ERRORS OF ASSIMILATION AND DELETION PROCESSES BY LEARNERS OF ENGLISH AS A SECOND LANGUAGE: A CASE STUDY OF ARABIC-BASED STUDENTS

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DECLARATION

I hereby declare that this research work is the product of my own research efforts, undertaken under the supervision of Prof. Aliyu Kamal. The research has not been presented elsewhere for the award of a degree or any certificate. All the sources have been duly acknowledged.

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CERTIFICATION

This is to certify that the research work for this dissertation and the subsequent preparation of this dissertation by Lamido Ali (SPS/15/MEN/00003) were carried out under my supervision.

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APPROVAL PAGE

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All praise is due to Allah the Almighty, the sole Creator and Sustainer of the Universe. Peace and blessing of Allah be upon our Prophet, Muhammad (S.A.W), his family, his companions and his followers to the day of judgement. I thank Allah for sparing my life and granting me health to write this dissertation.

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This research work is dedicated to my family and friends.

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ABSTRACT

The research examines the processes of assimilation and deletion in English and Arabic languages within the framework of the distinctive feature theory. It investigates the differences and similarities of these phonological processes in both languages, with a view to finding their implications on the learning of English as a second language, particularly by Arabic-based students. The study adopts the descriptive analysis method and uses purposive sampling to generate data. The findings show that both English and Arabic use the processes of assimilation and deletion. In using assimilation, they share same types: progressive, regressive and coalescent; but different processes whereby the affected sounds in English remain visible and disappear in the Arabic. In deletion, they employ similar processes which involve segment deletion. While segment deletion occurs in word initial, medial and final positions in English, Arabic has only word medial and final deletions. The study therefore reveals that mastering the differences between the two languages would enhance positively, the learning ability of the Arabic-based students in English and improve their communicative competence as well.

CHAPTER ONE

GENERAL INTRODUCTION

1.1 Introduction

This chapter forms the introductory part of the study and consists of the following sub-sections: background to the study, statement of the problem, aim and objectives of the study, research questions, significance of the study and scope and limitation of the study.

1.2 Background to the Study

Learners of English as a second language, encounter problems in learning the language as a result of its inconsistencies (Eyisi, 2010). In the English language spelling for instance, the fact that one knows the spelling of a word is not a guarantee that one will know its pronunciation. Nigerians encounter problems in spelling-pronunciation because the spelling system in virtually all Nigerian languages are very simple due to the fact that words are spelt exactly the same way as they are pronounced. Consider the following names: Okeke, Adejoke, Musa, Erefagha, etc. They are pronounced exactly the same way they are written. English names, however, are quite different, for instance in the following English names: Leonard, Geoffery, Josephat, the 'o' in Leonard and Geoffery are silent while the 'ph' in Josephat is pronounced /f/. The /s/ sound is pronounced in 'salt' but silent in 'isle.' /b/ is realised in pronouncing the word 'bicycle' but it is not realised in the word 'dumb.' At the phonetic level, for example, there are some English vowels and consonants which do not exist in Nigerian languages. As such, Nigerian learners of English as a second language tend to replace such sounds with the ones they have in their languages. For instance, the central vowel /ʌ/ does not occur in various native languages in Nigeria.

The Igbo and Yoruba natives often realise it as /ɔ/ or /ɒ/ in words like come, mother, colour, money, tongue, butter, love etc. Hausa natives realise the sound as /a/. In pronouncing the aforementioned words, the three native speakers therefore, tend to insert either /ɔ/, /ɒ/ or /a/ sound in place of the /ʌ/.Similarly, Nigerian speakers of English as a second language usually substitute the /ɪ/ sound for /e/ so that 'business' /bɪznɪs / is pronounced /bɪzness/, /bɪsness/ or /bɪzɪness/, 'language'is pronounced /langwadʒ/ or langwedʒ/ instead of /længwidʒ/. The consonant sound /p/ poses a problem to Hausa speakers of English due to the nature of the sound system of their mother tongue. They pronounce it as /f/. It is usually common to hear a Hausa person saying: 'No froblem' instead of 'No problem'. Also the /h/ sound is rare in Yoruba. There is a converse tendency in [Yoruba] Popular Nigerian English (PNE), sometime to insert a word-initial /h/ when it is not required e.g. /hai/ as the pronunciation of eye /ai/ (Jowitt, 1991). We often hear Yoruba speakers pronounce house as /aus/ instead of /haus/.In addition, Nigerian speakers of English in general especially the less educated ones insert an initial /h/ in words where it should be silent e.g. 'honour' /hɔnɔ/ or /hono/ instead of /ɒnə/, 'vehicle' is pronounced /vɪhɪkl/ or /vehɪkl/ instead of /vi:kl/. The interdental fricatives /θ/ and /ð/ do not feature at all in most Nigerian languages sound systems. As such, the Igbo and Yoruba speakers often realise them as /t/ and /d/ sounds, while the Hausa speakers realise them as /s/ and /z/ respectively. Hence, we usually hear pronunciations like 'tank you' instead of 'thank you', 'I gave it to dem' instead of 'I gave it to them; 'Za man is here' instead or 'The man is here', among others.

As a result of these inconsistencies guiding the rules of the spelling system of English, learners are bound to encounter serious problems in both spoken and written English.

This study examines the processes of assimilation and deletion in English and Arabic languages. When one sound is changed into another because of the influence of a neighbouring sound, there is said to be a process of assimilation (Ladefoged& Johnson, 2010). According to Brown (2014), assimilation is the process whereby one sound changes in order to become similar to a neighbouring sound.

Assimilation in Arabic (*Al-idgham*) is a phonological process by which two sounds are overlapped, forming only one sound. The reasons for assimilation include similarity, homogeneity and approximation. This means two sounds that are similar, homogeneous or approximate in features become one sound. For example, *man ya'amal*becomes*mayya'mal,kad tabayyan* becomes *kattabayyan*. It is of two types, the first happens when the quiescent nun *al-nunussakinah* or nunation*at-tanween*ends a word followed by another begins with one of these words*ya'un, wawun, nunun, mimun*and are called partial assimilation *idghamunnakis*. The second happens when the quiescent nun or nunationmeets each of*ra'un, lamun*and called the complete assimilation *idghamulkamil.*

In English, deletion is a process by which a sound present in the phonemic form is removed in certain environments for ease of production. When a sound, such as stressless syllable or a weak consonant, is not pronounced: for example most English speakers do not pronounce the /d/ in "handbag", final /n/ in "condemn", /k/ in

"know".Lass (1984), suggests that there are three types of deletion: Aphaeresis which is initial deletion as in (I am – I'm, I have – I've) or the initial loss of /k/ before /n/ as in know, knight. Syncope is formative internal deletion: the term is most frequently used with vowel loss, but some writers extend it to consonants as well. This can be seen in American and British forms of certain words: /s kr t ri/ vs, /s krtr / "secretary", "sign", "assign". Apocope is the loss of a final element as /t/ before a word beginning with another consonant, e.g. 'last time' also low stress words may lose their finals as in and'. Deletion is also found in the Arabic language. For example:

al-shams→ ashshams– the sun

al-sama'u→ assama'u– the sky

al-daharah→addaharah– the cleanliness

Phonological processes are parts of communication through language, especially spoken aspect, and knowing what they are and why they exist can be considered an important aspect in learning English or working with people who have speech problems. Jones, Rusman, and Evans (1994) cited in Richard and Renandya (2002) found that students with prior exposure to phonological rules and principles, seem to be better equipped to assess their own speech and more aware of their particular pronunciation problems.

Phonological processes, therefore, are the rules that control how sounds change during vocal communication. According to Hayes (2009) Phonological rules are "generalizations" about the different ways a sound can be pronounced in different environments (Environment in phonology typically refers to neighbouring phonemes).

Goldsmith*et al.* (2011) defines it as mappings between two different levels of sound representation i.e. the abstract or underlying level and the surface level. Hence, phonological rules describe how a speaker goes from the abstract representation stored in his brain, to the actual sound he articulates when he speaks. These stored entries are underlying representations and serve as input for the phonological rules. These underlying forms then undergo a derivational process which is defined by the phonological rules. The output of that process is the phonetic representation of the pronunciation. In other words, the relationship between the- phonemic representations that are stored and the phonetic representations that reflect the pronunciation of sounds (or words) is ruled-governed.

Underlying representations ⟶ Phonological rules ⟶ Phonetic representation

Mohanan (1982)

For one to fully understand phonological rules, it is imperative to know what a phoneme is. According to the traditional phonological theories, a phoneme is the minimal unit in the sound system of a language (Crystal 1997). In generative phonology, the level of the phoneme is redefined to match the deeper level of abstraction aimed for in the most efficient conception of phonological processes. It is the task of the phonological rules to account for the predictable aspects of pronunciation whether they relate to alternate pronunciations of the same basic morpheme or different phonetic forms that a sound can take. These rules provide an explicit means of capturing the general principles of phonological processes in various languages. When we speak, we do not utter a series of individual units of sound rather,

we speak in a continuous flow of sounds. In other words, the exact realisation of the pronunciation is different from the adding-up of the individual units (Sapir, 2002).

1.3 A Brief Historical Background of Arabic and English Languages

Arabic, is a South-Central Semitic language. It has been estimated recently that Arabic is the native language of about 200 million people. (Holes, 1995): cited in (Watson, 2002). It is spoken as a first language (L1) in all the countries of the Arabian Peninsula (i.e. Bahrain, Iraq, Jordan, Kuwait, Lebanon, Oman, Palestine, Israel, Qatar, Saudi Arabia, Syria, United Arab Emirates and Yemen) as well as in the Arab countries of Africa (i.e. Algeria, Djibouti, Egypt, Libya, Mauritania, Morocco, Somalia, Sudan and Tunisia). These countries are collectively referred to as the Arab world simply because their inhabitants speak Arabic as L1. Arabic is also spoken as a second language L2 in some countries of Asia (e.g. Iran, Pakistan, India and Indonesia) and Africa (e.g. Chad, Nigeria).

On the other hand, English is a foreign language in Nigeria which has attained social and official status more than any of the Nigerian indigenous languages. It continues to be widely used as a medium of instructions at all levels of education (Ibrahim, 2008). English belongs to Germanic group of Indo-European family. It is a subject verbs object (SVO) language. Due to long time contact with other languages and its international spread, English has developed into different dialects and varieties. Among these varieties are American English, Australian English, and Canadian English spoken mostly as the native languages. Also, there are a number of countries where English exists alongside local languages. Examples of such varieties are

Ghanaian English spoken in Ghana, Indian English spoken in India and Nigerian English spoken in Nigeria (Jowitt, 1991).

1.4Statement of the Problem

People learning English as a second or foreign language, particularly Arabic-based students, often have problems of pronouncing/articulating English words correctly, giving rise to wrong spellings when writing. The reason for the problems is the inconsistency between the sounds and the spellings of English words. Arabic on the other hand does not have such inconsistency: words are pronounced the way they are written. Despite their difference, the two languages – English and Arabic – have assimilatory processes where some sounds are not realised in some contexts. In recognition of this, therefore, the researcher intends to compare the processes of assimilation and deletion as part of phonological processes in the English and Arabic languages, and to highlight the points of their similarities and differences.

1.5Aim and Objectives of the Study

The aim of this research is to investigate the processes of assimilation and deletion in English and Arabic languages. The objectives are:

(i) to examine assimilation and deletion processes of English and Arabic languages;

(ii) to highlight their areas of similarities and differences;

(iii) to find out how the differences affect the learners of English as a second language (ESL) in their communication, particularly Arabic-based students;and

(iv) to suggest ways through which their communicative competence can be improved.

1.6Research Questions

This research work seeks to answer the following questions:

(i) How are the processes of assimilation and deletion obtainable in English and Arabic languages?

(ii) To what extent do English and Arabic languages share similarities and differences in their assimilation and deletion processes?

(iii) How do their similarities and differences affect the English learning processes of the Arabic-based students?

(iv) What are the ways through which Arabic-based students'communicative competence in English can be improved?

1.7Significance of the Study

Despite the fact that numerous researches have been conducted on the phonological processes of English as a second language, yet not much has been done on English Assimilation and Deletion in relation to Arabic-based students. However, this research focuses its attention mainly on the problems faced by Arabic-based students in the learning of English. Therefore, it helps them to focus on the areas of differences to enhance their understanding of the phonological rules of the target language (English) thereby enabling them to communicate effectively. The findings of this study will contribute to the current approaches in teaching-learning English as a second language, with a particular focus on issues related to the Arabic-based students. The study also provides an insight into cross-linguistic similarities and differences between English and Arabic assimilation and deletion processes. This will enable the students in question to easily identify and concentrate on the areas of differences,

thereby enabling them to improve on their spelling-pronunciation. Furthermore, it is an additional literature in the area and encourages further research towards language phonology in general. Hence, interested researchers in the field will find it useful.

1.8Scope and Limitation of the Study

The area of phonology is wide and complex. This research is limited to Assimilation and Deletion of English and Arabic languages. Even though there are several kinds of English usages, the Standard British English was used. There are several dialects of Arabic, for the purpose of this study, Modern Standard Arabic was used.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter contains two sections. The first section reviews the available literature on the subject under investigationto give an insight into what other scholars have done or otherwise on the problem, so as to establish the gap in the field that justifies this study. The second discusses the theoretical framework.

2.2 The Concept of Phonetics

Phonetics, as a branch of linguistics, is concerned with the scientific study of how speech sounds are produced, transmitted and perceived. According to Brown (2014), phonetics can be defined as the scientific study of all aspects of the spoken form of language. The primary aim of phonetics is to carry out rigorous studies of the human sounds made for the purpose of communication. Another purpose of a phonetic study is to be able to describe and explain each of these identified sounds. The study of speech sounds can be approached from various angles. These are reflected by the major branches of phonetics:

2.2.1 Articulatory Phonetics

Articulatory phonetics is the branch of phonetics that is concerned with the study of how the speech sounds are produced. It is concerned with the study of the vowel and the consonant sounds involved in speech making in any language, concentrating on three main areas, namely: place of articulation, manner of articulation and quality of production.

2.2.2 Acoustic Phonetics

Acoustic phonetics is the scientific study of the properties of the signals that lead to speech and how they are propagated by man (O'connor, 1973). Human speech is transmitted by the sound waves that originate from the lungs into the larynx or what is called the voice box. The Larynx is usually referred to as the voice box, mainly, because it houses the vocal folds whose precursor is the generation of the vibrations that give phonation or the sound waves that lead to the voiced sounds. In speech production, the sound vibrations from the larynx serve as the input, which is filtered by the vocal tract; the result of the filtration is the output, which we hear as speech in the outer world (Clark and Yallop, 1995).

2.2.3 Auditory phonetics

This is the aspect of phonetics that concerns the natural processing systems of speech reception and perception. The main organ of the human body concerned with this is the ear.

2.3The Concept of Phonology

The term "phonology" is used in two ways: one, it refers to a description of the sounds of a particular language and the rules governing the distribution of those sounds. Thus, we can talk about the phonology of English, Arabic, or any other language;two, it refers to that part of the general theory of human language that is concerned with the universal properties of natural language sound system. A phonological study shows how the sounds are used to convey meaning (Hyman, 1975). Having phonological knowledge means knowing what sounds can combine together to form words, and how they should be pronounced (Fromkin*et al.*2011).

Various definitions of phonology shed light on its scope, for example, Katamba (1989) defines phonology as 'the branch of linguistics which investigates the ways in which sounds are used systematically in different languages to form words and utterances'. While Akmanjian*et al.* (2001) describe phonology as "the subfield of linguistics that studies the structure and systematic patterning of sounds in human language." These definitions show that phonology covers how sounds are combined, the relations between them and how they affect each other. As a description of how sound structure and function in a language, phonology involves studying a language to determine its distinctive sounds and to establish a set of rules that describe the set of changes that take place in these sounds when they occur in different relationships with other sounds.

2.3.1 The phoneme

The phoneme is the basic unit of phonological study. As a key phonological concept, the phoneme refers to the basic speech sound of a language – the minimal unit that serves to distinguish words from each other (Hayes, 2007). It is the sound segment that makes the difference in meaning between two words that have similar phonetic properties except in one sound segment. Phonemes are by themselves meaningless but acquire meaning in combination(Howe, 2003). The sound segment that makes the two words to be different in meaning is said to be distinct and therefore called a phoneme of that language. For example, the English words "by"*/bai/* and "my" /*mai/* have different meanings and that is why we say that they are two different words. Note that the two words differ only in one sound, and this difference accounts for the different meanings. Thus, the difference between *[m]* and *[b]* in English is distinctive and

significant since it makes for the difference in meaning between *by* and *my*. Similarly in Arabic*walad*and*balad*are two words with the same sound segments except for one. The difference in sound segment accounts for the difference in meaning of the two words. Once the status of a sound is determined to be a phoneme, it is enclosed in slant lines (slashes). Thus, the phonetic sounds are always enclosed is in square brackets *[b], [m]* while the English sounds confirmed as phonemes should be enclosed in slant lines as /b/, /m/.

2.3.2 Contrastive and minimal pairs

The aim of contrasting words is to identity phonemes of a language. The clearest kind of contrast is a minimal pair. According to Fromkin*et al.* (2003), when two different forms are identical in every way except for one sound segment which occurs in the same place in the string, the two words are called minimal pairs. Minimal pairs enable us to identity sound segment that are contrastive in a language and these sounds represent the set of phonemes that is unique to that language. Minimal pairs are based on contrasting words in terms of distributionthat is similarity in the position of the contrasting sound segment Such that the substitution of the sound produces a different lexical item. Contrast can be established at any position in a word (word initial, medial or final positions). For instance, in the words *pet* and *pat* the contrast is medially between the vowels (ɛ) and (æ). Also in the words *rub* and *rum* the contrast is at the word final position between [b] and [m]. Contrast isone of the major principles in phonological analysis. By contrast, we mean distinctiveness, where one sound contrasts with another, showing that they are different phonemes.

2.3.3. Allophones

A particular realisation (pronunciation) of a phoneme is called a phone. The collections of phones that are the realisations of the same phoneme are called the *allophones* of that phoneme. In English, each vowel phoneme has both an oral and a nasalised allophone. The choice of the allophone is not random or haphazard; it is rule governed. Akmajian*et al.* (2001) define an allophone as a speech sound considered as a positional variant of a phoneme. A phoneme changes into variants because of the position is occupies in a word or adjourning words, which calls for a slight difference in pronunciation, such position may occur at the initial position, middle of a word, or at the end of a word; and the type of sound (vowel or consonant) that bounds it at the right or left hand. An allophone therefore, is a variant of a phoneme. Katamba (1989) asserts that members of the same phoneme family, i.e. the various physically distinct sounds which count as executions of a given phoneme, are called the *allophones* (or variants) of that phoneme.

2.3.4 The syllable

Many attempts have been made by many scholars in phonetics and phonology to explain the term syllable (Katamba, 1989; Akmajian, *et al.* 2011; Fromkin, *et al.* 2011). From a phonetic point of view, a syllable is a unit of sound(s) consisting of a centre which is characterised by having little or no obstruction of airflow in its production and is relatively louder than other sounds within the unit. For example, in the word /ki:/ ‘key’ the vowel /i:/ is the sound produced with little or no obstruction in the airflow and it is produced with relatively more loudness than /k/. The sound segment with the loudest peak is the most compulsory component of syllable and it is

usually a vowel or a liquid or nasal with vowel qualities. Akmajian*et al.* (2001) defined syllable as a unit of phonological structure that usually consists of a vowel preceded and/or followed by various consonants.From a phonological point of view, a syllable is defined in terms of its structure, that is the number of syllables a language permits in a word and the number of consonants a language permits to occur with the vowel as well as where in a word combinations of consonants and vowels are allowed to occur.

As a phonological unit, the syllable consists of three components: an *onset, nucleus* and a *coda.* These components are made up of sound segments. While the onset is an optional component comprising consonant sounds, the nucleus and coda are called the *rhyme* part of a syllable which comprises the vowel and final consonants. Words like 'I' [ai] and 'owe' *[ăʊ]* consist of a single syllable that hasno onset and with a rhyme that has no coda.Words like [splint] ' [splint] and 'stripes' [straips] consists of single syllable that have onset comprising of three consonants, and codas comprising two consonant. The word 'come [kʌm] is another example of a one syllable word with three sound segments [k][ʌ] and [m].The most prominent in loudness of the three sound segments is the vowel [ʌ] and is the nucleus of the one syllable word. The initial consonant [k] is the onset while the rhyme is [ʌ,m]. The rhyme is further divided into the nucleus [ʌ], the vocalic part and the final consonant [m] following the vowel is the coda.

From the example given, it is obvious that the only obligatory component of the syllable is the nucleus which can be a vowel or a syllabic consonant. The structure of a syllable is shown below:

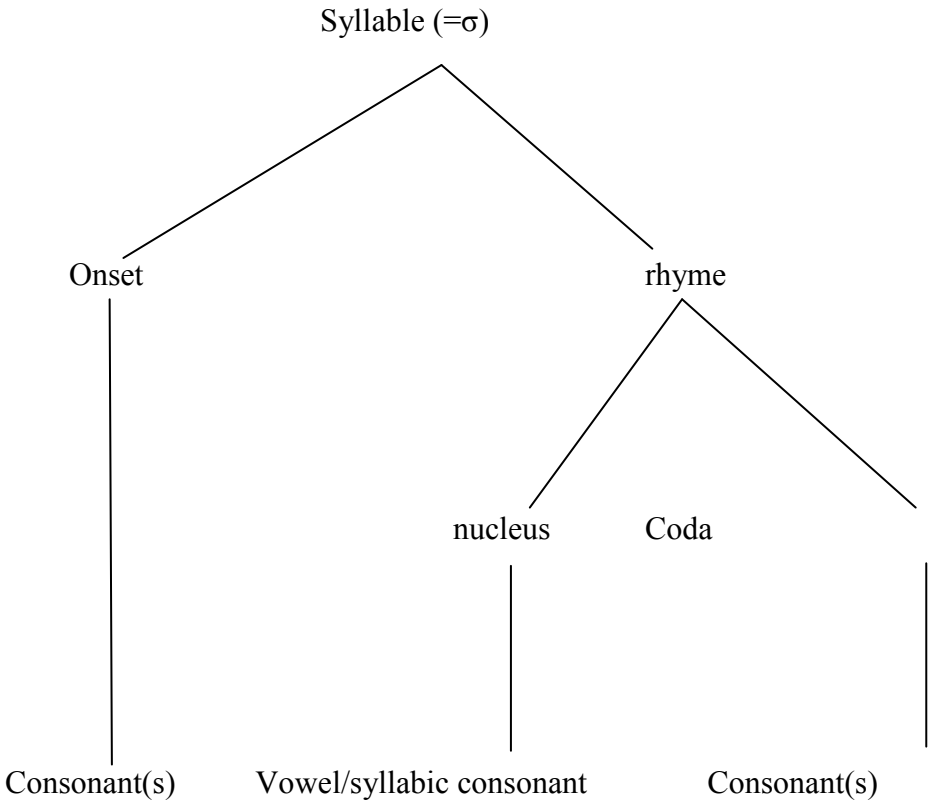

Fig. 1: Components of a Syllable, McMahon (2002)

2.3.5 Suprasegmentals

The term "supra" is originally a Latin word, which means 'above', 'over', 'beyond' or 'transcends'. If you prefix it to 'segment' then you have "suprasegment". They are features over and above the segmental values (Fromkin*et al.* 2003). He further added that features such as pitch, stress etc. are prosodic or suprasegmentals, thus:

2.3.5.1 Stress

Stress is the force with which a syllable is uttered, perceived loudness accompanied with muscular effort in the lungs region is an important feature. When the force is high, the syllable is said to be stressed, but when the force is low, the syllable

is unstressed. Depending on the strength with which a syllable is produced, the following types of stress can result:

i. Primary Stress

The primary stress is the type of stress that is produced with a maximum breath force. Every English word, no matter how many syllables it is made up of carries only one primary stress. For example, in the word 'again', the primary stress is on the second syllable. The common characteristic features of a syllable bearing a primary stress is prominence realised as loudness, length and pitch.

ii. Secondary Stress

Secondary stress is placed on a syllable made with less breath force. It is referred to as weak stress. For instance, the first syllable in word "again" carries a secondary stress.

iii. Tertiary Stress

This is produced with a still weaker breath force. Normally both the secondary and tertiary stresses are ignored except in words of more than two syllables and in compound words.

2.3.5.2 Pitch

Pitch is the auditory phonetic property of a sound that enables a listener to place it on a scale from low to high or vice versa. According to Katamba (1989) pitch depends on the rate of vibration of the vocal cords. The more taut the vocal cords are, the faster they vibrate and the higher is the pitch of the perceive sound. Therefore, certain factors influence the pitch of the sound produced by a speaker. Some these factors include the tension of the vocal cord and the rate of the air flow from the lungs.

An increase in the flow of air from the lungs will automatically lead to an increase in the pitch of the voice. Also different states of the glottis may affect the pitch of the sound segments. There is likely to be a rise in pitch when the vocal cords are vibrating than when they are not. The pitch of the voice is linguistically used to convey such information as stress, tone, and intonation.

2.3.5.3 Intonation

Pitch patterns (Low and high), which stretch over phrases and sentence are known as intonation. Intonation refers to the structured variation in pitch which is not determined by lexical distinctions (Carlos Gussenhoven in De lacy, 2007). It is the pitch contour or pitch variation of a phrase or sentence realised through of the vibration of vocal cords. The various changes in pitch of the voice in the same utterance give rise to different intonation patterns. The various intonation patterns of utterances in any language are significant. This is because they are part of the meaning of the utterances. Every language has its own characteristic intonation patterns (contour) just as every language has its own sound system. Some intonation patterns are used for making statements, others are used for questions, while others are for commands. A variety of meanings can be given to a particular utterance depending on the intonation pattern that is used.

2.3.5.4 Tone

Tone is the distinctive and relative pitch on each syllable. Ladefoged and Johnson (2010) described tone as pitch variations that affect the meaning of a word. Unlike stress, different tones can contrast lexically in given phonological contexts. Tone languages are said to have syllable -timed rhythm such that syllables occur at

regular intervals in connected speech. In many African languages, the suprasegmental feature of pitch of individual vowels or syllables is used to make a difference in meaning of words that have the same segmental properties. When this happens, tone is said to perform a lexical function. Such languages are called tone languages. According to Gussenhoven and Jacobs (2011), tone languages use pitch contrasts to keep words apart in the same way that languages use vowel and consonants contrasts for this purpose.

2.3.5.5 Vowel harmony

Vowel harmony is a phonological feature in which all vowels within a defined unit agree in one phonetic value. Katamba (1989) asserts that vowel harmony is a process whereby within a certain designated domain, usually the word, all vowels are required to share one or more phonological properties. The vowels of a language are divided into two mutually exclusive sets and all vowels within a stipulated domain must be, say, either front or back, high or low, rounded or unrounded etc. Hence, there are two types of vowel harmony, incomplete or partial and complete or full; complete vowel harmony refers to when the vowels of a language can be divided in to two harmonic sets without any of the vowels from one set being found in the other.Languages with complete vowel harmony usually have nine or ten oral vowels. However, a system with partial harmony is one in which some vowels of one set can co-occur with vowels of the other set within a word. Languages with partial harmony usually have seven vowels or less. Vowel harmony constitutes a theoretically fascinating phenomenon which can throw light on the nature of phonological

representations because of the way in which it functions partly as a segmental and partly as a suprasegmental.

The foregoing explanation on the concept of phonology and its scope serves as a premise upon which the present research is based. As it covers the key aspects of phonology therefore gives the researcher an insight to the subject under investigation.

2.4Phonological Processes

Phonological processes are the methods for describing the way in which individual sounds are produced in spoken languages. These rules are written out in a specialised notation that codifies the way in which a sound or group of sounds is altered by appearing in a specific linguistics context. According to Goldsmith (1995) cited in Rosyidin (2016) Phonological processes are defined as mappings between two distinct levels of sound representation. Hayes (2009) describes them as generalizations about the distinct ways in which a particular sound can be pronounced in distinct environments. Environment in phonology typically refers to neighbouring phonemes. Therefore, sounds in the environment of other sounds, across morpheme and word boundaries tend to undergo various phonological changes referred to as phonological processes. A sound can change to look like a close by sound through a process called assimilation; or a sound can be dropped in the presence of another through a process called deletion; a sound can be inserted through an insertion process and so on. Because these processes occur to segments with similar features and in similar environments, rules are generated to account for the changes.In his research, Obied(2016) gives a comprehensive description of phonological processes where he illustrates the following:

2.4.1 Assimilation

Hyman (1975) states that assimilation refers to all adaptive modifications of a segment In a chain of segments by a neighbouring segment. According to Dirven(2004), assimilation is a process whereby one sound causes an adjacent sound to be "more similar" to itself. Sounds become more like neighbouring sounds e.g. /n/ becomes /m/ under the influence of a bilabial consonant that follows as in ten minutes /temmınıts/. Assimilation can be conditioned by preceding or following sounds.

2.4.1.1 Types of assimilation

Concerning types of assimilation, Hyman (1975) suggests that scholars classify assimilation differently and he presents the following figure for this classification.

1. Distinctiveness and stability of change
    i. Phonetic assimilation (Free variation or Contextual)
    ii. Phonemic assimilation (Neutralization or Syncretism)
    iii. Morphologic assimilation (Morphophonemic orHistorical)
2. Direction of change
    i. Progressive assimilation
    ii. Regressive assimilation

From the point of view of distinctiveness and stability of change, assimilation patterns manifest three sub- types:

1- Phonetic, free variation or contextual assimilation. The change affects a certain segment by selecting a certain variant of that segment.

For example, /m/ in triumph and nymph is rendered /ɱ/ (labiodental nasal) instead of bilabial [m]

Similarly, infant /*n*/ is often rendered as /*ŋ*/

Also, /*l*/ is devoiced after /*f*/ and /*k*/ in 'flight' and 'clean' and lips are rounded in the articulation of/*p*/, /*k*/, and /*i*/ in 'pool', 'cool', 'loom', respectively due to the occurrence of rounded vowel /u:/ immediately after these consonant segments.

2- Phonemic assimilation is often referred to as "neutralisation" or "syncretism". This is more systematised, i.e., not subject to free variation. It also results in the neutralization of two phonemes. For example:/v/ and /f/ are neutralised in have to /haft tu/, /z/ and /s/ in 'newspaper' /'nju:speipə/, and so on. Dirven (2004) states that some assimilation such as in *newspaper* are obligatory within word boundaries, however, they are optional, and tend to be more frequent in the informal and relaxed the speaking style.

3-Morphological or morphophonemic assimilation is one which affects a whole morpheme. It usually decides the morpheme variant (allomorph) according to morphophonemic rule. For example:

- The distribution of - s suffix (plural, 3rd, person singular, possessive, contracted forms,is and has) show three allomorphs:

/-s/ after voiceless consonants: stops, roots

/-z/ after voiced segment; goes, boys

/-iz/ after sibilant consonants: reaches, bridges

Katamba (1989) points out that the alternation in the shape of a morpheme is not arbitrary. Rather, it is phonologically conditioned. This means that the allomorph of a morpheme that occurs in a given context is partly or wholly determined by the sounds found in the allomorphs of adjacent morphemes. It is not merely coincidence that is responsible for the allomorphs of the plural morpheme and the third person plural being [-z -s -iz]. The suffix agrees in voicing with the preceding sound.

-The distribution of— ed suffix (past and past participle) shows three allomorphs:

/- d/ voiced segments: killed, named.

/- t/ after voiceless consonants: looked, stopped, reached.

/- id/ after /*t*/ and /*d*/: wanted, added.

- The distribution of the presufix shows the following allomorphs:

/*il*/ before /*l*/: illegal, illegitimate.

/*ir*/ before /*r*/ irregular.

/*im*/ before labial: immoral, impersonal, immortal.

From the point of view of the direction of change, assimilation can be progressive or regressive. When the change involves the following sound, it is called “regressive assimilation” and when it involves a preceding sound it is called “progressive assimilation”.

The nasal is realised as:

(i) [m] before bilabial consonants (e.g. when one of [p b m] follows)

(ii) (ii) [n] before alveolar consonants (e.g. when one of [t d n s] follows)

(iii) [ŋ] before velar consonants (e.g. when [k or g] follows)

- Progressive assimilation can be seen in the following cases:

a- the /-s/ morpheme of the plural becomes /-z/ when preceded by a voiced consonant, e.g., bag + s / bagz/, pencil + s /penslz/.

b- /*d*/ becomes /*t*/ when preceded by a voiceless consonant: e.g., kick + ed /kikt/.

b- Regressive assimilation can be seen inthe following patterns:

I- /*n*/ becomes /*m*/ under the influence of a labial consonant that follows. For example, 'ten minutes' / *tem'minits*/.

2- /*d*/ becomes /*t*/ when followed by a voiceless consonant. For example, 'used to' /*ju:stu*/.

3-/*z*/ becomes /*s*/ when followed by /*p*/ or /*t*/, for example: newspaper /*nju:speipə*/

Another way in which assimilation processes can be seen is in terms of whether a vowel or consonant acquires vowel or consonant features of a neighbouring segment. When a velar consonant is followed by a front vowel, there occurs some slight anticipatory fronting of the part of the tongue that makes contact with the roof of the mouth. This fronting is indicated by a subscript (+) under the consonant. The effect of the fronting is that the velar consonant is made partly in the palatal region. This process is called *palatalization.*

Velar consonants often have slightly palatalised allophones which occur after front vowels because the tongue is raised towards the hard palate in the production of front vowels and speakers anticipate that gesture and start making it before they have completed the articulation of[k] or [g].

Palatalisation is not limited to velar consonants. It is equally possible to palatalise anterior consonants. In fast speech, alveolar consonants are usually palatalised when they occur at the end of a word and are followed by another word which begins with an alveopalatal consonant:

his shoes [hizʃu :z] —> [hizʃuz]

niceshirt [nais ʃɜ:t] —> [naiʃɜ:t]

Concerning labialization or rounding, anticipating the next segment which is a round vowel, the speaker starts rounding the lips before the articulation of the consonant is completed.

Pool /pu:l/

Two /tu:]

2.4.2 Dissimilation

When a sound changes one of its features to become less similar to an adjacent sound, usually to make the two sounds more distinguishable, this type of rule is often seen among people speaking a language that is not their native language where the sound contrasts may be difficult so the rule is applied for ease of production and perception.

In other words, a phonological process that changes feature values of segments to make them less similar.

Annual annu**l**ar

sexual secu**l**ar

cultural cellu**l**ar(cell)

penal perpendicu**l**ar

2.4.3 Deletion

When a sound, such as a stressless syllable or a weak consonant, is not pronounced; for example, most American English speakers do not pronounce the [d] in "handbag", [n] in 'condemn", [k] in" know". So, it is a process by which a sound present in the phonemic form is removed from the phonetic form in certain environments for ease of production. Lass (1984) suggests that there are three types of deletion: *aphaeresis* which is initial deletion as in (I am --- I'm, I have ----I 've) or the initial loss of/k/ before /n/ as in know, knight, *syncope* is formative internal deletion: the term is most frequently used with vowel loss, but some writers extend it to consonants as well. This can be seen in American and British forms of certain words: /s□kr□t□ri/ vs. /s□kr□tr□/ 'secretary', 'sign ', assign. *Apocope* is the loss of a final element as /t/ before a word beginning with another consonant last time, also low stress words may lose their finals as in 'and'.

2.4.4 Insertion

Nathan (2008) asserts that not only can segments be deleted, sometimes they can be inserted instead. There seem to be two basic reasons for insertion:

Preventing clusters of consonants that violate syllable structure constraints in the language, and easing transitions between segments that have multiple incompatibilities. Again, there are Greek-based terms for insertions at the beginning, middle and end. Insertion at the beginning is observed in Spanish, where the language does not permit onset clusters. Words that are inherited from Latin with such clusters changed to have an initial /e/ inserted:

especial [espesial] 'special'

estudiante [estudiante] 'student'

escuela [eskwela] 'school'

A particularly strange, but well-known kind of insertion is the famous 'intrusive/linking r' of British and some dialects of [American English]. In these dialect historical /*r*/ has been deleted in word-final coda position, but when the word is followed by vowel initial words under complex and not-completely- understood circumstances, the /*r*/ reappears, an example of 'intrusive r' is:

idea [aidiə]

idea is [aldiərlz]

All of the examples we have seen so far involve insertion of vowels to break up sequences of consonants that violate syllable structure constraints. In other cases the /*r*/ reappears even when there was never an /*r*/ there in the first place (this is known as 'intrusive r'). Typical examples of 'linking r' are:

rear [riə]

rear end [rirɛnd]

He adds that there are two types of insertion: prothesis and epenthesis, the former refers to the insertion of a segment at the beginning while the latter refers to the insertion inside a word.

Snoopy + /e/ — /esnupi/ (prothesis)

glass + plural /s/ — /glæsəz/ (epenthesis).

2.4.5 Metathesis

Obied (2016) describes metathesis as phonological process that changes the order of phonemes.

Old English Vs. Contemporary English

asterix(ks) asterisk

comfterble comfortable

intregal integral

relator realtor

revelant relevant

Lass (1984) states that in old English there are interchanges of/p/ and /s/, as shown in spelling variants: /ps/ --- /sp/ in waspe‘wasp’, /sp/---/ps/ in apse aspe‘aspen’, cosp cops ‘cope’, wlips ‘lisping’. He adds that the metathesised forms wasp, copse are now standard. Another metathesis involves nasal sequence, specially /m/ and /n/: emnityfor enmity, anemone for amenone, etc.

The aforementioned description sets up the framework within which the present research is conducted by explicating a number of phonological processes among which are the assimilation and deletion, hence the subject of this research

2.5 Review of Previous Studies on the English Assimilation Process

Dawood and Atawneh (2015) conducted a study on assimilation of consonants in English where they describe assimilation as one of the phonological processes in which a sound undergoes a change based on the phonological environments. They discuss many types and forms of assimilation including progressive, regressive, coalescent, full and partial assimilation. In addition, assimilation can occur within a word level or within word boundaries. It also occurs because of the development of languages, and under the effects of the surrounding sounds. The study concludes that the importance of assimilation is to make pronunciation of a word or speech easier.

This study will benefit from the above cited studyfrom the vivid explanation of assimilation and its types which is quite relevant to this research, even though the study is specifically meant for assimilation of consonants in English only. McCarthy and Smith (2003) see assimilation as a phonological process in which a segment changes to resemble its neighbours more closely. He argues that assimilation could either be total or partial. In partial assimilation, the targeted segment takes on some, but not all of the characteristics of the sources segment. Total assimilation is the limiting case: the target becomes identical to the source. The research concludes that the process of assimilation can be usefully distinguished by the distance between the targeted segment and the source of the assimilating feature(s). In local assimilation, the target and source segment are strictly adjacent. In long-distance assimilation, usually called *harmony,* the

target and source segments may be quite apart, though they are usually in the same word. The researcher discusses the process of assimilation in an instructive manner, but it would be more effective if the discussion is in comparison between languages as in this research.

Another relevant study on English assimilation process is that of Ren-ying (2016). He discusses assimilation as a process whereby one sound is changed to a second under the influence of a third. He argues that it is assimilation in which the value of individual feature has changed that result in the phonetic change. He describes three kinds of assimilation, thus;

- Regressive (or anticipatory), in which a sound is influenced by a following sound, e.g. *ten bikes* being pronounced as *[tem baiks], ten men* as *[tem men],* and *ten kings* as *[teŋkiŋz]*.
- Progressive, in which a sound is influenced by a preceding sound, e.g. *lunch score* becomes *[lʌnʧ ‘ʃkɔ:],* another instance is concerned with the pronunciation of the verb ending in *ed*. The inflectional ending *ed* ends in voiced *[d]* so long as the ending remains a separate syllable and */d/* follows either of the voiced sound *[I]* or *[ə],* as in heated *(‘hitid)* and *faded (‘feidid).*
- Reciprocal (or coalescent), in which “the two sounds influence each other and combine to produce a single sound (fusion) which is a compromise between the two” (Crystal, 1997). The word *sure,* for instance, was formerly pronounced *[ʃjur];* but the sequence */ʃj/* required a more delicate adjustment than most speakers gave it. Consequently, the tongue slipped further back for */ʃ/* and further forward for */j/*, perhaps through some intermediated stage like */ʃj/* or

*/ʃc/,*until the two sounds came together at the opposition for */ʃ/* and gave us our present pronunciation *[ʃuə]*. The research further concludes that it is necessary and beneficial to establish a universal principle governing the use of sound in languages, which will contribute to the study of phonology and for the study of pedagogy, though it is a tough task and needs much time and energy.

However, the study discusses assimilation in a greater detail but it fails to answer the question whether allassimilation rules apply to any given language in the world or are being restricted to English language. This creates a gap which this study fills.

A study is conducted on assimilation by Baković (2007),who observes that a phonological process is called an *assimilation* if, as a result of its application, two or more segments in a form agree in their value for some phonological features (s) or feature classes (es). He further explains that assimilation processes can be roughly divided into two types, *local* and *long distance.* Local assimilations obtain between strictly adjacent segments, such as between the consonants in a consonant cluster. Long-distance assimilations obtain between segments that are not (necessarily) adjacent, such as between consonants across a vowel. Furthermore, the researcher focuses his study on local assimilation, an in particular on a set of issues that arise in the formal analysis of processes of local assimilation,. Though, the study limits itself on one type of assimilation i.e. local assimilation, the classification made by the researcher is of paramount importance to the study in question.

On his part Brown (2014) gives a detail description of assimilation. He states that assimilation is the process whereby one sound changes in order to become similar to a neighbouring sound. He classifies assimilation in terms of two categorizations:-

1. *Assimilation of voice,* place and manner. This answers the question what feature of the sound changes?

   Assimilation of voice occurs when one sound changes from voiced to voiceless, or vice versa, because of a surrounding sound. For instance, the words *have, supposed and used* all end in voiced sounds when pronounced in isolation: */hæve, səpəʊzd, ju:zd/*. However, when they are followed by the word *to,* which begins with voice less */t/*, their final consonants are often made voiceless: */hæftə, səpəʊsttə, ju:sttə/*.

   Assimilation of place: when alveolar stop (plosive or nasal) is followed by a consonant that is not alveolar, the first constant often changes its place of articulation to that of the second sound. For instance, the */t/* of *Batman* is followed by a bilabial */m/*. It is common for the voiceless alveolar plosive */t/* to change to a voiceless bilabial plosive */p/* because the following sound is bilabial, thus */bæpmæn/*.

   Assimilation of manner: here, one sound changes its manner in order to be similar to that of a surrounding sound. For example, the first word of the phrase *good night* contains a final */d/,* and the second word begins with an*/n/*. The first sound may change from a voiced alveolar plosive */d/* to a voiced alveolar nasal */n/;* thus */gɒnnaɪt/*.

2. Progressive and Regressive Assimilation: This answers the question which sound affects the other, the first or the second or vice-versa?

   Progressive assimilation: Here the first sound influences the second. For example, the plural of regular nouns in English is formed by adding *–s* or –es to the singular form, e.g. *cats, dogs*. However, in terms of sound, the ending has two possible pronunciations. Where the singular noun ends in a voiceless consonant such as the */t/* of *cat,* the ending is voiceless */s/ (ɪkæts)*. Where the final consonant is voiced, such as the */g/* of *dog*, the ending is voiced */z/*. In other words, the ending shares the same voicing as the final consonant of the stem. The voicing state of the final constant perseveres through the ending; progressive assimilation is also known as *perseverative.*

   Regressive Assimilation:-The opposite in where the second sound affects the first. For instance, the opposites of the adjectives *polite, definite* and *correct* are *impolite, indefinite* and *incorrect (/impalaɪt, indefənət, inkərektl/).* We can analyse the prefix as being the same in each case: It has the vowel */I/* followed by a nasal which has the same place of articulation as the following consonant. In other words, the form of the nasal anticipates the place of articulation of the following consonant; regressive assimilation is also known as *anticipatory.*

   The commonest type of assimilation is where an alveolar stop (plosive or nasal) changes its place of articulation to that of a following consonant. This is known as *de-alveolar regressive assimilation of place* as illustrated below:-

Table 1: De-alveolar Regressive Assimilation of place

	Followed by		
	A bilabial	An alveolar	A velar
Final /t/ eight boys		eight days	eight guys
	/eipbɔɪz/	*/eitdeiz/*	*/eik/ gaiz/*
Final /d/ bad booy		bad day	bad guy
/bæbbɔɪ/		*/bæddeɪ/*	*I bæggaɪ/*
Final one boy		one day	one guy
/wʌmbɔɪ/		*/wʌndeɪ/*	*/wʌŋgaɪ/*

Brown has said much about assimilation. Infact, this study will benefit immensely from the study in many ways; most importantly the way assimilation has been rigorously discussed and classified according to its types which are quite relevant to the study in question. However, he fails to make comparison among languages which is the subject of this research.

2.6 Review of Previous Studies on the English Deletion Process

Deletion or more technically referred to as Elision as perceives by Brown (2014), is the process of omitting certain sounds in certain environments. It is different from assimilation, which involves change, not omission. He further describes the four main cases where this occurs in English:-

(i) When syllable-final /t/ follows a voiceless consonant (often /s/) and precedes any consonant, e.g. *next week/nekstwi:k/* > /*nekswi:k/*.

(ii) When syllable-final */d/* follows a voiced consonant (it cannot follow a voiceless one) and precedes any consonant, e.g. *handstand /Hændstænd/* > */hænstænd/*.

(iii) When /ə/ (which is always unstressed) is between consonants in a non-word final syllable e.g.*national /næʃənəl/ > /næʃnəl/*. Since a vowel being lost, a syllable is also being lost; the */næʃənəl/* pronunciation has three syllables, while */næʃnəl/* has only two.

(iv) When */h/* begins an unstressed syllable, e.g. *take him 'taeik him/ > /teikim/.*

The study concludes that elision in English typically affects syllable-final /t/, /d/ unstressed*/h/, and /ə/*.

Adequate examples are given in the above study. However, such a work with many examples should be done with a comparison to another language, as this would enhance comprehension.

Another relevant study on English deletion process maintains that deletion is a phonological process whereby a segment that had existed is lost or become zero (NOUN, 2010).The study argues that the process may affect a vowel or a consonant. Some segments that are heard in a deliberate or slow articulation of a word in isolation may get deleted/elided or lost in festination (fast speech) and this can even affect an entire syllable.

The study further provides three forms of deletion:-

(i) Aphaeresis: This affects a morpheme or a sound at initial position. This is initial deletion e.g. I have – I've. The lost could be diachronically (history) traced. Other examples are; knight */nait/,* know */n u/,* pneumonia */njiumni/* psychology */saik/ /i/*etc.

(ii) Syncope (Syncopation) is the internal deletion e.g.

Listen*/lisn/,* sword */sɔ:d/, often /'ɒfən/,* Plumber */'plʌmə/,* castle */kæsl/,* Secretary */sektri/*

(iii) Apocope (Apocopation) is the deletion of the final segment e.g. and*/n/,* last time */læstaim/.*

Apocopation abounds in French words borrowed into English e.g.

Coup */ku:/,*debut*/debju:/,*depot*/dep u/,* chalet */ʃælet/*

In French, the final vowel of the definite article *'le'* and *'la'*is always deleted if the following word begins with a vowel. This process prevents sequences of vowels from occurring across word boundaries and thus maintains the preferred 'CV' structure e.g.

Le gaison *(I ga:ss)* The boy

Le ami *(L' ami)* The friend (male)

La fille *(làfiy)* The girl

La amie *(Lamie)* The friend (female)

The above study compares English language and French, this study sets to look at the situation in English and Arabic.

Fromkin*et al.* (2011) state a deletion rule in English, which says "Delete a /g/ word initially before a nasal consonant or before a syllable-final nasal consonant." Giving this rule, the phonemic representation of the stems in *sing/signature, design/designation, malign/malignant, phlegm, phlegmatic, paradigm/paradigmatic, Gnostic/agnostic,* and so on will include a */g/* that will be deleted by the regular rule if a prefix or suffix is not added. By stating the class of sounds that follow the /g/ (nasal consonants) rather than any specific nasal consonant, the rule deletes the /g/ before

both */m/* and */n/*. He further added that, in casual or rapid speech we often delete the unstressed vowels that are shown in bold type in words like the following:-

Myst**e**ry, gen**e**ral, mem**o**ry, funeral, vig**o**rous, Barb**a**ra.

These words in casual speech sound as if they were written:

Mystry, genral, memry, funral, vigrous, Barbra.

Our knowledge of English phonology accounts for these phonetic differences.

The above study provides a rule with regard to deletion process is English but it fails to explain whether the rule is applicable to all languages or is being restricted to English. This creates a gap for the present study to fill.

2.7Review of Previous Studies on the Arabic Assimilation Process

A study of assimilation of the definite article AL*/al/* in Standard Arabic was conducted by Dawood and Atawneh (2015),whoobserve that in Arabic, letters are categorised into two groups: thesun letters(*hurufushshamsiyya*) and the moon letters (*hurufulkamariyya*), depending on the ability to assimilate with the following sounds. For instance, in a word like *al-shams*, 'sun', the */l/* sound is totally assimilated to the 'sh' sound. So the resultant pronunciation of the word is */ash-shams/*. Thus, the sun letters are said to assimilate and the letter is doubled, whereas the moon letters are not. So when the definite article comes before any solar letter, assimilation takes place. It will be made clear by adding the definite article *al* to the solar letters:-*al+solar letters: al+t* becomes *at-t, al+th*becomes *ath-th, al+d* becomes *ad-d.* For example, */da:r/(home) + /al/ = /ad-da:r/* which is total assimilation. Such assimilation occurs completely when a noun begins with coronal consonants (Hall, 1977 cited in Dawood and Atawneh, 2015). Sun letters in the Arabic language are coronal consonants so that

they totally assimilate with the sound */l/* in the definite article *–al* if the sound is followed by one of these coronal consonants. The reason for such total assimilation is that */l/* in Arabic is a coronal consonant so that it assimilated with other coronal consonants. Meanwhile, the study argued that the better term to be used for the assimilation between *(l)* and coronal consonantsis'true geminates' instead of assimilation.

The above study discusses assimilation of the definite article in Standard Arabic. Though, it is limited to Arabic, this serves as a blueprint for the present research to look for other instances of assimilation processes in Standard Arabic and the English as well. Jalabaneh (2012) conducted a study on assimilation process in Modern Standard Arabic Phonology within the framework of Schane's(1973). The study accounts for the concept of partial and total feature change in regressive and progressive assimilation of consonants and vowels in Modern Standard Arabic Phonology at the lexical, phrasal and clausal levels. He finds out that the change is partial if a segment takes some features from the neighbouring segment, but retains its manner of articulation whether the place of articulation is changed or not. In regressive style, a vowel partially assimilates the consonant feature of nasalization at the lexical level: */inkasara/ - (inkasar) 'got broken'*and at the clausal level:*/fa-nqata'a/ al-hablu[fæ-ngata'al-hablu] "thus, the rope got cut"*.

A consonant assimilates the semi vowels *(y)* and *(w)* features of palatalization and labialisation respectively: */man ya'mal/ → /mayya'mal/* 'whoever works' */min wara-ihim/ → /miwwara'ihim,* 'from their behind' and a vowel feature of roundness at the lexical level. A consonant assimilates another consonant at the phrasal level: */min*

ba'd/ [mimba'd] from after and the clausal level: */arad-ta/ [aratta] you wanted.*A vowel assimilates other vowel features of tense at the clausal level: */áfá/ 'forgave' [aafaakaatlaah] 'God keep you well.* In progressive assimilation, the partial style happens when a vowel features of roundness at the lexical level. A assimilates semivowels features at the lexical level. A consonants assimilates another consonant features at the clausal level. However, the change is total if a segment takes some features from the neighbouring segment, but it loses its manner of articulation though the place of articulation is changed or not. In regressive assimilation, a consonant totally assimilates features of semivowels as well as other features of consonants.

Finally, the study proves that all segments that succumb to partial and total assimilations are allophonic rather than phonemic. They are not contrasted with the actual phonemes in the underlying form, and thus they cannot constitute minimal pairs.

Even though, the researcher has provided a framework to which the study has been conducted, it can be pointed out here that, such a work with numerous examples and much technical words should be compared to another language, especially English, so as to achieve better understanding. Watson (2002) compares assimilation process in two dialects of Arabic: Caireneand San'ani. He asserts that assimilation inCaireneis more pervasive than in San'ani. For instance, in the case of the definite article *l* assimilates only when the trigger is a coronal sonorant, plosive or fricative in San'ani, whereas *l* may also assimilate to a velar plosive in Cairene. In the case of the detransitiving prefix, *t-* assimilates to an adjacent coronal plosive or interdental fricative in San'ani, but in Cairene may also assimilate to a velar plosive or coronal sibilant. He further examines that the apparent anticipatory devoicing is attributed to

the licensing of [voice] in obstruents in San'ani, and in non-sonorants in Cairene, to the left of a sonorant. [Voice] is delinked from an obstruent in all other environments. Delinking of [voice] may be overridden, however, by right to left spread of [voice] from an adjacent voiced obstruent. In San'ani, anticipatory voicing depends on the trigger an undergoer sharing the presence or absence of [continuant] and is dependent, to a far greater extent than Cairene, on both the relative strength of the undergoer, and on the speed and casualness of delivery, e.g. /*yɪkdɪb*/ → /*yɪ[g]dɪb*/ 'he lies', Cairene, /*afdal/ → /a[v]dal/* 'better' San'ani. The study further concludes that assimilation in the post lexical component is also more general a process in Cairenethan it is in San'ani as in the following examples: *in s̄allāh* 'if God wills' in Cairene, *in s̄a Allāh*'if God wills' in San'ani.Watson's study correlates the presents study in terms of its content and proposes. However, he narrows the scope of his study within one language in that he compares the processes of assimilation in Cairene and San'ani dialects both from Arabic. This study sets to widen its scope to relate the processes in two different languages accordingly.

In yet another relevant study, Youssef (2013) looks into the processes of place assimilation in Cairene and Baghdadi Arabic, which are defined auto segmentally as the sharing of place of articulation feature between two or more segments. He provides a descriptive overview of local place assimilation (LPA) in these two varieties. And also considers various assimilations of manner features that are contingent on sharing place features. These processes include total assimilations in which case the adjacent sounds become identical (forming a false geminate), and partial assimilations in which case one consonant becomes more similar but not identical to a neighbouring

consonant. The researcher has maintained a strict division of labour between phonology and phonetics: phonology being concern with the system of contrastive relations within a given language, and phonetics with the physical characteristics of speech sounds. Thereby provides evidence from Cairene and Baghdadi Arabic that sub-segmental representations depend on the patterns of contrast and phonological activity in a given language. He further argues that two phonetically similar segments (in two languages) could be analysed into features in a number of different ways for the purpose of phonology. For instance, in Cairene and Baghdadi Arabic, when the quiescent nun (*nunus-sakina*) proceeded by the following consonants */b,l, r/,* the phoneme /n/ will pick up one or more features of the consonants. E.g. */min ba'd/* → */mimba'd/,* 'after', */min ladunhu/* → */milladunhu/,* 'from him', */anrabbihim/* → */arrabbihim/* 'from their lord'. The study concludes that, even though we do not expect identity between languages with respect to the featural composition of particular segments, we do find overwhelming similarity due to the universal phonetic properties of speech sounds.

While the reviewed work focuses its attention on assimilation processes in two different dialects of the same language (Arabic), this very study moves a step further to look the phenomenon in two distinct languages – English and Arabic respectively.

2.8Review of Previous Studies on the Arabic Deletion Process

Al-Shuaibi (2010) studied coda deletion in Yemeni TihamiDialect (YTD), where he presents an auto segmental analysis of coda deletion determining how the phonological process takes place. He finds out that the phonological process of deletion phenomenon in (YTD) takes place in the coda position. The disyllabic words end with

close ended syllable while that of the underlying form ends with open ended syllable. Tri-syllabic words in the underlying form therefore, become disyllabic ones in the output. The findings affirm that the postulation of Spencer (1996) that 'the loss of a coda consonant leads to a lengthening of the nucleus of that syllable' is not applicable to Yemeni Tihami dialect. The study concludes that the postulation of Spencer is probably applicable to some, but definitely not all languages /dialects of the world as illustrated in YTD, and thus is not a universal.The above study centres its argument on the justification or otherwise of a theory postulates by Spencer (1996), in which the result arrives negatively. Though, the study is not a comparative one, this study benefits from its findings as they share a common subject of investigation i.e. the deletion process.

Another relevant study was conducted by Yaari, Al-hammad and Luwa (2012). They discuss vowel deletion in Arabic dialects of Yemen (ADY). The study revealed that there is a vowel deletion observed in the speech of most local Yemeni people when compared with Standard Arabic (SA). Yemenis tend to delete short vowels when they use certain verbs in the past tense form. In fact, there are three short vowels that Yemenis delete from the verbs of past form in more than one syllable: two in the middle syllable and the third is in the last syllable. However, the last short vowel is commonly deleted by all Yemeni people. The study concentrated more on the two short vowels deleted in the middle syllable. Furthermore, the study argues that all Arabic dialects of Yemen except Aden dialect delete short vowels, be it in the middle or at the end of the syllables when they used the verb in the past form. And there is no cause/effect relationship between vowel deletion and other process of consonants'

segmentation and or those of syllabification. The study concludes that the Arabic dialect of Yemen contradicts the prediction of optimality theory (OT) in two issues: the output and the diphthongs sounds. This work studies deletion in a dialectological perspective rather than comparing two different languages. Hence, it's different with the present study.

2.9Theoretical Framework

This study adopts the distinctive feature theory as its theoretical framework. According to Akmajian et al (2001), the theory is proposed by Jacobson and Halle (1956) and later developed by Chomsky and Halle (1968). The theory aims at systematic study of pair of languages with a view to identifying their phonological differences and similarities. The distinctive features of human language are those that play a crucial role in the statement of phonological rules and/or distinguish phonemes from one another. The phonemes of all languages may be described in terms of differing subsets of the universally available set of distinctive features. Although, all languages draw from the same universal set of features, individual languages differ in the group of features that make up their phonemes. Therefore, this set of features must describe all phonemic contrasts in all languages and must also express all the phonological rules in a perspicuous manner (Akmajian*et al.* 2001).

The Table below comprises the distinctive feature system of the sound pattern of English (SPE) based on the one proposed by Chomsky and Halle (1968), and the features are proposed as universal features, not merely as features peculiar to English:

Table 2 (a): Distinctive feature composition of English consonants

	p	b	m	t	d	n	k	g	ŋ	f	v
Syllabic	-	-	- (+)	-	-	- (+)	-	-	-	-	-
Consonants	+	+	+	+	+	+	+	+	+	+	+
Sonorant	-	-	+	-	-	+	-	-	+	-	-
Voiced	-	+	+	-	+	+	-	+	+	-	+
Continuant	-	-	-	-	-	-	-	-	-	+	+
Nasal	-	-	+	-	-	+	-	-	+	-	-
Strident	-	-	-	-	-	-	-	-	-	+	+
Lateral	-	-	-	-	-	-	-	-	-	-	-
Distributed	-	-	-	-	-	-	-	-	-	-	-
Affricate	-	-	-	-	-	-	-	-	-	-	-
Labial	+	+	+	-	-	-	-	-	-	+	+
Round	-	-	-	-	-	-	-	-	-	-	-
Coronal	-	-	-	+	+	+	-	-	-	-	-
Anterior	+	+	+	+	+	+	-	-	-	+	+
High	-	-	-	-	-	-	+	+	+	-	-
Back	-	-	-	-	-	-	+	+	+	-	-
Low	-	-	-	-	-	-	-	-	-	-	-

	s	Z	θ	ð	ʃ	ʒ	tʃ	dʒ	I	ɹ	w (ʍ)	j	h
Syllabic	-	-	-	-	-	-	-	-	- (+)	- (+)	-	-	-
Consonantal	+	+	+	+	+	+	+	+	-	-	-	-	
Sonorant	-	-	-	-	-	-	-	-	+	+	+	+	+
Voiced	-	+	-	+	-	+	+	+	+	+	+	+	-
Continuant	+	+	+	+	+	+	-	-	-	+	+	+	-
Nasal	-	-	-	-	-	-	-	-	-	-	-	-	-
Strident	+	+	-	-	+	+	+	+	-	-	-	-	-
Lateral	-	-	-	-	-	-	-	-	+	-	-	-	-
Distributed	-	-	-	+	+	+	+	+	-	-	-	-	-
Affricate	-	-	-	-	-	-	+	+	-	-	-	-	-
Labial	-	-	-	-	-	-	-	-	-	-	+	-	-
Round	-	-	-	-	-	-	-	-	-	+	+	-	-
Coronal	+	+	+	+	+	+	+	+	+	+	-	+	-
Anterior	+	+	+	+	-	-	-	-	+	+	-	-	-
High	-	-	-	-	+	+	+	+	-	-	+	+	-
Back	-	-	-	-	-	-	-	-	-	-	+	-	-
Low	-	-	-	-	-	-	-	-	-	+	-	-	(+)

Chomsky and Halle (1968) pointed that the articulatory features are viewed as basically *binary*, that is, as having one of two values: either a *plus* value (+), which indicates the presence of the feature, or a *minus* value (-), which indicates the absence of the feature. Each phonetic feature represents an individually controllable aspect of articulation. For example, the feature *nasal* is related to the raising or lowering of the velum. The phoneme /*m*/ thus has the feature [+nasal] whereas the phoneme /b/ has the feature [–nasal]; this indicates that in the articulation of /m/ the velum is lowered, and in the articulation of /b/ the velum is raised. Distinctive features, by convention, are enclosed in square brackets [ ]. In a similar fashion, all phonemes in the SPE system are regarded as *bundles of features,* that is, as groups of binary features with pluses and minuses. Notice that the features allow us to distinguish all the consonant phonemes from one another and at the same time to refer to classes of sounds (e.g. the classof *voiceless consonants)*

Syllabic: the feature [+syllabic] is assigned to phonemes that can function as the head (or peak) of a syllable. The vowels of English are, of course, syllabic. *Consonantal:* phonemes with the feature [+ consonantal] are formed in the vocal tract with an obstruction that is at least as narrow as that of a fricative. Note that the glides are therefore neither true consonant, nor are they true vowels. *Sonorant:* "Sonorant sounds are produced with a vocal tract cavity in which spontaneous voicing is possible". In other words, the vocal tract is not constricted to the extent that airflow across the glottis is inhibited., vowels, glides, liquid and nasals are all [+sonorant]. [-sonorant] consonants are frequently referred to as *obstruent*.

*Voiced:*phonemes are voiced when their articulation is accompanied by a periodic vibration of the vocal cords. All of the phonemes in the word */bead/ (/bid/)* are [+voiced], whereas the phonemes /p/, /t/, and /k/ are [-voiced].

Continuant:[- continuant] sounds are made with a complete blockage of the oral cavity. [+continuant] sounds are made without such a blockage. By this definition nasal are oral [-continuant] stops, although airflow and acoustic energy are shunted though the nasal cavity.

*Nasal:*phonemes have the feature [+nasal] when the velum is lowered during speech, thus permitting the air flow and sound energy to activate resonances in the nasal cavity.

Strident:[+strident] sounds are characterised by the high-frequency turbulent noise that accompanies the production of some fricatives and affricates. The phoneme */s/* is [+strident], whereas the phoneme /θ/ is [-strident]. *Lateral:*if the tip of the tongue is partially blocking the airstream, but the air is allowed to pass along one or both sides of the tongue, the resulting sound is [+lateral]. The phoneme /l/ is the only [+lateral] sound in English.

*Distributed:*the term *distributed* refers to the relative length of contact that the tongue makes along (not across) the roof of the mouth. The tongue has a relatively longer region of contact along the roof of the mouth in articulating /f/ than in articulating /s/; thus, /ʃ/ is [+ distributed] but /s/ is [- distributed]. The terms laminal [+ distributed] and apical [- distributed] have been used in the past to characterise this articulatory difference.

Affricate:(or Delayed Release) recall that affricates are produced by articulatory gestures during which the airflow is temporarily stopped, but the stoppage is

secondarily released into a fricative. This sequence of a stop plus a fricative functions in English as a single phoneme, as in /ʧ/ and /ʤ/.

*Labial:*a labial articulation involves a bringing together or closing of the lips. The phonemes /f/, /b/ and /m/ are all [+labial].

*Round:*a round articulation involves an extension and pursingof the lips. All sounds that are [+round] are redundantly [+bilabial], but[+bilabial] sounds are not necessarily [+round]. The /b/ in *bead* /bid/, for example though labial, is produced with no rounding.

*Coronal:*in articulating a [+coronal] phoneme, the blade of the tongue is raised towards or touches the teeth, the alveolar ridge, or an area along the back of the alveolar ridge. Dental, alveolar, and alveopalatal consonants are [+coronal] phonemes.

Anterior: Anterior sounds are made with the primary constriction in front of the alveopalatal position. Labial, dental, interdental and alveolar articulations are [+anterior].

*High:*in articulating a [+high] phoneme, the body of the tongue is raised towards or touches the roof of the mouth. The phonemes /k/ /ŋ/ /ʧ/ are all [+high]. *Back:* [+back] phonemes are made with the tongue body slightly retracted from the rest (quiet breathing) position. [- back] phonemes (also called front) are made with the tongue body in relatively forward position. The phoneme (ʧ) in *chuck* is [- back], whereas the /k/ in that word is [+back]. *Low*: Phonemes with this feature are made with the tongue body lowered and the root retracted. American English /ɹ/ is [+low] because of its associated pharyngeal construction.

Table 2 (b): Distinctive feature composition of English vowels

	i	ɪ	e̽ (eɪ)	ɛ	æ	u	ʊ	ʌ	o (oʊ)	ɔ	ɑ	ə	i
Syllabic	+	+	+	+	+	+	+	+	+	+	+	+	+
High	+	+	-	-	-	+	+	-	-	-	-	-	+
Back	-	-	-	-	-	+	+	+	+	+	+	+	+
Low	-	-	-	-	+	-	-	-	-	+	+	-	-
Round	-	-	-	-	-	+	+	-	+	+	-	-	-
Tense(Long)	+	-	+	-	-	+	-	-	+	-	-	-	-

The features [high] [low] and [back] are the same tongue body features used for characterising consonants. The gestures associated with these features in vowels are not as extreme, however, as they are for consonants. Two other features found in vowels, [syllabic] and [round], have also already been discussed in connection with vowels. The features [+tense] is associated with a more extreme articulatory gesture than it is [-tense] counterpart. The [+tense] vowel /i/ is higher and more front than the (-tense) /ɪ/.

The feature [tense] is used to distinguish /ɛ/ and /eɪ/, although it was already noted that there is more than a difference in length and muscle tension between these vowels. /eɪ/ begins in a higher position in the mouth than /ɛ/ and /eɪ/ also has a high off-glide. We have therefore listed the tense (long) vowels /eɪ/ and /oʊ/ in terms of the features of their first segment. The remaining diphthongs /aɪ/, /oʊ/ and /ɔɪ/ are not listed

in the table they are to be analysed as clusters of two phonemes for example /aɪ =/a/ + /ɪ/.

2.10 The Role of Distinctive Features in the Expression of Phonological Rules

As argued by Akmajian*et al.* (2001), the fundamental contrasting units of a language are not the phonemes but the features that make up the phonemes. Additional support for analysing phonemes into theirconstituent features comes from the insightful way that phonological regularities can be stated in terms of the features that make up the phonemes. They further illustrated that the English plural rule had "three shapes of phonetic features" *[s] [z] [ɪz],* and these are assigned to a noun depending on the phonetic features of its last phoneme. The rules are distributed according to the following conditions:-

(a) The plural morpheme takes the form /ɪz/ if the last sound in the noun to which it attaches is an *alveolar fricative*, an alveopalatalfricative, or an alveopalatal affricateotherwise.

(b) The plural morpheme takes the voiced form /z/ if the last sound in the noun is *voiced*.

(c) The plural morpheme takes the voiceless form /s/ if the last sound in the noun is voiceless.

Therefore, the patterning of phonological regularities in the English plural formation process offers substantial justification for the analysis of phonemes as distinctive feature clusters. The phoneme classes that participate in the formulation of rules can usually be defined by a relatively small number of distinctive features. Furthermore, Pinker and Prince (1988) as cited in Akmanjian*et al.* (2001) argued that the basic shape of the plural morpheme is /z/ and that all variations are due to phonological rules of English. If we assumed that /z/ is added to all non-

exceptionalEnglish nouns, then we must have an explanation for the fact that we actually say and hear three different shapes: /s/, /z/, and /iz/. Furthermore, the distinctive features are exactly those that permit an insightful description of the vowel change. The vowel /ʌ/ has the feature [+back] and [-high], the /vowel/ /i/ has the features [-back] and [+high] and the consonants /dʒ/, /tʃ/, /j/, /ŋ/, /ʃ/ also have the features [-back]and [+high].Thus, the features of the vowels and the preceding consonants tell us that an assimilation process is at work: the [-back] and [+high] features of the consonants appear in the following vowel, thus making it appear as /i/. Here, as in the statement of the English Plural Rule, distinctive features allow the exact nature of the assimilation process between two adjacent phonological segments to be explicitly expressed. Assimilation rules are very common in the world's languages and they are clearly best stated by rules based on distinctive features.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the procedures and methods employed in carrying out the research. It specifically explains the research design, the sampling and sampling procedure, the instrument for data collection, the sources of data collection and finally the method of data analysis.

3.2 Research Design

This study made use of survey research design because the target of the investigation concerned with the study of some phonological processes that pose problems to the Arabic based students in learning English as a second language. The survey research design concerns itself with the present and attempts to determine the current status of the phenomena under investigation.

3.3 Population,Sampling and Sampling Procedure

The research adopted purposive sampling. In purposive sampling, elements judged to be typical or representative are chosen from the population for inclusion in the sample. The target population of the study consists of Arabic-based students in higher institutions of learning, out of which a sample of thirteen respondents were randomly selected from six different institutions. Purposive sampling is necessitated when the research is interested in certain specified characteristics, only members with such characteristics are selected (Nkpa, 1997).

3.4 Instruments for Data Collection

The problem to be investigated dictates the type of data to collect and how to collect them (Bichi, 2004). This research, therefore, uses observation for the purpose of collecting the relevant data. This is because the observation method of data collection uses systematic procedures to identify target phenomena, categorise, observe and record them. Furthermore, observational techniques of data collection make it possible for the researcher to obtain first-hand information about the subjects under investigation.

3.5 Sources of Data Collection

The source of data employed in this research is typically humans through observation of their utterances. Some excerpts were selected from assignment scripts of NCE II students on composition (ENG 221) and administered to the respondents (the excerpts are used for analysis in chapter four). The researcher then observed how the processes of assimilation and deletion were being articulated by the respondents.

3.6 Method of Data Analysis

The step carried out in analysing the data is presentation of the excerpts to the respondents and identify the way in which they articulate the processes of assimilation and deletion in English. In a tabular form, the researcher grouped the excerpts according to the three major types of assimilation and deletion as identified by Brown (2014) and Lass (1984). The researcher relates the processes of the two languages in order to identify the points of their differences and their similarities as well.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter contains presentation and analysis of data. It is divided into three sections. The first section contains data presentation and analysis, the second contains discussion of the study, while the third contains findings of the study.

4.2 Presentation and Analysis of Data

The following data are gathered from the utterances of the respondents which are presented in form of excerpts in a table; each table (of data) is followed by its analysis.

Excerpt One

This excerpt is observed from aPart One student of Arabic Department, School of Languages, A.D. Rufa'i College for Legal and Islamic Studies, Misau which shows how the problem of assimilation and deletion occur in English:

> I have no source of income besides my fixed salary and thus it takes me some ten minutes to compute my annual income. And I used to make a scale of preference so as to know the best way to spend my income.

Table 1: The Frequency of Assimilation and Deletion Processes in Excerpt One

Words/phrase	IPA	Respondent	Processes
Income, ten-minutes, used to.	ɪŋkʌm, temminits, /ju:st tu:	ɪnkɒm, tennminu:ts, ju:sdtə	Assimilation
Know	noʊ	knoʊ	Deletion

Table Onepresents three words in which assimilation problems are observed and one word in which deletion problem is occurred. In the excerpt, the word income /ɪŋkʌm/ is pronounced as /ɪnkɒm/, the word ten-minutes /temminits/ is pronounced as /ten minu:ts/, and the word used to /ju:sttu:/ is pronounced as /ju:sdtə/ respectively. While in the deletion process, the word know /noʊ/ is pronounced as /knoʊ/.

Excerpt Two

This excerpt is observed from a Part Two student of Arabic Department, School of Languages, A.D. Rufa'i College for Legal and Islamic Studies, Misau which shows the problem of assimilation and deletion in English:

> The standpoint of economists is that one is supposed to make maximum use of one's available resources. Therefore, it is a duty not an honour for an economist to guide people against incorrect use of resources.

Table 2: The Frequency of Assimilation and Deletion Processes in Excerpt Two

Words/phrase	IPA	Respondent	Processes
Standpoint, supposed to, incorrect	stæmpɔɪnt, səpəʊsttə, ɪŋkərekt	stændpɔɪnt, səpəʊzdtə, ɪnnkɒrect	Assimilation
Honour	ɒnə	hoʊnoʊ	Deletion

Table Two presents three words in which assimilation problems are observed and one word with deletion problem. In the excerpt, the word standpoint /stæmpɔɪnt/ is

pronounced as /stændpɔɪnt/, the word supposed to /səpəʊsttə/ is pronounced as /səpəʊzdtə/, and the word incorrect /ɪŋkərekt/ is pronounced as /ɪnnkɒrect/. While the word honour /ɒnə/ is pronounced as /hoʊnoʊ/.

Excerpt Three

This excerpt is observed from a Part Three student of Arabic Department, School of Languages, A.D. Rufa'i College for Legal and Islamic Studies, Misau which shows the problem of assimilation and deletion in English:

> One needs not to study Psychology to understand that wishing people goodnight has a positive effect in their night sleep. Then, people have to wake up early to put maximum input in their work of the day.

Table 3: The Frequency of Assimilation and Deletion Processes in Excerpt Three

Words/phrase	IPA	Respondent	Processes
Goodnight, have to, input	gʊnnait, hæftə, ɪmpʊt	gʊdnait, hævtu:, ɪnnpu:t	Assimilation
Psychology	saɪkɒlədʒɪ	psɪkɒloʊdʒɪ	Deletion

Table Three presents three words in which assimilation problems are observed and one word in which deletion problem in observed. In the excerpt, the word goodnight /gʊnnait/ is pronounced as /gʊdnait/, the word have to /hæftə/ is pronounced as /hævtu:/ and the word input /ɪmpʊt/ is pronounced as /ɪnnpu:t/, while the word psychology /saɪkɒlədʒɪ/ is pronounced as /psɪkɒloʊdʒɪ/.

Excerpt Four

This excerpt is observed from a Part One student of Arabic Department, School of Undergraduate Studies, A.D. Rufa'i College for Legal and Islamic Studies, Misau which shows how the problem of assimilation and deletion in English occurs:

> If one got angry, one can overcome it by bidding all people around goodbye and have at least an hour of serenity to get composed. Later, one can get back to normal interactions with the people.

Table 4: The Frequency of Assimilation and Deletion Processes in Excerpt Four

Words/phrase	IPA	Respondent	Processes
Get back, goodbye, angry	gebbæk, gʊbbaɪ, æŋgrɪ	getbæk, gʊd'baɪ, ængrɪ:	Assimilation
hour	aʊə	hoʊr	Deletion

Table Four presents three words in which assimilation problems are observed and one word in which deletion problem is observed. Thus, the word get back /gebbæk/ is pronounced as /getbæk/, the word goodbye /gʊbbaɪ/ is pronounced as /gʊd'baɪ/, and the word angry /æŋgrɪ/ is pronounced as /ængrɪ:/, while the word hour /aʊə/ is pronounced as /hoʊr/.

Excerpt Five

This excerpt is observed from a Part Two student of Arabic Department, School of Undergraduate Studies, A.D. Rufa'i College for Legal and Islamic Studies, Misau which indicates the problem of assimilation and deletion in English:

> I will like a mathematician to write for me how I will divide five pence to eight boys to make them buy English books. It should be one boy, one English book.

Table 5: The Frequency of Assimilation and Deletion Processes in Excerpt Five

Words/phrase	IPA	Respondent	Processes
Five pence, eight boys, English, one boy	faɪfpens, eɪpbɔɪz, ɪŋglɪʃ, wʌmbɔɪ	faɪvpens, eɪtbɔɪs, ɪnglɪʃ, wʌnbɔɪ	Assimilation
Write	wrɪ:t	raɪt	Deletion

Table Five presents four words with assimilation problems and one word in which deletion problem is observed. In the excerpt, the word five pence /faɪfpens/ is pronounced as /faɪvpens/, the word eight boys /eɪpbɔɪz/ is pronounced as /eɪtbɔɪs/, the word English /ɪŋglɪʃ/ is pronounced as /ɪnglɪʃ/, and the word one boy /wʌmbɔɪ/ is pronounced as /wʌnbɔɪ/. While the word write /raɪt/ is pronounced as /wrɪ:t/ and /raɪt/ respectively.

Excerpt Six

This excerpt is observed from a Part Three student of Arabic Department, School of Undergraduate Studies, A.D. Rufa'i College for Legal and Islamic Studies, Misau which shows how problem of assimilation and deletion occur in English:

> I should sign a contract to purchase school bags and packets of pencils for primary school pupils. School dogs have no place in the contract.

Table 6: The Frequency of Assimilation and Deletion Processes in Excerpt Six

Words/phrase	IPA	Respondent	Processes
Bags, pencils, dogs	bægz, pensəlz, dogz	bægs, pensəls, dogs	Assimilation
Should, sign	ʃʊd, saɪn	ʃoʊld, sɪgn	Deletion

Table Six presents three words in which assimilation problems are observed and two words in which deletion problems are observed. In the excerpt, the word bags /bægz/ is pronounced as /bægs/, the word pencils /pensəlz/ is pronounced as /pensəls/, the word dogs /dogz/ is pronounced as /dogs/, while the word should /ʃʊd/ is pronounced as /ʃoʊld/, and the word sign /saɪn/ is pronounced as /sɪgn/ accordingly.

Excerpt Seven

This excerpt is observed from a Part Three student of Arabic Department, Bayero University, Kano which shows the problem of assimilation and deletion in English:

Tell the boys to take their beds on their heads and walk straight to their hostels. It goes without saying that the design of the hostels is for boys only.

Table 7: The Frequency of Assimilation and Deletion Processes in Excerpt Seven

Words/phrase	IPA	Respondent	Processes
Beds, boys, goes	bedz, bɔɪz, ɡoez	beds, bɔɪs, ɡoes	Assimilation
Design, walk	dɪ'zaɪn, wɔ:k	dɪzaɪn, wɜ:k	Deletion

Table Seven presents three words in which assimilation problems are observed and two words where deletion problems occurred. The word beds /bedz/ is pronounced as /beds/, the word boys /bɔɪz/ is pronounced as /bɔɪs/, and the word goes /ɡoez/ is pronounced as /ɡoes/ respectively. While the word design /dɪ'zaɪn/ is pronounced as /dɪzaɪn/, and walk /wɔ:k/ is pronounced as /wɜ:k/.

Excerpt Eight

This excerpt is observed from a postgraduate student (M.A. Arabic) at Bayero University, Kano which shows the problem of assimilation and deletion in English:

He does everything carefully. As his last chance, he kicked the engine of his car and drove for half an hour across the two bridges.

Table 8: The Frequency of Assimilation and Deletion Processes in Excerpt Eight

Words/phrase	IPA	Respondent	Processes
Kicked, bridges, does	kɪkt, brɪʤz, dʌz	kɪkd, brɪʤs, dʌs	Assimilation
Last chance, half	la:stʃa:ns, hæf	la:sttʃa:ns, hæf	Deletion

Table Eight presents three words in which assimilation problems are observed and two words where deletion problems are observed. In the excerpt, the word kicked /kɪkt/ is pronounced as /kɪkd/, the word bridges /brɪʤz/ is pronounced as /brɪʤs/, and the word does /dʌz/ is pronounced as /dʌs/. Whereas the word last chance /la:stʃa:ns/ is pronounced as /la:sttʃa:ns/ and the word half /hæf/ is pronounced as /hæf/, respectively.

Excerpt Nine

This excerpt is observed from a Part Two student of Arabic Department, Bauchi State University, Gadau which shows the problem of assimilation and deletion in English:

> The girls stopped and looked at themselves in the mirror. Next week will be the right and scheduled time for the beauty contest.

Table 9: The Frequency of Assimilation and Deletion Processes in Excerpt Nine

Words/phrase	IPA	Respondent	Processes
Themselves, looked, stopped	ðəmselvz, lʊkt, stɒpt	zemselvs, lʊkd, stɒpd	Assimilation
Right, next week	raɪt, nekswɪ:k	raɪt, nekstwɪ:k	Deletion

Table Nine presents three words in which assimilation problems are observed and two words in which problems of deletion are observed. The word themselves /ðəmselvz/ is pronounced as /zemselvs/, the word looked /lʊkt/ is pronounced as /lʊkd/, the word stopped /stɒpt/ is pronounced as /stɒpd/, while the word right /raɪt/ is pronounced as /raɪt/ and the word next week /nekswɪ:k/ is pronounced as /nekstwɪ:k/.

Excerpt Ten

This excerpt is observed from a Part Three student of Arabic Department, Bauchi State University, Gadau which shows how the problem of assimilation and deletion in English language occur:

> The Secretary made a schedule to buy books for the library and mats for guests to sit on. And cats from nearby houses should not be allowed in during the occasion.

Table 10: The Frequency of Assimilation and Deletion Processes in Excerpt Ten

Words/phrase	IPA	Respondent	Processes
Cats, books, mats	kæts, bʊks, mæts	ka:ts, bu:ks, mætz	Assimilation
Schedule, Secretary	ʃedju:l, sekrɪtərɪ	ʃedu:l, sekrɪtərɪ	Deletion

Table Ten presents three words in which assimilation problems are observed and two words with the problem of deletion. In the excerpt, the word cats /kæts/ is pronounced as /ka:ts/, the word books /bʊks/ is pronounced as /bu:ks/, and the word

mats /mæts/ is pronounced as /mætz/, while the word schedule /ʃedju:l/ is pronounced as /ʃedu:l/ the word secretary /sekrɪtərɪ/ is equally pronounced as /sekrɪtərɪ/.

Excerpt Eleven

This excerpt is observed from a postgraduate student (PhD-Arabic), Nassarawa State University which shows the problem of assimilation and deletion in English:

> They reached a decision to measure the angle of the elevation of the building regularly. They laugh for joy whenever they successfully measure it. They agreed to meet next week to improve their relation.

Table 11: The Frequency of Assimilation and Deletion Processes in Excerpt Eleven

Words/phrase	IPA	Respondent	Processes
Relation, measure	rɪleɪʃən, meʒʌ,	releʃɒɪn, medʒn	Assimilation
Angle, next week, regular	æŋgəl, nekswɪ:k, regʊlə	æŋgəl, nekstwɪ:k, regʊla:r	Deletion

Table Eleven presents two words in which assimilation problems are observed and three words where problems of deletion are observed. The word relation /rɪleɪʃən/ is pronounced as /releʃɒɪn/, the word measure /meʒʌ/ is pronounced as /medʒn/ whereas the word angle /æŋgəl/ is pronounced as /æŋgəl/, the word nextweek /nekswɪ:k/ is pronounced as /nekstwɪ:k/ and the word regular /regʊlə/ is pronounced as /regʊla:r/ as well.

Excerpt Twelve

This excerpt is observed from a postgraduate student (M.A-Arabic), University of Jos which shows the problem of assimilation and deletion in English:

> The idea of acquisition of a house is always a source of pleasure for those without house. But it is enough for one to have his passion under control. One can use one's handset to consult good websites to avoid confusion on house acquisition.

Table 12: The Frequency of Assimilation and Deletion Processes in Excerpt Twelve

Words/phrase	IPA	Respondent	Processes
Acquisition, pleasure, confusion	ækwɪzɪʃən, pleʒə, kənfju:ʒən	ækwesɪʃən, pledʒʌ, kənfu:sɪɒn	Assimilation
Under, house	ʌndə, haʊz	ɒndə, haʊs	Deletion

Table Twelve presents three words in which assimilation problems are observed and two words in which problems of deletion occurred. For instance, the word acquisition /ækwɪzɪʃən/ is pronounced as /ækwesɪʃən/, the word pleasure /pleʒə/ is pronounced as /pledʒʌ/, and the word confusion /kənfju:ʒən/ is pronounced as /kənfu:sɪɒn/ whereas the word under /ʌndə/ is pronounced as /ɒndə/ the word house /haʊz/ is pronounced as /haʊs/.

Excerpt Thirteen

This excerpt is observed from a postgraduate student (PhD-Arabic), University of Ilorin which shows the problem of assimilation and deletion in English:

> Nigeria has a vision of providing free health care for her citizen's starting from this year. The country will pass through the gate of adventure to realise this vision. As a member, you could not miss to pray for Nigeria to achieve this goal, could you?

Table 13: The Frequency of Assimilation and Deletion Processes in Excerpt Thirteen

Words/phrase	IPA	Respondent	Processes
Vision, this year, could you?	vɪʒən, ðɪʃrə, kʊdʒu:	vɪʃən, ðɪsjrə, kʊdju:	Assimilation
Gate, member	geɪt, membə	get, membə	Deletion

Table Thirteen presents three words in which assimilation problems are observed and two words where deletion problems are observed. In the excerpt, the word /vɪʒən/ is pronounced as /vɪʃən/, the word this year /ðɪʃrə/ is pronounced as /ðɪsjrə/, and the word could you /kʊdʒu:/ is pronounced as /kʊdju:/ while the word gate /geɪt/ is pronounced as /get/ and the word member /membə/ is pronounced as /membə/ accordingly.

4.3 Discussion

The study examines how assimilation and deletion in English and Arabic languages occur. Assimilation is a process whereby one sound changes in order to become similar to a neighbouring sound. Deletion is a phonological process whereby a segment that had existed is lost or becomes zero. In other words, it is the process of omitting certain sounds in certain environments. Therefore, the analysis in 4.2 shows that the processes of assimilation and deletion observed, are under the following forms and categories.

4.3.1 Regressive assimilation

Regressive assimilation is a type of assimilation where the second sound influences the first (Brown, 2014). It is also known as anticipatory assimilation. For instance, in the tables 1 – 5, the phonetic transcription of the study words can be seen as follows:

Table One

- /n/ becomes /ŋ/ under the influence of a velar plosive (stop) as in income /ɪŋkʌm/
- /n/ becomes /m/ under the influence of a bilabial consonant that follows as in ten minutes /temmɪnɪts/
- /d/ becomes /t/ when followed by a voiceless consonant as in used to /ju:sttu:/.

Table Two

- The two sounds /n/ and /d merge into one /m/ as in stampoint /stæmpɔɪnt/
- /d/ becomes /t/ when followed by a voiceless consonant as in supposed to /səpəʊztə/

- /n/ becomes /ŋ/ under the influence of a labial consonant that follows as in incorrect /ɪŋkərekt/

Table Three

- The /d/ sound changed from a voiced alveolar plosive to a voiced alveolar nasal /n/; thus /gʊnnaɪt/.
- /v/ becomes /f/ when followed by /p/ or /t/ as in have to /hæftə/
- /n/ becomes /m/ under the influence of labial consonant that follows as in input /ɪmpʊt/.

Table Four

- /t/ becomes /b/ under the influence of labial consonant that follows as in getback /geb'bæk/
- /d/ becomes /b/ also as it preceeds a bilabial plosive sound thus; goodbye /gʊbbaɪ/
- The alveolar nasal /n/ becomesa velar nasal /ŋ/ when followed by a velar plosives (stops) /g/ and /k/ as in angry /æŋgrɪ/, monkey /mʌŋkɪ/, bank /bæŋk/, etc.

Table Five

- /v/ becomes /f/ when followed by /p/ or /t/ as in five pence /faɪfpens/
- /t/ becomes /b/ under the influence of bilabial plosive that follows as in eight boys /eɪpbɔɪz/.
- /n/ becomes /ŋ/ when followed by a velar plosive (stop) /g/ as in English /ɪŋglɪʃ/.
- /n/ becomes /m/ under the influence of a bilabial consonant that follows as in one boy /wʌmbɔɪ/.

However, the study reveals that these assimilation rules have not been properly applied by most of the respondents due to their background knowledge of Arabic assimilation which to an extent differed from that of English.

In Arabic, regressive assimilation occurs in the following instances:

(i) Where the sound /l/ of the definite article /al/ assimilates to approximately half of the Arabic sounds. For example:

1. al – taj → attaj (the crown)
2. al – thaur → aththaur (the bull)
3. al - dār → addār (the house)
4. al – zahab → azzahab (the gold)
5. al – rajul → arrajul (the man)
6. al – zahrah → azzahrah (the flower)
7. al – samak → assamak (the fish)
8. al – shams → ashshams (the sun)
9. al – sidq → assidq (the truth)
10. al – difda'a → addifda'a (the frog)
11. al – da'irah → adda'irah (the plane)
12. al – zahr → azzahr (the back)
13. al – nur → annur (the light)

(ii) When the quiescent nun (*nunussakina*) or nunation(*at tanwin)*followed by one of the following sounds */y/ /n/ /m/ /w/* and is called partial assimilation (*nakis)*. For example:

In yakulu → *iyyakulu*(if he says)

Hudanwarahma → *hudaw wa rahma*(guidance and mercy)

(iii) When the quiescent nun (*nunussakina*) or nunation(*at tanwin)*followed by either of the following sounds*/l/ /r/*and is called complete assimilation (*kaamil)*. For example:

Min rabbihim → *mirrabbihim*(from their lord)

Gafurunrahim → *gafururrahim*(most forgiven, most merciful)

4.3.2 Initial deletion (aphaeresis)

The analysis also shows that all the deletion processes in table 1 – 5 are categorised under aphaeresis which is an initial deletion. Deletion generally is a process by which a sound present in the phonemic form is removed from the phonetic form in certain environments for ease of production as appeared in the tables above:

i. Initial loss of /k/ before /n/ as in know

ii. Initial loss of /h/ before /o/ as in honour

iii. Initial loss of /p/ before /s/ as in psychology

iv. Initial loss of /h/ before /o/ as in hour

v. Initial loss of /w/ before /r/ as in write

However, the respondents mispronounced the words as they tried to pronounce them the way they appeared. This poses a problem to the students.

Whereas, in Arabic there is no such an initial deletion whatsoever. For each sound that comes at the beginning must be pronounced.

4.3.3 Progressive assimilation

The processes of assimilation observed in tables 6 – 10 are categorised under progressive assimilation. Unlike regressive assimilation where the second sound influences the first, here, the first sound affects the second. For example, the plural of regular nouns in English is formed by adding -s or -es to the singular form. However, in terms of sound, the ending has two possible pronunciations. Where the final consonant is voiced, the ending is voiced as in tables 6, 7, 8 and 9. And where the singular noun ends in a voiceless consonant, the ending is also voiceless as in table 10. In the same manner, /d/ becomes /t/ when preceded by a voiceless consonant. In other words, the ending shares the same voicing as the final consonant of the stem as illustrated in the tables. For example:

bag + s → /bɑgz/

bed + s → /bedz/

dog + s → /dogz/

kick + ed → /kɪkt/

cat + s → /cɑts/

book + s → /bʊks/

However, the respondents have not been able to apply the rules of progressive assimilation except in a situation of voiceless consonants where they share the same voicing such as the /t/ of cat, the ending is voiceless /s/ (/kæts/).

On the other hand, progressive assimilation in Arabic is less common than regressive. Instances of progressive assimilation are found in a verb form*ifta'ala*. It is the form of a verb derived from the infinitive form *fa'ala*. For instance, when /t/ sound is preceded by the following sound /*d/* the /*t/*sound changes to /*d/*as in the following examples:

Da'a → id ta'a → id da'a

Similarly, when /t/ sound is preceded by the following sound */d/*the /*t/*sound changes to /*d*/sound as in the following examples:

Dala'a → id tala'a → id dala'a

4.3.4 Internal deletion (syncope)

Tables 6 – 10 also show internal deletion. This refers to the loss of sounds within a word, technically known as syncope. The term is most frequently used with vowel loss, but some writers extend it to consonants as well. This can be seen as described in the tables:

Should /ʃʊd/ The /L/ sound is elided

Sign /saɪn/ The /g/ sound is elided

Half /hæf/ The /L/ sound is elided

Next week /nekswɪ:k/ The /t/ sound is elided

Secretary /skrtrɪ/ The vowel sounds /e/ and /a/ are elided.

This type of deletion process did not create much problem to the respondents as they pronounced most of the words appropriately.

In Arabic, internal deletion also occurs in the following instances:

Waajlis → wajlis

Waadkhul → wad khul

In all the above examples, the /*a*/ sound is elided.

4.3.5 Coalescent assimilation

The analysis of the study further illustrates that tables 11 – 13 are categorised under coalescent assimilation. The process of coalescent assimilation is a combination of assimilation and deletion. It is like deletion in that there are fewer segments after than before. It is like assimilation in that the resulting sound resembles both the original sounds (Brown, 2014). In other words, it is a process whereby two contiguous sounds are replaced by one which, though different from each of the two, shares some properties in common with each of the two original sounds. In English, coalescence occurs when a morpheme final alveolar plosive or fricative /t, d/ or /s, z/ is followed by [j], a palato – alveolar fricative results, mostly when the segment is followed by the suffix "-ion". The following examples were given in tables 11, 12 and 13 respectively:

- Relate /rileit/ + "-ion" → relation /rileiʃən/
- Confuse /kənfju:z/ + "-ion" → confusion /kənfju:ʒən/
- This year /s/ and /j/ sounds coalesce to create /ʤ/ sound, the /j/ may be elided giving the pronunciation /ðɪʃɪə, ðɪʃɪr/.

- Could you? /d/ and /j/ sounds coalesce to create /ʤ/ sound → /kuʤu:/

Among all the foregoing assimilation processes, this process seems to be the most difficult to the respondents.

Similarly, coalescent assimilation occurs in Arabic where a sequence of two sounds coalesce and gives place to a single new sound different from either of the original sound and is rarely found in the language. For example:

Zakara → iztakara → id dakara

In the above example, the /*z*/ and /*t*/ sounds of the word/*ɪztakara*/ coalesce and/*d*/ sound emerges instead. Hence, is pronounced/*ɪddakara*/.

4.3.6 Final deletion (apocope)

The deletion processes observed in tables 11 – 13 are classified under final deletion. It is the loss of a final element technically referred to as *apocopation*. In English, this type of deletion typically affects syllable – final /t/ and /d/ as illustrated in the tables;

- When syllable – final /t/ follows a voiceless consonant /s/ and precedes any consonant, e.g. next week /nekstwi:k/ → /nekswi:k/
- When syllable – final /d/ follows a voiced consonant and precedes any consonant, e.g. handset /hændset/ → /hænset/.

Similarly, words such as angle, regular, under, gate, member also loss their finals thus:

- angle /æŋgl/ there is final loss of /e/

- member /membə/ there is final loss of /r/

This type of deletion is the most favourable to the respondents as they are able to observe its rules accordingly.

In Arabic, the final deletion is basic whenever there is a pause in whatever instance.

4.4 Findings of the Study

In this study, the errors of assimilation and deletion processes by learners of English as a second language are examined. And the following are the findings of the study.

1. From the data presented, the study shows that English and Arabic share some aspects of assimilation and deletion and differ on some aspects. For instance, both languages have three types of assimilation; progressive, regressive and coalescent. In the area of regressive assimilation, the two languages use almost the same process, only that they are not similar in every aspect. In the area of progressive assimilation, the two languages differ on the process. Though, in all the two languages the first sound influences the second but in English the affected sounds are clearly visible to the reader, only the pronunciation changes. While in Arabic, the affected sounds disappear systematically and become quite invisible to the reader. Also, the two languages differ greatly in terms of coalescent assimilation in that in English language the two contiguous sounds coalesce and pronounced as a single new sound different from either of the original sounds but in Arabic, the two sounds disappear and a germinated sound is put into their place.

2. In the area of deletion, both languages share the same processes and differ in its types. While all the three types, initial, internal and final deletions exist in English, the Arabic language has the last two as its types, therefore lacks the initial deletion.
3. The study reveals that while the similarities between the processes of assimilation and deletion of the two languages facilitate learning of English for the Arabic – based students, the differences found in the two languages seem to be their main stumbling block/obstacle pertaining to the learning of English language as they tend to bring in the rules of Arabic into the processes of English and to a large extent affect their communicative competence.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter concludes the research. It therefore contains the summary, conclusion and recommendations based on the research findings.

5.2 Summary

The central concern of this research is the comparative study of assimilation and deletion processes in English and Arabic languages. The research investigates the types of the processes, their differences and similarities in both languages and finds out their implications to the learning of English as a second language particularly by Arabic-based students. The methodology adopted by the research is descriptive analysis and purposive sampling is used to generate sources of data. The sources of data are used to identify the processes of assimilation and deletion in the two languages.

5.3 Conclusion

The research has found that the two languages share similarities in some areas and differ in some ways. Though, they are from different language families, both English and Arabic use assimilation and deletion processes. However, interms of assimilation the two languages share same types: progressive, regressive and coalescent, but different processes. They also have same processes of deletion but different types. English undergoes deletion in three directions: the initial, the internal and the final. While in Arabic, deletion never happens at the initial stage. The main point of interest is that English presents a special cases of assimilation and

deletion,which do not exist in Arabic and these could be the points where the Arabic-based students should consider most to enable them improve on their learning ability and communicative competence.

5.4 Areas for Further Study

The research discussed the Errors of assimilation and deletion processes by learners of English as a second language. Although the research is not the first of its kind, it offers a new perspective in the learning of English as a second language particularly by Arabic-based students. Further studies can be conducted by replicating the present study using other non-native speakers of English such as Yoruba, Igbo or Kanuri. Furthermore, approaches to learning English as a second language cannot be generalised, as such, a wider similar study can be conducted on other phonological processes or any area of phonology and its implication to the learners of English as a second language.

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