen* in Hausa English.

(80) Input /s k r i: n/

Output [s ɪ k . r ɪ n]

Input /s k r i: n/	*COMPLEX ^{ONSET}	DEP-IO
a. [s k r i: n]	*!	
b. ☞ [s ɪ k . r ɪ n]		*

Faithfulness constraint DEP-IO prohibits insertion of a segment in the output. This constraint is obeyed by the RP and violated by the Hausa English. Markedness constraint *COMPLEX ^{ONSET} bans the occurrence of consonant cluster onset. The constraint is respected by the Hausa English and disagreed by the RP.

7. 4 Articulation of Three Consonant Cluster Coda

It is also permissible, in the syllable structure of English, for three consonants to co-occur in the final position of a syllable. This linguistic phenomenon is referred to as three consonant cluster coda. The sounds are pronounced without the intervention of any segment. The data obtained from the participants are, however, alien to the expected norms of RP English as the respondents delete a segment in order to reduce the complex coda.

Table 7.7 Three Consonant Cluster Coda

RP ENGLISH	**HAUSA ENGLISH**	**DELETED SEGMENT**	**IMPLICATION**
Hints /h ɪ n t s/	[h ɪ n t]	/s/	Semantic alteration
Masked /m ɑ: s k t/	[m a s k]	/t/	Semantic alteration
Glimpse /g l ɪ m p s/	[g ɪ . l ɪ m ɸ]	/s/	Semantic alteration
Prompts /p r ɒ m p t s/	[ɸ u . r o m t]	/s/	Semantic alteration
Strengths /s t r e ŋ θ s/	[s ɪ t . r e n t]	/s/	Semantic alteration
Discs / d ɪ s k s/	[d ɪ s k]	/s/	Semantic alteration
Scripts /s k r ɪ p t s/	[s ɪ. k ɪ .r ɪ ɸ t]	/s/	Semantic alteration

Table 7.7 shows that the respondents allow the occurrence of only two consonants in the coda that is CC instead of CCC. Though consonant cluster coda does not occur in Hausa (Musa & Altakhaineh, 2015), however, Soneye and Oladunjoye (2015) report that educated Nigerian speakers of English permit two consonant cluster CC in coda. This process is called cluster reduction and has produced semantic alteration which changes the grammatical functions of the words from plural to singular or past tense to simple present when CCC cluster is educed to CC in coda. For instance, *hints* to *hint*, *masked* to *mask*, *strengths* to *strength*, *discs* to *disc*, *scripts* to *script*

and *exact* changes to *exert*. A part from the word *exact* which the deletion of /k/ changes the word to *exert*, the rest are cases of changes in grammatical functions due to deletions of inflections which identify tense and number.

The study observes that the speech of the respondents is different from RP because the speech is characterized by semantic alteration which changes the meaning of words. This is as a result of cluster reduction used by the respondents. The rule is presented below.

$$C \longrightarrow \emptyset \ / \ CCC$$

A consonant is deleted in three consonants cluster.

Table 7.8 Frequency and Percentage of CCC and CC in Three Consonant Cluster Coda

PHONEME SEQUENCE	NO. OF WORDS	CCC	CC
/nts/	1	4	25
/skd/	1	3	21
/psd	1	2	26
mpt/	1	2	24
/ŋθs/	1	3	22
/sks/	1	2	27
/pts/	1	4	29
Total Frequency	**7**	**20**	**174**
Total Percentage	**100%**	**10.3%**	**89.7%**

Table 7.8 above indicates the emergence of CC C and CC. The realization of CC is dominant with 174 cases which is equivalent to 89.7%. The CCC counterpart occurs 20 times at 10.3%. In pronouncing the word *scripts*, CC prevails with 29 cases at 88% and CCC stands at 12% with 4 tokens,

The analysis presented show the pronunciation patterns of three consonant cluster coda where the respondents usually delete the last consonant. This process is used by the respondents in order to reduce the complexity of the cluster and ease the pronunciation. This suggests that the majority of the respondents do produce CC in three consonant cluster coda but never produce CC in two consonant cluster coda.

7.4.1 OT Analysis

The process of cluster reduction occurs when a segment(s) is deleted in a cluster for simplification. In the sample below, final consonant (s) is deleted to reduce the cluster. The study uses relevant constraints to account for constraints marking in the speech of Hausa broadcasters.

*MAX-IO: This constraint allows for the deletion of a consonant in the output.

*IDENT^{CONT}: No feature continuant in the output.

IDENT-IO (F): Every feature segment in the input should have a correspondent segment of the same value in the output.

OT Evaluation of cluster reduction in coda in the RP English word *hints* in Hausa English.

(81) Input /h ɪ n t s/

Output [h ɪ n t]

Input /h ɪ n t s/	*MAX-IO	*IDENT^{CONT}	IDENT-IO (F)
a. [h ɪ n t s]	*!	*!	
b. ☞ [h ɪ n t]			*

*MAX-IO is used in order to permit deletion of a segment in the output. RP output occurs with three consonants cluster. This violates a higher ranked constraints: *MAX-IO which permits deletion of a segment in the output and *IDENT^{CONT} which prevents continuant /s/ from appearing in the output. Hausa English output fulfills the higher ranked constraint *MAX-IO and *IDENT^{CONT}. The candidate breaks lower ranked constraint IDENT-IO (F) which requires every segment in the input should have a correspondent segment of the same value in the output.

OT Evaluation of cluster reduction in coda in the RP English word *masked* in Hausa English.

(82) Input /m ɑ: s k t/

Output [m a s k]

Input /m ɑ: s k t/	*MAX-IO	IDENT-IO (F)
a. [m ɑ: s k t]	*!	
b. ☞ [m a s k]		*

*MAX-IO dominates IDENT-IO (F). RP is faithful to IDENT-IO (F) by producing three consonants coda, Hausa English obeys *MAX-IO by deleting one of the three consonants in coda, The RP is concerned with identity relations between input and output while Hausa English focuses on the output.

7.5 Spelling Pronunciation

In English, there is no correlation between orthography and the phonetic symbols. English words are pronounced based on phonetic representation (Eyisi, 2007). The data obtained in the present study reveal differences from the RP English as most of the respondents attach their pronunciation to letters of the alphabet. Each latter is pronounced which indicates one-to-one phoneme representation as it happens amongst most of the English speakers in Nigeria.

Table 7.9 Spelling Pronunciation

RP ENGLISH	HAUSA ENGLISH	INSERTED SEGMENT	IMPLICATION
Would /w ʊ d/	[w u l d]	/l/	Accent marker
Should /ʃ ʊ d/	[ʃ u l d]	/l/	Accent marker
Could /k ʊ d/	[k u l d]	/l/	Accent marker
Numb /n ʌ m/	[n u m b]	/b/	Accent marker
Climb /k l a ɪ m/	[k ɪ . l a ɪ m b]	/b/	Accent marker
Handsome /h æ n . s ə m/	[h a n d . s o m]	/d/	Accent marker
Handkerchief /h æ ŋ . k ə . tʃ ɪ f /	[h a n d. k a . tʃ ɪ f]	/d/	Accent marker

Table 7.9 shows that the respondents pronounce all the silent letters. These letters are phonetically silent in RP. This process known as consonant epenthesis and has produced Hausa English accent. This is because the meaning of the words are

retained despite the insertion of the consonant coda. The study illustrates that the speech of the respondents is different from RP because it is characterized by accent marker which shows Hausa English accent. This is as a result of the epenthesis used by the respondents.

The rule is presented below.

(a) $\emptyset \longrightarrow C \,/\, - \, C \, -$

A consonant is inserted before and after a consonant.

(b) $\emptyset \longrightarrow [l] \,/\, - \left\{ /d/ \right\}$

Lateral alveolar is inserted before voiced alveolar plosive.

(c) $\emptyset \longrightarrow [b] \,/\, \left\{ /m/ \right\} -$

Voiced bilabial plosive is inserted after bilabial nasal.

(d) $\emptyset \longrightarrow [d] \,/\, \left\{ /n/ \right\} -$

Voiced alveolar plosive is inserted after alveolar nasal.

Table 7.10 Frequency and Percentage of C and CC in Spelling Pronunciation

PHONEME SEQUENCE	NO. OF WORDS	C	CC
/ld/	3	11	129
/mb/	9	17	180
/nb/	2	7	36
Total Frequency	**14**	**35**	**345**
Total Percentage	**100%**	**9.2%**	**90.8**

There are realizations of simple and complex coda in Table 7.10. 345 tokens at 90.8% indicate two consonants cluster coda CC. The simple coda C occurs 35 times which is equivalent to 9.2%. This can be illustrated in pronunciation of the word *would.* The word has 68 tokens and 62 tokens at 94% indicate CC while C forms 4 tokens at 6 %.

It is observed that the majority of the respondents pronounce English letters that are phonetically silent. The production of these letters create complex coda CC instead of simple coda C. The plosive /b/ /d/ and lateral /l/ are epenthesized in the coda because of the appearance of letter B D L in the orthography of the words.

7.5.1 OT Analysis

Spelling pronunciation is realized when silent letter is produced in the articulation. In the present study, the English silent letters are produced by the Hausa broadcasters. In this regard, two relevant constraints have been identified to account for the process. These are *DEP-IO and *COMPLEX ^{CODA}. *DEP-IO is used in the tableau below as a markedness constraint which allows the insertion of a segment in the output. It is marked with a * to indicate a new role which is opposite to its original role of prohibition for the insertion of a segment in the output. DEP-IO without a * indicates no insertion while *DEP-IO with a * permits insertion.

*DEP-IO: This constraint permits the insertion of consonant in coda.

*COMPLEX ^{CODA}: Coda is simple.

Below is the OT Evaluation of consonant epenthesis in coda in the RP English word *would* in Hausa English.

(83) Input /w ʊ d/

Output [w u l d]

Input /w ʊ d/	*DEP-IO	*COMPLEX ^{CODA}
a. ☞ [w u l d]		*
b. [w ʊ d]	*!	

*DEP-IO is higher than *COMPLEX $^{CODA.}$ Hausa English output satisfies the higher ranked constraint *DEP-IO which permits epenthesis of a consonant /l/ in the output and disobeys *COMPLEX ^{CODA} which is a lower ranked constraint. RP output fails the higher ranked constraint *DEP-IO and satisfies *COMPLEX^{CODA} which does not permit consonant cluster in coda.

OT Evaluation of consonant epenthesis in coda in the RP English word *numb* in Hausa English.

(84) Input /n ʌ m/

Output [n u m b]

Input /n ʌ m/	*DEP-IO	IDENT-IO (F)
a. ☞ [n u m b]		*
b. [/n ʌ m]	*!	

Hausa English chooses *DEP-IO by inserting a segment in the output. On the contrary RP prefers IDENT-IO (F) in order to maintain a consonant /m/ in the coda position. These difference show the variations between the two varieties.

7.6 Discussions of the Findings

The findings reveal the systematic patterns of consonant cluster pronunciation both at the onset and coda positions in the speech of Hausa broadcasters. At the level of two consonant cluster onset, the respondents frequently use epenthetic vowels to break up the cluster and pave the way to ease the pronunciation. The vowels used are high front short vowel /ɪ/ and high back short vowel /u/, and glide epenthesis is also introduced occasionally. While at the two consonant cluster coda, the study reveals that the respondents usually delete one of the two consonants to declusterize the cluster. The clusters identified in two consonant cluster coda are nk/, /kt/, /ks/, /nd/, /st/ and /lt/. It appears that the consonants deleted are usually plosive sounds that occur in the clusters.

Similarly, at the level of three consonant cluster onset, the respondents also use same process of epenthetic vowel /ɪ/ to break up the cluster and realize the abutting consonant. The use of epenthetic vowels often create another syllable in a word. For instance, the word *script /s k r ɪ p t/* became *[s ɪ k r ɪ ɸ]* in Hausa English. The two consonants emerged in the medial position of the word are not consonants cluster because they do not belong to the same syllable. The */k/* is the final consonant of the first syllable (coda) while the /r/ is marking the beginning of the second syllable (onset). Moreover, at the level of three consonant coda, the respondents delete one of the three consonants to reduce the complexity of the cluster. The consonants deleted are usually plural and past tense markers.

Additionally, the study also discovered the pronunciation of silent letters which are associated with the influence of spelling. Some letters of English are silent in pronunciation when they occur in certain environments due to assimilation. It is, however, not the case in the present study as the respondents often pronounce such silent letters. From the foregoing, the study can deduce that the major phonological processes used by the majority of the respondents in pronouncing consonant clusters are epenthesis and deletion. The process of epenthesis is frequently used in the onset, whereas deletion is used in coda position. The findings support the presumption of Soneye and Oladunjoye (2015) who hypothesize that second language speakers of English in Nigeria are likely to insert epenthetic vowels to declusterize the consonant cluster and suggest for empirical study to validate the assertion. Thus, the present study contributes in response to this call and it identifies the phonological processes used by Hausa broadcasters in pronouncing syllable phonotactics.

The deletion used by the majority of the respondents alters the meaning of words and is likely to distort the communication. These changes have an effect on the meaning and communication process. It is, therefore, important for the broadcasters to pay attention and improve.

Generally, studies have shown that epenthesis is one of the markers of non-native English around the world. Kachru (1984) points out that epenthetic vowel /ɪ/ is usually introduced in the word initial position in English spoken in South Asia. For example is /s k u l/ becomes [ɪ s k u l]. Similarly, Todd (1884) notes that the English spoken in West Africa is also characterized by vowel epenthesis in which the high back /u/is introduced to break up the cluster. For example, /b ɒ t l/ is realized as [b o t u l]. Simo Bobda (2000) also claims that most of the African speakers of English employ deletion strategy in their speech in order to simplify a cluster. This implies that the use epenthesis and deletion in cluster simplification is not limited to only Hausa speakers of English, it cuts across Africa and other non-native speakers of English across the world.

The findings of the present study are also consistent with Mbah and Waya (2014) who report that Tiv learners of English in Nigeria employ the use of epenthetic vowels both at the onset and coda position to simplify consonant cluster. The consistency in the findings of the two studies is associated to similarities in the participants who are Nigerian speakers of English. Similarly, Soneye and Oladunjoye (2015) reveal that most of the educated Yoruba speakers of English have a systematic way of deleting a segment in a three consonant cluster coda in order to reduce the complexity from CCC to CC. The agreement of the two findings is attributed to the similarity in the research instruments which is recording of news broadcast on radio and television.

The pronunciation of consonant clusters appear to be difficult to the majority of the respondents and some clusters are more difficult to produce than the others. Silent letters are very difficult to be assimilated in the speech of the subjects. Only 9% of the speech captured the simple coda C. CC coda is also problematic where 10% pronounced it correctly and 11% articulated CC onset appropriately. The three consonants cluster coda is also 10% accurate and CCC onset is less problematic with an appropriate output of 12%.

7.7 Chapter Summary

This chapter has presented English syllable phonotactics articulations of Hausa newscasters. This is in response to research question three of the study which seeks to analyze consonants cluster articulations in the onset and coda positions. The findings reveal that the majority of the respondents use epenthetic vowels /ɪ/ and /u/ to break up two consonant and three consonant clusters in the onset. In the two consonant cluster coda, the study reveals that the respondents usually delete one of the two consonants to declusterize the cluster. The consonants deleted are usually plosive sounds that occur in the clusters. Similarly, at the level of three consonant cluster coda, the respondents delete one of the three consonants to reduce the complexity of the cluster. The consonants deleted are usually plural and past tense markers. The finding also reveal that English letters that are phonetically silent are also pronounced by the majority of the respondents which lead to artificial creation of two consonant clusters in the coda. The process has led to the realization of semantic alteration which changes the meaning of word and accent marker which shows Hausa English accent. Moreover, the respondents show preference for Markedness constraint over Faithfulness.

CHAPTER EIGHT

SUMMARY OF FINDINGS CONCLUSION AND RECOMMENDATIONS

8.0 Introduction

The study examined the English pronunciation patterns of Hausa broadcasters. The research was carried out based on the presupposition that the English spoken by Hausa broadcasters is marked by inappropriateness which is likely to mislead or distort the communication process. The study was guided by three objectives. The first objective was to identify the ways and manner in which the Hausa broadcasters handle some set of consonants that are difficult to produce by the Hausa speakers. The second objective focused on the vowels articulation. These include long vowels articulation, short vowels and diphthongs. The third objective involved phonotactics articulation of two and three consonant clusters in onset and coda positions. The summary of the findings is presented in the following section.

8.1 Summary of Findings

The phonological process involved in the articulation by the respondents have been identified. These include frication, stopping, affrication, devoicing, consonant and vowel substitutions, long vowel reduction, monophthongization of diphthong, epenthesis and deletion. Consequently, two implications have emerged: semantic alteration and accent marker. The ranking of constraints by the subjects is different from RP due to deviations involved in their speech habit. The Markedness constraints are ranked higher while Faithfulness constraints are lowly ranked.

8.1.1 Summary of Consonant Articulation

The research has identified the articulation of four set of RP consonants that are percieved to be difficult to produce by the majority of the respondents. These are /p/, /θ/, /ð/ and /ʒ/. The findings indicate that both / ɸ/ and /p/ are used by the respondents in all the phonetic environments as a word initial medial and final consonant. However, the majority of the respondents prefer to use / ɸ/ in place of /p/. This is because /p/ is an unregistered segment in the phonemic inventory of Hausa hence the realization of /ɸ/ which has closest articulatory features in terms of place and voicing. The respondents used frication in their articulation which led to the realization of semantic alteration and Hausa English accent. The Hausa broadcasters were interested on Markedness constraints rather than Faithfulness constraints

The results of patterns of articulation of voiceless interdental fricative sound θ/ in all the phonetic environments (word initially, medially and finally) show that /t/, /s/, /d/ and /θ/ are used in word initial position, however, the pronunciation pattern is dominated by /t/, followed by /s/ and then /θ/. In word medial position, the respondents use both /t/ and θ/ but /t/ is frequently used compared to θ/. Moreover, the articulation pattern at the word final position produced /t/, /d/, /s/ and /θ/. However, the large portion of the articulation supports the use of /t/ followed by /d/, then /s/ and /θ/. It should be noted that the respondents use stopping process because the /θ/ sound is an unregistered segment in Hausa and hence the substitution with ones that share some articulatory features.

Evidence from the analysis of articulations patterns of voiced interdental sound /ð/ in all the phonetic environments by the Hausa broadcasters reveal that /d/ /z/ and /ð/ are used by the majority of the respondents. In the word initial position, /d/ is frequently used, then followed by /z/ and finally with /ð/. Similarly, the word medial position, produces /d/, /z/ and /ð/ and the phoneme /d/ is more frequently used than /z/ and /ð/. This implies that most of the respondents prefer to use the phoneme /d/ or /z/ as substitutes for //ð/. However, the research has not been able to identify the use of /ð/ in the word final position. The stopping process have been used by the majority of the subjects.

With regard to the voiced palato alveolar fricative /ʒ/, the sound is articulated as voiceless palate alveolar fricative /ʃ/ or voiced palato alveolar affricate /dʒ/ in word medial position. The respondents use /dʒ/ frequently, followed by /ʃ/ and then /ʒ/. This implies that the majority of the respondents favor the use of /dʒ/ or /ʃ/ in place of /ʒ/. Two phonological processes have emerged: affrication when /ʒ/ is realized as [dʒ] and devoicing when /ʒ/ is reduced to [ʃ].

8.1.2 Summary of Vowels Articulations

It is clear that the high front long vowel /i:/ is produced as a high front short vowel [ɪ] in all the phonetic environments (initial, medial and final positions). This is because in the phonology of Hausa broadcasters, the articulation of vowel lengthening is not being produced and hence the use of vowel reduction process to ease the articulation. Similarly, based on the analysis presented on vowel /ɔ:/, it appears that the majority of the respondents produce mid back long rounded vowel /ɔ:/ as mid back short rounded vowel in all the phonetic environments, namely in word initial, medial and final positions.

Additionally, the study reveals that the high back long rounded vowel /u:/ rarely occurs in word initial position. Nevertheless, it occurs frequently in the word medial and final positions. A close scrutiny of the articulation of /u:/ in word medial and final positions by Hausa broadcasters reveals that the length of the vowel is usually reduced to articulate it as high back short rounded vowel [u] by the majority of the respondents. In a similar vein, the low back unrounded long vowel /ɑ:/ is mostly realized as low central short vowel [a] in all the phonetic environments by the the majority of the respondents. This implies that the length of the vowel is usually reduced via long vowel reduction process. Furthermore, the mid central long unrounded vowel /ɜ:/ is also realized as mid front short unrounded vowel [e], mid central short unrounded vowel [a] or mid back short rounded vowel [o] in word medial position. Two implications have emerged: semantic alteration which changes the meaning of a word and accent marker which shows Hausa English accent. There is a preference on Markedness constraints over Faithfulness constraints.

However, the articulation of central vowel has produced some variants in certain phonetic environment. /ə/ is realized as mid back short rounded vowel [o] in word initial and medial positions, and it is also realized as mid front short unrounded vowel [e], low central short unrounded vowel [a] or mid back short rounded vowel [o] in word final position. Moreover, the low central short unrounded vowel /ʌ/ is realized as low back short rounded vowel [o] in word initial as well as in word medial positions, even though, the study could not trace the occurrence of /ʌ/ in word final position.

Apart from the three RP central vowels, there is evidence of the low front short vowel /æ/ being realized as low central short vowel /a/ in word initial as well as word medial position. However, there is no evidence of a word with /æ/ in word final position in the data obtained. Another form of deviation is also observed in the articulation of a high front short vowel. Evidence from the analysis reveals that the articulations of /ɪ/ in word initial and medial positions show the realization of /e/ as a substitute for /ɪ/ by the majority of the respondents. However, there is no case of deviations from RP in the word final position. The respondents used vowel substitution process that has produced semantic alteration which changes the meaning of a word and accent marker which shows Hausa English accent. Markedness constraints dominated Faithfulness constraints in their articulation.

The articulation of some set of diphthongs also feature in the analysis. The majority of the Hausa broadcasters prefer to use /e/ in place of /eɪ/ in all the phonetic environments (word initial, medial and final position). This is as a result of the use of monophthongization of diphthong which reduces the quality of a diphthong to monophthong. In a similar vein, it is noted that there is a dominant use of /o/ in place of /əʊ/ in all the phonetic environments as word initial, medial and final in the speech of Hausa broadcasters. In addition, the patterns of articulations demonstrated by the majority of the respondents in producing centering diphthong /eə/ is the realization of /ɪa/ and glide /ja/ in all the phonetic environments as word initial, medial and final position. Two phonological processes have emerged: monophthongization of diphthong and vowel substitution and have led to semantic alteration which changes the meaning of word and accent marker which shows Hausa English accent. The constraints markings are dominated by Markedness constraints over Faithfulness constraints.

8.1.3 Summary of Consonant Clusters Articulation

The findings reveal systematic patterns of consonant clusters simplification both at the onset and coda positions in the speech of the respondents. At the level of a two consonant cluster onset, the majority of the respondents frequently use epenthetic vowels to break up the cluster and pave the way to ease the pronunciation. The vowels used are high front short vowel /ɪ/ and high back short vowel /u/, and glide epenthesis is also introduced occasionally. While at the two consonant cluster coda, the study reveals that the respondents usually delete one of the two consonants to declusterize the cluster. The clusters identified in a two consonant cluster coda are nk/, /kt/, /ks/, /nd/, /st, /nt/, /nts/ and /lt/. It appears that the consonants deleted are usually plosive sounds that occur in the clusters.

Similarly, at the level of three consonant cluster onset, the majority of the respondents also use the same process of epenthetic vowel /ɪ/ to break up the cluster and realize the abutting consonant. The use of epenthetic vowels often create another syllable in words. For instance, the word *script /s k r ɪ p t/* became [*s ɪ k   r ɪ ɸ]* in Hausa English and the two consonants that emerged in the medial position of the word are not a cluster because they do not belong to the same syllable. The */k/* is the final consonant of the first syllable while the /r/ is marking the beginning of the second syllable.

Moreover, at the level of three consonant coda, the respondents delete one of the three consonants to reduce the complexity of the cluster. The consonants deleted are usually plural and past tense markers. Additionally, the study also discovers the pronunciation of silent letters which are associated with the influence of spelling. Some letters of English are silent in pronunciation when they occur in certain environments due to assimilation. It is, however, not the case in the present study as the majority of the respondents often pronounce such silent letters. From the foregoing, the study can deduce that the major processes used by the respondents in pronouncing phonotactics are: epenthesis and deletion. The process of epenthesis is frequently used at the onset, whereas deletion is used in coda position.

8.2 Conclusion

The study concludes that the pronunciation made by media practitioners that Hausa broadcasters of English use RP English is not accurate because of the already demonstrated reasons.

The researcher has carried out investigations on consonant articulation of the subjects and it is concluded that there is the use of frication in their articulations where /p/ is realized as [ɸ]. This process has produced semantic alteration and accent marker. For instance, the word pin /pɪn/ is realized as fin [ɸ ɪ n], this process shows alteration of meaning whereas the word police /p ə l i: s/ is realized [ɸ o l ɪ s] that indicates accent marker which shows the identity of the speaker (cf. p. 74). Therefore, these changes violate the rule of RP English and mark the speech of Hausa broadcasters of English different from RP. Similarly, the interdental /θ/ and /ð/ are also substituted with /t/, /s/, /d/ and /z/. /θ/ is realized as [t] or [s]. This process has produced semantic alteration and accent marker. Examples, thank /θæŋk/ becomes tank [t a n k], think / θ ɪ ŋ k/ is realized as sink [s ɪ n k], these are semantic alteration. On the other hand, when Thursday /θ ɜ: z d e ɪ/ is realized as tosde [t o s d e] it shows accent marker (cf. p. 93). /ð/ is substituted with [d] or [z]. For instance, the / ð ə/ is realized as [de], it indicates accent marker whereas when those / ð ə ʊ z/ is altered to [d o s], it shows semantic alteration. Moreover, /ʒ/ becomes [dʒ] which shows semantic alteration and accent marker. Similarly, when leisure /l e ʒ ə/ is realized as ledger [l e dʒ o], it indicates semantic alteration while pleasure /p l e ʒ ə/ is realized as filejo [[ɸ ɪ l e dʒ o] it shows accent marker (cf. p. 126). In view of the above we conclude that the majority of the respondents do not use RP. They handle consonants phonemes in an unusual way like allophones while they are phonemes.

Another aspect that has taken the centre stage in the research is the articulation of vowels. The vowels have been categorized and examined based on certain articulatory features. These are the feature length and diphthongs. The study concludes that the feature length is lacking in the speech of the Hausa broadcasters. Even though the feature length does exist in Hausa language, it is not used by the subjects. Investigations reveal that the feature length in Hausa is associated with the tone patterns, however, English is not a tonal language but rather a stress language. This might have been the reason why RP long vowels are not realized by the subjects. For instances, leave / l i: v/ is realized as l ɪ v [l ɪ v] which shows semantic alteration. People /p i: p ə l/ is pronounced as [ɸ ɪ ɸ ʊ l] which indicates accent marker.

At the level of short vowels articulations, the study concludes that there is a vowel transfer from the Hausa vowel trapezium to Hausa English. The vowels affected are mid back rounded vowel [o] and low central short unrounded [a]. These vowels do not exist in RP and are used in place of three RP central vowels schwa /ə/, caret /ʌ/, nurse /ɜ:/ and low front short vowel /æ/. The vowel are unregistered in the vowel trapezium of Hausa, hence the realization of [o] and [a] as replacements. For examples, Editor /e d ɪ t ə/ becomes Edito [e d ɪ t o] which indicates accent marker. Similarly, the study also realizes the case of monophthongization of diphthongs at the level of diphthongs articulation where only one part of the vowel is produced as in /eɪ/ which is reduced to [e]. This process also produced accent marker and semantic alteration. The word late /l e ɪ t/ becomes let [l e t] though showing semantic alteration, data /d e ɪ t ə/ becomes data [d a t a] indicating accent marker. Moreover, there is an introduction of a new diphthong [ɪa] in the speech of the subjects. The diphthong is used by the subjects in place of centering diphthong /eə/ alongside /ja/ glide. This phoneme [ɪa] does not exist in either English or Hausa phonemic inventory, but it is closer to RP English centering diphthong /ɪə/. In this case, rare /r eə/ becomes [r ɪ a], a semantic alteration while scare /s k e ə/ becomes sikiya [s ɪ k ɪ a], an accent marker. This is another breakthrough in the phonology of Hausa language. At present, Hausa language has only four diphthongs: /aɪ/, /au/, /uɪ/ and /ɪu/. The phonological processes used by the majority of the respondents make their speech different from RP.

Concerning phonotactics articulation, the study observes that the majority of the respondents use epenthesis in the onset and deletion in the coda to simplify the consonant cluster. The research concludes that the subjects do not use RP English because the epenthesis and deletion processes used violate RP English phonotactic rules. Epenthetic vowels /ɪ/ and /u/ are usually introduced to break up the cluster in the onset. CC in the onset is realized as CV. tree /t r i: / for instance, is realized as tiri [t ɪ . r ɪ] indicating accent marker. Similarly, CCC onset also becomes CVC as can be seen in the word spray /s p r e ɪ/ that becomes sifre [s ɪ ɸ . r e] which is showing accent marker.

The two consonant cluster CC in coda is reduced to C. This can be seen in the word Six /s ɪ k s/ which becomes sis [s ɪ s] indicating accent marker. CCC in coda is reduced to CC as in the word /h ɪ n t s/ becomes hint [h ɪ n t] which is semantic alteration. This suggests that CC in coda is permitted, this usually happens when there are three consonants in the coda where one consonant is usually deleted to reduce the complexity. The segments deleted are usually plural and past tense markers and the deletion has a semantic alteration which affects the meaning of words and communication process. It is, therefore, important to note the need for further training that would address all the shortcoming experienced by the Hausa broadcaster in articulating RP English phonotactics. This will go a long way in improving the proficiency level of the subjects for effective dissemination of information.

8.3 Recommendations

Having realized the importance of training and exposure to RP phonemes in achieving appropriate pronunciation for effective communication, the study recommends a number of drills and exercises that would improve the pronunciation patterns of the Hausa broadcasters. The exercises should be based on the appropriate articulation of English sounds that would expose the broadcasters to the phonetic symbols in an organized form. This would pave the way in improving their proficiency level.

The drills and exercises should begin with the description of articulation of each phoneme (consonant and vowels). It should be accompanied by illustrative examples of words that contain the sound being taught and each word should be placed in sentences for better understanding. Emphasis should be made on phonemes that do not exist in Nigerian languages, particularly Hausa. Comparisons and contrasts have to be made on pairs of sounds which share similar articulatory features.

The exercise would also involve newscaster's self-centered learning approach where the broadcaster will read a news bulletin and tape record. Then, the broadcaster play, listen and transcribe his/her recorded voice. The transcribed version would be checked against the standard transcription. This process would enhance self-learning and evaluation.

8.4 Implications

The study has provided a valuable insight into the Nigerian phonology of English and Hausa broadcasters in particular. One of the implications provided by the research is theoretical implication. The study has justified the use of Optimality Theory in analyzing the segmental feature. Relevant constraints from Markedness and Faithfulness have been identified and marked appropriately based on hierarchical order. The analysis presented in the tableau have shown all the elements of deviations in the speech of the subjects. This outcome denounces the earlier criticisms that OT lacks adequate constraints necessary to handle the segmental features of phonology, particularly vowels. Therefore, the current research has set the pace for subsequent researches on phonology within the Optimality Theory framework.

Another implication provided by the study is physical implication. The study investigates the English sounds articulation patterns of Hausa broadcasters and their speech is characterized by elements of deviations from the norms of RP. These deviations have negative effects on the meaning of words and communication process in broadcasting. In order to ameliorate the situation, various strategies through which these shortcoming can be improved have been suggested. In this regard, this material would be beneficial to Hausa broadcasters since it categorically addresses their challenges and provides a way forward in improving their proficiency.

8.5 Suggestions for Further Research

The present study only examines four set of consonants that are perceived to be difficult to Hausa speakers of English. The labiodental fricatives [f] and [v] are also unregistered segment in Hausa, however, the study has not been able to identify the problems associated with the articulation of [f] and [v] in the speech of the respondents. Further study is suggested on articulation of these two phonemes in the speech of Hausa broadcasters.

The research is limited to the segmental features of English which covers consonants, vowels and syllable structure. Future research should look at the suprasegmental features such as stress and intonation patterns of Hausa broadcasters. There are morphophonological features of different realizations of plural marker ‘s’ and past tense marker ‘d’ in English which have not been fully addressed in the current study. Further investigation needs to be carried out on these.

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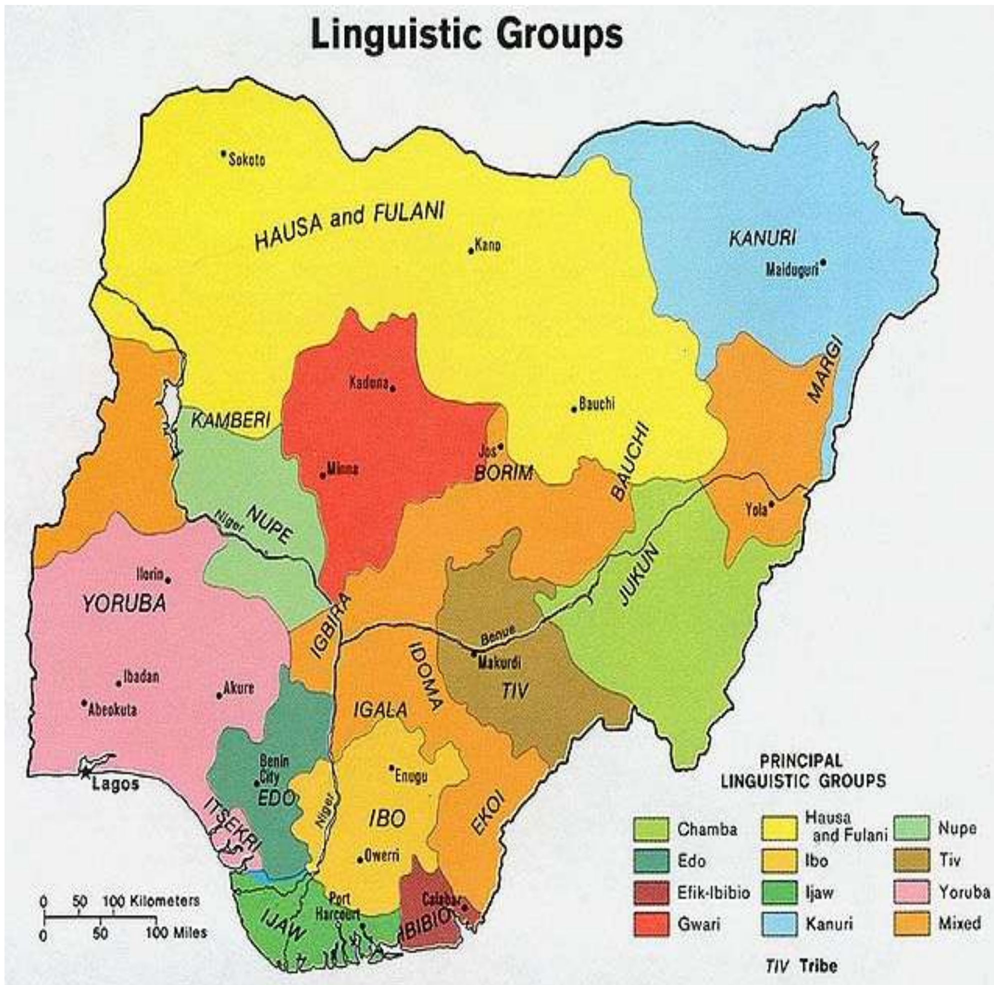
APPENDIX I: MAP INDICATING THE LINGUISTIC GROUPS IN NIGERIA



APPENDIX II: PRODUCTION TEST

This is a production test designed specifically for the purpose of a Ph.D. research. You will be tested on the basis of English speech and you are required to pronounce the list of words and read the sentences provided below. The information provided will be kept strictly confidential and will be used only for the purpose of this research. Your participation is voluntary and no name will be used to identify you without your approval.

Name………………………….

Sex…………………………….

Age……………………………

Ethnicity……………………….

Occupation……………………

Qualification………………….

Working Experience………….

1. Pronounce the group of words below:

Pin	Fin
Pine	Fine
Pool	Fool
Pull	Full
Wipe	Wife
Op	Of
Copy	Coffee
Shopping	shuffling
Three	Tree
Think	Sink
With	wit
Birth	Bird
Math	Mat
Mother	Murder
Brother	Broader

The	De
Van	Ban
Vie	Buy
Measure	Major

2. Pronounce the following group of words:

Leave	Live
Reach	Rich
Fool	Full
Port	pot
Court	Cot
Wooed	Wood

3. Pronounce the following pairs of words:

Hut	Hot
First	Fest
Cattle	Kettle
Bus	Boss
Word	Ward

4. Pronounce the list of words below:

Pain	pen
Goat	Got
Braid	Bread
Hope	Hop
Rare	Rear
Hare	Here

Under
Undue
Unless
Uncover
Unhappy

5. Pronounce the following list of words:

   Tree
   Slow
   Apple
   Ask
   Spray
   Stray
   Months
   Hints
   Masked
   Discs
   Glimpsed
   Prompts
   Masked

6. Pronounce each of the following words:
   Teacher
   Hostel
   Market
   Idea
   Depart
   Machine

7. Pronounce each of the following words:
   President
   Minister
   Government
   Important
   Decoder
   Untidy
   Magazine
   Guarantee
   Understand

8. Read the following sentences:

People progress based on their personal efforts.

He expresses satisfaction with the level of progress being made.

The convict has received a presidential pardon.

There is evidence beyond reasonable doubt to convict the defendant.

The newly recruited teachers present their credentials for documentation.

The celebrant was presented with a birthday present.

The community leader has applauded the conduct of his subjects.

People have been called upon to conduct themselves in a peaceful manner.

The researchers request for permission.

The researchers present their request for permission

The Customs service has introduced new import duties.

The company is to import brand new cars.

The government will encourage cassava farming for commercial export.

All indigenous companies export their products to earn more profits.

Record all the proceedings for proper documentation.

Record is available on the table.

9. Pronounce the following words:
   Vice President
   Headquarters
   Director General
   Major General
   Classroom
   Grasshopper

APPENDIX III: CONSENT FOR DATA COLLECTION

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 57530

Internal Memo

FROM: Dean, Graduate School

DATE: 10th February 2016

TO: **Abdulmalik Usman**
C/o English & Linguistics Department
Kenyatta University

REF: C82F/29019/2014

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

This is to inform you that Graduate School Board at its meeting of 27th **January, 2016** approved your Research Proposal for the Ph.D. Degree. **Entitled "Phonological Analysis of English Spoken by Hausa Newscasters in Broadcasting Media in Nigeria".**

You may now proceed with data collection, subject to clearance with the Director General, National Commission for Science, Technology & Innovation

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking forms per semester. The form has been developed to replace the progress report forms. The supervision Tracking Forms are available at the University's website under Graduate School webpage downloads.

By copy of this letter, the registrar (Academic) is hereby requested to grant you Substantive registration for your Ph.D studies.

Thank you.

ANNBELL MWANIKI
FOR: DEAN, GRADUATE SCHOOL

c.c. Chairman, English & Linguistics Department.

Supervisors:

1. Dr. Caleb Shivachi
English & Linguistics Department
KENYATTA UNIVERSITY

2. Dr. Gerry Ayieko
English & Linguistics Department
KENYATTA UNIVERSITY

Bauchi Radio Corpoation
... broadcasting for development

BRC

BRC/BA/GEN/STU/82/VOL.IX/37 2nd March, 2016

The Dean,
Faculty of Arts and Education,
Bauchi State University Gadau,
Bauchi State.

INTRODUCTION LETTER

I am directed to write and refer to your letter dated 6th January, 2016 concerning Research in respect of Abdulmalik Usman PHD Student with your institution.

By this information, the Management has approved his request to conduct his work with Bauchi Radio Corporation.

Aliyu S. Mustapha
For: Managing Director

SECRETARY
TO THE CORPORATION
P. M. B. 0133

Broadcasting House, Ahmadu Bello Way, P. M. B. 0133, Bauchi. Tel: +2348125760857, +2348109917620, Email:radiobauchi@gmail.com
wwwbrcbauchiinfo

RADIO NIGERIA

UPLIFTING THE PEOPLE AND UNITING THE NATION

Globe F. M. 98.5 Bauchi

Reference: ADM/FRCN/GFM/BH/VOL-I/60 Date: 15th February, 2016

The Dean,

Faculty of Arts and Education

Bauchi State University, Gadau

Bauchi.

INTRODUCTION LETTER

I am directed to write and refer to your letter dated 6th January, 2016 concerning Research in respect of Abdulmalik Usman, PHD student with your institution.

By this information, the Management has approved his request to conduct his work with Federal Radio Nigeria, Globe FM Bauchi .

NA

AMINA NASIRU SHEHU
FOR: GENERAL MANAGER

NIGERIAN TELEVISION AUTHORITY

TEL: 077-542353, 542675
FAX: 077-542748

TELEVISION HOUSE,
MAIDUGURI ROAD,
P.M.B. 0146
BAUCHI

NTAB/ADM/S/141/VOL.VI/219

23rd February, 2016

The Dean,
Faculty of Arts and Education,
Bauchi State University, Gadau,

Sir,

RE-INTRODUCTION LETTER

Please refer to your letter dated 6th January, 2016 , I am pleased to inform you that Malam Abdulmalik Usman of English Department, has conducted his assignment in the News and Current Affairs Department of NTA Bauchi.

The assignment is part of his Research in fulfillment of his PH.D Thesis at Kenyatta University Kenya.

Thank you.

Ali Garba
Manager News
For: General Manager

BAUCHI STATE TELEVISION AUTHORITY

Wuntin Dada, Jos Road P.M.B 0166, Bauchi - Nigeria
web site www.batvbauchi.com
e-mail info@batvbauchi.com

BATV

The Darling Station

Ref: **BATV/STU/GEN/T.I** Date: **25/1/2016**

The Dean,
Faculty of Arts and Education
Bauchi State University, Gadau
Bauchi.

INTRODUCTION LETTER

I am directed to write and refer to your letter dated 6th January, 2016 concerning Research in respect of Abdulmalik Usman, PHD student with your institution.

By this information, the Management has approved his request to conduct his work with Bauchi State Television.

MUH'D R. ADAMU
FOR: MANAGING DIRECTOR

SECRET

APPENDIX IV: SAMPLE OF THE RAW DATA

/p/ is articulated as [ɸ] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Pin / p ɪ n/	[ɸ ɪ n]	/p/ → [ɸ]	Semantic alteration
Pine / p a ɪ n/	[ɸ a ɪ n]	/p/ → [ɸ]	Semantic alteration
Pull /p ʊ l/	/[ɸ ʊ l]	/p/ → [ɸ]	Semantic alteration
Port / p ɔ: t/	[ɸ o t]	/p/ → [ɸ]	Accent marker
Pain / p e ɪ n/	[ɸ e n]	/p/ → [ɸ]	Semantic alteration
Pardon /p ɑ: d ə n/	[ɸ a d o n]	/p/ → [ɸ]	Accent marker
Poll /p ə ʊ l/	[ɸ o l]	/p/ → [ɸ]	Semantic alteration
People / p i: p l/	[ɸ ɪ ɸ ʊ l]	/p/ → [ɸ]	Accent marker
Passion / p æ ʃ n/	[ɸ a ʃ o n]	/p/ → [ɸ]	Semantic alteration
Person / p ɜ: s n/	[ɸ a s o n]	/p/ → [ɸ]	Accent marker
Participation / p ɑ: t ɪ s ɪ p e ɪ ʃ ə n/	[ɸ a t ɪ s ɪ ɸ e ʃ o n]	/p/ → [ɸ]	Accent marker
Public / p ʌ b l ɪ k/	[ɸ o b l ɪ k]	/p/ → [ɸ]	Accent marker
Police / p ə l i: s/	[ɸ o l ɪ s]	/p/ → [ɸ]	Accent marker
Pastor / p ɑ: s t ə/	[ɸ a s t o]	/p/ → [ɸ]	Accent marker
Punch / p ʌ n tʃ /	[ɸ o n tʃ]	/p/ → [ɸ]	Accent marker
Pupil / p j u: p ə l/	[ɸ ʊ ɸ ʊ l]	/p/ → [ɸ]	Accent marker
Pay / p e ɪ /	[ɸ e]	/p/ → [ɸ]	Accent marker
Pipe / p a ɪ p/	/[ɸ a ɪ ɸ]	/p/ → [ɸ]	Accent marker

Paper / p e ɪ p ə/	/[ɸ e ɸ a]	/p/ ⟶ [ɸ]	Accent marker
Pan / p æ n/	[ɸ a n]	/p/ ⟶ [ɸ]	Semantic alteration
Pepper /p e p ə/	fefe /[ɸ e ɸ e]	/p/ ⟶ [ɸ]	Semantic alteration
Pip / p ɪ p/	Fif [ɸ ɪ ɸ]	/p/ ⟶ [ɸ]	Accent marker
Post / p əʊ s t/	fost [ɸ o s t]	/p/ ⟶ [ɸ]	Semantic alteration

Table of Frequency and Percentage of /p/ and /ɸ/ in Word Initial Position

WORD	**/p/**	**/ɸ/**
People	11	36
Participation	7	28
Passion	6	26
Person	4	19
Public	9	61
Police	9	71
Pastor	6	16
Punch	2	12
Pupil	5	31
Pardon	6	23
Pain	7	25
Port	5	21
Pull	4	23
Pine	1	19
Post		16
Pip	-	7
Pepper	-	5
Pan	-	7
Pipe	4	23
Pay	6	19
Poll	4	19
Paper	3	19
Pin	6	16
Total Frequency	**108**	**542**
Total Percentage	**16.6%**	**83.4%**

/p/ is articulated as [ɸ] Word Medial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Copy / k ɒ p ɪ/	[k o ɸ ɪ]	/p/ → [ɸ]	Semantic alteration
Shopping / ʃ ɒ p ɪ ŋ/	[ʃ o ɸ ɪ n]	/p/ → [ɸ]	Accent marker
Unhappy ʌ n h æ p ɪ/	[o n h a ɸ ɪ]	/p/ → [ɸ]	Accent marker
Grasshopper /g r ɑ: s h ɒ p ə/	[g ɪ r a s h o ɸ a]	/p/ → [ɸ]	Accent marker
Happen / h æ p ə n/	[h a ɸ u n]	/p/ → [ɸ]	Accent marker
Participation / p ɑ: t ɪ s ɪ p e ɪ ʃ ə n/	[ɸ a t ɪ s ɪ ɸ e ʃ o n]	/p/ → [ɸ]	Accent marker
Corruption / k ə r ʌ p ʃ ə n/	[k o r o ɸ ʃ o n]	/p/ → [ɸ]	Accent marker
Upper / ʌ p ə/	/[o ɸ a]	/p/ → [ɸ]	Semantic alteration
Campaign / k æ m p e ɪ n/	[k a m ɸ e n]	/p/ → [ɸ]	Accent marker
Ripple / r ɪ p ə l/	[r ɪ ɸ u l]	/p/ → [ɸ]	Accent marker

Table of Frequency and Percentage of /p/ and /ɸ/ in Word Medial Position

Word	**/p/**	**/ɸ/**
Corruption	11	41
Happen	3	26
Upper	3	19
Campaign	6	27
Grasshopper	4	18
Unhappy	3	19
Shopping	6	20
Ripple	-	5
Copy	5	27
Total Frequency	**41**	**202**
Total Percentage	**16.9%**	**83.1%**

/p/ is articulated as [ɸ] in Word Final Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Wipe / w a ɪ p/	[w a ɪ ɸ]	/p/ → [ɸ]	Semantic alteration
Op / ɒ p/	[o ɸ]	/p/ → [ɸ]	Semantic alteration
Hope / h ə ʊ p/	[h o ɸ]	/p/ → [ɸ]	Accent marker
Workshop / w ɜ: k ʃ ɒ p/	[w o k ʃ o ɸ]	/p/ → [ɸ]	Accent marker
Whip / w ɪ p/	[w ɪ ɸ]	/p/ → [ɸ]	Accent marker
Ripe / r a ɪ p/	[r a ɪ ɸ]	/p/ → [ɸ]	Semantic alteration
Rope / r əʊ p/	[r o ɸ]	/p/ → [ɸ]	Accent marker

Table of Frequency and Percentage of /p/ and /ɸ/ in Word Final Position

WORD	**/p/**	**/ ɸ/**
Workshop	6	26
Hope	3	31
Op	3	19
Wipe	6	16
Rope	2	9
Whip	3	21
Ripe	-	3
Total Frequency	**23**	**125**
Total Percentage	**15,4%**	**84.5%**

/θ/ is articulated as [t] or [s] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Three / θ r i: /	[t ɪ r ɪ]	/θ/ → [t]	Semantic alteration
Think / θ ɪ ŋ k/	[t ɪ ŋ k] [s ɪ ŋ k]	/θ/ → [t] /θ/ → [s]	Semantic alteration
Theory / θ ɪ ə r i/	[t ɪ j o r ɪ]	/θ/ → [t]	Semantic alteration
Thousand	[t a u z a n]	/θ/ → [t]	Semantic alteration

/ θ a ʊ z n d/	[s a ʊ z a n]	/θ/ → [s]	
Thirty / θ ɜ: t i/	[t a t ɪ]	/θ/ → [t]	Accent marker
Thirteen / θ ɜ: t ɪ n/	[t a t ɪ n]	/θ/ → [t]	Accent marker
Thank / θ æ ŋ k/	[t a ŋ k]	/θ/ → [t]	Semantic alteration
Theatre / θ ɪ ə t ə/	[t ɪ j a t a]	/θ/ → [t]	Accent marker
Through / θ r u: /	[t u r u]	/θ/ → [t]	Semantic alteration
Thorough / θ ʌ r ə/	[t o r o]	/θ/ → [t]	Accent marker
Thursday / θ ɜ: z d e ɪ/	[t o s d e]	/θ/ → [t]	Accent marker
Thin / θ ɪ n/	[t ɪ n] [s ɪ n]	/θ/ → [t] /θ/ [s]	Semantic alteration
Third / θ ɜ: d /	[t a t]	/θ/ → [t]	Semantic alteration
Thing / θ ɪ ŋ/	[t ɪ n] [s ɪ n]	/θ/ → [t] /θ/ → [s]	Semantic alteration

Table of Frequency and Percentage of /θ/ /t/ and /s/ in Word Initial Position

Word	**/θ/**	**/s/**	**/t/**
Three	2	-	20
Think	3	7	23
Theory	-	-	11
Thousand	1	16	42
Thirty	2	-	27
Thirteen	-	-	15
Thank	3	-	31
Theatre	-	-	24
Through	2	-	30
Thorough	-	-	11
Thursday	4	-	19
Thin	-	18	13
Third	2	-	30
Thing	1	2	31
Total Frequency	**20**	**43**	**327**
Total Percentage	**6.9%**	**14.1%**	**79%**

/θ/ is articulated as [t] in Word Medial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Something / s ʌ m θ ɪ ŋ/	[s o m t ɪ n]	/ θ/ → [t]	Accent marker
Nothing / n ʌ θ ɪ ŋ/	[n o t ɪ n]	/ θ/ → [t]	Accent marker
Authority / ɔ: θ ɒ r ə t ɪ/	[a t o r ɪ t ɪ]	/ θ/ → [t]	Accent marker
Ethics / e θ ɪ k s/	[e t ɪ k]	/ θ/ → [t]	Accent marker
Pathetic / p ə θ e t ɪ k/	[ɸ a t e t ɪ k]	/ θ/ → [t]	Accent marker
Mathematics /m æ θ ə m æ t ɪ k s/	[m a t ɪ m a t ɪ k s]	/ θ/ → [t]	Accent marker

Table of Frequency and Percentage of /θ/ and /t/ in Word Medial Position

Word	**/θ/**	**/t/**
Something	6	42
Nothing	2	21
Authority	7	61
Ethics	-	18
Pathetic	1	16
Mathematics	3	24
Total Frequency	**19**	**182**
Total Percentage	**9.5%**	**90.5%**

/θ/ is articulated as [t] [d] or [s] in Word Final Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
With / w ɪ θ/	[w ɪ t] [w ɪ s]	/θ/ → [t] θ/ → [s]	Semantic alteration
Birth / b ɑ: θ/	[b a d] [b a t]	/θ/ → [d] θ/ → [t]	Semantic alteration
Math / m æ θ/	[m a s]	/θ/ → [s]	Semantic alteration
Health / h e l θ/	[h e l t]	/θ/ → [t]	Accent marker
Worth / w ɜ: θ/	[w o d]	/θ/ → [d]	Semantic alteration

Month / m ʌ n θ/	[m o n t]	/θ/ → [t]	Accent marker
North / n ɔ: θ/	[n o t] [n od]	/θ/ → [t] /θ/ [d]	Semantic alteration
South/ s a ʊ θ/	[s a u t] [s a u d]	/θ/ → [t] /θ/ [d]	Accent marker
Both / b ə ʊ θ /	[b o d] [b o t]	/θ/ → [d] /θ/ → [t]	Semantic alteration
Forth / f ɔ: θ/	[f o t] [f o d]	/θ/ → [t] /θ/ [d]	Accent marker
Wealth / w e l θ/	[w e l t]	/θ/ → [t]	Semantic alteration
Earth / ɜ: θ /	[a t]	/θ/ → [t]	Semantic alteration
Fourth/ f ɔ: θ/	[f o t] [f o d	/θ/ → [t] /θ/ [d]	Accent marker
Faith / f e ɪ θ/	[f e t]	/θ/ → [t]	Accent marker

Table of Frequency and Percentage of /θ/ /s/ /d/ and /t/ in Word Final Position

Word	**/θ/**	**/s/**	**/d/**	**/t/**
With	2	7	-	64
Birth	5	-	26	20
Math	-	21	-	16
Health	3	-	-	32
Worth	4	-	-	28
Month	-	-	-	20
North	2	-	26	17
South	-	-	12	37
Both	-	-	16	14
Forth	2	-	12	21
Wealth	1	-	-	19
Earth	-	-		11
Fourth	2	-	10	15
Faith	-	-	-	23
Total Frequency	**21**	**28**	**102**	**337**
Total Percentage	**4.3%**	**5.7%**	**20.9%**	**69.1%**

/ð/ is articulated as [d] or [z] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
The / ð ə/	[d e]	/ð/ → [d]	Accent marker
That / ð æ t/	[d a t]	/ð/ → [d]	Accent marker
Those / ð ə ʊ z/	[d o s] [z o s]	/ð/ → [d] /ð/ → [z]	Semantic alteration
Then / ð e n/	[d e n]	/ð/ → [d]	Semantic alteration
There / ð e ə/	[d a j a] [z a j a]	/ð/ → [d] /ð/ → [z]	Semantic alteration
Than / ð æ n/	[d a n]	/ð/ → [d]	Accent marker
Them / ð e m/	[d e m]	/ð/ → [d]	Accent marker

Table of Frequency and Percentage of / ð/ /z/ and /d/ in Word Initial Position

Word	**/ð/**	**/z/**	**/d/**
The	9	-	103
That	3	-	34
Those	4	39	28
Then	3	-	21
There	5	28	27
Than	2	-	32
Them	1	-	19
Total Frequency	**27**	**67**	**264**
Total Percentage	**7.5%**	**18.7%**	**73.7%**

/ð/ is articulated as [d] and [z] in Word Medial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Within / w ɪ ð ɪ n/	[w ɪ d ɪ n]	/ð/ → [d]	Accent marker
breathing /b r i; ð ɪ ŋ/	[b ɪ r ɪ d ɪ n]	/ð/ → [d]	Semantic alteration
more than / m ɔ: ð æ n/	[m o d a n]	/ð/ → [d]	Semantic alteration

Withdraw / w ɪ ð r ɔ: /	[w ɪ d u ro]	/ð/ → [d]	Accent marker
Withhold /w ɪ ð h ə ʊ l d/	[w ɪ d h o l]	/ð/ → [d]	Accent marker
Mother / m ʌ ð ə/	[m a d] [m a z a]	/ð/ → [d] /ð/ → [z]	Semantic alteration
Brother / b r ʌ ð ə/	[b u r a z a] [b u r o da]	/ð/ → [d] /ð/ → [z]	Semantic alteration
Another / ə n ə ð ə/	[a n o d a] [a n a z a]	/ð/ → [d] /ð/ → [z]	Accent marker
Together / t ə g e ð ə/	[t u g e d a] [t u g e z a]	/ð/ → [d] /ð/ → [z]	Accent marker
Weather /we ð ə/	[w e d a] [w e z a]	/ð/ → [d] /ð/ → [z]	Accent marker
Other / ʌ ð ə/	[o d a] [o z a]	/ð/ → [d] /ð/ → [z]	Semantic alteration
Either / a ɪ ð ə	[a ɪ d a] [a ɪ z a]	/ð/ → [d] /ð/ → [z]	Accent marker
Father / f ɑ: ð ə/	[f a d a] [f a z a]	/ð/ → [d] /ð/ → [z]	Accent marker
Further / f ɜ: ð ə/	[f o d a] [foza]	/ð/ → [d] /ð/ → [z]	Accent marker
Neither / n a ɪ ð ə/	[n a ɪ d a] [n a ɪ z a]	/ð/ → [d] /ð/ → [z]	Accent marker
Gather / g æ ð ə/	[g a d a] [g a z a]	/ð/ → [d] /ð/ → [z]	Accent marker

Table of Frequency and Percentage of /ð/ /z/ and /d/ in Word Medial Position

Word	**/ð/**	**/z/**	**/d/**
Within	6	-	31

Breathing	3	-	13
More than	4	-	19
Withdraw	2	-	27
Withhold	2	-	15
Mother	3	8	27
Brother	4	11	23
Another	2	16	34
Together	3	10	16
Weather	2	12	32
Other	3	10	22
Either	4	6	18
Father	1	10	21
Further	5	12	30
Neither	5	5	15
Gather	2	11	20
Total Frequency	**51**	**111**	**363**
Total Percentage	**9.7%**	**21.1%**	**69.1%**

/ʒ/ is articulated as [ʃ] or [dʒ] in Word Medial Position

RP ENGLISH	**HAUSA ENGLISH**	**SUBSTITUTION**	**IMPLICARION**
Measure / m e ʒ ə/	[m e dʒ o] [m e dʒ a]	/ ʒ/ → [dʒ]	Semantic alteration
Television / t e l ɪ v ɪ ʒ ə n/	[t e l e v ɪ ʃ o n] [t e l e v ɪ dʒ ɪ n]	/ ʒ/ → [ʃ] / ʒ/ → [dʒ]	Accent marker
Leisure / l e ʒ ə/	[l e dʒ o]	/ ʒ/ → [dʒ]	Semantic alteration
Pleasure / p l e ʒ ə/	[ɸ ɪ l e dʒ o]	/ ʒ/ → [dʒ]	Accent marker
Closure /k l ə ʊ ʒ ə/	[k ʊ l o dʒ o]	/ ʒ/ → [dʒ]	Accent marker
Confusion /k ə n fj u: ʒ ə n/	[k o fj u ʃ o n]	/ ʒ/ → [ʃ]	Accent marker
Decision / d ɪ s ɪ ʒ ə n/	[d ɪ s ɪ ʃ o n]	/ ʒ/ → [ʃ]	Accent marker
Division / d ɪ v ɪ ʒ ə n/	[d ɪ v ɪ ʃ o n] [d ɪ v ɪ dʒ o n]	/ ʒ/ → [ʃ] / ʒ/ → [dʒ]	Accent marker

Illusion / ɪ l u: ʒ ə n/	[ɪ l ʊ ʃ o n]	/ʒ/ → [ʃ]	Accent marker
Vision / v ɪ ʒ ə n/	[v ɪ ʃ o n] [v ɪ dʒ o n]	/ʒ/ → [ʃ] /ʒ/ → [dʒ]	Accent marker
Explosion / ɪ k s p l ə ʊ ʒ ə n/	[e s p ʊ l o ʃ o n]	/ʒ/ → [ʃ]	Accent marker
Exposure / ɪ k s p ə ʊ ʒ ə/	[e s p o d ʒ o]	/ʒ/ → [dʒ]	Accent marker
Collision / k ə l ɪ ʒ ə n/	[k o l ɪ ʃ o n]	/ʒ/ → [ʃ]	Accent marker

Table of Frequency and Percentage of /ʒ/ /ʃ/ and /dʒ/ in Word Medial Position

Word	**/ʒ/**	**/ʃ/**	**/dʒ/**
Measure	2	-	41
Television	5	27	65
Leisure	-	-	21
Pleasure	3	-	30
Closure	2	-	18
Confusion	4	32	-
Decision	-	26	-
Division	3	31	20
Illusion	-	12	-
Vision	4	16	25
Explosion	5	22	-
Exposure	-	-	23
Collision	2	11	-
Total Frequency	**30**	**177**	**243**
Total Percentage		**39.3%**	**54%**

/i:/ is articulated as [ɪ] in Word Medial Position

RP ENGLISH	**HAUSA ENGLISH**	**LONG VOWEL REDUCTION**	**IMPLICATION**
Leave / l i: v/	[l ɪ v]	/i: / → [ɪ]	Semantic Alteration
Reach / r i: tʃ/	[r ɪ tʃ]	/i: / → [ɪ]	Semantic alteration
People / p i: p ə l/	[ɸ ɪ ɸ ʊ l]	/i: / → [ɪ]	Accent marker

Senior / s i: n ɪ ə/	[s ɪ n ɪ j o]	/i: / → [ɪ]	Accent marker
Feature / f i: tʃ ə/	[f ɪ j tʃ o]	/i: / → [ɪ]	Accent marker
Police / p ə l i: s/	[ɸ o l ɪ s]	/i: / → [ɪ]	Accent marker
Medium / m i: d i ə m	[m ɪ d ɪ j o m]	/i: / → [ɪ]	Accent marker
Seen /s i: n/	[s ɪ n]	/i: / → [ɪ]	Semantic alteration
Seat / s i:t/	[s ɪ t]	`/i: / → [ɪ]	Semantic alteration
Heal /h i:l/	[h ɪ l]	/i: / → [ɪ]	Semantic alteration
Least / l i:st/	[l ɪ s t]	/i: / → [ɪ]	Semantic alteration
Sleep / s l i: p/	[s ɪ l ɪ ɸ]	/i: / → [ɪ]	Semantic alteration
Zeal / z i: l/	[z ɪ l]	/i: / → [ɪ]	Accent marker
Seal / s i: l/	[s ɪ l]	/i: / → [ɪ]	Semantic alteration
Peak / p i: k/	[ɸ ɪ k]	/i: / → [ɪ]	Semantic
Meal /m i: l/	[m ɪ l]	/i: / → [ɪ]	Semantic alteration
Mean / m i: n /	[m ɪ n]	/i: / → [ɪ]	Semantic alteration
Keen / k i: n/	[k ɪ n]	/i: / → [ɪ]	Semantic alteration
Sheet / ʃ i: t/	[ʃ ɪ t]	/i: / → [ɪ]	Semantic alteration
Piece / p i: s/	[ɸ ɪ s]	/i: / → [ɪ]	Semantic alteration
Teach / t i: tʃ /	[t ɪ tʃ]	/i: / → [ɪ]	Accent marker
Team / t i: m/	[t ɪ m]	/i: / → [ɪ]	Accent marker

Table of Frequency and Percentage of /i: / and /ɪ/ in Word Medial Position

Word	**/i: /**	**/ɪ/**

Leave	7	46
Reach	5	38
People	11	36
Senior	3	18
Feature	4	22
Police	9	71
Medium	8	79
Seen	3	15
Seat	5	27
Heal	2	13
Least	3	19
Sleep	2	13
Zeal	3	16
Seal	4	20
Peak	2	17
Meal	2	21
Mean	3	18
Keen	-	7
Sheet	3	22
Piece	5	30
Teach	6	15
Team	4	13
Total Frequency	**94**	**576**
Total Percentage	**14%**	**86%**

/i:/ is articulated as [ɪ] in Word Final Position

RP ENGLISH	**HAUSA ENGLISH**	**LONG VOWEL REDUCTION**	**IMPLICATION**
Three /θ r i: /	[t ɪ r ɪ]	/i:/ → [ɪ]	Accent marker
Tree /t r i: /	[t ɪ r ɪ]	/i:/ → [ɪ]	Accent marker
Free f r i: /	[f ɪ r ɪ]	/i:/ → [ɪ]	Accent marker
Sea /s i: /	[s ɪ]	/i:/ → [ɪ]	Accent marker
Key /k i: /	[k ɪ]	/i:/ → [ɪ]	Accent marker

Table of Frequency and Percentage of ɪ/ and /i:/ in Word Final Position

Word	**/i: /**	**/ɪ/**
Three	6	32
Tree	2	21
Free	3	29
Sea	1	11
Key	2	13
Total Frequency	**14**	**106**
Total Percentage	**88.3%**	**11.7%**

/ ɔ:/ is articulated as [o] in Word Initial Position

RP ENGLISH	**HAUSA ENGLISH**	**LONG VOWEL REDUCTION**	**IMPLICATION**
Authority [ɔ: θ ɒ r ə t ɪ]	[o t o r ɪ t ɪ]	/ɔ: / → [o]	Accent marker
Order / ɔ: d ə /	[o d a]	ɔ: / →[o]	Accent marker
Orientation /ɔ: r i ə n t e ɪ ʃ ə n/	[o r ɪ a n t e ʃ o n]	ɔ: / → [o]	Accent marker
Organization /ɔ: g ə n a z e ɪ ʃ ə n/	[o g a n a z e ʃ o n]	ɔ: / → [o]	Accent marker

Table of Frequency and Percentage of /ɔ: / and /o/ in Word Initial Position

Word	**/ɔ: /**	**/o/**
Authority	8	76
Order	5	34
Orientation	3	21
Organization	6	43
Total Frequency	**22**	**174**
Total Percentage	**11.2%**	**88.2%**

/ɔ: / is articulated as [o] in Word Medial Position

RP ENGLISH	HAUSA ENGLISH	LONG VOWEL REDUCTION	IMPLICATION
Port /p ɔ: t/	, [ɸ o t]	/ɔ: / → [o]	Semantic alteration
Court /k ɔ: t/	[k o t]	/ɔ: / → [o]	Semantic alteration
North /n ɔ: θ/	[n o t] [n o d]	/ɔ: / → [o]	Semantic alteration
More than /m ɔ: ð æ n/	[m o d a n]	/ɔ: / → [o]	Semantic alteration
Forth /f ɔ: θ/	[f o t]	/ɔ: / → [o]	Semantic alteration
Force /f ɔ: s/	[f o s]	/ɔ: / → [o]	Semantic alteration
Sport /s p ɔ: t/	[s ɪ ɸ o t]	/ɔ: / → [o]	Semantic alteration
Taught / t ɔ: t/	[t o t]	/ɔ: / → [o]	Semantic alteration
Form / f ɔ: m/	[f o m]	/ɔ: / → [o]	Accent marker
Fork / f ɔ: k/	[f o k]	/ɔ: / → [o]	Accent marker

Table of Frequency and Percentage of /ɔ:/ and /o/ in Word Medial Position

Word	**/ɔ: /**	**/o/**
Port	3	31
Court	5	46
North	3	34
More than	2	23
Forth	4	27
Force	3	20
Sport	2	32
Taught	2	21
Form	3	25
Fork	-	11
Total Frequency	**27**	**270**
Total Percentage	**9.1%**	**90.9%**

/ɔ: / is articulated as [o] in Word Final Position

RP ENGLISH	HAUSA ENGLISH	LONG VOWEL REDUCTION	IMPLICATION
For /f ɔ:/	[f o]	/ɔ:/ → [o]	Accent marker
Law /l ɔ:/	[l o]	/ɔ:/ → [o]	Accent marker
Pour /p ɔ:	[ɸ o]	/ɔ:/ → [o]	Semantic alteration
Door /d ɔ:/	[d o]	/ɔ:/ → [o]	Accent marker
Core /k ɔ:/	[k o]	/ɔ:/ → [o]	Accent marker
Nor /n ɔ:/	[n o]	/ɔ:/ → [o]	Semantic alteration
Raw /r ɔ:/	[r o]	/ɔ: / → [o]	Accent marker
Saw /s ɔ:/	[s o]	/ɔ: / → [o]	Semantic alteration

Table of Frequency and Percentage of /ɔ:/ and /o/ in Word Final Position

Word	**/ɔ:/**	**/o/**
For	4	31
Law	6	42
Pour	2	23
Door	1	12
Core	2	25
Nor	3	16
Raw	2	20
Saw	3	29
Total Frequency	**23**	**198**
Total Percentage	**10.4%**	**89.6%**

/u: / is articulated as [u] in Word Medial Position

RP ENGLISH	**HAUSA ENGLISH**	**LONG VOWEL REDUCTION**	**IMPLICATION**
Fool / f u: l/	[f u l]	/u: / ⟶ [u]	Semantic alteration
Wooed / w u: d/	[w u d]	/u: / ⟶ [u]	Semantic alteration
Junior /dʒ u: n i ə/	[dʒ u n ɪ jo]	/u: / ⟶ [u]	Accent marker
Future / f ju: tʃ ə/	[f ɪ j u tʃ o]	/u: / ⟶ [u]	Accent marker
Pupil /p j u: p ə l/	[ɸ u ɸ u l]	/u: / ⟶ [u]	Accent marker
Tuesday / tʃ u: z d e ɪ	[t u s d e]	/u: / ⟶ [u]	Accent marker
Pool / p u: l/	[ɸ u l]	/u: / ⟶ [u]	Semantic alteration
Luke / l u: k/	[l u k]	/u: / ⟶ [u]	Semantic alteration
Cool / k u: l/	[k u l]	/u: / ⟶ [u]	Accent marker
Booth /b u: ð/	[b u t]	/u: / ⟶ [u]	Semantic alteration
Tool / t u: l/	[t u l]	/u: / ⟶ [u]	Accent marker
Moon /m u: n/	[m u n]	/u: / ⟶ [u]	Accent marker
Noon /n u: n/	[n u n]	/u: / ⟶ [u]	Semantic alteration
Sooner /s u: n ə/	[s u n a]	/u: / ⟶ [u]	Accent marker
Tune / t j u: n/	[t ɪ j u n]	/u: / ⟶ [u]	Accent marker

Table of Frequency and Percentage of /u:/ and /u/ in Word Medial Position

Word	**/u: /**	**/u/**
Fool	4	29
Wood	2	19
Junior	2	16
Future	3	27
Pupil	5	31
Tuesday	2	21

Pool	4	27
Luke	-	12
Cool	2	20
Booth	-	9
Tool	4	21
Moon	3	25
Noon	5	26
Sooner	-	10
Total Frequency	**36**	**293**
Total Percentage	**10.9**	**89.1%**

/u:/ is articulated as [u] in Word Final Position

RP ENGLISH	**HAUSA ENGLISH**	**LONG VOWEL REDUCTION**	**IMPLICATION**
Through /θ r u: /	[t u r u]	/u: / → [u]	Accent marker
Shoe /ʃ u: /	[ʃ u]	/u: / → [u]	Accent marker
Woo /w u: /	[w u]	/u: / → [u]	Accent marker
Coup /k u: /	[k u]	/u: / → [u]	Accent marker
Goo /g u: /	[g u]	/u: / → [u]	Accent marker

Table of Frequency and Percentage of /u:/ and /u/ in Word Final Position

Word	**/u: /**	**/u/**
Through	5	32
Shoe	2	14
Woo	2	20
Coup	-	16
Goo	-	6
Total Frequency	**9**	**88**
Total Percentage	**9.3%**	**90.7%**

/ɑ:/ is articulated as [a] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	LONG VOWEL REDUCTION	IMPLICATION
Arm / ɑ: m/	[a m]	/ɑ: / → [a]	Semantic alteration
Arch / ɑ: tʃ/	[a k]	/ɑ: / → [a]	Accent marker
Art / ɑ: t/	[a t]	/ɑ: / → [a]	Semantic alteration
Archaic / ɑ: k e ɪ k/	[a k a ɪ k]	/ɑ: / → [a]	Accent marker
Armour / ɑ: m ə/	[a m o]	/ɑ: / → [a]	Accent marker

Table of Frequency and Percentage of /ɑ: /and /a/ in Word Initial Position

Word	**/ɑ: /**	**/a/**
Arm	2	23
Arch	2	16
Art	-	12
Archaic	3	15
Armour	4	19
Total Frequency	**11**	**85**
Total Percentage	**11.5%**	**88.5%**

/ɑ:/ is articulated as [a] in Word Medial Position

RP ENGLISH	HAUSA ENGLISH	LONG VOWEL REDUCTION	IMPLICATION
Market /m ɑ: k ɪ t/	[m a k e t]	/ɑ: / → [a]	Accent marker
Pardon /p ɑ: d ə n/	[ɸ a d o n]	/ɑ: / → [a]	Accent marker
Grass / g r ɑ: s/	[g ɪ r a s]	/ɑ: / → [a]	Accent marker
Participation /p ɑ: t ɪ s ɪ p e ɪ ʃ ə n/	[ɸ a t ɪ s ɪ ɸ e ʃ o n]	/ɑ: / → [a]	Accent marker
Father/ f ɑ: ð ə/	[f a d a] [f a z a]	/ɑ: / → [a]	Accent marker
Pastor / p ɑ: s t ə/	[ɸ a s t o]	/ɑ: / → [a]	Accent marker
Glass / g l ɑ: s/	[g ɪ l a s]	/ɑ: / → [a]	Accent marker

Charge / tʃ ɑ: dʒ/	[tʃ a dʒ]	/ɑ: / $\longrightarrow$ [a]	Accent marker
Clerk / k l ɑ: k/	[k ɪ l a k]	/ɑ: / $\longrightarrow$ [a]	Accent marker
Class / k l ɑ: s/	[k ɪ l a s]	/ɑ: / $\longrightarrow$ [a]	Accent marker
Half / h ɑ: f/	[h a f]	/ɑ: / $\longrightarrow$ [a]	Accent marker
Laugh / l ɑ: f/	[l a f]	/ɑ: / $\longrightarrow$ [a]	Accent marker
Start / s t ɑ: t /	[s ɪ t a t]	/ɑ: / $\longrightarrow$ [a]	Accent marker
Sharp / ʃ ɑ: p/	[ʃ a ɸ]	/ɑ: / $\longrightarrow$ [a]	Accent marker
Sergeant /s ɑ: dʒ ə n t/	[s a dʒ e n]	/ɑ: / $\longrightarrow$ [a]	Accent marker
March / m ɑ: tʃ/	[m a tʃ]	/ɑ: $\longrightarrow$ [a]	Semantic alteration
Harbour / h ɑ: b ə/	[h a b o]	/ɑ: / $\longrightarrow$ [a]	Accent marker
Barber / b ɑ: b ə/	[b a b a]	/ɑ: / $\longrightarrow$ [a]	Accent marker
Park /p ɑ: k/	[ɸ a k]	/ɑ: / $\longrightarrow$ [a]	Accent marker

Table of Frequency and Percentage of /ɑ: / and /a/ in Word Medial Position

Word	**/ɑ: /**	**/a/**
Market	5	41
Pardon	6	23
Grass	2	15
Participation	7	28
Father	1	10
Pastor	6	16
Glass	2	20
Charge	3	17
Clerk	4	25
Class	-	11
Half	1	6
Laugh	-	5
Start	4	27
Sharp	3	21

Sergeant	-	9
March	3	18
Harbour	-	12
Barber	3	15
Park	2	20
Total Frequency	**52**	**339**
Total Percentage	**13.3%**	**86.7%**

/ɑ: / is articulated as [a]in Word Final Position

RP ENGLISH	HAUSA ENGLISH	LONG VOWEL REDUCTION	IMPLICATION
Car /k ɑ: /	[k a]	/ɑ: / → [a]	Accent marker
Bar /b ɑ: /	[b a]	/ɑ: / → [a]	Accent marker
Far / f ɑ: /	[f a]	/ɑ: / → [a]	Accent marker
Jar / dʒ ɑ: /	[dʒ a]	/ɑ: / → [a]	Accent marker

Table of Frequency and Percentage of /ɑ:/ and /a/ in Word Final Position

Word	**/ɑ: /**	**/a/**
Car	3	31
Bar	2	20
Far	2	16
Jar	-	12
Total Frequency	**7**	**79**
Total Percentage	**8.1%**	**91.9**

/ɜ:/ is articulated as [o] [a] or [e] in Word Medial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Birth / b ɜ: θ/	[b a t] [b a d[	/ɜ: / → [a]	Semantic alteration
Bird / b ɜ: d/	[b a d]	/ɜ: / → [a]	Semantic alteration
First / f ɜ: s t/	[f o s] [f e s]	/ɜ: / → [o] /ɜ: / → [e]	Semantic alteration

Word / w ɜ: d/	[w o d] [w a d]	/ɜ: / → [o] /ɜ: / → [a]	Semantic alteration
Birthday / b ɜ: θ d e ɪ/	[b a d d e]	/ɜ: / → [a]	Semantic alteration
Person / p ɜ: s n/	[ɸ e s o n]	/ɜ: / → [e]	Accent marker
Journey / dʒ ɜ: n i/	[dʒ o n ɪ]	/ɜ: / → [o]	Accent marker
Work / w ɜ: k/	[w o k]	/ɜ: / → [o]	Semantic alteration
Worth / w ɜ: θ/	[w o d] [w a d]	/ɜ: / → [o] /ɜ: / → [a]	Semantic alteration
World / w ɜ: l d/	[w o l]	/ɜ: / → [o]	Semantic alteration
Thirty / θ ɜ: t i/	[t a t ɪ]	/ɜ: / → [a]	Accent marker
Thirteen / θ ɜ: t ɪ n/	[t a t ɪ n]	/ɜ: / → [a]	Accent marker
Workshop / w ɜ: k ʃ ɒ p/	[w o k ʃ o ɸ]	/ɜ: / → [o]	Accent marker
Workers / w ɜ: k ə s/	[w o k a s]	/ɜ: / → [o]	Accent marker
Surgery / s ɜ: dʒ ə r ɪ/	[s o dʒ o r ɪ]	/ɜ: / → [o]	Accent marker
Return / r ɪ t ɜ: n/	[r ɪ t o n]	/ɜ: / → [o]	Accent marker
Church / tʃ ɜ: tʃ/	[tʃ o tʃ]	/ɜ: / → [o]	Accent marker
Thursday / θ ɜ: z d e ɪ/	[t o s d e]	/ɜ: / → [o]	Accent marker
Firm / f ɜ: m/	[f e m]	/ɜ: / → [e]	Accent marker
Heard / h ɜ: d/	[h a d]	/ɜ: / → [a]	Semantic alteration
Hurl / h ɜ: l/	[h o l]	/ɜ: / → [o]	Semantic alteration

Table of Frequency and Percentage of /ɜ: / /e/ /a/ and /o/ in Word Medial Position

Word	**/ɜ: /**	**/e/**	**/a/**	**/o/**
Birth	5	-	26	-
Bird	6	-	19	-
First	4	41	-	69
Word	4	-	12	32
Birthday	4	-	26	-
Person	-	21	-	-
Journey	3	-	-	29
Work	5	-	-	34
Worth	4	-	10	28
World	2	-	-	41
Thirty	2	-	27	-
Thirteen	-	-	15	-
Workshop	6	-	-	26
Workers	5	-	-	21
Surgery	-	-	-	15
Return	2	-	-	29
Church	3	-	-	32
Thursday	4	-	-	28
Firm	5	62	-	-
Heard	2	-	31	-
Hurl	-	-	-	9

/ ə/ is articulated as [o] in Word Initial Position

RP ENGLISH	**HAUSA ENGLISH**	**SUBSTITUTION**	**IMPLICATION**
Of /ə v/	[o f]	/ə/ → [o]	Semantic alteration
Undue /ə n dju: /	[o n dju]	/ə/ → [o]	Accent marker
Unless / ə n l e s/	[o n l e s]	/ə/ → [o]	Accent marker
Until / ə n t ɪ l/	[o n t ɪ l]	/ə/ → [o]	Accent marker

Table of Frequency and Percentage of /ə/ and /o/ in Word Initial Position

Word	**/ə/**	**/o/**
Of	6	71
Undue	3	29
Unless	4	32
Until	2	22
Total Frequency	**15**	**154**
Total Percentage	**8.9%**	**91.1%**

/ə/ is articulated as [o] in Word Medial Position

RP ENGLISH	**HAUSA ENGLISH**	**SUBSTITUTION**	**IMPLICATION**
Question / k w e s tʃ ə n/	[k w a ɪ ʃ o n]	/ə/ → [o]	Accent marker
Corruption / k ə r ʌ p ʃ ə n /	[k o r o ɸ ʃ o n]	/ə/ → [o]	Accent marker
Television / t e l ɪ v ɪ ʒ ə n/	[t e l e v ɪ ʃ o n]	/ə/ → [o]	Accent marker
Police / p ə l i: s/	[ɸ o l ɪ s]	/ə/ → [o]	Accent marker
Pupil / p j u: p ə l/	[ɸ ʊ ɸ o l]	/ə/ → [o]	Accent marker
Medium / m i: d i ə m/	[m ɪ d ɪ j o m]	/ə/ → [o]	Accent marker
Cupboard / k ʌ b ə d/	[k a b o d]	/ə/ → [o]	Accent marker
Suggest /s ə dʒ e s t/	[s o d ʒ e s]	/ə/ → [o]	Accent marker

Table of Frequency and Percentage of /ə/ and /o/ in Word Medial Position

Word	**/ə/**	**/o/**
Question	4	23
Corruption	11	41
Television	8	89
Police	9	71
Pupil	5	31
Medium	3	35
Cupboard	-	14
Suggest	2	26

Total Frequency	42	330
Total Percentage	**11.3%**	**88.7%**

/ə/ is articulated as [o] [e] or [a] in Word Final Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
The / ð ə/	[d e]	/ə/ → [e]	Accent marker
Measure / m e ʒ ə/	[m e dʒ o]	/ə/ → [o]	Semantic alteration
Feature / f i: tʃ ə/	[f ɪ j tʃ o] [f ɪ j tʃ a]	/ə/ → [o] /ə/→ [a]	Accent marker
Together /t ə g e ð ə/	[t u g e d a]	/ə/ → [a]	Accent marker
Figure /f ɪ g ə/	[f ɪ g o[	/ə/ → [o]	Accent marker
Senior /s i: n i ɪ ə/	[s i n i j o]	/ə/ → [o]	Accent marker
Mirror / m ɪ r ə/	[m i r o]	/ə/ → [o]	Accent marker
Labour / l e ɪ b ə/	[e b o]	/ə/ →[o]	Accent marker
Junior / dʒ u: n i ə/	[dʒ ɪ n ɪ j o]	/ə/ → [o]	Accent marker
Governor / g ʌ v ə n ə/	[g o v n o]	/ə/ → [o]	Accent marker
Editor /e d ɪ t ə/	[e d ɪ t o]	/ə/ → [o]	Accent marker
Sector / s e k t ə/	[s e k t o]	/ə/ → [o]	Accent marker
Pastor / p ɑ: s t ə/	[ɸ a s t o]	/ə/ → [o]	Accent marker
Thorough / θ ʌ r ə/	[t o r o]	/ə/ → [o]	Accent marker
Minor / m a ɪ n ə/	[m a ɪ n o]	/ə/ → [o]	Accent marker
Major / m e ɪ d ʒ ə/	[m e d ʒ o]	/ə/ → [o]	Accent marker
Favour / f e ɪ v ə/	[f e v o]	/ə/ → [o]	Accent marker

Doctor / d ɒ k t ə/	[d o k t o]	/ə/ → [o]	Accent marker
Picture /p ɪ k t ʃ ə/	[ɸ ɪ k tʃ o] [ɸ ɪ k tʃ a]	/ə/ → [o] /ə/ → [a]	Accent marker

Table of Frequency and Percentage of /ə/ /a/ /e/ and /o/ in Word Final Position

Word	**/ə/**	**/a/**	**/e/**	**/o/**
The	9	-	109	-
Measure	3	-	-	30
Feature	5	20	-	61
Together	3	34	-	-
Figure	5	-	-	43
Senior	4	-	-	21
Mirror	4	-	-	-
Figure	6	-	-	-
Labour	5	-	-	53
Junior	-	-	-	15
Governor	8	-	-	63
Editor	-	-	-	81
Pastor	-	-	-	22
Thorough	-	-	-	16
Minor	-	-	-	12
Major	2	-	-	34
Favour	1	-	-	11
Doctor	3	-	-	20
Picture	2	25	-	17
Total Frequency	**60**	**79**	**109**	**499**
Total Percentage	**8%**	**10.6%**	**14.5%**	**66.9%**

/ʌ/ is articulated as [o] in Word Initial Position

RP ENGLISH	**HAUSA ENGLISH**	**SUBSTITUTION**	**IMPLICATION**
Under / ʌ n d ə/	[o n d a]	/ʌ/ → [o]	Accent marker
Uncover /ʌ n k ʌ v ə/	[o n k o v a]	/ʌ/ → [o]	Accent marker
Upper / ʌ p ə/	[o ɸ a]	/ʌ/ → [o]	Semantic alteration
Undergo /ʌ n d ə g ə ʊ/	[o n d a g o]	/ʌ/ → [o]	Accent marker

Table of Frequency and Percentage of /ʌ/ and /o/ in Word Initial Position

Word	**/ʌ/**	**/o/**
Under	7	25
Uncover	5	39
Upper	8	74
Undergo	3	20`
Total Frequency	**23**	**158**
Total Percentage	**12.3%**	**83.7%**

/ʌ/ is articulated as [o] in Word Medial Position

RP ENGLISH	**HAUSA ENGLISH**	**SUBSTITUTION**	**IMPLICATION**
Mother /m ʌ ð ə/	[m o d a]	/ ʌ/ → [o]	Semantic alteration
Brother / b r ʌ ð ə/	[b u r o d a]	/ʌ/ → [o]	Semantic alteration
Hut / h ʌ t/	[h o t]	/ ʌ/ → [o]	Semantic alteration
Bus / b ʌ s/	[b o s]	/ ʌ/ → [o]	Semantic alteration
Government / g ʌ v ə n m ə n t/	[g o v m e n t]	`/ ʌ/ → [o]	Accent marker
Something / s ʌ m θ ɪ ŋ/	[s o m t ɪ n]	/ ʌ/ → [o]	Accent marker
Nothing / n ʌ θ ɪ ŋ/	[n o t ɪ n]	/ ʌ/ → [o]	Accent marker
Much / m ʌ tʃ/	[m o tʃ]	/ ʌ/ → [o]	Accent marker
Month /m ʌ n θ/	[m o n]	/ ʌ/ → [o]	Accent marker
Corruption / k ə r ʌ p ʃ ə n/	[k o r o ɸ ʃ o n]	/ ʌ/ → [o]	Accent marker
Governor / g ʌ v ə n ə/	[g o v n o]	/ ʌ/ → [o]	Accent marker
Public / p ʌ b l ɪ k/	[ɸ o b l ɪ k]	/ ʌ/ → [o]	Accent marker
Such /s ʌ tʃ/	[s o tʃ]	/ ʌ/ → [o]	Accent marker
Encourage / ɪ n k ʌ r ɪ dʒ/	[e n k o r e dʒ]	/ ʌ/ → [o]	Accent marker
Come / k ʌ m/	[k o m]	/ ʌ/ → [o]	Accent marker

Current / k ʌ r ə n t/	[k o r e n]	/ ʌ/ $\longrightarrow$ [o]	Accent marker
Thorough / θ ʌ r ə/	[t o r o]	/ ʌ/ $\longrightarrow$ [o]	Accent marker
Budget / b ʌ dʒ ɪ t/	[b o dʒ e t]	/ ʌ/ $\longrightarrow$ [o]	Accent marker
Punch /p ʌ n tʃ/	[ɸ o tʃ]	/ ʌ/ $\longrightarrow$ [o]	Accent marker
Justice / dʒ ʌ s t ɪ s	[dʒ o s t ɪ s]	/ ʌ/ $\longrightarrow$ [o]	Accent marker
Judge /dʒ ʌ dʒ/	[dʒ o dʒ]	/ ʌ/ $\longrightarrow$ [o]	Accent marker
Monday / m ʌ n d e ɪ/	[m o n d e]	/ ʌ/ $\longrightarrow$ [o]	Accent marker
Sunday / s ʌ n d e ɪ/	[s o n d e]	/ ʌ/ $\longrightarrow$ [o]	Accent marker
Son /s ʌ n/	[s o n]	/ ʌ/ $\longrightarrow$ [o]	Semantic alteration
Love / l ʌ v/	[l o v]	/ ʌ/ $\longrightarrow$ [o]	Accent marker
Money / m ʌ n ɪ/	[m o n ɪ]	/ ʌ/ $\longrightarrow$ [o]	Accent marker
Young / j ʌ ŋ/	[j o ŋ]	/ ʌ/ $\longrightarrow$ [o]	Accent marker
Must / m ʌ s t/	[m o s t]	/ ʌ/ $\longrightarrow$ [o]	Semantic alteration
Jump / d ʒ ʌ m p/	[d ʒ o m]	/ ʌ/ $\longrightarrow$ [o]	Accent marker
Thus / ð ʌ s/	[t o s]	/ ʌ/ $\longrightarrow$ [o]	Accent marker
Butter / b ʌ t ə/	[b o t a]	/ ʌ/ $\longrightarrow$ [o]	Accent marker
But / b ʌ t/	[b o t]	/ ʌ/ $\longrightarrow$ [o]	Semantic alteration
Luggage / l ʌ g e dʒ/	[l o g e dʒ]	/ ʌ/ $\longrightarrow$ [o]	Accent marker
Run / r ʌ n/	[r o n]	/ ʌ/ $\longrightarrow$ [o]	Accent marker
Luck / l ʌ k/	[l o k]	/ ʌ/ $\longrightarrow$ [o]	Semantic alteration
Fun / f ʌ n/	[f o n]	/ ʌ/ $\longrightarrow$ [o]	Accent marker

Cut / k ʌ t/	[k o t]	/ ʌ/ → [o]	Semantic alteration
Cup / k ʌ p/	[k o ɸ]	/ ʌ/ → [o]	Semantic alteration
Bust / b ʌ s t/	[b o s]	/ ʌ/ → [o]	Semantic alteration

Table of Frequency and Percentage of /ʌ/ and /o/ in Word Medial Position

Word	**/ʌ/**	**/o/**
Mother	8	30
Brother	4	34
Hut	5	23
Bus	4	25
Government	7	96
Something	5	43
Nothing	2	21
Much	4	27
Month	1	19
Corruption	11	41
Governor	6	90
Public	9	61
Such	3	22
Encourage	1	15
Come	3	24
Current	2	19
Thorough	-	11
Budget	-	17
Punch	2	12
Justice	4	26
Judge	6	31
Monday	1	17
Sunday	2	19
Son	-	12
Love	-	9
Money	-	34
Young	2	16
Must	-	14
Jump	3	21
Thus	2	13
Butter	-	10
But	4	27

Luggage	2	18
Run	5	35
Luck	6	16
Fun	2	10
Cut	1	15
Cup	2	19
Bust	-	12
Total Frequency	**119**	**1004**
Total Percentage	**10.6%**	**89.4%**

/æ/ is articulated as [a] in Word Initial Position

RP ENGLISH	**HAUSA ENGLISH**	**SUBSTITUTION**	**IMPLICATION**
And /æ n d/	[a n]	/æ/ $\longrightarrow$ [a]	Semantic alteration
Am /æ m/	[a m]	/æ/ $\longrightarrow$ [a]	Accent marker
Ambassador /æ m b æ s ə d ə/	[a m b a s a d o]	/æ/ $\longrightarrow$ [a]	Accent marker
Admin /æ d m ɪ n/	[a d ɪ m ɪ n]	/æ/ $\longrightarrow$ [a]	Accent marke
Amber / æ m b ə/	[a m b a]	/æ/ $\longrightarrow$ [a]	Accent marker
Anger / æ ŋ g ə/	[a n g a]	/æ/ $\longrightarrow$ [a]	Accent marker
Action / æ k ʃ ə n/	[a kʃ o n]	/æ/ $\longrightarrow$ [a]	Accent marker
Active /æ k t ɪ v/	[a k t ɪ v]	/æ/ $\longrightarrow$ [a]	Accent marker

Table of Frequency and Percentage of /æ/ and /a/ in Word Initial Position

Word	**/æ/**	**/a/**
And	8	73
Am	5	56
Ambassador	-	24
Admin	3	32
Amber	-	9
anger	-	22
Action	2	26
Active	4	19

Total Frequency	**22**	**261**
Total Percentage	**7.8%**	**92.2%**

/æ/ is articulated as [a] in Word Medial Position

RP ENGLISH	**HAUSA ENGLISH**	**SUBSTITUTION**	**IMPLICATION**
Math /m æ θ/	[m a s]	/æ/ ⟶ [a]	Semantic alteration
Van /v æ n/	[v a n]	/æ/ ⟶ [a]	Accent marker
Happy /h æ p ɪ/	[h a ɸ ɪ]	/æ/ ⟶ [a]	Accent marker
Understand /ʌ n d ə s t æ n d/	[o n d a s t a n]	/æ/ ⟶ [a]	Accent marker
Passion / p æ ʃ ə n/	[ɸ a ʃ o n]	/æ/ ⟶ [a]	Semantic alteration
Happen / h æ p ə n/	[h a ɸ u n]	/æ/ ⟶ [a]	Accent marker
Can / k æ n/	[k a n]	/æ/ ⟶ [a]	Accent marker
Than / ð æ n/	[d a n]	/æ/ ⟶ [a]	Accent marker
Thank / θ æ ŋ k/	[t a n k]	/æ/ ⟶ [a]	Accent marker
More than / m ɔ: ð æ n/	[m o d a n]	/æ/ ⟶ [a]	Semantic alteration
Handed /h æ n d ɪ d	[h a n d e d]	/æ/ ⟶ [a]	Accent marker
Sachet / s æ ʃ e ɪ/	[s a tʃ e t]	/æ/ ⟶ [a]	Accent marker
Campaign / k æ m p e n/	[k a m ɸ e n]	/æ/ ⟶ [a]	Accent marker
Fan / f æ n/	[f a n]	/æ/ ⟶ [a]	Accent marker
Stand / s t æ n d/	[s ɪ t a n[]	/æ/ ⟶ [a]	Accent marker
Back / b æ k/	[b a k]	/æ/ ⟶ [a]	Accent marker
Mat / m æ t/	[m a t]	/æ/ ⟶ [a]	Accent marker

Lamp / l æ m p/	[l a m]	/æ/ → [a]	Accent marker
Bag / b æ g/	[b a g]	/æ/ → [a]	Accent marker
Madam / m æ d ə m/	[m a d a m]	/æ/ → [a]	Accent marker
Sack /s æ k/	[s a k]	/æ/ → [a]	Accent marker
Gas / g æ s/	[g a s]	/æ/ → [a]	Accent marker
Man / m æ n/	[m a n]	/æ/ → [a]	Accent marker

Table of Frequency and Percentage of /æ/ and /a/ in Word Medial Position

Word	**/æ/**	**/a/**
Math	4	33
Van	3	25
Happy	-	26
Understand	-	31
Passion	6	26
Happen	3	26
Can	-	17
Than	2	32
Thank	3	31
More than	4	19
Handed	-	16
Sachet	2	12
Campaign	6	27
Fan	4	21
Stand	-	27
Back	2	15
Mat	5	29
Lamp	3	23
Bag	1	18
Madam	2	30
Sack	3	22
Gas	2	29
Man	2	41
Total Frequency	**62**	**576**
Total Percentage	**9.7%**	**90.3%**

/ɪ/ is articulated as [e] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Expose /ɪ k s p ə ʊ z/	[e s ɸ o z]	/ɪ/ ⟶ [e]	Accent marker
Exchange /ɪ k s tʃ e ɪ n dʒ/	[e s tʃ e n dʒ]	/ɪ/ ⟶ [e]	Accent marker
Express /ɪ k s p r e s/	[e s ɸ ɪ r e s]	/ɪ/ ⟶ [e]	Accent marker
Excel / ɪ k s e l/	[e s e l]	/ɪ/ ⟶ [e]	Accent marker
Except /ɪ k s e p t/	[e s e ɸ]	/ɪ/ ⟶ [e]	Accent marker
Exact / ɪ g z æ k t/	[e g z a t]	/ɪ/ ⟶ [e]	Accent marker
Experience / ɪ k s p ɪ ə r ɪ ə n s/	[e s ɸ ɪ r ɪ j a n s]	/ɪ/ ⟶ [e]	Accent marker
Experiment / ɪ k s p e r ɪ m e n t/	[e s ɸ a r ɪ m e n]	/ɪ/ ⟶ [e]	Accent marker
Emergence / ɪ m ɜ: dʒ ə n s/	[e m a dʒ a n s]	/ɪ/ ⟶ [e]	Accent marker
Empirical / ɪ m p ɪ r ɪ k ə l/	[e m ɸ ɪ r ɪ k a l]	/ɪ/ ⟶ [e]	Accent marker

Table of Frequency and Percentage of //ɪ/ and /e/ in Word Initial Position

Word	**//ɪ/**	**/e/**
Expose	3	51
Exchange	2	35
Express	4	62
Excel	1	21
Except	-	15
Exact	3	22
Experience	4	31
Experiment	2	25
Empirical	3	19
Total Frequency	**22**	**281**
Total Percentage	**7.3%**	**97.2%**

/ɪ/ is articulated as [e] in Word Medial Position

RP ENGLISH	HAUSA ENGLISH	SUBSTITUTION	IMPLICATION
Market /m ɑ: k ɪ t/	[m a k e t]	/ɪ/ → [e]	Accent marker
Wanted /w ɒ n t ɪ d/	[w a n t e d]	/ɪ/ → [e]	Accent marker
Heritage /h e r ɪ t ɪ dʒ/	[h e r ɪ t e dʒ]	/ɪ/ → [e]	Accent marker
Marriage / m æ r ɪ dʒ/	[M a r e dʒ]	/ɪ/ → [e]	Accent marker
Miscarriage /m ɪ s k æ r ɪ dʒ	[m ɪ s k a r e dʒ]	/ɪ/ → [e]	Accent marker
Limited / / l ɪ m ɪ t ɪ d/	[l ɪ m ɪ t e d]	/ɪ/ → [e]	Accent marker
Loaded / l ə ʊ d ɪ d/	[l o d e d]	/ɪ/ → [e]	Accent marker
Wounded /w u: n d ɪ d/	[w u n d e d]	/ɪ/ → [e]	Accent marker
Wicked /w ɪ k ɪ d/	[w u k e d]	/ɪ/ → [e]	Accent marker
Jacket / dʒ æ k ɪ t/	[dʒ a k e t]	/ɪ/ → [e]	Accent marker
Forest /f ɒ r ɪ s t/	[f o r e s]	/ɪ/ → [e]	Accent marker
Cricket / k r ɪ k ɪ t/	[k ɪ r e k e t]	/ɪ/ → [e]	Accent marker
Courage / k ʌ r ɪ dʒ/	[k o r e dʒ]	/ɪ/ → [e]	Accent marker
Manage / m æ n ɪ dʒ/	[m a n e dʒ]	/ɪ/ → [e]	Accent marker

Table of Frequency and Percentage of /ɪ/ and /e/ in Word Medial Position

Word	**/ɪ/**	**/e/**
Market	5	63
Wanted	3	21
Heritage	4	33
Marriage	6	52
Miscarriage	2	17
Limited	4	35
Loaded	2	26

Wounded	2	31
Wicked	1	15
Jacket	-	12
Forest	2	16
Cricket	-	14
Courage	2	33
Manage	3	42
Total Frequency	**36**	**410**
Total Percentage	**8.1%**	**91.9%**

/eɪ/ is articulated as [e] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	MONOPHTHONGIZATION OF DIPHTHONG	IMPLICATION
Age / e ɪ dʒ/	[e dʒ]	/e ɪ/ → [e]	Accent marker
Eight / e ɪ t/	[e t]	/e ɪ/ → [e]	Accent marker
Agency /e ɪ dʒ ə n s ɪ/	[e dʒ e n s ɪ]	/e ɪ/ → [e]	Accent marker

Table of Frequency and Percentage of /eɪ/ and /e/ in Word Initial Position

Word	/eɪ/	**/e/**
Age	6	32
Eight	2	21
Agency	4	15
Total Frequency	**12**	**68**
Total Percentage	**15%**	**85%**

/eɪ/ is articulated as [e] in Word Medial Position

RP ENGLISH	HAUSA ENGLISH	MONOPHTHONGIZATION OF DIPHTHONG	IMPLICATION
Pain /p e ɪ n/	[ɸ e n]	/eɪ/ → [e]	Semantic alteration
Braid / b r e ɪ d/	[b u r e d]	/eɪ/ → [e]	Semantic alteration
Data / d e ɪ t ə/	[d a t a]	/eɪ/ → [e]	Accent marker

Favour / f e ɪ v ə/	[f e v o]	/eɪ/ → [e]	Accent marker
Date /d e ɪ t/	[d e t]	/eɪ/ → [e]	Accent marker
Late / l e ɪ t/	[l e t]	/ eɪ/ → [e]	Semantic alteration
Saint / s e ɪ n t/	[s e n t]	/eɪ/ → [e]	Semantic alteration
Taste / t e ɪ s t/	[t e s t]	/eɪ/ → [e]	Semantic alteration
Raid /r e ɪ d/	[r e d]	/eɪ/ → [e]	Semantic alteration
Tail /t e ɪ l/	[t e l]	/eɪ/ → [e]	Semantic alteration
Fade /f e ɪ d/	[f e d]	/eɪ/ → [e]	Semantic alteration
Main /m e ɪ n/	[m e n]	/eɪ/ → [e]	Semantic alteration
Table /t e ɪ b l/	[t e b u l]	/eɪ/ → [e]	Accent marker
Jail /dʒ e ɪ l/	[dʒ e l]	/eɪ/ → [e]	Accent marker
Labour /l e ɪ b ə/	[l e b o]	/eɪ/ → [e]	Accent marker

Table of Frequency and Percentage of /eɪ/ and /e/ in Word Medial Position

Word	**/eɪ/**	**/e/**
Pain	4	25
Braid	6	29
Data	4	31
Favour	1	11
Date	7	78
Late	7	42
Saint	3	21
Taste	-	12
Raid	2	16
Tail	-	15
Fade	2	17
Main	6	53
Table	1	24
Jail	2	16

Labour	5	53
Total Frequency	**50**	**443**
Total Percentage	**10.1%**	**89.9%**

/eɪ/ is articulated as [e] in Word Final Position

RP ENGLISH	**HAUSA RNGLISH**	**MONOPHTHONGIZA TION OF DIPHTHONG**	**IMPLICATION**
Monday /m ʌ n d e ɪ	[m o n d e]	/eɪ/ → [e]	Accent marker
Tuesday /tʃ u: z d e ɪ/	[t u s d e]	/eɪ/ → [e]	Accent marker
Thursday / θ ɜ: z d e ɪ/	[t o s d e/]	/eɪ/ → [e]	Accent marker
Way /w e ɪ/	[w e]	/eɪ/ → [e]	Accent marker
Pay /p e ɪ/	[ɸ e]	/eɪ/ → [e]	Accent marker
Lay / l e ɪ/	[l e]	/eɪ/ → [e]	Accent marker

Table of Frequency and Percentage of /eɪ/ and /e/ in Word Final Position

Word	**/e ɪ/**	**/e/**
Monday	1	17
Tuesday	2	19
Thursday	2	30
Way	1	12
Pay	2	14
Lay	1	6
Total Frequency	**9**	**98**
Total Percentage	**8.4%**	**91.6%**

/əʊ/ is articulated as [o] in Word Initial Position

RP ENGLISH	HAUSA ENGLISH	MONOPHTHONGIZATION OF DIPHTHONG	IMPLICATION
Old /ə ʊ l d/	[o l]	/ə ʊ/ → [o]	Semantic alteration
Oasis /ə ʊ e ɪ s ɪ s/	[o s ɪ s]	/ə ʊ/ → [o]	Accent marker
Over //ə ʊ v ə/	[o v a]	/ə ʊ/ → [o]	Accent marker

Table of Frequency and Percentage of /əʊ/ and /o/ in Word Initial Position

Word	**/əʊ/**	**/o/**
Old	3	27
Oasis	-	6
Over	2	22
Total Frequency	**5**	**55**
Total Percentage	**8.3%**	**91.7%**

/əʊ/ is articulated as [o] in Word Medial Position

RP ENGLISH	HAUSA ENGLISH	MONOPHTHONGIZATION OF DIPHTHONG	IMPLICATION
Hope / h ə ʊ p/	[h o ɸ]	/əʊ/ → [o]	Semantic alteration
Goat / g ə ʊ t/	[g o t]	/əʊ/ → [o]	Semantic alteration
Those / ð ə ʊ z/	[d o s]	/əʊ/ → [o]	Semantic alteration
Both / b ə ʊ θ/	[b o d]	/əʊ/ → [o]	Semantic alteration
Coat / k ə ʊ t/	[k o t]	/əʊ/ → [o]	Semantic alteration
Road / r ə ʊ d/	[r o d]	/əʊ/ → [o]	Semantic alteration
Wrote /r ə ʊ t/	[t o t]	/əʊ/ → [o]	Semantic alteration
Code / k ə ʊ d/	[k o d]	/əʊ/ → [o]	Accent marker

Coke /k ə ʊ k/	[k o k]	/əʊ/ → [o]	Semantic alteration
Coast /k ə ʊ s t/	[k o s t]	/əʊ/ → [o]	Semantic alteration
Close / k l ə ʊ z/	[k u l o z]	/əʊ/ → [o]	Accent marker
Shoulder /ʃ ə ʊ l d ə/	[ʃ o l d a]	/əʊ/ → [o]	Accent marker

Table of Frequency and Percentage of /əʊ/ and /o/ in Word Medial Position

Word	**/ə ʊ/**	**/o/**
Hope	2	26
Goat	3	31
Those	2	28
Both	4	41
Coat	-	12
Road	5	62
Wrote	2	18
Code	3	27
Coke	1	15
Coast	2	6
Close	-	11
Shoulder	3	16
Total Frequency	**27**	**293**
Total Percentage	**8.4%**	**91.6%**

/əʊ/ is articulated as [o] in Word Final Position

RP ENGLISH	**HAUSA ENGLISH**	**MONOPHTHONGIZATION OF DIPHTHONG**	**IMPLICATION**
Know /n əʊ/	[no]	/əʊ/ → [o]	Semantic alteration
Go /g ə ʊ/	[g o]	/əʊ/ → [o]	Accent marker
Undergo / ʌ n d ə g əʊ/	[o n d a g o]	/əʊ/ → [o]	Accent marker

Table of Frequency and Percentage of /ə ʊ/ and /o/ in Word Final Position

Word	**/ə ʊ/**	**/o/**
Know	4	32
Go	5	24
Undergo	3	11
Total Frequency	**12**	**67**
Total Percentage	**15.2%**	**84.8**

/e ə/ is articulated as [ɪ a] and [ja] in Word Final Position

RP ENGLISH	**HAUSA ENGLISH**	**SUBSTITUTION / GLIDE EPENTHESIS**	**IMPLICATION**
Rare / r e ə/	[r ɪ j a] [r ɪ a]	/e ə/ → [ja] /e ə/ → [ɪ a]	Semantic alteration
Hare / h e ə/	[h ɪ j a] [h ɪ a]	/e ə/ → [ja] /e ə/ → [ɪ a]	Semantic alteration
Stare /s t e ə/	[s ɪ t e j a] [s ɪ t ɪ a]	/e ə/ → [ja] /e ə/ → [ɪ a]	Semantic alteration
Pair / p e ə/	[ɸ ɪ j a] [ɸ ɪ a]	/e ə/ → [ja] /e ə/ → [ɪ a]	Semantic alteration
Dare / d e ə/	[d ɪ j a] [d ɪ a]	/e ə/ → [ja] /e ə/ → [ɪ a]	Semantic alteration
Ware /w e ə/	[w ɪ a] [w ɪ a]	/e ə/ → [j] /e ə/ → [ɪ a]	Semantic alteration
Scare /s k e ə/	[s ɪ k ɪ j a] [s ɪ k ɪ a]	/e ə/ → [ja] /e ə/ → [ɪ a]	Accent marker
Square / s k w e ə/	[s ɪ k w a j a] [s ɪ k w ɪ a]	/e ə/ → [ja] e ə/ → [ɪ a]	Accent marker
Beware / b ɪ w e ə/	[b ɪ w a j a]	/e ə/ → [ja] e ə/ → [ɪ a]	Accent marker
Despair / d ɪ s p e ə/	[d ɪ s ɸ ɪ j a] [d ɪ s ɸ ɪ a]	/e ə/ → [ɪ a] /e ə/ → [ja]	Accent marker
Care / k e ə/	[k ɪ j a] [k ɪ a]	/e ə/ → [ja] /e ə/ → [ɪ a]	Accent marker
There / ð e ə/	[d a j a] [d ɪ a]	/e ə/ → [ja] /e ə/ → [ɪ a]	Accent marker

Table of Frequency and Percentage of /eə/ /ja/ and /ɪ a/ in Word Final Position

Word	**/eə/**	**/ja/**	**/ɪ a/**
Rare	3	21	32
Hare	2	13	22
Stare	4	6	10
Pair	2	9	20
Dare	3	16	21
Ware	2	8	14
Scare	1	12	15
Square	5	20	20
Beware	1	15	22
Despair	3	5	31
Care	3	10	23
There	3	5	40
Total Frequency	**32**	**140**	**270**
Total Percentage	**7%**	**32%**	**61%**

Table of Two Consonant Cluster Onset

RP ENGLISH	**SYLLABLE STRUCTURE**	**HAUSA ENGLISH**	**SYLLABLE STRUCTURE**		**IMPLICATION**
Tree /t r i: /	CCV	[t ɪ . r ɪ]	CVCV	/ɪ/	Accent Marker
Slow /s l ə ʊ/	CCV	[su . l o]	CVCV	u/	Accent marker
Progress /p r ə ʊ . g r e s/	CCVCCVC	[ɸ u. r o. g ɪ. r e s]	CVCVCVCVC	/u// /ɪ/	Accent Marker
Programme /p r ə ʊ . g r æ m/	CCVCCVC	[ɸ u . r o. g ɪ . r a m]	CVCVCVCVC	//ɪ/ /u/	Accent Marker
Prostitute /p r ɒ s . t ɪ . t ju: t/	CCVCCVCVC	[ɸ u . r o s. t ɪ . t u t/	CVCVCCVCVC	//u/	Accent Marker
Training /t r e . n ɪ ŋ	CCVCVC	[t ɪ. r e . n ɪ n]	CVCVCVC	ɪ/	Accent marker
State /s t e t/	CCVC	[s ɪ . t e t]	CVCVC	ɪ/	Accent marker
Specific /s p ə . s ɪ . f ɪ k/	CCVCVCVC	[s ɪ. ɸ e. s ɪ f ɪ k]	CVCVCVCVC	ɪ/	Accent marker
Special /s p e . ʃ ə l/	CCVCVC	[s ɪ . ɸ e. ʃ a l]	CVCVCVC	ɪ/	Accent marker

Ground /g r a ʊ n d/	CCVCC	[g ɪ . r a u n]	CVCVC	ɪ/	Accent marker
Graduate /g r æ . dʒ u ə t/	CCVCVC	[g ɪ . r a . dʒ u . j e t]	CVCVCVCVC	ɪ/ /j/	Accent marker
Christian / k r ɪ s . tʃ ə n/	CCVCCVC	[k ɪ. r ɪ s. t a n]	CVCVCCVC	/ɪ/	Accent marker
Speech /s p i: tʃ/	CCVC	[s ɪ . ɸ ɪ tʃ]	CVCVC	/ ɪ/	Accent marker
Clinic/ k l ɪ . n ɪ k/	CCVCVC	[k ɪ. l ɪ. n ɪ k]	CVCVCVC	/ɪ/	Accent marker
Project /p r ɒ . dʒ e k t/	CCVCVCC	[ɸ u. r o. dʒ e t]	CVCVCVC	/u/	Accent marker
Speaking /s p i: . k ɪ ŋ/	CCVCVC	[s ɪ. ɸ ɪ. k ɪ n]	CVCVCVC	/ɪ/	Accent marker
From /f r ɒ m/	CCVC	[f u . r o m]	CVCVC	/u/	Accent marker
Stake /s t e ɪ k/	CCVC	[s ɪ . t e k]	CVCVC	/ ɪ/	Accent marker
Skin /s k ɪ n/	CCVC	[s ɪ . k ɪ n]	CVCVC	ɪ/	Accent marker
Proper / p r ɒ . p ə/	CCVCV	[ɸ u . r o. f a]	CVCVCV	/u/	Accent marker
Industry /ɪ n. d ə s. t r i/	VCCVCCCV	[ɪ n . d a s. t ɪ . r ɪ]	VCCVCCVCV	/ ɪ/	Accent marker
Great /g r e ɪ t/	CCVC	[g ɪ . r e t]	CVCVC	//ɪ/	Accent marker
Problem / p r ɒ . b l ə m/	CCVCCVC	[ɸ u . r o . b u . l e m]	CVCVCVCVC	/u/	Accent marker
Start /s t ɑ: t/	CCVC	[s ɪ . t a t]	CVCVC	/ ɪ/	Accent marker
Statement / s t e ɪ t . m ə n t/	CCVC CVCC	[s ɪ . t e t. m e n]	CVCVCCVC	/ɪ/	Accent marker
Close /k l ə ʊ z/	CCVC	[k u . l o z]	CVCVC	/u/	Accent marker
Travel /t r æ v ə l/	CCVCVC	[t ɪ. r a. v u l]	CVCVCVC	/ ɪ/	Accent marker
Spot / s p ɒ t/	CCVC	[s ɪ . ɸ o t]	CVCVC	/u/	Accent marker

Introduce /ɪ n. t r ə. dj u: s/	VCCCVCVC	[ɪ n. t u. r o. d u s]	VCCVCVCVC	/u/	Accent marker
Twelve / t w e . l v/	CCVCC	[t u . w e v]	CVCVC	/u/	Accent marker
Scheme /s k i: m/	CCVC	[s ɪ . k ɪ m]	CVCVC	/ ɪ/	Accent marker
Store /s t ɔ: /	CCV	[s u . t o]	CVCV	/u/	Accent marker
Group /g r u: p/	CCVC	[g u . r u ɸ]	CVCVC	/u/	Accent marker
Trillion / t r ɪ . l j ə n/	CCVCCVC	[t ɪ . r ɪ. l ɪ. j o n]	CVCVCVCVC	/ ɪ/	Accent marker
True / t r u: /	CCV	[t u . r u]	CVCV	/u/	Accent marker
Tradition /t r ə . d ɪ. ʃ ə n/	CCVCVCVC	[t ɪ . r a. d ɪ. ʃ o n]	CVCVCVCVC	/ ɪ/	Accent marker
Staff /s t ɑ: f/	CCVC	[s ɪ . t a f]	CVCVC	/ ɪ/	Accent marker
Breathing /b r i: . ð ɪ ŋ/	CCVCVC	[b ɪ. r ɪ. d ɪ n]	CVCVCVC	/ ɪ/	Accent marker
Plot /p l ɒ t/	CCVC	[ɸ u . l o t]	CVCVC	/u/	Accent marker
Fluent /f l u: . ə n t/	CCVVCC	[f u. l u. w e n]	CVCVCVC	/u/	Accent marker
Protection /p r ə . t e k ʃ ə n/	CCVCVCCVC	[ɸ u . r o. t e k . ʃ o n]	CVCVCVCCV C	/u/	Accent marker
Scholar /s k ɒ . l ə/	CCVCV	[s u . k o.l a]	CVCVCV	/u/	Accent marker
Trust /t r ʌ s t/	CCVCC	[t u . r o s]	CVCVC	/u/	Accent marker
Trader /t r e ɪ . d ə/	CCVCV	[t ɪ. r e . d a]	CVCVCV	/ ɪ/	Accent marker
Specialist /s p e . ʃ ə. l ɪ s t/	CCVCVCVCC	[s ɪ. ɸ e. ʃ a. l ɪ s]	CVCVCVCVC	/ɪ/	Accent marker
Space /s p e ɪ s/	CCVC	[s ɪ . ɸ e s]	CVCVC	/ɪ/	Accent marker
Produce /p r ə. dj u: s/	CCVCVC	[ɸ u. r o. d u s]	CVCVCVC	/u/	Accent marker

Promote / p r ə m ə ʊ t/	CCVCVC	[ɸ u. r o. m o t]	CVCVCVC	/u/	Accent marker
Sleep /s l i: p/	CCVC	[s ɪ . l ɪ ɸ]	CVCVC	/ɪ/	Accent marker
Class /k l ɑ: s/	CCVC	[k ɪ. l a s]	CVCVC	/ɪ/	Accent marker
Glass /g l ɑ: s/	CCVC	[g ɪ . l a s]	CVCVC	/ɪ/	Accent marker

Table of Frequency and Percentage of CC and CVC in Two Consonant Cluster Onset

Word	**CC**	**CVC**
Tree	4	32
Slow	6	25
Progress	5	27
Programme	10	103
Prostitute	2	6
Training	3	30
State	7	71
Specific	4	32
Special	6	39
Ground	2	22
Graduate	2	19
Christian	4	28
Speech	6	30
Clinic	2	17
Project	5	24
Speaking	4	28
From	1	18
Stake	2	13
Skin	3	19
Proper	2	15
Industry	4	20
Great	1	14
Problem	3	22
Start	2	20
Statement	4	31
Close	3	24
Travel	2	19
Spot	1	12
Introduce	4	20

Twelve	2	19
Scheme	1	14
Store	3	21
Group	5	33
Trillion	4	23
True	2	25
Tradition	3	22
Staff	2	13
Breathing	1	11
Plot	2	15
Fluent	4	18
Protection	3	16
Scholar	2	28
Trust	3	31
Trader	4	24
Specialist	6	40
Space	3	19
Produce	2	15
Promote	3	17
Sleep	1	10
Class	2	21
Glass	4	26
Total Frequency	**166**	**1241**
Total Percentage	**11.8%**	**88.2%**

Table of Two Consonant Cluster Coda

RP ENGLISH	**SYLLABLE STRUCTURE**	**HAUSA ENGLISH**	**SYLLABLE STRUCTURE**	**DE SEG**	**IMPLICATION**
Present /p r e . z ə n t/	CCVCVCC	ɸ ɪ. r e. z e n]	CVCVCVC	/t/	Accent marker
Project /p r ɒ . dʒ e k t/	CCVCVCC	[ɸ u. r o. dʒ e t]	CVCVCVC	k/	Accent marker
Statement /s t e ɪ t. m ə n t/	CCVCCVCC	[s ɪ. t e t. m e n]	CVCVCCVC	/t/	Accent marker
Expose /ɪ k s . p ə ʊ z/	VCCCVC	[e s . ɸ o z]	VCCVC	/k/	Accent marker
Ground /g r a ʊ n d/	CCVCC	[g ɪ. r a. w u n]	CVCVCVC	/d/	Accent marker

Trust /t r ʌ s t/	CCVCC	[t u . r o s]	CVCVC	/t/	Accent marker
Specialist /s p e. ʃ ə. l ɪ s t/	CCVCVCVCC	[s ɪ. ɸ e. ʃ a. l ɪ s]	CVCVCVCVC	/t/	Accent marker
Respect /r ɪ s . p e k t	CVCCVCC	[r e s . ɸ e t]	CVCCVC	/k/	Accent marker
Thousand /θ a ʊ . z ə n d/	CVCVCC	[t a u . z a n]	CVCVC	/d/	Accent marker
Dialect /d a ɪ ə. l e k t/	CVCVCC	[d a ɪ . l e t]	CVCVC	/t/	Accent marker
Six /s ɪ k s/	CVCC	Sis [s ɪ s]	CVC	k/	Accent marker
Aspect /æ s . p e k t/	VCCVCC	[a s . ɸ e t]	VCCVC	/k/	Accent marker
Difficult /d ɪ. f ɪ. k ə l t/	CVCVCVCC	[d ɪ. f ɪ. k o l]	CVCVCVC	/t/	Accent marker
Relax /r ɪ. l æ k s/	CVCVCC	[r ɪ . l a s]	CVCVC	/k/	Accent marker
Express /ɪ k s . p r e s/	VCCCCVC	[e s. ɸ ɪ. r e s]	VCCVCVC	/k/	Accent marker
Exact / ɪ g. z æ k t/	VCCVCC	[e g . z a t]	VCCVC	/k/	Accent marker
Experiment /ɪ k s. p e. r ɪ. m e n t/	VCCCVCVCV CC	[e s. ɸ a. r ɪ. m e n [	VCCVCVCVC	/t/	Accent Marker

Table of Frequency and Percentage of CC and C in Two Consonant Cluster Coda

Word	**CC**	**C**
Present	9	95
Project	3	24
Statements	5	30
Expose	4	50
Ground	2	22
Trust	4	30
Specialist	5	41
Respect	2	21
Thousand	3	56
Dialect	2	27

Six	4	12
Aspect	3	19
Difficult	3	21
Relax	1	5
Express	6	60
Exact	5	20
Experiment	2	25
Total Frequency	**63**	**558**
Total Percentage	**10.1%**	**89.9%**

Table of Three Consonant Cluster Onset

RP ENGLISH	**SYLLABLE STRUCTURE**	**HAUSA ENGLISH**	**SYLLABLE STRUCTURE**	**INS SEG**	**IMPLICATION**
Spray /s p r e ɪ/	CCCV	[s ɪ ɸ . r e]	CVCCV	/ɪ/	Accent marker
Stray /s t r e ɪ/	CCCV	[s ɪ t . r e]	CVCCV	/ɪ/	Accent marker
Strength / s t r e ŋ θ/	CCCVCC	[s ɪ t . r e n]	CVCCVC	/ɪ/	Accent marker
Stress / s t r e s/	CCCVC	[s ɪ t . r e s]	CVCCVC	/ɪ/	Accent marker
Script /s k r ɪ p t/	CCCVCC	[s ɪ k r ɪ ɸ]	CVCCVC	/ɪ/	Accent marker
Scratch /s k r æ tʃ/	CCCVC	[s ɪ k r a tʃ]	CVCCVC	/ɪ/	Accent marker
Screen /s k r i: n/	CCCVC	[s ɪ k . r ɪ n]	CVCCVC	ɪ/	Accent marker
Spring /s p r ɪ ŋ/	CCCVC	[s ɪ ɸ . r ɪ ŋ]	CVCCVC	ɪ/	Accent marker
String /s t r ɪ ŋ/	CCCVC	[s ɪ t . r ɪ ŋ]	CVCCVC	/ɪ/	Accent marker
Split /s p l ɪ t/	CCCVC	[s ɪ. ɸ ɪ. l ɪ t]	CVCVCVC	/ɪ/	Accent marker

Table of Frequency and Percentage of CCC and CVC in Three Consonant Cluster Onset

Word	**CCC**	**CVC**
Spray	3	26
Stray	3	21
Strength	5	32
Stress	9	60
Script	4	29
Scratch	2	22
Screen	3	20
Spring	2	18
String	3	15
Split	2	9
Total Frequency	**36**	**252**
Total Percentage	**12.5%**	**87.5%**

Table of Three Consonant Cluster Coda

RP ENGLISH	**SYLLABLE STRUCTURE**	**HAUSA ENGLISH**	**SYLLABLE STRUCTURE**	**DEL SEG**	**IMPLICATION**
Hints /h ɪ n t s/	CVCCC	[h ɪ n t]	CVCC	/s/	Semantic alteration
Masked /m ɑ: s k t/	CVCCC	[m a s k]	CVCC	/t/	Semantic alteration
Glimpse /g l ɪ m p s/	CCVCCC	[g ɪ . l ɪ m ɸ]	CVCVCC	/s/	Semantic alteration
Prompts /p r ɒ m p t s/	CCVCCCC	f[ɸ u . r o m t]	CVCVCC	/s/	Semantic alteration
Strengths /s t r e ŋ θ s/	CCCVCCC	[s ɪ t . r e n t]	CVCCVCC	/s/	Semantic alteration
Discs / d ɪ s k s/	CVCCC	[d ɪ s k]	CVCC	/s/	Semantic alteration
Scripts /s k r ɪ p t s/	CCCVCCC	[s ɪ. k ɪ .r ɪ ɸ t]	CVCVCVCC	/s/	Semantic alteration

Table of Frequency and Percentage of CCC and CC in Three Consonant Cluster Coda

Word	**CCC**	**CC**
Hints	4	25
Masked	3	21
Glimpsed	2	26
Prompt	2	24
Strengths	3	22
Discs	2	27
Scripts	4	29
Total Frequency	**20**	**174**
Total Percentage	**10.3%**	**89.7%**

Table of Spelling Pronunciation

RP ENGLISH	**SYLLABLE STRUCTURE**	**HAUSA ENGLISH**	**SYLLABLE STRUCTURE**	**INS SEG**	**IMPLICATION**
Would /w ʊ d/	CVC	[w u l d]	CVCC	/l/	Accent marker
Should /ʃ ʊ d/	CVC	[ʃ u l d]	CVCC	/l/	Accent marker
Could /k ʊ d/	CVC	[k u l d]	CVCC	/l/	Accent marker
Lamb /l æ m/	CVC	[l a m b]	CVCC	/b/	Accent marker
Thumb /θ ʌ m/	CVC	[t u m b]	CVCC	/b/	Accent marker
Tomb /t u: m/	CVC	[t o m b]	CVCC	b/	Accent marker
Numb /n ʌ m/	CVC	[n u m b]	CVCC	/b/	Accent marker
Crumb /k r ʌ m	CCVC	[k u . r u m b]	CVCVCC	/b/	Accent marker
Plumb /p l ʌ m/	CCVC	[ɸ u . l o m b]	CVCVCC	/b/	Accent marker
Limb /l ɪ m/	CVC	[l ɪ m b]	CVCC	/b/	Accent marker
Comb /k ə ʊ m/	CVC	[k o m b]	CVCC	/b/	Accent marker
Climb /k l a ɪ m/	CVC	[k ɪ . l a ɪ m b]	CVCVCC	/b/	Accent marker

Handsome /h æ n . s ə m/	CVCCVC	[h a n d . s o m]	CVCCCVC	/d/	Accent marker
Handkerchief /h æ ŋ . k ə . tʃ ɪ f /	CVCCVCVC	[h a n d. k a . tʃ ɪ f]	CVCCCVCVC	/d/	Accent marker

Table of Frequency and Percentage of C and CC in Spelling Pronunciation

Word	**C**	**CC**
Would	4	62
Should	3	32
Could	4	35
Lamb	2	23
Thumb	1	16
Tomb	2	19
Numb	2	20
Crumb	3	25
Plumb	2	17
Limb	1	15
Comb	2	21
Climb	2	24
Handsome	4	30
Handkerchief	3	6
Total Frequency	**35**	**345**
Total Percentage	**9.2%**	**90.8**