CHAPTER ONE

Introduction

Overview:

This chapter describes the theoretical frame work of the study. In addition, it presents the study problem, the study questions and the study hypotheses. As well the objectives, significance of the study and the research methodology

1.1 Background:

English and Arabic are two independent languages which belong to different languages families. Arabic is Semitic while English is Indo-European. Hence, their sound systems differ greatly which generate difficulty in acquiring English for Arab learners in general and English pronunciation in particular.

Pronunciation is an important element of English language. English learners always aim to get good pronunciation that makes them native like speakers. However, this is often not easy as there are many obstacles confront students when trying to get good pronunciation.

A large number of Arabic speakers are learning and speaking English as a second or a foreign language. The most important cause that hinders Arab learners to modulate English pronunciation is the differences between the mother tongue and the target language. Particularly the vocal systems differences between English and Arabic. Sudanese university students majoring in English are among Arabic speakers who have difficulties in mastering English pronunciation. Few studies on Sudanese university students' problems in English pronunciation have been conducted. Some of these studies revealed that the problems are attributed to first language (L1) interference in addition to

other factors *Ali (2011),* Ali (2012) .These studies tackled all possible reasons behind English pronunciation problems in general and suggested general recommendations that were based on the investigations' results. However, the problem still exists. This stimulates the researcher to carry out this study mainly to focus on the main probable reason which is the differences between English and Arabic sound systems. The study tends to investigate the differences of the consonantal and vocalic systems of Arabic and English and their effect on Sudanese university students' pronunciation. Hence, suggest suitable solution for the problem.

Arabic has twenty-eight consonants and eight vowels, whereas English has twenty four consonants and twenty two vowels. Some consonants and vowels in English have no equivalents in Arabic. E.g. the consonant /p/ in English has no counterpart in Arabic. Contrastive Analysis hypothesis (CA H) states that elements of a target language that differ greatly from the native language of the learners are likely to cause learning difficulty. This also applies to acquisition of   English pronunciation. The differences in the vocalic systems of English and Arabic are a potential cause of pronunciation problems for Sudanese students. In an attempt to investigate this issue, the study targets the differences between Arabic and English in consonants and vowels to find out the problematic sounds. To achieve this goal, firstly, the sound systems of the two languages are described in details. Then the sounds that have no Arabic equivalents are determined adjusted to the previous contrastive studies. …….According to (CAH), the sounds that do not exist in Arabic are expected to cause pronunciation difficulties for the students.

1.2 Problem of the Study:

It has been observed in previous studies Alkheir (2007),Ali (2011)and others, that Sudanese university students of English mispronounce some of English consonants and vowels e.g. Students replace the voiceless labial /p/ with the voiced labial /b/ as in words such as/ put/ they pronounce as /but/.Another example is the replacement of the voiceless labiodental /f/ by the voiced labiodental /v/ e.g. The word visa /vi:zə/ is pronounced as/fi:**zə**/.The students also confuse pronunciation of some vowels. E.g. the sound **/a: /**is replaced by the sound **/æ/** as in the word farm/fa: m/ they pronounce as **/fæm**/. All these difficulties lead to poor English pronunciation among Sudanese university students. Most of the previous studies that have been conducted on the source of pronunciation difficulties faced by Sudanese students in general without focus on a certain reason. This promoted the researcher to carry out this study in an attempt to investigate the effect of the differences between English and Arabic in consonants and vowels as probable main reason behind pronunciation problems which encounter Sudanese university students majoring in English.

1.3 Questions of the Study:

The study intends to answer the following questions:

1- To what extent do the differences between English and Arabic in consonants and vowels cause pronunciation problems for Sudanese university students majoring in English?

2-Which of the English consonants are problematic for Sudanese undergraduates?

3-Which of the English vowels Sudanese students find difficulty to pronounce?

4-To what extent does the English syllabus as a major subject at university put into account the differences between English and Arabic sound systems

1.4 Hypotheses of the study:

The differences between English and Arabic in consonants and vowels cause pronunciation problems for Sudanese undergraduates.

Some of the English consonants which have no Arabic counterparts are problematic for the students.

Sudanese University students find difficult to pronounce some of the English vowels which are extremely different from Arabic vowels.

The English language syllabus as a major subject at university doesn't put into account the differences between English and Arabic sound systems.

1.5 Objectives of the study:
The study aims to:
Investigate whether the differences between English and Arabic in consonants and vowels effect students' pronunciation.

Investigate which of the English consonants are likely to cause pronunciation difficulties for Sudanese undergraduates.

1. Investigate which of the English vowels are expected to cause pronunciation problems.
2. Investigates whether the English syllabus at university put into account the differences between English and Arabic sound systems
3. Recommend some solutions based on the study findings to reduce pronunciation difficulties that encounter the students.

1.6 Significance of the study:

Pronunciation is a main language structure for languages learners in general. With proper pronunciation, it is possible to have good communication

in the target language. This study targets in particular, pronunciation difficulties which are presumably related to the differences between English and Arabic in consonants and vowels for Sudanese university students majoring in English. The investigation is vital for both teachers and students since it intends determine the problematic sounds related to the differences between English and Arabic in consonants and vowels .Moreover, to draw attention to the importance of considering these   differences during learning and teaching pronunciation since it is a significant factor behind pronunciation problems. Eventually, the research could help in finding appropriate solutions based on the findings of the study to eliminate the learners' mispronunciation of problematic sounds.

1.7 Delimitations of the study:

The study investigates the effect of the differences between English and Arabic in consonants and vowels on third year students majoring in English at Faculty of Arts, Khartoum University (2015-2016).

1.8 Research Methodology:

The study aims to investigate the influence of the differences between Arabic and English in consonants and vowels on Sudanese undergraduates' pronunciation. The research adopted descriptive analytical method to describe and analyze the study problem. The population of the study is third year students majoring in English at Faculty of Arts, Khartoum University (2015-2016) and the teachers of the field at the same university. The simple random technique is used to collect the required data. An oral test and a structured questionnaire are used for data collection which is described below:

Students' Oral Test:

An oral test consists of isolate words that include the target consonants and vowels are presented to the respective students. The test target the English

sounds which are different from Arabic sounds .The aim of the test is to find out whether the English consonants and vowels which have no Arabic equivalents affect students' pronunciations.

Teachers' questionnaire:

A structured questionnaire composed of multiple questions is introduced to the teachers of the field to explicit their opinions regarding the problem and suggestions for remedy.

The research tools are judged by the professionals of the field firstly. Then validity and reliability of these instruments are confirmed statically before being utilized. The study results are statistically analyzed after data is being obtained in the next chapter.

1.9 Summary of the chapter:

The chapter provided theoretical frame work of the study ,research problem ,study questions and hypotheses of the study .In addition to delimitations of the study and methodology of the research.

CHAPTER TOW

Literature Review& Previous Related Studies

Overview:

This chapter provides the conceptual frame work of the study which includes concerning approaches .Moreover; it includes the relevant literature which introduces description of the consonantal and vocalic systems of English and Arabic in addition to contrastive analysis of the sound systems of the respective languages. The chapter also displays previous related studies. Finally, the summary of the chapter is presented.

2.1 Theories and Approaches which Account for the Impact of the Differences between first Languages and Second Language on Pronunciation:

This portion sheds light on theories and approaches that consider the influence of the first language on acquisition of second language's pronunciation with focus on contrastive analysis hypothesis as a main theory of interest to this study. As far as English language is concerned, the effect of the phonological differences of the native languages in general on English pronunciation is explored.

Linguists create different hypotheses and approach in an attempt to solve second language's learning issues related to the influence of native language. According to linguists, the main hypotheses concerning mother tongue influence on the target language's acquisition are Markedness Hypothesis (MDH) and Contrastive Analysis Hypothesis.

Echmans (1977) proposed the "Markedness Differential Hypothesis" (M DH). Markedness Hypothesis tries to manipulate differences between languages.

It explains areas of difficulties in second language and phonological differences between languages which influence second Language pronunciation. The hypothesis states that, those areas of the target language which differ from the native language and are more marked than the native language will be difficult whereas language elements which are unmarked will be easier to acquire. According to MDH, the common sounds are considered marked whereas the different sounds are unmarked.

On the other hand, Contrastive analysis Hypothesis (CAH) emerged first in the 1960s. It was formulated by Robert Lado *(1957) .It* states that the different element of a second language is likely to be difficult to acquire than the similar elements. The greater the differences in first language the more difficult the learning will be. Thus, the hypothesis explains areas of difficulties in second language by comparing the two respective languages in order to predict areas of difficulties. It relates theses learning difficulties to mother tongue interference.

Contrastive analysis hypothesis has three versions. The strong version ,the moderate version and the weak version. The strong version of Contrastive Analysis Hypothesis predicts difficulty through contrastive analysis whereas the weak version attempts to find the cause of language difficulty in advance. The former has been later modified to error analysis.

Contrastive Analysis has been criticized .The opponents claims that contrastive analysis has short comings concerning determination of the problematic areas of the target language for the learners. *Archibald (1998)* claims that Contrastive Analysis does not illustrate the reason behind the easiness of acquiring certain elements of second language in spite of its difference from the first language. However, still many proponents argue for Contrastive Analysis, and numerous   phonological studies were built on it.

Firbas (1992: 13) argues that combining contrastive analysis in learning helps learners to familiarize themselves with the differences between the first language and the second languages and find strategies to improve their performance. Conducting contrastive analysis of the first language and the second language to find out the differences between the two languages; can help with predicting areas of difficulty in general. In particular, contrasting the sound systems of two languages in question is likely to ease determining problematic sounds.

Pronunciation is a language aspect which is influenced greatly by the first language. When concerning the influence of the native language on the target language's pronunciation; it is helpful to adhere to Contrastive Analysis hypothesis. By conducting contrastive analysis of the sound systems of both the first and second languages, the differences can be identified. On that account, areas of difficulties could be predicted. Accordingly, the objectives of the contrastive analysis can be summarized to, firstly, describing the respective languages. Secondly, contrasting them in order to spot the differences .Finally, predict the difficulties that may encounter learners due to these differences.

Contrastive analysis between the respective languages identifies the phonological differences between first language and second language. Thus, determines the impact of these differences on pronunciation.

Krashen(2002:64),claims that the first language influence is a significant reason behind second language learning difficulties, though there are different factors .The differences between the native language (NL) and the target (TL)language influence all second language features (phonology, morphology, syntax, semantics,….).The impact of phonological difference between the two languages is of greater importance.Usually learners of a foreign language face

great difficulty with the new language's pronunciation. This difficulty lead to mispronunciation of some of the target language sounds. These sounds are probably the sounds which do not exist in the learners' native language . *Krashen (2002)* argues that, if the structures of the two languages are distinctly different, then high frequency of mistakes could be predicted to occur in the second language. Therefore, the degree of difficulty that may confront learners of second language pronunciation could be predicted .This prediction is based on whether the differences between the two respective languages are great or slight. The greater the differences the more difficult learning will be. That means the target sounds which are different from the learners native language will be problematic for the learners .Therefore, the vowels and consonants of the target language that have no equivalents in native language will be difficult to acquire.

Both vowels and consonants acquisitions are subjected to the influence of the differences between first language and second language sound systems. According to *Fledge (1995)* learners of second language perceive the vowels and consonants differently than do native speakers. This is due to the interference of the phonology of their mother tongue which leads to pronunciation problems for the learners with the target language. The next part discusses in particular the impact of native language on English pronunciation.

2.1.1Influence of the differences between first and second languages sounds systems on English pronunciation.

English Pronunciation likewise other language features is apt to the learners' native languages influence. There was a vast argument by linguists concerning English pronunciation. *Avery& Ehrlich (1992)* pointed out that the sound system of the native language can influence the student's pronunciation of English in different ways, mainly when a learner encounters sounds in English

that are not part of the sound system of the learner's native language. *Brinton (1993)* explains the influence of learners' first language on English pronunciation in simple way. She declares that every language has different number of boxes for sounds which are arranged differently. Therefore, difficulty with English for learners is that some sounds of English do not have boxes in their native language(different sounds).The learner put these sounds in his/her first language sounds boxes .The learners substitutes sounds of English that have no equivalents in their languages with first language sounds.

Previous studies revealed that Speakers of some languages (e.g. Thai, Russian, Hungarian) substitute ∕t ∕ for ∕h ∕ .Speakers of other languages substitute ∕s ∕ for /θ/ (e.g. Japanese, German, and Egyptian Arabic.*)*. Also a contrastive study of English and Japanese has been conducted by *Bada (2001)* showed that Japanese learners have difficulty with the English sounds that do not occur in Japanese language as/θ/,/ð/ and vowels as /ei/,/ai/. Studies of the production of nasals in coda position by Brazilian and Portuguese speakers learning English have shown that speakers fail to produce the nasal sounds because they are not found in their languages. *Flege and colleagues (1995)* examined the production of English consonants by Italian learners. The results demonstrated that students replace some English consonants which do not exist in Italian with English sounds that have counterparts in their language. E.g. the English consonant /Ө/was replaced by r /d/. Portuguese learners of English face difficulty with English consonants that are not found in their first language such as/ h/ and /ŋ/.Some consonants are alveolar in English but dental in Portuguese /t, d/ therefore, their production is influenced with first language. Also, the English consonant /s/ is likely to be pronounced by French speaker with foreign accent since this sound is dental in French while it is alveolar in English.

Many studies e.g. *Hajjaj(1989)*, *Altaha(1995)*,Barros*(2003) Alkheir(2007)* showed that Arab learners of English experienced difficulty in pronunciation of the some of the English sounds which do not exist in Arabic language e.g.(ʧ/, /p/, /æ, /ʌ/, /ŋ/). While there might be other factors that influence English pronunciation for Arab learners, most of the previous studies revealed that the phonological differences between English and Arabic are a significant reason behind Arab learners' pronunciation problems. This study attempts to investigate the effect of those differences on Sudanese university students. The next section explores contrastive analysis between English and Arabic consonantal and vocalic systems which identify these differences.

2.2 The Differences between English and Arabic Consonantal and Vocalic Systems:

Introduction:

Each language has its sound patterns which are different from other languages'. All human languages are produced with the same mechanism and the same articulators. However, the manner and place of articulation of each language may differ according to teach language sound system. It is necessary to become familiar with these different articulators to understand how sounds are produced. Introducing articulators and speech mechanism in general facilitate describing and contrasting of English and Arabic consonants and vowels.

Speech Articulators:

Articulation is the formation of speech sounds. Articulators are the different parts of the vocal tract which are used in speech production *Roach(1991:6).*The articulators involved in speech production may be more than seven including, Jaws ,larynx and nasal cavity ,but mainly there are seven articulators of speech described here as follows: :

The lips:

The lips are important for speech. They are pressed together when producing sounds like/p, b/ (bilabial sounds)or come to contact teeth as in the sounds /f/and /v/ (dental sounds) .Moreover they take round shape to produce vowel sounds.

The Tongue:

The tongue is a movable articulator. It has different parts, tip, body, front, back and root.

The Teeth:

The teeth locate in front of the mouth behind the lips. The tongue contacts the teeth in many speech sounds. Sounds   produced when the tongue come in contact with upper teeth are called (dentals).

Alveolar ridge:

 Alveolar ridge is between the front teeth and the hard palate. Sounds produce with the tongue touches the alveolar ridge are called alveolar sounds.

The pharynx:

The pharynx is a tube which begins above the larynx. Its top ends in two parts. One goes to the mouth and the other to the nasal cavity.

The velum:

The velum is called the soft palate. Usually it goes up during speech .The sounds made when the tongue touches the velum are called velars.

The hard palate:

The hard palate is called the roof of the mouth.

The Larynx:

Larynx is the passage situated between the trachea and the pharynx it is called (Adam´s apple). The function of the larynx is very important in speech

since it contains the first valve that can interfere with the passage of the air stream.

The vocal folds:

The vocal folds *are two elastic bands*. They are located in the middle of the larynx. The opening between them is called glottis. The vocal folds vibrate when they come together with the air passes through them. This vibration produces voiced sounds. On the other hand, sounds which are produced without vibration of the vocal folds are called "voiceless" sounds.

Figure No(2.1)

Speech Articulators

http://www.splab.net/-21.6,2015
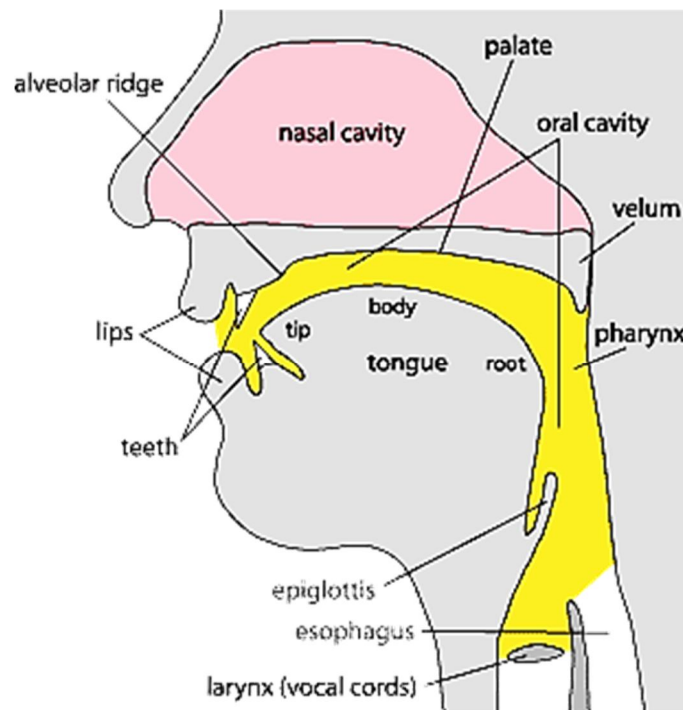
Figure No (2.1) illustrates speech articulators which are used to pronounce different sounds of human speech.

Speech Mechanism:

Forel*(2005:5)*Speech is the vocalized form of human communication. The speech sound is combined of different segments .Each of these segments units is represented with phonemic symbols. Spoken words are phonetic combination of a limited set of vowels and consonants .Articulator phonetics is the science which investigates how speech sounds is produced using the different articulators. This section explains briefly how speech sounds are produced with explanation of production of voiced and voiceless sounds. In addition of place and manner of articulation of sounds.

Speech sounds are made with the air comes out from the lungs. The air pushes out through the trachea and passes by the vocal cords against the larynx. Then the air goes up through the pharynx to the oral or the nasal cavity.

Voiced and voiceless sounds:

Adopted from https://www.google.com.sa/search-22.6,2015

Voiceless sounds are produced when the vocal folds are spread apart (They are not vibrating). The air from the lungs passes between them without obstruction. Sounds produced in this way are described as voiceless. On the other hand, voiced sounds are produced when the vocal folds are drawn together by the air from the lungs with vibration. All vowels sounds are voiced. Some consonants are voiced in English (such as /b, m/ while others are voiceless. E.g. the consonants (/f, p/).

Production of consonants and vowels:

Consonants are sounds made by a closure or narrowing in the vocal tract so that the airflow is either completely blocked, or so restricted that audible friction is produced *David (2008:103).*Consonants are described according to their place of articulation , manner of articulation and voicing . Place of

articulation refers to the place in the mouth where the sounds are articulated, moving from the lips to the glottis (vocal cords).

The manner of articulation is the configuration and interaction of the articulators when making speech sounds. The concept of manner is mainly used in the discussion of consonants, although the movement of the articulators is crucial for the identification of vowels. Voicing is whether the consonant is produced with vibration in vocal cords or not. Consonants are described as voiced when they are produced with vibration and called voiceless when they are pronounced without vibration.

Adopted from https://en.Wikipedia.org/wiki/Mannerof_articulation21.6.2015.

Figure No(2.2)

Place of articulation of consonants

https://en.wikipedia.org/wiki/.com,21.6,2015
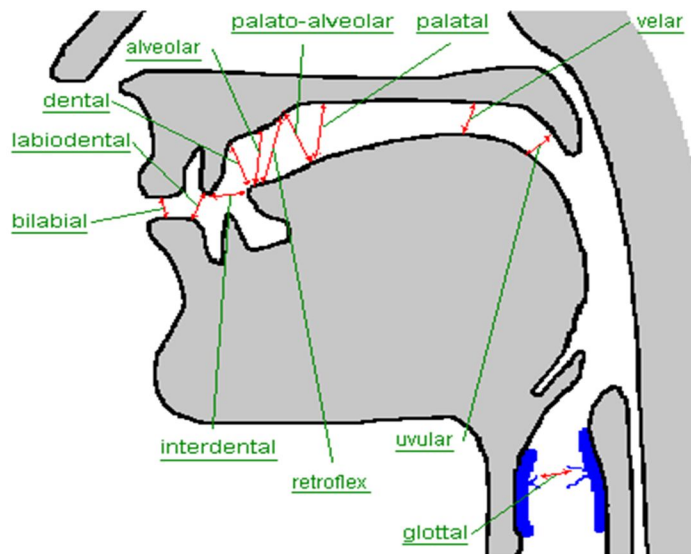
Figure No (2) demonstrate where consonants sounds are produced.

Manner of Articulation:

The manner of articulation describes how speech sounds are articulated. *George (1991:31-33).*Such a description is necessary to differentiate between some sounds which, are in the same category. For example, [t] and [s] are both voiceless alveolar sounds, but they differ in their manner of articulation. The [t] sound is one of a set of sounds called stops and the [s] sound is one of a set called fricatives. The manner of articulation is used to classify consonants as follow;

Plosive (stop):

Plosive are the type of consonants sounds produced by a blocking or stop of the air stream. E.g. [p], [b], [t], [d], [k], [g].

Fricative:

Fricative are the manner of articulation used in producing the set of sounds [f], [v], [θ], [ð], [s], [z],[ʃ] and [ʒ] .Their production involves almost blocking the air stream and having the air pushed out .

Affricate:

Affricate sounds are   combined of a brief stopping of the air stream with an obstructed release which causes some friction. Affricate sounds are [ʧ] and [ʤ]. Affricate [ʧ] is a voiceless while [ʤ] is voiced.

Nasals:

Nasal sounds are produced orally, with the velum raised, preventing airflow from entering the nasal cavity. Nasal sounds are [m], [n] and [ŋ].They are all voiced.

Liquid:

Liquid are formed by letting the air stream flow around the sides of the tongue as the tip of the tongue makes contact with the middle of the alveolar ridge. The sounds [l] and[r] is liquid

Glide:

The sounds [w] and [j] are described as glides. These sounds are made with the tongue glides to or from the position of a vowel and are sometimes called semi-vowels. In some approaches, the liquids [l], [r] and glides [w], [j] are combined in one category are called "approximant.

Glottal stops and flaps:

The glottal stops, are represented by the symbol [ʔ].They occur when the space between the vocal folds (the glottis) is closed completely (very briefly), then released.

Flap:

Flap sounds are produced by the tongue tip tapping the alveolar ridge briefly. It is represented by [D] or sometimes [ɾ].

Production of Vowels and diphthongs:

Vowels:

Vowels are articulated with free flow of the air without closure.eg: [a], [I],[i:].

All vowels are voiced. Vowels are described according to configuration of the tongue.

Diphthongs:

Diphthongs are the sounds combined of two vowel sounds. They are produced when the articulators move from one vocalic position to another.eg. [*au*], [ai] *(George, 1991)* .

2.2.1Description of English and Arabic Consonants:

Each language has its phonemic system which is combined of different phonemes .The number of the symbols that represent the phonemes in this system should be the same as the phonemes *Roach (1998:36)*. Arabic and English descend from different set of languages .Arabic is Semitic while English is Indo-European. Therefore, their sound systems differ greatly. English has twenty six letters represented by forty four sounds. These sounds are combined of twenty four consonants and twenty vowels whereas Arabic has twenty eight letters represented mainly by thirty one sounds. Twenty eight of them are consonants and 3 are vowels .Each of English and Arabic have different varieties, nevertheless the varieties of English and Arabic described here are Standard English Received Pronunciation (RP) and Modern standard Arabic (MSA) with their representative symbols for consonants and vowels sounds. Received Pronunciation (RP) is the standard form of British English pronunciation based on education speech widely accepted as a standard while Modern Standard Arabic (MSA) is the standard variety shared by educated speakers used in formal media and speech. From https:// simple.wikipedia. Org /wiki Consonant 23-6-2015.

It is important to mention that the study is only concerned with the impact of consonantal and vocalic differences between Arabic and English (as bare single sounds). (Spelling, allophonic, and distributional, super segmental differences are beyond the study limits. (Still, they are some of the factors that influence pronunciation). Abide to contrastive analysis procedures, the consonants and vowels of English and Arabic languages are described first. Then the differences are determined adjusted to previous contrastive studies in order to predict potential problematic sounds.

English consonants:

English consonants are describes and classified according to their place of articulation, manner of articulation and voicing. (Whether they are voiced or voiceless).English consists of twenty four consonants as illustrated in the table below.

Table No (2.1) English consonants phonemes

NO	Consonant phoneme	Phoneme in word	No	Consonant phoneme	Phoneme in word
1	/p/-	Pea	13	/ʤ/+	Joke
2	/b/+	Boat	14	/ʒ/+	Television
3	/f/-	Free	15	/k/+	Coin
4	/v/+	Video	16	/g /+	Go
5	/θ/-	Thing	17	/m/+	Moon
6	/ð/+	This	18	/n/+	Now
7	/t/-	Tree	19	/ŋ /+	Thing
8	/d/+	Deer	20	/h/-	Home
9	/s/-	See	21	/l/+	Look
10	/z/+	Zoo	22	/r/+	Ring
11	/ʃ/-	Sheep	23	/j/+	You
12	/ʧ/-	cheese	24	/w/+	We

Adopted from Wikipedia, the free encyclopedia.com.6, 7.2015

The table No (2.3) displays the English consonants phonemes symbols with their representative letters underlined in single English words. The mark (+) indicates that the consonant sound is voiced while (-) means a voiceless consonant.

Adjusted to, *Forel (2005),* voicing means that the vocal folds are vibrating and the air is flowing through the nose; sounds produced with vibration are voiced otherwise, they are voiceless. Voicing distinct English pairs of consonants sounds that differ in voicing. For instance, the pair /p, b/, are both bilabial, but /p/ is voiceless while /b/ is voiced. English poses eight voiceless consonants which are:/p/,/t/,/k/,/f/,//ʃ/,/ʧ/, /s/and /θ,/ while there are sixteen voiced consonants which are ; /b/,/ d/, / g /,/v/, /z/,/ð/, /ʒ/, /dʒ/, /m/,/n/,/ŋ / /h/, /l/, /r/, /j/, /w.

Place of articulation of English consonants:

English consonants are distributed congruent with their place of articulation to nine classes as follow:

Labial:

These sounds are produced with the lips pressed together. The English bilabial sounds are /p/, / b/, /m/.The consonant /p/ is voiceless while /b/and /m/ are voiced.

Labiodental:

These sounds are formed by the lower lip and the upper teeth; when the lower lip rises until it nearly touches the upper teeth. These sounds are represented by the symbols /f/ and /v/.

Dental:

Dental sounds are produced with the tip of the tongue touching the upper front teeth. English dentals are the voiceless sound /θ,/and the voiced sound,/ð/ Alveolar: Alveolar sounds are produced with the tip of the tongue pressed against the alveolar ridge. English alveolar sounds are /s/, /t/ which are voiceless and /d/ , /z/,/n/,/l/ all are voiced.

Post alveolar:

These sounds are made with the front part of the tongue and the hard palate. English post alveolar are /r/, / ʃ/ , / ʤ/, /ʧ /.The consonants /ʒ/, /ʧ /, / ʃ/ are voiceless while / ʤ/, /ʒ/ are voiced.

Palatal:

This sound is made with the tongue and the hard palate. The sound/ j / represents English palatal sound.

Velar:

The English velar are; /w/ , /k/, / g /, / ŋ / .These consonants are articulated with the back of the tongue and the soft palate./k/ is voiceless while / g/ is voiced.

Glottal:

There is one glottal sound in English which is the sound /h/.It is produced at the throat. This sound is voiceless.

Table No (2.2)

English consonants Place of articulation:

Labial	/p/	/b/	/m/				
Labiodentals	/f /	/ v/					
Dental	/θ /	/ð /					
Alveolar	/n /	/d /	/t /	/s /	/z /	/r /	/ l /
Post alveolar	/r/	/ ʃ/	/ ʤ/	/ʧ /	/ʒ/		
Palatal	/ j /						
Velar	/w/	/k/	/ g /	/ ŋ /			
Glottal	/h/						

Adopted from Wikipedia, the free encyclopedia.com.6, 7.2015

Table No (2.4) explains categorization of English consonants conformable to their place of articulation.

Manner of articulation of English consonants:

English consonants are classified by their manner of articulation to five categories as described below; According to wiktinary.org.5.7.2015

Stop: (or plosive):

There are six plosive consonants in English. They are / p /,   / b /, / t /, / d /, / k /, and / g /. The plosive consonants are   articulated with the same manner but they have different place of articulation these sounds are articulated with a complete   blocking of the air through the mouth then it is released with audible plosion. All plosive occur in all   position in a word (initial, mid and final).

Nasal:

These consonants are produced when the air   escapes through the nose. These are the English nasal, / m /, / n / and / ŋ /. /m/and /n/ occur in all position whereas / ŋ / distribution is restricted to the middle and the final.(It never occurs initially).

Fricative :

Fricative sounds are produce when the air passes through a narrow passage. This result into a hissing sound .The English fricative are/ f /, / v /, /s /, / z / h /,   / θ /, /ð /, /dʒ/and /ʒ/.

Affricate:

Affricate is composed of plosive and fricative consonants (Roach, 1991: 48). The two English affricate are / ∫ /, / ʧ /.These sounds are complex in their manner of articulation. First they are produced with closure of the air as plosive consonant but, they end as the fricative. The air escape without ploison   .

Approximant:

English approximant are / l /, / r /, / w /, / / j / .These consonant sounds are articulated by slight narrowing of the vocal tract which allow smooth flow of air.

Table No(2.3)

English consonants manner of articulation

Stop(plosive)	/p/	/b/	/t/	/ d/		/k/	/g/		
Nasal	/ m/	/ n /	/ŋ /						
Fricative	/ f /	/ v /	/s /	/ z /	/h /	/ θ /	/ð /	/ʃ /	/ʒ/
Affricate	/ʤ/	/ ʧ /							
Approximant	/ l /	/ r /	/ w /	/ j /					

Adopted from   Wikipedia, the free encyclopedia.com.6, 7.2015

Table No (2.5) elucidate the classification of English consonant with their manner of articulation.

Arabic consonants:

As mentioned in the introduction, the study deals with the consonants and vowels of modern standard Arabic. Hence, they are described here. Unlike English, Arabic language has a number of consonants sounds identical to the number of its representative letters which is twenty eight consonants phonemes. As English, Arabic consonants are classified according to voicing, place of articulation and manner of articulation. Arabic consonants are presented in the table No (2.4) below:

Table No (2.4) Arabic Consonants phonemes

No	symbol	Phoneme in word	No	Symbol	Phoneme in word
1	/b	(Bint) girl	15	/tˤ/-	(Ramaa)threw
2	/t	(Tajer) merchant	16	/ðˤ/+	(Thabai) Gazal
3	θ	(Thoor) ox	17	ʕ+	(ʕalam)flag
4	dʒ	(Jameel)beautiful	18	ɣ	(ɣani)rich
5	ħ	(Hakeem)wise	19	f	(Fyeel)elephant
6	x (-s+)	(Khuber)news	20	q	*(qaamar)*moon
7	d+	(Deef)guest	21	k	(Kataab)wrote
8	ð+	(Thahab) went	22	l	(Layl)night
9	r+	(Rajul)man	23	m	(mashaa) went
10	z+	(Zahra)flower	24	n	(Nour)light
11	s ̲	(Samaa)sky	25	h	(Haraab)escaped
12	ʃ ̲	(shajarra)tree	26	w	(Wjaad)found
13	sˤ ̲	(sˤadeeq)friend	27	j	(Youm)day
14	dˤ+	(dˤaraab)beat	28	ʔ	(mʔzar) robe

Adopted from Wikipedia, the free encyclopedia.com.6, 7.2015

Table No (2.4) shows the Arabic consonants phonemes with their representative letters underlined in Arabic words written between brackets with their English translation. The mark (+) identifies voiced consonants (-) indicates voiceless sounds whereas (-s+) used for semi voiced which characterized Arabic.

According to Wikipedia, the free encyclopedia.com.6, 7.2015.As English, some of the Arabic consonants sounds are voiceless and the others are voiced. Arabic don not have pair phonemes as English e.g. /p,b/.In Arabic ,the voiceless consonants are /t̪ /, /θ /,ħ , s , ʃ , sˤ /tˤ/- fqk, h, ʔ .The voiced consonants are /b /, /dʒ / , d , ð ,r ,z ,dˤ ,/ðˤ/, /ʕ/,/ɣ /,/ l /,/m /,/n /,/w/,
/ j/.The Arabic language is characterized by one semi voiced sound and that is the sound / x/.

Place of articulation of Arabic consonants:

https://en.wikipedia.org/wiki/Arabic_phonologhttp://aboutworldlanguages.com/ arabic-modern-standard-157-2015

A according to their place of articulation, Arabic consonants are classified to nine categories as follows:

Labial:

These sounds are produced with lips pressed together. The sounds represent this category are / b/, /m and /w/.

Labiodental:

Arabic has one labiodental sound /f/ which is produced with the teeth pressed against the lower teeth.

Dental:

Arabic dental are / tˤ/, /dˤ/, /sˤ/. These sounds are articulated with the tip or blade of the tongue touches the upper teeth.

Interdentals:

Arabic interdental sounds are /ð̪ˤ// θ/and /ð /.These sounds are formed by the tongue between the upper and the lower teeth.

Alveolar:

Alveolar sounds are made with the tip of the tongue pressed against the alveolar ridge./d/,/n/, /t/, /s/, /z/, /r/, /l/.

Palatal:

Arabic Palatal is /dʒ/, /ʃ/and / j̣ /.These sounds are produced with the tongue touches the hard palate.

Velar:

Arabic has three velar which are /k/, /x / (Khaa) and/ɣ /(Geeyin).These sounds are produced with the back of the tongue against the velum.

Uvular:

Arabic uvular sound is /q̣/ (gaaf).This is the only Arabic consonant uvular which is produced by the back of the tongue with the uvula.

Pharyngeal:

Arabic pharyngeal are / ħ / (haa) and /ʕ/ (Ayin) .The Pharynx is involved in the production of pharyngeal sounds with the back of the tongue and the pharynx.

Glottal:

The glottal sounds in Arabic are; /h/ and /ʔ /these sounds are produced by the glottis opening between the vocal folds.

Table No (2.5)Place of articulation of

Arabic consonants:

Labial	/b/	/w/	/m/				
Labiodental	/f /						
Dental	t̪ˤ	d̪ˤ	s̪ˤ				
Interdental	θ	Ð	/ð̪ˤ/				
alveolar	/n/	D	T	S	z	r	L
Palatal	d̪ʒ	/ʃ/	j̪				
Velar	/ k /	/ w /					
Uvular	/q̪/	/x̪ /	/ɣ̪ /				
pharyngeal	/ ħ̪ /	/ʕ/					
Glottal	/h/	/ʔ̪/					

Adopted from Wikipedia, the free encyclopedia.com.6, 7.2015

The table No (2.7) explicates the taxonomy of Arabic consonants according to their place of articulation.

Manner of articulation of Arabic consonants:

According to iugaza.edu.ps/wamer/files.com. Arabic consonants are classified to six categories in adjusted to their manner of articulation as described below.

Stop: (Plosive):

Arabic stop consonants are produced with a complete closure at some point in the mouth. Then the air is suddenly released. These sound are /b/ , /d /, / t /, /d̪ˤ /, /t̪ˤ /, /d̪ʒ/, /k/,/q̪/and /ʔ̪/.

Nasal:

These consonants sounds are articulated with the velum lowered and the air stream is allowed to escape through the nose. Arabic nasal are / m/ and / n /.

Fricative:

Fricative consonants are formed with the blocking of the air stream and the air pushed through the narrow opening. These sounds are / f /, /θ/ , /ð / ,/ z /, / s /, /ʃ/ , /sˤ/, /ðˤ/, /x //ʕ/, /χ /, / ħ /, and / h /.

Lateral:

The lateral consonant sound in Arabic is/l/. It is made by the front of the tongue touching the alveolar ridge without contact with the hard palate.

Trill (Tap):

These sounds are made by the tongue touching repeatedly against a point of contact causing intermittent closure. The consonant /r / is the only trill sound in Arabic.

Approximant:

Arabic Approximant sounds are [l, j, and w].These sounds are made without closure in the mouth.

Table No (2.6)

Arabic consonants Manner of articulation

Stop	Nasal	Fricative	Lateral	Trill(Tap)	Approximant
/ b /	/ m /	/ f /	L	/ r /	/j/
/ d /	/ n /	θ			/W/
/ t /		/ð /			
dˤ		/ z /			
tˤ		/ s /			
dʒ		/ʃ/			
/ k /		sˤ			
/q/		/ðˤ/			
/ʔ/		/x /			
		/ʕ/			
		/ɣ /			
		/ ħ /			
		/ h /			

Adopted from Wikipedia, the free encyclopedia.com.6, 7.2015

The table No(2.6) explain the categorization of Arabic consonants adjusted to their manner of articulation.

2.2.2 Description of English and Arabic Vowels:

English vowels:

Vowels are sounds which are produced without obstruction of the flow of air as it passes from larynx to the lips *Roch(1991:10).*All vowels are voiced. They are made with vibration in the vocal cords.

English has twenty vowels. These vowels are divided to twelve single vowels and eight diphthongs. Single vowels and diphthongs are both derived from the main cardinal vowels (a,e, o,u, I). Single vowels are divided to short vowels which are /ɪ/ , /e/ , /æ/ , /ʊ/, /ʌ/, /ə/and /ɒ/and long vowels, /i:/, /u:/, /ɜ:/ , /ɔ:/, /ɑ:/. Vowels are described according to tongue position, highest- length and rounding (whether the lips are rounded or not).

Table No(2.7)

English vowels phonems

NO	Short vowel phoneme	Phoneme in word	No	Long vowel phoneme	Phoneme in word
1	I	ship	8	I:	sheep
2	e	left	9	/ɜ: /	H<u>er</u>
3	/æ/	hat	10	/ɑ: /	F<u>ar</u>
4	/ʌ/	up	11	/ɔ: /	D<u>oor</u>
5	/ə/	Teach<u>er</u>	12	/u: /	Sh<u>oot</u>
6	/ʊ/	B<u>oo</u>k			
7	/ɒ/	<u>O</u>n			

Adopted from Wikipedia, the free encyclopedia.com.6.7.2015

The table No (2.7) shows the English vowels phonemes (short and long vowels) with their possible spelling underlined in English words.

Description of English short vowels:

English has seven short vowels which are /e/, /ɪ/, /ʌ/, /ə/, /æ /ɒ/, / ʊ /.

The English short vowel / e /:

This sound is a short mid front unrounded close-front vowel. It is produced by the lips slightly spread as the back of the tongue is lowered.

The English short vowel / ɪ /:

This sound is a short high front unrounded close front vowels .It is made with the lips spread while the back of the tongue is lowered.

The English short vowel/ʌ /:

This is a short low central unrounded vowel. It is a central half-open short vowel which is produced with lips in the neutral position.

The English short vowel/ə/:

A short mid central unrounded /ə/ .This sound is called schwa. It has a half close open central of the tongue position and lips are neutral.

The English short vowel/æ/:

This vowel is short low front unrounded, have open. This short vowel is formed with the front of the tongue in the half-open position and the lips are wide-open.

The English short vowel/ɒ/:

This vowel is short low back rounded .It is articulated when the back of the tongue is in an open position and the lips are rounded.

The English short vowel/ʊ/:

This is a short high back rounded vowel .When making this vowel, the central-back of the tongue is in a half-close position and the lips are slightly rounded.

Long vowels:

English single long vowels are /i/, /u: /, /ɔ: /, /ɑ: /and /ɜ: /.

Long vowel/i/:

When making this sound, the tongue is held up close to the roof of the mouth. The lips are flat so this vowel is described as a front unrounded open back half closed vowel. This is long high front vowel is produced with the back of the tongue raised up.

Long vowel/u: /

The back of the tongue is raised up during production of these vowels. And the lips are brought together so it is a long high back rounded vowel.

Long vowel /ɔ: /:

This is a long mid back round vowel. This vowel is made with the back of the tongue in the half-open position and the lips are rounded.
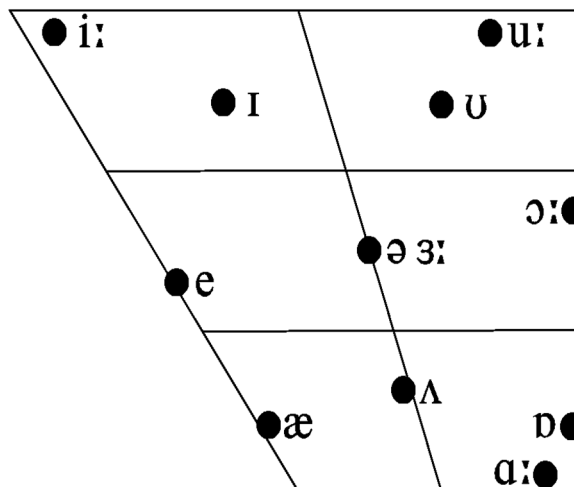
Long vowel/ɑ: /:

It is along low back unrounded vowel. It is formed by the back of the tongue in the open position with unrounded lips.

Long vowel/ɜ:/:

This is a long mid central unrounded vowel. It is produced by the center of the tongue in half-close and half-open position with unrounded lips.

Figure No (2.3)

English Single vowels (Short and long vowels)

Figure No (2.3) demonstrates the single English vowels (short and long vowels) according to their tongue position.

English diphthongs:

The diphthongs are a combination of two vowel sounds which take some duration of time as of a single long vowel. When diphthongs are produced, the tongue moves from one vocalic position to another. English has eight diphthongs. They are as follow: -

The centering diphthongs:

The centering diphthongs end with a glide towards the central vowel /ə/.These vowels are ; ɪə/, and /ʊə/. When forming the sound /ɪə/ the glide begins with a tongue position that is taken for /I/ and moves in the direction of /ə/while the vowel /ʊə/ glides from a tongue position that is used for /ʊ/ toward the more open type /ə/. The diphthong / eə/ Its glide begins in the half – open front position and moves in the direction of more open variety of /ə/.

The closing diphthongs:-

There are five diphthongs in English .Three of them end in /1/./ei/, /ɔɪ/.And two end in /ʊ/ .In producing the diphthong /ai/,the glide begins at a point behind the front open position and moves in direction of the position of / i/. The glide begins with tongue position that is for /ɔ/ and moves in the direction of /i/, /ai/ .The glide begins at a point slightly behind the front open position and moves in the direction of the position associated with /i/.

The diphthong /əʊ/ its glide begins at a central position of /ə/ and moves in the direction of the ʊ/.

The sound /aʊ/ the glide starts at a point between the back and front open position, and moves in the direction of the /ʊ/.

Figure No.(2.4)

English Diphthongs

The eight English diphthongs
Redrawn by UKT from p.020 , 090626
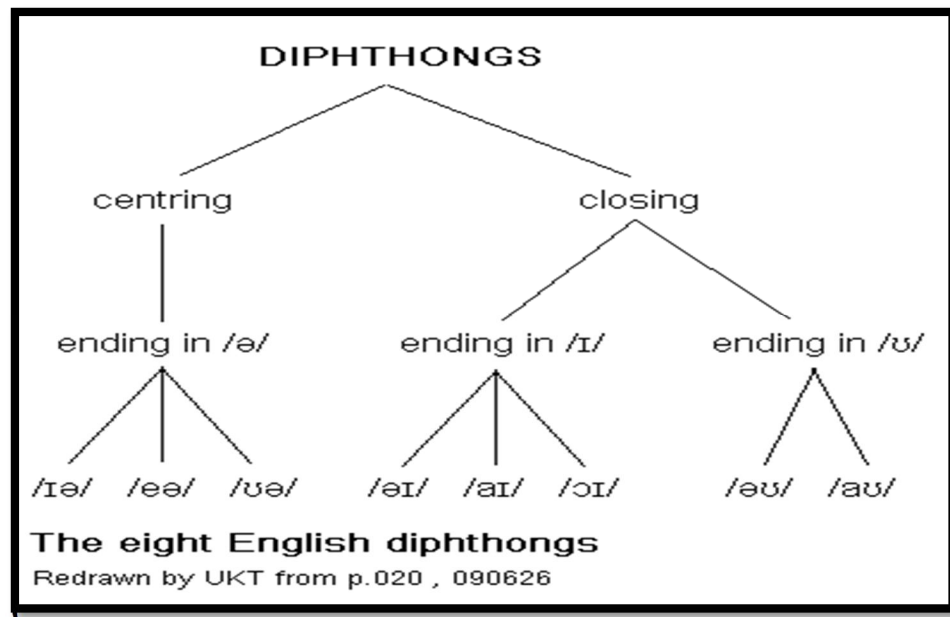
Adopted from https://en.wikipedia.org/wiki/Received_Pronunciation.2,7,2015

Figure No (2.4)illustrates the classification of English diphthongs.

Arabic vowels:

Arabic has three pairs of vowels phonemes. These phonemes are i ,a,u and their long counterparts/ i/, /a:/ and /u: /.As English, Arabic has diphthongs but there are only two of them which are /ay/and/aw/.Arabic vowels are represented by notation under the alphabet /i/(kasrah(ِ)),/a/(Fat'hah (-)) and /u/(,)(ḍammah).

The short vowels and their long counterparts have the same position but differ in duration.

Short vowels:

In Arabic there are three short vowels,/ i/, /a /and / u/ .

/i/ in Arabic is known as (kasrah ِ(ِ)) it is in a form of notation under the consonant .This vowel is formed with the lips unrounded and front of the tongue have close and lowered. It is described as short low closed front.

The vowel /a/ this sound is called in Arabic (Fat'hah) (-) ́◌.It is a diagonal stroke written above the consonant. When producing this vowel, the lips are neutral and the tongue is the half-open position . The description of the vowel /a/ is short –low-back-neutral.

The vowel /u/ ́◌(,)(ḍammah) :Damma is an apostrophe-like shape written above the consonant. This vowel is made with rounded lipsand the tongue in the half -close position .This vowel is characterized as short –high-back round.

Long vowels: Arabic has three long vowels /i:/, / a: / and / u: /which are the counterpart of the short vowels.These are called (huruufu a l-madd .)

/ii/ this vowel is formed when the the prolongation sound/ j / (yaa) is preceded by the notation (ِ) "kasrah'. uu/ This long vowel is formed by the prolongation

sound (w) preceded by the notation (,)(dammah) .The third Arabic long vowel is formed by the prolongation sound (a)ˡ preceded by the notation (-) fathah.

Table No.(2.8)

Arabic vowels

Short vowels	Phoneme in word	English translation	Long vowels	Phoneme in word	English translation
a͡ -)(Fat'hah)	-na,ma	Grow	a:	-n:ma	Sleep
ˡ(,)(kasrah)	s̲ehr(	Magic	i:	feel	elephant
u(,)(ḍammah)	'mur	Sour	u:	'tuul	Length

Adopted fromWikipedia, the free encyclopedia.com.6,7.2015

Table No.(2.8) displays Arabic vowels with their representative symbols in single word with English translation.

Arabic Diphthongs:

Arabic has only two diphthongs .One of These diphthongs is composed of the vowels/a/(Fatha)and /w/ (dummah).And the other is combined of the vowels /a/ and /I/ (kasrah). Fathadummah /aw / Fathakasrah/ /ɑɪ /

2.2.3 English consonants versus Arabic consonants:

A contrastive analysis between two or more languages involves both the similarity and differences. However, this study investigates specifically the effect of the differences between English and Arabic in consonants and vowels on pronunciation of Sudanese undergraduates. Therefore the focus will be on the differences and their potential effect. In this respect, the consonants that restricted to each language will be presented .Then the potential related problems will be discussed. The sounds that are common between the two languages, but are different in place or manner of articulation will be also

discussed. After describing English and Arabic consonantal systems according to previous contrastive studies; the following differences are identified.

English has twenty six letters represented by forty four sounds. These sounds are combined of twenty four consonants and twenty vowels. Whereas Arabic has twenty eight letters represented mainly by thirty one sounds. Twenty eight of them are consonants and three are vowels. As observed, English have greater number of vowels than Arabic. This is likely to cause difficulty in English vowels for the subjects under the study .In addition, the number of the English sounds and their representative letters are not equal which may result in confusion in their pronunciation for the learners.

Regarding consonants restricted to English, there are six consonants in English which has no counterparts in Arabic. They are ;/ g/,/ŋ / , /ʧ, /ʒ/,/ p/ /v/. As for the English sound/ /g/, this sound is pronounce almost like the Arabic sound/ q/ because they have the same manner of articulation and neighboring place of articulation. Therefore, this sound may not cause any difficulty for students whereas the other sounds have potential pronunciation problems .
To conclude, English poses six consonants which have no counterparts in Arabic and are predicted to be problematic for Sudanese learners, are ŋ / , /ʧ, /ʒ/,/ p/ and /v/.

In Arabic, there are ten sounds which have no counterparts in English. These sounds are , /x /,/ʕ/ ,/ɣ /, / ħ /,/sˤ/,/ dˤ,/ðˤ/,/tˤ/,/q/ and/ʔ/.They are likely to cause problems for English native speakers learning Arabic rather than Arab learners of English. Their effect for Sudanese students is probably in a form of interference of these sounds on some of the English sounds. For example, substitution of the English sound /d/ in final word position with the Arabic sound / dˤ/ .This sort of mispronunciation is considered to be a certain type of

first language interference on second language which is beyond the scope of the study. However, English sounds which exist in Arabic and are subjected to such interference of first languages' sounds are not to be deal with as problematic sounds. This is because students could do self –correction the moment they realize their mispronunciation or whether they are notify of it.

On the other hand, there are common consonants which exist in both English and Arabic but they have different place or different manner of articulation .For instance, the sounds (/ʃ/ , /dʒ/, /l /, /r/, /w/) have different Place of articulation in each of the respective language .The sound /r/ is post-alveolar in English while it is alveolar in Arabic. The sound/w/ is velar in English while it is bilabial in Arabic. The English consonant (/ʃ/ and /dʒ/ are post-alveolar in English whereas they are palatal in Arabic. The sound /r / is approximant in English but it is trill in Arabic. The English consonant /dʒ/ is fricative in English whereas in Arabic it is plosive. The English approximant /l/ is lateral in Arabic. The potential problems of English consonants which exist in Arabic but have different place or manner of articulation could be the production of the English consonants the same way as their Arabic counterparts. This result to foreign accent of the speakers rather than mispronunciation. Moreover, they are likely not to cause serious pronunciation problem as the speaker still could be perceived and with little practice the students could manage uttering correctly these sounds.

2.2.3 Contrast of the English vowels and Arabic vowels:

To draw the differences between English and Arabic in vowels a general comparison will take place. English and Arabic vocalic systems differ greatly. Un like English, Arabic has viewer number of vowels. English has twenty vowels combined of twelve single vowels and eight diphthongs while Arabic

has only eight vowels .The Arabic vowels include the main three short vowels and their long counterparts beside the two diphthongs. English vowels tend to have phonemic quality whistle Arabic vowels are allophonic .Arabic is characterized with the type of short vowels which are in a form of diacritic called in Arabic (Harakt).These vowels are ́○ (Fathah)/a/,(Kasrah) ِ/i/and(Dammah) ́○ /u/.

There are fifteen English vowels which are having no equivalents in Arabic. These sounds are ; /e/, /ɔː/, /ʊ/ ,/ɒ/, /eɪ/, /ɜː/, /ə/, /ʌ/,/æ/, /aʊ/, /ʊə/, /əʊ/,/ɛə/, /ɪə,/and /ɔɪ/ .English vowels pronunciation is influenced by the neighboring consonants whereas   Arabic vowels are independent.

Potential problems:

Generally the bigger number of English vowels compared to the Arabic makes English vowels a challenge to the students. In addition to the inconsistency of the spelling of English vowels .These are all probable reasons that may encounter students with English vowels .However, the study focus on English vowels difficulty related to sound system differences. Regarding these differences it can be predict that the English vowels that do not exist in Arabic cause difficulty for the prospective learners.

2.3 Previous Related Studies:

Several studies were conducted investigating the pronunciation problems of English for Arabic speakers in general and few studies were conducting on Sudanese undergraduates' pronunciation problems .The first part will discuss the general studies on pronunciation problems of Arabic speakers in general while the second part tackle local studies on Sudanese pronunciation difficulties.

General studies:

Most of these studies targeted Arab learners' pronunciation problems of specific regions whereas few of them concerned with Arab learners pronunciation problems in general. The followings are some examples of these studies.

Ahmad (2011) Pronunciation Problems among Saudi Learners:

In this paper the researcher investigated problematic consonants that confront Saudi students. The author assumed that students have difficulty with certain English consonant sounds. The subjects of his study were eight students enrolled in the college of Preparatory Year at Najran University, Saudi Arabia. The participants were selected randomly .They came from different parts of Saudi Arabia. The students were asked to read a list of words including the English consonants in different distribution (initial, medial, and final).Students' performance was taped. Recorded and being analyzed later by native English speaker. The analysis of the data showed Saudi learners have difficulty with the following English consonants in different position /p/, /d/, /v/, /tʃ/, /ʒ/, and /ŋ/.

Na'ama(2011)An analysis of errors made by Yemeni University students in English consonant-clusters system:

The author aimed to analyze the error made by Yamani students in English consonants cluster. Fifty four Yamani students were engaged in this study. All of them at English department , faculty of education, Hodeidah University but from different levels (*1, 2, 3*) .The tool for collecting data was a test including the target consonants clusters words in different position .The students were asked to read the words and their speech was recorded. The Students' Error in consonants cluster has been analyzed .The results showed

that the students committed errors in initial-consonant clusters as in (*spread*); two final-consonant clusters as in (*wicked*); and with three final clusters as in (*Sixths*).The students inserted the short vowel **/i/** before the first consonants of the two initial consonants cluster as in (*play, slay*) *they pronounced / pilei/, /sili/*, **/i/** in words as "and the same vowel is inserted before the last consonant of the three initial consonants cluster e.g. Based on the findings, the researcher attributed the causes behind students pronunciation error in English consonant clusters to different reasons which were the impact of students first language which lack consonants cluster ,students not practicing these sounds and the lack of qualified teachers regarding pronunciation.

Emad (2010) Phonological Analysis of English Phonotactics:

Emad (2010) intended by his research to analyze the reasons behind pronunciation problems that face Arab learners of English .The researcher hypothesized that student mispronunciation is due to insertion type. The subjects of the study were twenty Jordanian students at fourth-year majoring in English at two public universities .The instruments used for data collection were observation and recording .A list of words composed by the author was presented to the students to be read. Students' performance was judged by two native English speakers. The analysis showed that there were three types of errors committed by students namely (insertion, substitution and deletion). However the study was concerned only with insertion type. It was observed that the learners have difficulty with consonants cluster due to the absence of it in the students' native language Arabic. The students inserted a vowel after the first sound of the consonants cluster and inserted a vowel also before the inflectional suffix. e.g. They pronounce the word (splash) as (siblash)' and 'laughed' as(laughid) .It is also appeared that the learners have problem with the voiceless

bilabial /p/ which they substituted with the voiced bilabial/b/ .The study came to conclusion that the main cause of the students' mispronunciation is their mother tongue interference.

Barros (2003) Pronunciation difficulties in the consonant system experienced by Arabic speakers when learning English after the age of puberty:

Barros (2003) in her study sought to identify pronunciation problem that encounter Arabic speakers with English consonants. Unlike most of studies on English pronunciation that face Arabic speakers, her study target Arab learners who live outside the Arab countries. The subjects of the study were a group of six Arabic speakers from different Arab countries who came to live in the United States after the age of puberty for not less than four years. All of them were students at West Virginia University. The aim of the investigation was to Outline and analyze pronunciation problems attributed to the effect of the first language. In particular, the problematic consonants .Hence, find suitable solution to reduce students' mispronunciation. The data was gathered by interviewing the participants and asking them to read some sentences and words in English. The students' performance was recorded. The analysis of the collected data revealed that Arabic speakers of the study encountered significant problem in pronouncing five of the English consonants and minor problem with three sounds. E,g, /ŋ/ at word final position as in .buying.[bayɪŋ], /ɫ/ as in .civil. [sɪvɨɫ], /d/ in word final position as in .bed. [bɛd], /p/ as in .play. [pley], and /ɹ/as in .risk. [ɹɪsk]. /v/ as in [fayv]/ʤ/, as in .job. [ʤab], and /ð/, as in (the) [ðə].The conclusion of the study was that the cause of the problem is the students first language influence in addition to the influence of each specific Arabic dialect of each region.

Altaha (1995) Pronunciation errors made by Saudi university students learning English:

In his study Altaha (1995) addressed English pronunciation mistakes made by Saudi students. The subject of his study were Saudi university students who were studying English at their homeland .The subjects of the study had already finished English courses including phonetics .The tool for data collection were recording and observation of the learners performance in spoken English. The analysis of the gathered data demonstrated that the participants have problem with some pairs of consonant sounds (i.e. /ʧ/ and /ʃ/ as in(chair) and (share) /v/ and /f/ as in (van) and (fan) /p/ and /b/ as in (pat) and(bat) .It was also observed that students have difficulty with consonant clusters e.g. (grandfather) was uttered as (grandifather) and consonant doubling (i.e. allow was mispronounced as(al-low).

Kharma and Hajjaj (1989).The sound system *errors in English among Arabic speakers:*

Kharma and Hajjaj (1989) wrote a book targeted the problems that face Arab students with English pronunciation. They related the problem experienced by the learners in English consonants and vowels to the impact of first language. To collect the required data for the study, they interviewed their subjects .The findings of the study displayed that Arab learners mispronounce some consonant sounds Eg: /p/, /v/, /ŋ/, /θ/, /ð/, /r/, /l/) .As for vowels the study revealed that Arab students of English confused between following vowels and diphthongs ; /e/ , /ɪː/ ,/ɔː/. /uː/; /ʌ/ , /ɒ/ /eə/ ,/eɪ/; /ʊə/ /ɪə/ , /əʊ/.

Local studies:

This part displays the relevant studies involving Sudanese undergraduates' pronunciation problems in particular. Unlike the general studies

related to Arab learners problems of English pronunciation, very little research were carried concerning pronunciation problems of Sudanese undergraduates. The followings are some of the recent related studies.

Ali(2012) Pronunciation problems of Sudanese Learners of English:

Ali. (2012) in her study aimed to find which of the English sounds impose difficulty for Sudanese students and what are the reasons behind this problem. She theorized that Sudanese English learners mispronounce the following consonants /p/, /v/, / θ /and / ð / .In addition, the learners confuse the vowels (a, e, i, o, u) .The researcher assumed that the causes of this difficulty are related to mother tongue interference and the influence of the spelling of some English words. Descriptive and analytical methods were adopted. Observation and a questionnaire were used for data collection. The subjects of the study *were (80)* students and 20 teachers at Sudan University of Science and Technology. The results revealed that he students have problem in pronouncing the following sounds: (/p/, /b/,/f/, / v/, /s /, /z/,/ θ /, /ô/). The students replaced the sound / p / with / b / and / t ∫ / by / ∫ /. Moreover, the findings displayed that the students have difficulty with English vowels because of their inconsistency .The general results showed that students' mispronunciation problem is due to mother tongue interference, inconsistency of English vowels and influence of spelling.

Ali(2011) Speech intelligibility problems of Sudanese learners of English:

Ali(2011)investigated intelligibility problems that encounter Sudanese learners of English. The study aimed to discover the factors that hinder students producing English speech sounds .In addition, the experiment attempted to test which of the English sounds are difficult to produce and whether English vowels are more difficult to pronounce than consonants. The research adopted descriptive and experimental methods .Means for gathering data were perception

tests, production tests and written questionnaires. The participants of the study were (11) Sudanese EFL university learners and one native speaker recruited to listen to and judge the subjects performance. The students' pronunciation was recorded and listened to by the native speaker. The result revealed that the native speaker were unable to recognize certain consonants of the students' recorded speech which indicated mispronunciation of these sounds by the learners of the study. Example of mispronounced sounds are the consonants /p/ ,/d/, /z/,/v/ ,/ŋ/ /θ/ and /ʧ/ . The diphthongs/ei/ and /au/ were replaced by the single vowels/e/ and /o/ respectively. Also the study showed that the students confused the vowels/ ʌ/ and /ɔ:/.

Mohammed (2010).: Pronunciation problems for EFL learners in Sudanese curriculums.

This study attributed students' pronunciation problems to the lack of sufficient exercises in English syllabus .The study adopted Experimental method. The tools used for collecting the required data were recording and observation. The study findings revealed that Sudanese English syllabus does not emphasize pronunciation through exercises. In addition, most of the learners in Sudan face problems in pronouncing English Vowels. Also the study demonstrated that students have problems in pronouncing English the followings English consonants /tʃ/ , /dʒ/, /f/ and /v/, /p/,/ θ/, / ð/,/ ʃ / and /ʒ.

Alkhier (2007) Pronunciation problems:

Alkhier (2007) carried out a study which tackled the factors behind English pronunciation problems for Sudanese students .The instruments used for collecting the data were observation, recordings and a structured questionnaire. The subjects of the study were (50) students of Sudan University of Science and Technology who have finished their first academic year and (30) English

teachers at the same university. Each student was asked to read ten sentences in English while the examiner was observing and recording their performance by the same time. The recordings have been analyzed and compared with the observed notes. The two results were almost the same. The findings of the study revealed that Sudanese learners of English whose language background is Sudanese Spoken Arabic; had problems with pronunciation of English vowels in general. E.g the vowels /aɪ /, /i:/and /ɔ:/. In addition, the consonant sounds /ð/, /θ/, /p/, /v/ and /tʃ/ were difficult to pronounce for the learners. These consonants were replaced by the sounds /z/,/s/, /b/,/v/and/ʃ/respectively. According to the results, the causes of students' pronunciation problems were related to the phonological differences between English and students' first language in addition to English spelling.

2.4 Summary of the Chapter:

The chapter firstly, presented the relevant theories and Approach of the study. Secondly, related literature was reviewed with elaboration figures and tables. Finally previous related studies were discussed. The previous studies included general and local studies .Most of these studies investigated the pronunciation problems for specific subjects in certain Arabic regions e.g. Alkheir (2007) while few deals with the problems for Arab learners in general Barros (2003). Great portion of these studies investigated all the general reasons behind the problem e.g. Ali(2012)while some of them were concerned the mother tongue interference .The majority of these researches results referred the difficulty in English pronunciation of Arab learners ;whether in specific region or in general ,to mother tongue interference .However, no research deals specifically with this main reason .The current study put into account the fact reached by these studies and attempted to fill the gap focusing on specific

reason regarding the effect of the consonantal and vocalic systems differences of English and Arabic .The impact of these differences is most significant than other factors since consonants and vowels are the language features which represent pronunciation. Dissimilar to the associated previous studies, the study target in particular pronunciation problems that encounter university students majoring in English .This as pronunciation is of particular importance to this portion of English learners.

CHAPTER THREE

Research Methodology

Introduction:

This research is a case study that intended to investigate the effect of the differences between English and Arabic consonants and vowels on Sudanese University students' pronunciation majoring in English. It aims to find out the problematic English consonants and vowels for the students. The main objectives of the study were to identify the pronunciation problems related to the sound systems differences between the respective languages. Hence, it suggests some suitable solutions that may help students overcome these difficulties and improve their pronunciation.

The chapter displays the method adopted and the research design used to achieve the purpose of the study. It presents also the research tools that were utilized for data collection and the subjects and sample size of the study. Moreover, the chapter introduces the procedure used for data collection in addition to the validity and reliability of the tools.

3.1. Research Method and Design:

This research is a type of quantitative investigation which addresses a problem and develops hypotheses to uncover the reasons behind the concerned issue .To test these hypotheses, descriptive and analytical methods are employed. In accordance to the method adopted, the study pursued descriptive analytical design. The design is descriptive in the sense that it describes, elaborates and gives insights into the problem, and it is analytical because it analyzes the cause of the problem via statistical analysis of the gathered data.

3.2 The Tools for Data Collection:

Data collection process is conducted via the assigned tools to gather and measure the information of the target variable to answer the relevant Questions. Different types of research instruments could be used to collect the required data. However, particular tools are proper for certain research purpose. In this study, specific tools are used for data collection to accomplish the objectives of the study. Two types of research instruments are used for gathering the required data for this study one is a main tool while the other serves as a supportive tool. The first main tool is an oral test demonstrated to the prospective student's .The second instrument is a questionnaire represented to the English teachers to support the first major tool.

3.3 Sample of the Study:

The study target Sudanese university students majoring in English .The intended sample of the study was combined mainly (50)third year students majoring in English at Khartoum University, Art College, English department and the English teachers of the field at same university**.** The participants of the study were selected randomly. When choosing the sample of the students, age and gender and language ability differences were not put into consideration. However, there were some requisites which were; all students had to be in the same level and academic year. In addition, the students should have completed the phonology course to avoid mispronunciation factors related to unawareness. Moreover, the students had to be all Arabic native speakers (students who speak local languages other than Arabic are excluded from the sample). As far as the study is concerning with the effect of the differences between English and Arabic sound systems, the exclusion was made to avoid bias in result related to

local languages influence. As for teachers, there were no criteria determined for the subjects other than being English teachers of the field.

The intended size of the sample was 50 students and 20 English teachers of the concerned University.

3.4 Procedure:

The procedure of the students 'oral test and the teachers' questionnaire is described below:

3.4.1Students' Oral Test:

The study mainly aimed to detect students English pronunciation problems associated with the differences between English and Arabic in consonants and vowels. It attempted to find whether these differences affect English pronunciation. Moreover, the investigation tried to find whether the difference between English and Arabic consonants and vowels impact students' pronunciation.

And oral test with audio recording as complementary tools; was used to obtain data from the students to answer the study Questions and test its hypotheses. The whole test was designed by the researcher. All the test elements were selected carefully adjusted to the purpose of the study. The test was composed of isolated words which consist of the targeted sounds. Each word includes one single target sound. The words were chosen from an electronic English dictionary (appendix 1). The pronunciation and the transcription of the selected words were checked carefully before being applied. Received Pronunciation (RP) was adopted.

The target subjects of the study were the students of Khartoum University, Art College, and English department. The sample of the study was chosen randomly from the third year students. (As mentioned before, students who are

speaking local languages other than Arabic were excluded) .The oral test was conducted to fifty of the students majoring in English at the third level.The test was applied at the commencement of the second semester of the academic year 2015-2016. The participants had already finished a phonetics course at the second level which was about 48 hours, they also accomplished 48 hours of phonology course at the first semester of the third level. So, it was insured that they were aware of the English pronunciation rules and the symbols that represent each of the English consonants and vowels sounds and how they are pronounce. Therefore they are supposed to be aware of the English consonants and vowels pronunciation rules. Hence, bias in result related to pronunciation problem due to unawareness of pronunciation rules was reduced.

When preparing for the test implementation, the researcher found that the students have been divided into two groups due to the teaching strategy at the English department .Each group had different schedule for classes. Therefore, the researcher had to do the test for each group separately at each assigned class and time. The researcher requested a copy of the students' schedule to arrange the time for the test for each group. According to the agreement with the concerned staff, one hour have been assigned for each group in two different days to accomplish the test. The date assigned for the test was the fifteenth and seventeenth of March of the year 2016. The test was applied by the researcher and an assistant teacher of the field who was supposed to introduce the test to the students whiles the researcher taking the necessary notes.

As decided for the sample size, the students who had performed the test were fifty. Most of the registered students were girls .Thereby, the majority of the students sample were girls (13 male, 37 female).The test was written on two scripts One for the examiner and the students and the other for the researcher.

The students' script contained the list of the selected words. (Appendix 1) whereas, the researcher script was in a tabulated form to help the researcher coup with the students' performance and write notes when necessary (appendix2).

Before applying the test, the researcher informed the students that the test is for a study purpose and they don't need to worry about result or grades to reduce their anxiety .They were also informed that the participation is voluntary and it is appreciated without risks or benefits .Moreover, the researcher confirmed their permission to audio record their performance for later analysis. Then the assistant examiner explained to the students what was required of them which is that they had to read the words from the list one by one, conformable to their sequence to enable the researcher observe their performance and take notes.

After all the necessary arrangement, the students were requested to keep quiet and get ready for the test. Then they were approach by the examiner who introduced the test script to each student one after one, pointing at each of the target words to be read. While each student was reading the words, the examiner recorded his/her performance and saved it under the student serial number. At the same time the researcher wrote down the observations regarding each student's pronunciation. The same procedure was followed for all the students of the two groups .The test lasted one hour per day for each group. The whole test took two days. After the test had been accomplished, the researcher prepared tabulated scripts to enable and facilitate analyzing each student's performance. The fifty scripts with the audio recorded test in serial number for each student's performance, were handed over to a British English teacher to be reviewed .The researcher explained to him that it is required of him to notice the

incorrect pronunciation and identify the replaced sound beside writing notes if needed. The native speaker had analyzed the students' performance and identified the incorrect target sounds on the assigned script for each student. Then the results were manually analyzed to calculate the number of incorrect sounds and then tabulated by the researcher to be statistically analyzed see. The findings will be explored and discussed at length in the next chapter.

3.4.2 Teachers' Questionnaire:

Structured Questionnaire was designed and developed by the researcher on the basis of the objectives of the study to be answered by the concerned subjects. The teachers' Questionnaire was conducted to support the aims of the first tool and extrapolate the opinions and suggestions of the teachers about the problem in order to set the suitable recommendation in accordance to the study findings.

There were three types of Questions which were formed to answer the study questions and test the study hypotheses (rank scale, Likert and open ended question) .Rank scale and Likert questions were composed of five items whereas the open –ended questions consisted of 4 items (See Appendix 3).

The questionnaire was presented to 20 English teachers of Khartoum University including the pre -five samples that were presented for checking statistics validity and reliability. Distribution of the questionnaire was not an easy task because it was the commence of the second semester and the teachers were busy with administrative responsibilities. Therefore, the distribution and collecting back the questionnaire lasted two weeks which was in March 2016. After filling-up the Questionnaire, the 20 scripts had been delivered to the appropriate statistic to be discharged and statistically analyzed.

3.6 Validity and reliability of research tools:

Apparent and statistical reliability and validity of the oral test:

In order to check the apparent validity of the test and validation of its content and formulation in accordance to the study questions and hypotheses; the test has been checked out by 3 Ph.D. referees in the Field. Two of them approved that the test was valid and one slight changes (which was reducing of test words.).The suggestion was put in consideration and submitted before application.

As for the measuring of the statistical reliability and validity, split half method was adopted using excl spread work sheet. Thirty of the students in the test were used in the method. The rubric of the split half method was that the items of the test is randomly divided into two halves .The scores of each half was recorded in the specific cell of the excel spread work sheet and the reliability was calculated automatically. The table bellow shows the results.

Table No.(3-1)

Reliability of the test by split –half method

Student	Student score 1st half (X)	Student score 2nd half (Y)			
1	9	9		Pearson Product Moment Correlation	0.719758
2	7	7		Reliability	0.837046
3	7	8			
4	9	10			
5	8	8			
6	7	8			
7	8	8			
8	8	7			
9	8	7			

10	6	7			
11	7	7			
12	9	9			
13	7	8			
14	7	6			
15	7	7			
16	9	9			
17	8	7			
18	8	9			
19	9	10			
20	6	7			
21	7	8			
22	8	7			
23	10	9			
24	8	8			
25	7	6			
26	7	7			
27	7	8			
28	9	9			
29	9	10			
30	8	7			

Source: The researcher from applied study(2016)

The figures in the above table show that the calculated value of the test reliability is 0.83 which indicate good reliability. (Reliability and validity lies between the ranges 0-1).To measure the statistical validity of the test,square root of the (reliability coefficient) was used.

Validity= $\sqrt{reliability}$

Validity= $\sqrt{0.83}$

Validity =0.91. The calculated value reveals that the test is highly valid.

The statistical Analysis and results of the test will be explored and discussed in details in the next chapter.

Apparent Statistical Reliability and Validity of the Questionnaire:

The questionnaire was validated by three scholars of the field to insure that the questions were formulated adjusted to the study purpose. Copies of the questionnaire attached to the study questions and hypotheses were presented to the referees for this purpose .Two of the referees recommended some modifications which it happened that their opinion agreed on themost.The last referee revised his colleagues' suggestions and agreed to them adding no more. All recommendations have been submitted by the researcher and the questionnaire was reformed accordingly before distributed to the subjects of the study. To insure content clarity the questionnaire was introduce to five teachers before presenting to the whole subjects. All the questions were answered clearly which confirmed the content clarity. Then the pre-samples were used to check the statistical validity and reliability of questionnaire before distributing to the whole respective subjects.

The statistical validity is counted by a number of methods; one of them is using the square root of the (reliability coefficient) which was utilized for the study. The value of the reliability and the validity lies in the range between (0-1).

The validity was calculated statistically by the following equation:

$$\text{Validity} = \sqrt{\text{Re liability}}$$

The reliability coefficient for the measurement was calculated using (split-half) method. This method stands on the principle of dividing the answers of the sample individuals into two parts, i.e. items of the odd numbers e.g. (1, 3, 5,) and answers of the even numbers e.g. (2, 4, 6 ...). Then Pearson correlation

coefficient between the two parts is calculated. Finally, the (reliability coefficient) was calculated according to Spearman-Brown Equation as the following:

$$\text{Reliability Coefficient} = \frac{2 \times r}{1 + r}$$

r = Pearson correlation coefficient

For calculating the validity and the reliability of the questionnaire from the above equation, the researcher distributed about (5) questionnaires to respondents. In addition, depending on the answers of the pre-test sample, the above Spearman-Brown equation was used to calculate the reliability coefficient by the split-half method; the results have been showed in the following table:

Table No (3-2)

The Statistical Reliability and Validity of the pre-test Sample

of the study Questionnaire

Validity	Reliability	Question
0.85	0.72	First
0.88	0.77	Second
0.89	0.80	Third
0.93	0.86	Overall

Resource: The researcher from applied study 2016

We note from the results of above table that all reliability and validity coefficients for pre-test sample individuals about each questionnaire theme, and for overall questionnaire, are greater than (50%), and some of them are nearest to one. This indicates high validity and reliability of the answers, so, the study

questionnaire is valid and reliable, and that will give correct and acceptable statistical analysis.

3.6 Summary of the chapter:

The chapter has provided description of the research methodology .It presented the study tools as well as procedures of the test and the questionnaire .In addition; it confirmed validity and reliability of the tools. After insuring the validity and reliability of the test and questionnaire the results of the collected data were statistically analyzed using the statistical Package for Social Sciences (SPSS) in addition, to the computer program (Excel).The analysis and the findings were shown in tables and graphical figures with discussion in the next chapter.

CHAPTER FOUR

Data Analysis, Results and Discussion

Introduction:

This chapter presents the statistical analysis of the collected data and the result with the discussion of the of the findings .In addition, it provides the verification of the study hypotheses. The study aimed to investigate English pronunciation problems related to differences between English and Arabic in consonants and vowels faced by Sudanese university students majoring in English. Different instruments were used for collecting the required data. An oral test includes the target sounds was conducted to 50 third year students majoring in English at Faculty of Arts, Khartoum University and a questionnaire was distributed to 20 of the English teachers at the same university. The validity and reliability of both students' test and teachers' questionnaire were confirmed apparently and statistically. After confirming the validity and reliability of the research tools the results of the students' test and the teachers' questionnaire were analyzed. In order to obtain accurate results, Statistical Package for Social Sciences (SPSS) was used. In addition, to the graphical figures and the computer program (Excel) was also used. The results revealed and discussed below.

4-1 Statistical Analysis of the Students' Oral Test:

The oral test was conducted firstly, to see if the differences between English and Arabic in consonants and vowels affect English pronunciation for Sudanese university students. Secondly, to find out which of the English consonants and vowels that do not exist in Arabic are problematic for the concerned students. The test targeted the 21 English sounds that do not have

counterparts in Arabic .These sounds were identified according to the contrastive analysis made before between the sound systems of the respective languages. These sounds are the following six consonant and fifteen vowels;/ ʒ/, /g/, /ŋ/, /ʧ/, /P/, /v/, /e/, /eɪ/, /ɜ:/ ,/æ/, /ʌ/, /ə/, /ɔ: ,/əʊ/ ,/ɒ/,/ʊ/,/ɔɪ/, /ɛə/ , /ʊə/ ,/ɪə/,/aʊ/.

As mentioned in the previous chapter, the students' performance in the oral test has been audio recorded and analyzed by an English native speaker. The manually analysis showed that some of the target English consonants and vowels have relatively high average of mispronunciation than other sounds with different degrees of difficulty. The results have been tabulated and statistically analyzed. The followings tables and figures show the results then the findings are explained and discussed accordingly.

Table No. (4-1)

Percentage of incorrect pronunciation of all the target consonants and vowels:

No	Target Consonant	Number of students with incorrect pronunciation	Percentage %
1	g	0	0
2	ŋ	0	0
3	ʧ	1	2
4	ʒ	25	50
5	P	38	76
6	v	43	86
7	eɪ	0	0
8	ʌ	0	0
9	ə	0	0

| 10	e	2	4
11	ʊ	1	2
12	ɔɪ	1	2
13	aʊ	12	24
14	ɒ	27	54
15	ʊə	32	58
16	æ	30	60
17	ɜ:	31	62
18	ɔ:	36	72
19	ɛə	42	84
20	ɪə	45	90
21	əʊ	46	92

Source: The researcher from applied study, 2016

The table (4.1) displays the target English consonants and vowels with percentage of mispronunciation .From the table it appears that the sounds/g/, /ŋ/, /eɪ/, /ʌ/,/ə/ have been pronounced correctly by all the subjects with 0% of mispronunciation. While each of the sounds, / ʧ/ ,/ʊ/ , /ɔɪ/ has been mispronounced by one student with 2%. And the vowel/e/ has been pronounced incorrectly by two of the participants with 4%. All the mentioned sounds has been mispronounced with low percentage of mispronunciation which indicates that these consonants and vowels did not cause pronunciation difficulty for the subjects. On the other hand, the table revealed that the the vowels/ ɒ / , /ʊə/, /æ/ and /ɜ:/were pronounced incorrectly with 54%,58 ,60% and 62% respectively. Whereas twenty-five of the subject mispronounced the consonant /ʒ/with 64%.Thirty six of the involved learners mispronounced the vowel/ɔ:/with 72.% and thirty eight of them mispronounced the consonant/P/with 76% .All the

participants were unable to pronounce the vowel /ɛə/ correctly except eight of them with 84% of mispronunciation . Relatively the same occurrence was in pronouncing the consonant /v/ as forty-three of the students mispronounced it with 86% .The vowel /ɪə/ has been pronounced incorrectly by all students except five of them with90%. . Forty six of the learners pronounced/ əʊ/ inaccurately with92%. From the table the findings can be summarized that there are three target consonants which cause pronunciation problem for the prospective learners whereas there are eight vowels which considered problematic for them. For both problematic consonant and vowels, there are different degrees of difficulty which will be explained with the figures below .It explores the average of each problematic consonants and vowels along with the discussion of the result.

Figure No. (4-1)

Percentage of incorrect pronunciation of problematic consonants
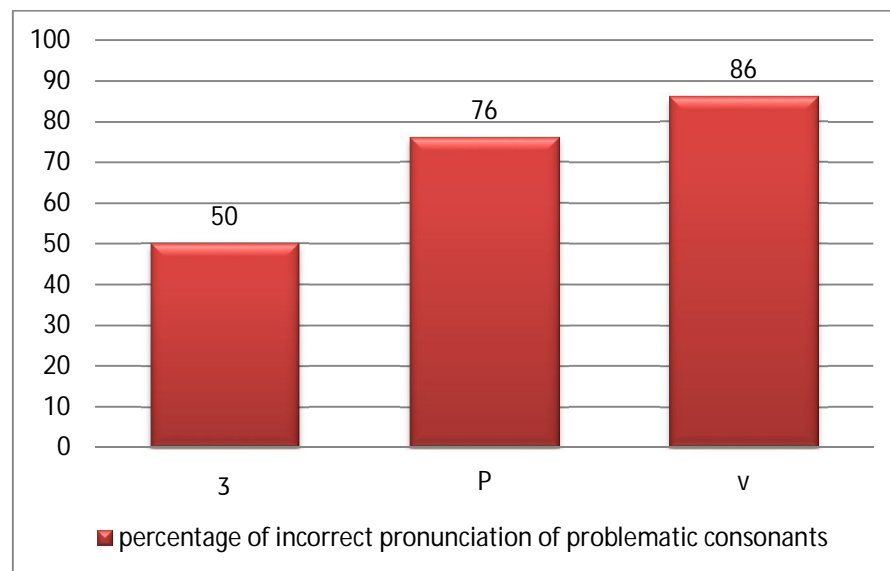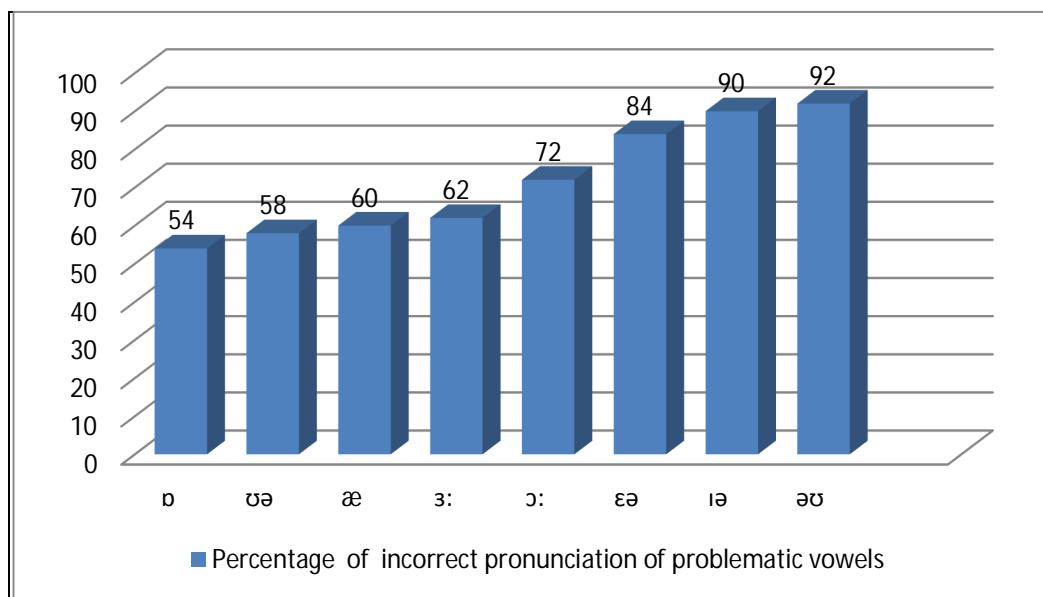

Source: The researcher from applied study, 2016

There are six target consonants which have no counterparts in Arabic language according to the contrastive analysis which has been made in chapter two.

Accordingly, some of these sound were expected to be problematic for the respective learners . The results shown in table No. (4.1) revealed that actually half of the target consonants caused pronunciation problems for the subjects. The figure No. (4.1) identifies the consonants ʒ,/p/,/v/ as problematic sounds with their percentage of mispronunciation. Descending from the low degree of difficulty up to the higher. It illustrates that the consonant /ʒ/ has relatively the lowest degree of difficulty which is 50%. Therefore, it is considered to cause significant problem to the students whereas both the consonants /p/ and/ v/ represent high level of difficulty with the percentages 76,86 respectively.

Figure (4.2)

Percentage of incorrect pronunciation of problematic vowels

Source: The researcher from applied study, 2016

Table No (4.1) illustrates all the fifteen target vowels which were expected to cause pronunciation problems along with the percentage of inaccurate pronunciation. From the table (4-1) the result shows that eight of the vowels were identified as problematic according to the relatively high percentage of mispronunciation. The figure (4.2) displays each of these problematic vowels

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with their percentage of incorrect pronunciation .From the figure (4.2) it appears that the students have significant problem with the vowels /ɒ/ with (54), /ʊə/with(58), /æ/ with /60// and ɜ:/with (62%) /. While the vowels /ɔ:/,/əʊ/, /ɛə/, and /ɪə/represent high degree of difficulty for the students. From the analysis of the data obtained from the students. Oral test, the findings explored that half of the target consonant and eight of the concerned vowels are considered problematic with different degrees of difficulty. Next the data analysis of the teachers' questionnaire.

4.2 Statistical Analysis of the Teachers' Questionnaire:

After the questionnaire reliability and validity had been confirmed, the researcher had distributed the questionnaire to the determined subjects. (Twenty teachers) .The questionnaire scripts were collected back after being filled .Then the required tables have been constructed for the collected data. This step included the transformation of the qualitative (nominal) variables (Not much, largely, Not sure, Not at all) and (Strongly agree, Agree, Neutral, Disagree, Strongly disagree) to quantitative variables (5, 4, 3, 2, 1) respectively, also the graphical representations have been done for this purpose. The responses of each question had been analyzed and discussed accordingly.

Question No.(1):

"To what extend do you think the sound systems differences between English and Arabic cause pronunciation problem for the students."Table No. (4.2) shows the frequency distribution of the answers of the study's respondents about question No.(1).

Table No.(4-2)

The frequency distribution for the respondents' answers about Question No.(1)

Answer	Number	Percent
Largely	12	60.0
Not sure	1	5.0
Not much	6	30.0
Not at all	1	5.0
Total	20	100.0

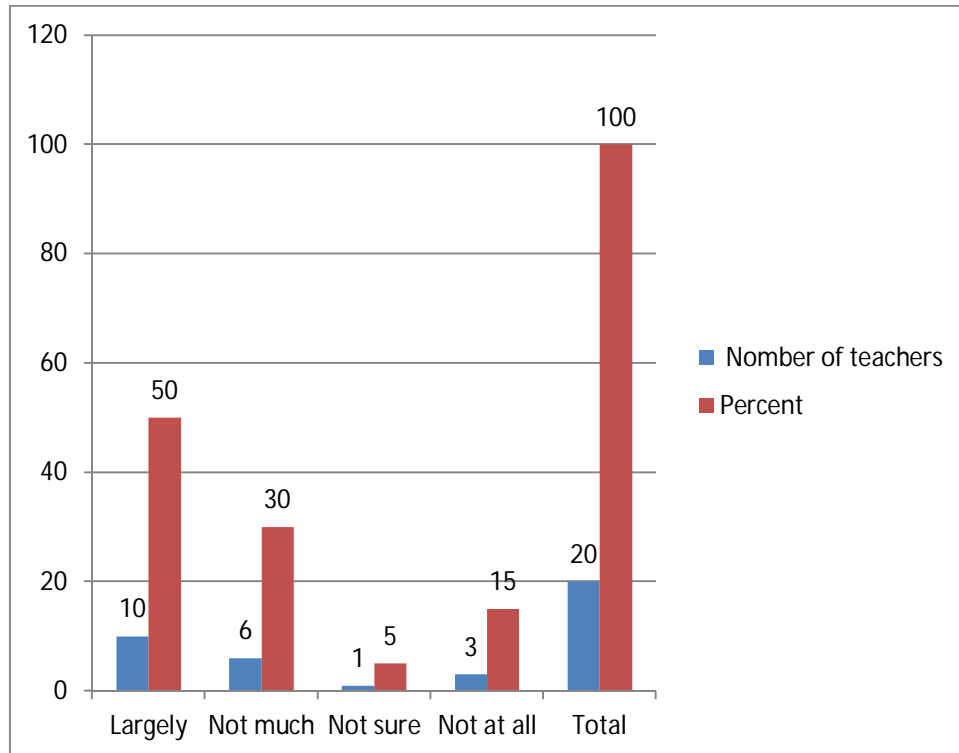**Source: The researcher from applied study, 2016**

It is clear from table No.(4-2) that there are (12) teachers with percentage (60.0%) have largely agreed on the question "To what extend do you think sound systems different between English and Arabic cause pronunciation problem for the students ". On the other hand,(6) of the teachers in the study's sample with percentage (3o.0%) have answered (not much) to that. Only one teacher with percentage (5.0%) was not sure about the answer, and one respondent, with percentage the same percentage chose the answer

(Not all).

Question No. (2):

(T o what extend do English consonants which do not exist in Arabic cause pronunciation problems for the students?)

Figure No. (4.3)

The frequency distribution for the respondents' answers about Question No.(2)

Figure No.(4.3) illustrate that (10) out of (20) of the teachers with (50%) replied with (largely) to the question (T o what extend do English consonants which do not exist in Arabic cause pronunciation problems for the students?).While six of them chose the answer (Not much). One of the respondents was not sure about the answer with (5%) and three teachers answered with (Not at all) with (15%) percentage.

Question No.(3):

(T o what extend do English vowels which do not exist in Arabic cause pronunciation problems for the students?).

Table No (4-4) shows the frequency distribution of the respondents of the questionnaire about question No.(3).

Table No.(4-4)

The frequency distribution for the respondents' answers about question No.(3)

Answer	Number	Percent
Largely	15	75
Not much	2	10.0
Not at all	2	10.0
Not sure	1	5.0
Total	20	100.0

Source: The researcher from applied study, 2016

The table No.(4-5) revealed that there were (15) of the respondents with percentage (75.0%) have largely agree on the question "To what extend are English vowels problematic for Sudanese students". Whereas two of the respondents in the study's questionnaire with percentage (10.0%) replied with (Not much) to that and only one person with percentage (5.0%) was not sure about the answer. While (2) of the teachers with percentage (10.0%) chose the answer (Not at all).

Question No.(4):

"To what extend does the English syllabus at university emphasize pronunciation?"

Table No. (3-4) shows the frequency distribution for the study's respondents about question No.(4.5).

Table No.(4-5)

The frequency distribution for the respondents' answers about question No.(4)

Answer	Number	Percent
Largely	2	10.0
Not much	14	70.0
Not sure	2	10.0
Not at all	2	10.0
Total	20	100.0

Source: The researcher from applied study, 2016

It is clear from table No.(4-5) only (2) out of (20) of the respondents with (10%)chose the answer(largely) to the question "To what extend does the English syllabus at university emphasize pronunciation?".Whereas (14) of the teachers with (70.0%) replied with (Not much). Two of the teachers with (10.0%) were not sure about the answer. while (Not all) has been chosen by two of the respondents with the same percentage (10.0%).

Question No.(5):

"To what extend does the English syllabus as a major subject at university include comparative linguistics concerning English and Arabic phonology?"

Figure No. (4-5) reveals the frequency distribution for the study's respondents about the question No.(5)

Figure No.(4-4)

The frequency distribution for the respondents' answers about question No. (5)

Source: The researcher from applied study, 2016

Figure No.(4-4) shows that there were only (3) out of (20) of the respondents of the study's questionnaire; with (15%) chose the answer (largely) for the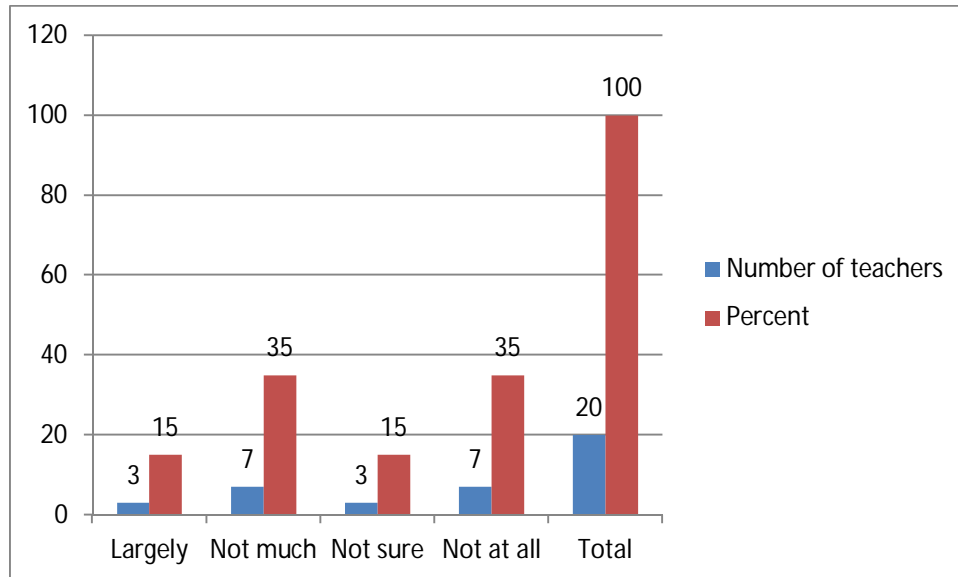 question "To what extend does the English syllabus as a major subject at university include comparative linguistics concerning English and Arabic phonology"?Whereas (7) of the teachers with percentage (35.0%) replied with (Not much) .Three of the respondents were not sure about the answer with(15%) while (7) of them with percentage (35.0%) their responds were (Not all) .

Question No.(6):

The differences between Arabic and English in consonants and vowels impact students' English pronunciation. .

Table No. (4-6)) shows the frequency distribution for the study's respondents about question No.(8).

Table No.(4-6)

The frequency distribution for the respondents' answers about question No.(6)

Answer	Number	Percent
Strongly Agree	5	25.0
Agree	8	40.0
Neutral	3	15.0
Disagree	1	5.0
Strongly disagree	3	15.0
Total	20	100.0

Source: The researcher from applied study, 2016

Table No.(4-6) shows that(5) out of (20) of the respondents with percentage (25.0%) have strongly agreed that the differences between Arabic and English in consonants and vowels impact students English pronunciation and (8) of the them with percentage (40.0%) agreed on that. Three of the teachers with percentage (15.0%) chose neutral for answer. Only one teacher with percentage (5.0%) have disagree about that and (3) of the respondents with percentage (15.0%) strongly disagreed about that.
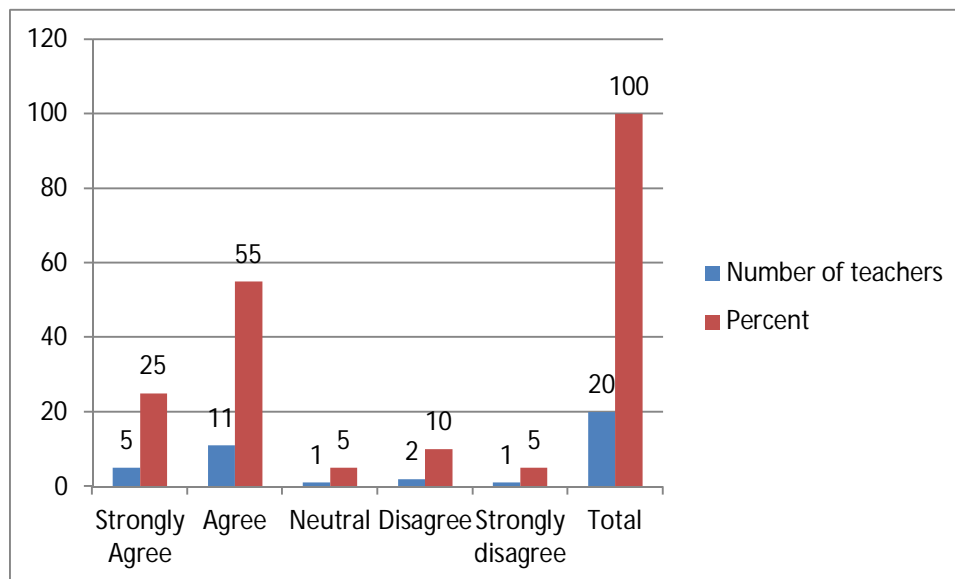
Question No. (7):

"Sudanese University students majoring in English mispronounce some of the English consonants which have no counterparts in Arabic".

Figure No. (4-5) shows the frequency distribution of the respondents answers about question No.(7).

Figure No.(4.5)

The frequency distribution for the respondents' answers about question No.(7)

Source: The researcher from applied study, 2016

Figure No.(4-5) interprets that there were (5) out of (20) of the respondents with percentage (25.0%) strongly agreed that "Sudanese University majoring in English mispronounce some of the English consonants which have no counterparts in Arabic". While (11) of the them with percentage (55.0%) agreed on that. Only one teacher with percentage (5.0%) was neutral and (2) of the respondents with percentage (10.0%) disagreed. Whereas just one teacher with percentage (5.0%) strongly disagree about that.

Question No.(8):

"Sudanese students mispronounce some of the English vowels which have no counterparts in Arabic ."

Table No. (4-8) presents the frequency distribution for the respondents' answers about question No.(6).

Table No.(4-8)

The frequency distribution for the respondents' answers about Question No (8)

Answer	Number	Percent
Strongly Agree	6	30.0
Agree	7	34.0
Neutral	1	5.0
Disagree	5	25.0
Strongly disagree	1	5.0
Total	20	100.0

Source: The researcher from applied study, 2016

Table No.(4-8) revealed that there were (6) out of (20) of the respondents of the questionnaire; with percentage (30.0%) have strongly agreed that "Sudanese students mispronounce some of the English vowels and (7) of them with percentage (35.0%) agreed on that. While only one teacher with percentage (5.0%) was not sure about that, and (5) of the respondents with percentage (25.0%) disagreed about that. Only one teacher with percentage (5.0%) has strongly disagreed about that.

Question No.(4.9):

"The number of hours allocated for phonology courses at university is not adequate ."

Table No. (4-9) shows the frequency distribution for the respondents' answers about question No.(9).

Table No.(4.9)

The frequency distribution for the respondents' answers about question No.(9)

Answer	Number	Percent
Strongly Agree	3	15.0
Agree	8	40.0
Neutral	3	15.0
Disagree	4	20.0
Strongly disagree	2	10.0
Total	20	100.0

Source: The researcher from applied study, 2016

From the table No.(4-9) it appears that there are (3) of the respondents in the study's questionnaire with percentage (15.0%) strongly agreed that "The number of hours given to phonology courses for Sudanese University students majoring in English in not adequate ". And (8) teachers with percentage (40.0%) have agreed on that. Whereas (3) of the respondents with percentage (15.0%) were not sure about the answer. Four of the teachers with percentage (20.0%) disagreed about that. While two of them with percentage (10.0%) have strongly disagree.
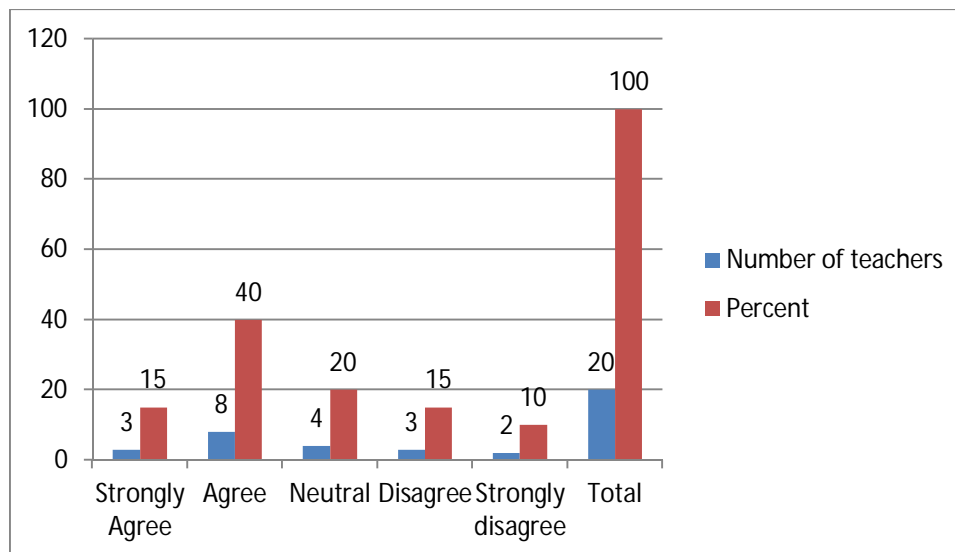
Question No.(10):

"The English syllabus at university does not put in account the differences between English and Arabic sound systems."

Figure No. (4-9) shows the frequency distribution of the respondents about question No.(10).

Figure No.(4.6)

The frequency distribution for the respondents' answers about question No.(10)

The figure No(4.6) shows that there are three of the respondents with (15%)Strongly agreed that "The English syllabus at university does not put in account the differences between English and Arabic sound systems''

And eight of them with 40% percentage agreed about that. Four of the teachers were neutral with (20%) and three of them with (15%) disagree about that. Whereas only two of the respondents of the questionnaire chose the answer "strongly disagrees".

Analysis of Open –ended questions of the questionnaire:

The open- ended question of the questionnaire consisted of four questions which were formed to explicit the teachers' opinion on the problem.

Question No1:

During your teaching, which of the English consonants do your students mispronounce frequently? If there are any, could you write some example of them? The following consonants were identified by some of the teachers as

problematic consonants with different percentages ; (/ʒ/ with 50%),(/ v/ with 60%),(/P/ with(70%).In addition there were other consonants assigned with low percentage of teachers as consonants that they notice students utter incorrectly .These sounds are as follows with their percentages respectively;(/g/ with 10% ,/ŋ/ with (15%)/, ʧ /(45%) /θ/ (30%), / ð/ (25%).

Question No.(2):

Which of the English vowels do you notice your students find difficult to pronounce the most? (If you notice any, please write some examples). The following vowels were identified with different percentage of the teachers as vowels that students have difficulty in pronouncing them;/ ɜ: /with 60%, /æ/ with 55% /ʌ/ 66% /ɔ:/ 55 % / əʊ/ with %/e /(40%), /eɪ / (10%),/ə/ (45%), /ɔɪ/ (10%) ,/aʊ/ (10%),/ɒ/ with 65% /ɛə/ with /65%, /ɪə / with 60% /ʊə/ with 55% .(I:%) ,/ɑ:/(10%), /u:/ (10%) .

Question No3:

In your opinion, why do students have difficulty with English Vowels? Ten of the teachers attributed the difficulty with English vowels to the absence of most of these vowels in the students first language (Arabic) while six of them thought the problem is due to the lack of practice .Two of the teachers considered the big number of English vowels the main reason behind vowels difficulty whereas one teacher thought the problem occur because students do not pay more attention to pronunciation. On the other hand, a teacher attributed the difficulty to the similarity of English vowels which make the students confused between them.

Question No.(4) :

According to your answers above, could you please, suggest any possible solutions to eliminate university students' 'pronunciation difficulties in general?

Regarding question No.(4) ,the teachers' different suggestions are summarized as follows ;Emphasizing the none equivalent sounds during teaching and learning pronunciation , encouraging students to do more practice on those sounds , increase the numbers of hours allocated for phonology ,using interactive teaching and language labs.

4.3 Verification of the research hypotheses:

To test the study hypotheses, the results of both students test and teachers' questionnaire will be checked. In order to check satisfaction of the study objectives and to test its hypotheses, the Median and Non-parametric Chi-square test were used for teachers' questionnaire. This means, in accordance with the statistical analysis requirements, transformation of nominal variables to quantitative variables. After that, the non-parametric chi-square test was used to know if there are statistical differences amongst the respondents' answers about hypotheses questions .To test each hypothesis, the trend of respondents' opinions about each question from the hypothesis's questions is known , and then for all questions. The median is computed, which is one of the central tendency measures, that used to describe the phenomena, and it represents the centered answer for all respondents' answers after ascending or descending order for the answers. Five degrees were given for the answer "strongly agree", four degrees for each answer "agree", three degrees for each answer " neutral", two degrees with each answer "disagree", and one degree for each answer with "strongly disagree". The same was applied for the rank scale questions. Eventually, the overall median was calculated. As mention the there are some respondents' answers disagreed with the hypotheses questions. So, to test the statistical significance of the differences among the answers of the respondents for the hypotheses, the non-parametric chi-square test was used to test if there are

statistical differences amongst the respondents' answers about the hypotheses questions. Then verification of each certain hypothesis is described separately.

Table No.(4-10)

The median of respondents' answers about the questions of the first hypothesis

No	Question	Median
1	Q1: To what extend do you think the sound systems differences between English and Arabic cause pronunciation problems for the students?	4
	Q .The differences between Arabic and English in consonants and vowels impact students' English pronunciation.	4
	Overall	4

To test this hypothesis, the trend of respondents' opinions about each question had to be known from the questions related to the hypothesis, and for all questions. The median was computed. The table No. (4-10) shows that the overall calculated value of the median for the respondents' answers of the 1st question is (4). This value means that, most of the respondents agreed that the sound systems difference between English and Arabic cause pronunciation problem for the students. The value of chi-square test for the significant differences among these answers was (27.232) which is greater than the tabulated value of chi-square at the degree of freedom (3) and the significant value level (1%) which was (11.34). According to what mentioned this indicates

that, there are statistically significant differences at the level (1%) among the answers of the respondents which support the teachers who agree on the questions related to the first hypothesis.

Table No.(4-11)

The median of respondents' answers about the questions of the second hypothesis

"Some of the English consonants which have no counterparts in Arabic are problematic for Sudanese University Students.''

No	Question	Median
1	T o what extend do English consonants which do not exist in Arabic cause pronunciation problems for the students?).	4
2	Sudanese University students majoring in English mispronounce some of the English consonants which have no counterparts in Arabic.	4
	Overall	**4**

Table No (4.11) shows that the calculated value of the median for the respondents' answers about the all questions that related to the second hypothesis is (4). This value, in general, means that most of the respondents' have agreed with all what mentioned about the second hypothesis.

"The calculated value of chi-square for the significance of the differences for the respondents' answers significant value level (1%) which was (13.28). According to what mentioned this indicates that, there are statistically significant

differences at the level (1%) among the answers of the respondents, which support the respondents who have agreed with that.

Table No.(4-12)

The median of respondents' answers about the questions of the third hypothesis

"Sudanese University students confused most some of English vowels which are extremely   different from Arabic vowels."

No of question in questionnaire	Question	Median
1	T o what extend do English vowels which do not exist in Arabic cause pronunciation problems for the students?	4
2	Sudanese University students majoring in English mispronounce some of the English vowels which have no counterparts in Arabic.	4
	Overall	**4**

The table No(4.12) demonstrates that the overall calculated value of the median for the respondents' answers of the   questions of the third hypothesis is (4). This value means that, most of the respondents' agree with the hypothesis that undergraduates confused most some of   English vowels which are extremely different from Arabic vowels. The calculated value of chi-square for the significance of the differences for the respondents' answers in the questions was (26.80) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (1%) which was (13.28).

According to what mentioned in table No.(4.12), this indicates that, there are statistically significant differences at the level (1%) among the answers of the

respondents, which support the respondents who have agree with questions which support this hypothesis.

Table No.(4-13)

The median of respondents' answers about the questions of the fourth hypothesis

"The English language syllabus as a major subject at University doesn't deal adequately with the phonology component.''

No of question	Question	Median
1	To what extend does the English syllabus at university emphasize pronunciation?"	**4**
2	The number of hours allocated to phonology courses at university is not adequate.	**3**
3	To what extend does the English syllabus as a major subject at university includes comparative linguistics concerning English and Arabic phonology"?	**4**
4	The English syllabus at university does not put in account the differences between English and Arabic sound systems?	**4**
	Overall	**4**

Source: The researcher from applied study, 2016

As shown in table No.(4.13) the overall calculated value of the median for the respondents' answers of the questions of the fourth hypothesis is (4). This value means that, most of the respondents' agree that **"The English language syllabus as a major subject at university doesn't deal adequately with the phonology component.''** The calculated value of chi-square for the significance of the differences for the respondents' answers in the 2nd question was (21.60) which is greater than the tabulated value of chi-square at the degree of freedom

(4) and the significant value level (1%) which was (13.28). According to what mentioned in table No.(4-13), this indicates that, there are statistically significant differences at the level (1%) among the answers of the respondents, which support the respondents who have responded (Not much)with that "To what extend does the English curriculum at Sudanese universities emphasis pronunciation".

The calculated value of chi-square for the significance of the differences for the respondents' answers in the 1st question was (18.67) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (1%) which was (13.28). According to what mentioned in table no.(3-3), this indicates that, there are statistically significant differences at the level (1%) among the answers of the respondents, which support the respondents who answered(Not much) "To what extend do you think sound systems different between English and Arabic cause pronunciation problem for the students".

The calculated value of chi-square for the significance of the differences for the respondents' answers in the 4th question was (15.83) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (1%) which was (13.28). According to what mentioned in table No.(3-6), this indicates that, there are statistically significant differences at the level (1%) among the answers of the respondents, which support the respondents who answered(not much)s with that "To what extend does the English syllabus as a major language at university include comparative linguistics concerning the students first language phonology". The number of hours given to phonology courses for Sudanese university students majoring in English in not adequate". The calculated value of chi-square for the significance of the differences for the

respondents' answers in the 4th question was (17.31) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (1%) which was (13.28). According to what mentioned in table No.(3-8), this indicates that, there are statistically significant differences at the level (1%) among the answers of the respondents, which support the respondents who have agreed with the questions which support the fourth hypothesis .

Hypothesis No (1)

This hypothesis states that "The differences between English and Arabic in consonants and vowels cause pronunciation problems for Sudanese university students majoring in English."

The findings of the students' test in table (4.1) revealed that eleven out of (21) English consonants and vowels which have no counterparts in Arabic ;cause pronunciation problem which is a considered number .This result was supported by the results from the teachers' questionnaire table No.(4.10) which showed that there are statistically significant differences at the level (1%) among the answers of the respondents who agree on the questions related to this hypothesis .In addition, 60%of the teachers' 'opinions' of the open questions support this hypothesis .Therefore the study hypothesis which states that " The differences between English and Arabic consonants and vowels cause pronunciation problems for Sudanese University students" is fulfilled .

Hypothesis No.(2) :

The second hypothesis in this study states the following:" Some of the English consonants which have no counterparts in Arabic are problematic for the students ".Figure No(1.4) explore that three of the English consonants which are absent in Arabic (/ʒ/./p/./v/) were mispronounced with relatively high degree of difficulty with percentages (50,76.86) respectively. This is supported

by the result of the teachers' questionnaire from table No.(4.11) which showed that the calculated value of the median for the respondents' answers about the all questions that related to the second hypothesis is (4). This value, in general, means that most of the respondents' have agreed with all what mentioned about the second hypothesis. There were statistically significant differences at the level (1%) among the answers of the respondents which support the respondents who have agreed with the questions which support the second hypothesis. This result is reinforced by teachers' opinions of the open question No. (1) Which showed that three out of (6) of the consonants which have no Arabic equivalents were identified as problematic by the teachers? From above, we note that the second hypothesis which claims that "some of the English consonants which have no counterparts in Arabic are problematic for Sudanese university Students" is satisfied.

Hypothesis No.(3)

This hypothesis states that" Sudanese University students find difficult to pronounce some of the English vowels which are extremely different from Arabic vowels" .The findings from the figure (4.2) showed that eight of the English vowels out of (15) vowels which have no counterparts in Arabic were problematic with different degree of difficulty .This is considerable number supported by the results of teachers' questionnaire. Table No.(4.12) revealed that the overall calculated value of the median for the respondents' answers of the questions of the third hypothesis is (4). There are statistically significant differences at the level (1%) among the answers of the respondents, which support the respondents who agreed with questions which confirm this hypothesis and the answers of the open questions which revealed that the teachers identified (11) of out of (15) of the English vowels which do not exist

in Arabic as vowels that they noticed their students mispronounce frequently. Hence, the study hypothesis which stated that "Sudanese University students find difficult to pronounce some of the English vowels which are extremely different from Arabic vowels"is fulfilled.

Hypothesis No. (4):

This hypothesis states that "The English language syllabus as a major subject at University doesn't put into account the differences between English and Arabic sound systems". As shown in table No.(4.13) the overall calculated value of the median for the respondents' answers of the questions of the fourth hypothesis is (4) with statistically significant differences at the level (1%) among the answers of the respondents. This value means that, most of the respondents' agree with questions which support the fourth hypothesis .Therefore, the study hypothesis which states that **"**The English language syllabus as a major subject at University doesn't put into account the differences between English and Arabic sound systems." is fulfilled.

4.4 Summary of the Chapter :

The chapter has provided firstly the validity and reliability of the study tools. Secondly, the obtained data of the student' tests and the teachers' questionnaire was analyzed and discussed with illustrating tables and figures. Finally the hypotheses of the study were tested and verified in relation to the findings.

CHAPTER FIVE

Summary of the Study, Findings, Conclusions, Recommendations, and Suggestions for Further Studies

Introduction:

This chapter provides the summary of the study ,the findings of the research and conclusions .In addition, the chapter lists the recommendations based on the study results, and then presents the suggested further studies that may be completing to the current dissertation.

1.5 Summary of the Study:

The study aimed at investigating the differences between English and Arabic in consonants and vowels and their effect on Sudanese university students' pronunciation .The researcher hypothesized that the differences between English and Arabic in consonants and vowels affect students' pronunciation .The study adopted descriptive analytical method in the sense that it describes and analyzes the causes of the problem via statistical analysis of the gathered data. To obtain the required data for the study, the first tool used was an oral test presented to 50 third year students of the majoring in English at Faculty of Arts, Khartoum University .The second tool was a structured questionnaire was conducted to 20 English teachers of the field at the same university. The validity and reliability of the study tools were confirmed statistically. The analysis of the collected data revealed that the differences between English and Arabic in consonants and vowels affect students' pronunciation. This influence appeared in mispronunciation of the students of some of the English consonants and vowels which do not exist in Arabic. The results also showed that the university syllabus does not sufficiently cope with

the differences between Arabic and English sound systems in addition the inadequacy of the number of hours allocated for phonology courses and in general pronunciation is not given the necessary emphasis. This requires to be considered when suggesting solutions for pronunciation problems.

5.2The main Findings of the Study:

The results of the collected data from the students' oral test and the teachers' questionnaire demonstrate that three out of the six of the target consonants were mispronounced with high percentage. That means half of the English consonants which do not exist in Arabic are considered problematic for the prospective learners .These consonants were identified as p/ and/ v/ and /ʒ/ with percentages of mispronunciation 86%, 76%, 50% respectively. In addition the findings revealed that (8) out of the (15) target vowels were pronounced incorrectly with different significant averages which identified them as problematic vowels for the students. These vowels were /ɜː/,/æ/,/ɔː/,/ɒ/,/ɛə/,/ɪə/,/əʊ/,/ʊə/.On the other hand, the study also displayed that some of the consonants and vowels which have no Arabic equivalents did not pose difficulties for the students. Whereas others were mispronounced with low percentage .These sounds were;(/g/, /ŋ/, /ʧ/, /e/, /eɪ/ , /ʌ/, /ə/, ʊ/,/ɔɪ,/aʊ/.This raises a question why these sounds specifically were not difficult for the students, in spite of their absence in Arabic It appears from the general results of the study that (11) out of 21 of the target English consonants and vowels that have no Arabic counterparts are problematic for the university students .That is a considerable number which leads to the conclusion that the differences between English and Arabic in consonants and vowels affect English pronunciation of Sudanese university students majoring in English. In addition to the effect of the differences between English and Arabic consonantal and

vocalic systems on students' pronunciation; the study revealed that the English syllabus at university does not deal sufficiently with the phonology components. The inadequacy appears in disregarding of the sound system differences between English and Arabic and the meager of hours assigned for phonology courses.

5.3 Conclusions:

The study focused mainly on mispronunciation problems related to the difference between Arabic and English consonants and vowels .The results showed that the students   were encountered by problems with some of those consonants and vowels which have no Arabic counterparts. However, as stated in the previous section not all of the English sounds that do not have Arabic counterparts were difficult to pronounce .E.g. the consonants /ŋ/and the vowel /e/ were pronounced correctly by all students. Moreover, it was observed from the analysis that some problematic consonants have been constantly replaced by other English sounds which exist in Arabic. E.g. the voiceless bilabial consonant /p/ was modified to the voiced bilabial / b/ and the voiced labiodentals consonant /v/ was replaced by the voiceless labiodentals/ f/ .As for vowels, the findings revealed that the alternative sounds were not consistent. Each vowel was substituted by different vowels by each student .Nevertheless, whether the subrogated sounds were the same by all students or not, it appears that the students tend to replace the sounds that do not exist in their language with the English sounds that has Arabic Equivalents. Therefore, it will be helpful if the teachers reinforce these problematic consonants and vowels during teaching and learning pronunciation. Also emphasizing the manner and place of articulation of these sounds and contrasting them with the regularly replaced sounds may raise students' awareness of the difference between them. Hence, enable

students to do self-correction for the mispronounced consonants and vowels. In addition, doing contrastive study regarding the sound systems of English and Arabic is likely to be of great importance to eliminate English pronunciation problem related to the differences between the two languages.

5.4 Recommendations:

Based on the study findings the following recommendations are viewed by the researcher.

-Raising students' awareness of the differences between Arabic and English in consonants and vowels by incorporating contrastive analysis of English and Arabic in phonology and phonetics courses for students majoring in English at university. This is could be helpful in acquiring   problematic sounds.

-Stimulating students to do more practice on the vowels and consonants that are difficult to pronounce.

-Encouraging students to make use of the available technology to expose themselves to native English speaking e.g. listening to native English broadcasts, TV channels, etc.

-Integrating listening to enhance learning pronunciation and using available technological resources at university; language labs multimedia, etc.

-Updating phonology courses and strategies of learning pronunciation.

-Updating methods of assessing pronunciation.

-Teaching and learning pronunciation rules especially for problematic sounds

5.5 Suggestions for Further studies:

The following proposed topics could be complementary studies to the present research:

-Investigating the relationship between different spelling and pronunciation difficulty of the English vowels for Sudanese learners.

-Investigating the effect of supra segmental differences between English and Arabic on Sudanese students' English pronunciation.

-Investigating the relationship between different distribution and pronunciation difficulty of the English consonants for Sudanese learners of English.

-Investigate the influence of different distribution on pronunciation of English consonants that has no Arabic equivalent for Sudanese learners.

-Investigating impact of the absence of consonants cluster in Arabic on English consonants cluster pronunciation.

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Appendices

Appendix 1

Students' Oral test word list

The single words of the test includes the (21) target English consonants and vowels that do not exist in Arabic in isolate which is predicted to cause difficulty for the respective subjects. The students have to read each word separately one after one.

No	Target Sound	Word
1	ʒ	Measure
2	ɡ	garage
3	ŋ	Angry
4	ʧ	change
5	P	Cap
6	v	Favor
7	e	Mell
8	eɪ	Mail
9	ɜ:	Fur
10	æ	apple
11	ʌ	Cup
12	ə	corner
13	ɔ:	Saw
14	əʊ	*Sew*

15	ɒ	*Pot*
16	ʊ	Put
17	ɔɪ	Boil
18	ɛə	*Hair*
19	ɪə	*Fear*
20	aʊ	*loud*
21	ʊə	Pure

APENDIX2

Oral test for Students-Researcher Script

The script includes the target sounds .It is used to enable the researcher to

analyze students' performance of pronunciation.

No	Target sound	word	inaccurate x	Replaced sound	Note
1	ʒ	Measure			
2	ɡ	garage			
3	ŋ	Angry			
4	ʧ	change			
5	P	Cap			
6	v	Favor			
7	e	Mell			
8	eɪ	Mail			
9	ɜː	Fur			
10	æ	apple			
11	ʌ	Cup			
12	ə	corner			
13	ɔː	Saw			
14	əʊ	*Sew*			
15	ɒ	*Pot*			
16	ʊ	Put			
17	ɔɪ	Boil			
18	ɛə	*Hair*			
19	ɪə	*Fear*			
20	aʊ	*loud*			
21	ʊə	Pure			

Appendix3

Teachers' Questionnaire

Sudan University of Science & Technology

College of Graduates studies

PhD in English (Applied Linguistics)

This questionnaire is designed for research purpose .The researcher kindly requests audiences' responses in order to achieve the objectives of the study.

Question -1

1-To what extend do you think the sound systems differences between English and Arabic cause pronunciation problems for the students?

largely [   ]   Not much   [   ] Not sure [   ] Not at all   [   ]

2-(T o what extend do English consonants which do not exist in Arabic cause pronunciation problems for the students ?)

3- T o what extend do English vowels which do not exist in Arabic cause pronunciation problems for the students ?)

largely [   ]   Not much   [   ] Not sure [   ] Not at all   [   ]

4- To what extend does the English syllabus at university emphasize pronunciation?" ?). ?). (Hpothesis4)

 Not much [   ]   largely   [   ] Not sure [   ]   Not at all [

5- "To what extend does the English syllabus as a major subject at university includes comparative linguistics concerning English and Arabic phonology".

Not much   [   ] largely [   ] Not sure [   ]   Not at all [   ]

Question -2

1-The   differences between Arabic and English in consonants and vowels impact   students' English pronunciation.

Strongly agree [ ] Agree [   ] Neutral [   ] disagree [   ] Strong disagree [   ]

2- Sudanese University students majoring in English mispronounce some of the English consonants which have no counterparts in Arabic.

Strongly agree [   ]   agree [   ] Neutral [   ] disagree [   ] Strongly disagree [   ]

3-Sudanese students mispronounce some of the English vowels which have no (Hpothesis3)counterparts in Arabic. Strongly agree [   ]   agree [   ]

Neutral [   ] disagree [   ]   Strongly disagree [   ]

4- The number of hours allocated to phonology courses at university is not adequate . Strongly agree [   ]   agree [   ]   Neutral [   ] disagree [   ]

Strongly disagree [   ]

5- The English syllabus at university does not put in account the differences
   between English and Arabic sound systems ?

Strongly agree [   ]   agree [   ]   Neutral [   ] disagree [   ]   Strongly
   disagree [   ]

1-During your teaching, which of the English consonants do your students mispronounce frequently? If there are any, could you write some example of them?

2-Which of the English vowels do you notice your students confused the most?
(if you notice any ,please write some examples).-------------------------------------
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3- In your opinion, why do students have difficulty with English Vowels?

4-Acorrding to your answers above, could you please, suggest any possible
solutions to eliminate university students 'pronunciation difficulties in general?