PHONOLOGICAL CHARACTERISTICS OF FARSI SPEAKERS OF ENGLISH AND L1 AUSTRALIAN ENGLISH SPEAKERS' PERCEPTIONS OF PROFICIENCY

Mahnaz Hall

A Research Project Submitted in Partial Fulfilment of the Requirements for the Award of Master of Arts (TESOL)

November 2007

ABSTRACT

This study investigates the extent to which phonological characteristics of Farsi speakers of English interfere with their intelligibility when they interact with L1 Australian English speakers. Many students who are learning English within Iran, as well as Farsi speakers of English abroad, have difficulties in pronunciation that have an effect on their intelligibility when they interact with L1 English speakers. This study examines L1 Australian English speakers' perceptions of the effect of pronunciation on intelligibility of Farsi speakers of English. A sample of four Farsi speakers of English and five L1 Australian English speakers participated in this research. The research method included an unstructured interview, twenty sentences that contained specific phonemes, and ten sentences including consonant clusters. The Farsi speakers of English were invited to participate in the process by attending an interview and reading aloud the two sets of sentences whilst being tape recorded. Then, the L1 Australian English speakers were invited to listen to the tape recording of the Farsi speakers of English and answer the three sets of questions accordingly. The findings demonstrated that the phonemes and consonant clusters which do not exist in the Farsi sound system and syllable structure caused difficulties for Farsi speakers of English to a varying degree.

DECLARATION

This project contains no material which has been accepted for the award of any other degree or diploma in any university.

This project contains no material previously published by any other person except where due acknowledgment has been made in the text.

Signature: Mahnaz Hall

Date: November 2007

DEDICATION

This language project is dedicated to my beloved husband John for his constant

support and encouragement of my academic pursuits.

ACKNOWLEDGMENTS

PREFACE

This study stems from an understanding of the difficulties experienced by Farsi learners of English from the author's perspective as an EFL teacher within Iran, at Government High Schools and English Language Institutes over a period of seven years. Further to this, after immigrating to Australia, the author found that Farsi speakers of English who had lived here for many years still had similar difficulties in pronunciation that were prevalent in Farsi learners of English in Iran. On many occasions, the author overheard them complaining that they were often asked by Australians to repeat themselves in conversation, or were treated impatiently by those who could not understand the questions or requests that they had expressed.

By noting the extent of these problems, the author decided to conduct a research project to identify the phonological errors by focusing on the 'segmental features' of Farsi speakers of English in Australia. It is hoped that the findings of this research present to EFL teachers, specifically Iranian EFL teachers, a set of general ideas about the possible problems that Farsi speakers of English may encounter in pronunciation. Furthermore, by teachers being aware of the likely problems to be incurred by the students' lack of familiarity with certain phonemes, EFL teachers can accommodate these problems by allowing more time to focus on phonemes that are likely to cause problems.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

It is reasonable to accept that L1 English speakers can recognize the foreign accents of non-L1 English speakers, such as the Chinese accent, Italian accent, and Farsi accent which may affect the intelligibility of certain sounds, but more often it conveys the fact that they are not L1 English speakers. In other words, a foreign accent is the constant occurrence of the phonetic differences from the norms of a language which L1 speakers of that language recognise as unfamiliar to their own language sound system. In fact, learners with a foreign accent may be unintelligible in the sense that they are often misunderstood, or they may be intelligible but understanding them requires more effort.

It is generally accepted that intelligibility is the most appropriate goal for learners. Fraser (2000, p.10) claims that learners of English as a Second Language (ESL) need to be able to "speak English with an accent, or accents, of their choice which is easily intelligible to an ordinary Australian English speakers of average good will." Indeed, intelligibility is the degree to which a listener can understand what is being said, or in the words of Kenworthy (1987, p.13) "intelligibility is being understood by a listener at a given time in a given situation."

A major difficulty facing almost any ESL/EFL learner is the achievement of acceptable pronunciation that enables them to be understood by the L1 English speakers. In fact, many of these learners master the elements of language such as

syntax, morphology, or even semantics to the level of almost 'native-like' competence but often fail to master phonology. According to Avery and Ehrlich (1992) the nature of a foreign accent is determined to a large extent by the learners' L1. In other words, the sound system and syllable structure of the L1 have some influence on the speech or production of the L2. To support this view further, Swan and Smith (1987, p. x) suggest that the pronunciation errors made by L2 learners are considered not to be just random attempts to produce unfamiliar sounds, but rather reflections of their L1 sound system.

Such observation of L2 pronunciation errors mentioned would naturally suggest the critical need for ESL/EFL teachers to become more aware of the impact that the learners' L1 sound system and syllable structure will bring to the learning of English pronunciation. To achieve this awareness, Contrastive Analysis can convey insights into the differences and similarities between the L1 and L2 phonological characteristics. In fact, with the application of Contrastive Analysis, ESL/EFL teachers can find out on which particular phonological characteristics of English they should concentrate their efforts on. Put simply, Contrastive Analysis contributes to our knowledge of language structure and the relations obtained between language systems. Therefore, many language teachers from every part of the world would find Contrastive Analysis useful in dealing with the learning difficulties of their students, especially in phonological aspects of the language.

It should be noted that the focus of this study is only on the segmental features of phonology which contribute to 'naturalness' and intelligibility of the language. However, suprasegmental features have a contribution to intelligibility of L2

speakers which cannot be denied; although, according to James (1976), some listeners may not be able to assess the suprasegmental features of L2 speakers such as intonation, pitch, and stress without at the same time being influenced by segmental substitutions.

Another phonological aspect considered in this study is functional load that was used to measure the extent of the difficulty of particular sounds. The term 'functional load' refers to the extent to which a given sound in a language is used to distinguish one word from another. According to King (1967, p.831) functional load "is a measure of the number of minimal pairs which can be found for a given opposition." For example, the fact that Korean speakers of English ordinarily have great difficulty pronouncing /f/ in English is that the phoneme /f/ is absent in the Korean sound system, and subsequently /f/ is substituted with /p/ that exists in their sound inventory which may indicate the high functional load of this phoneme. To give another example of this, in the case of L1 Australian English speakers that often have great difficulty pronouncing word-initial /ŋ/ in Vietnamese names, follows the fact that /ŋ/ does not occur in word-initial position in English, and subsequently could have high functional load. It should be noted that the author has identified the functional load of the phonemes that were predicted to have caused difficulties for Farsi speakers of English in Chapter 5.

1.1 Aim of the research

This study investigates the extent to which phonological characteristics of Farsi speakers of English interfere with their intelligibility when they interact with L1 Australian English speakers. In addition, the study aims to examine L1 Australian

English speakers' perceptions of the effect of pronunciation on intelligibility of Farsi speakers of English.

It should be noted that there is no evidence that any research has ever been conducted relating to the intelligibility of Farsi speakers of English when they interact with L1 speakers of English. However, there have been some similar studies conducted in this field on the intelligibility of Brazilian/Portuguese, German, and Korean learners of English in similar and dissimilar sounds by other researchers such as Major (1987) who completed a study on Brazilian/Portuguese learners of English; Bohn and Flege (1992) who conducted a research on advanced German learners of English, and Major and Kim (1999) who completed a study on beginning and advanced Korean learners of English. It should be mentioned that the author of this paper compares the findings of these three studies with the results of the findings of the current study in Chapter 5.

As mentioned earlier, due to the lack of research in this field on Farsi speakers of English and observing the extent of the problems that these speakers experienced in pronunciation, the author of this paper decided to conduct the present study to identify the phonological errors by focusing on segmental features of Farsi speakers of English in Australia. It was hoped that the findings of this research present to EFL teachers, specifically Iranian EFL teachers, a set of general ideas about the possible problems that Farsi learners of English may encounter in pronunciation.

CHAPTER 2

BACKGROUND AND LITERATURE REVIEW

In this chapter, the backgrounds of the Farsi and English language syllable structures and sound systems are presented; furthermore, the author has provided a literature review of the Contrastive Analysis Hypothesis and a detailed overview of the hierarchy of difficulty. According to the information that has been gathered on both languages, the author completed a comparison between English and Farsi language syllable structures and sound systems. As a result of this comparison, the problematic areas that are responsible for pronunciation errors of Farsi speakers of English have been identified.

2.1 Background of Farsi Language Syllable Structure and Sound System

2.1.1 Farsi Syllable Structure

Farsi, also known as Persian, is a widely spoken member of the Iranian branch of the Indo-European languages and a subfamily of the Indo-Iranian languages. It is the national language of Iran, and is also widely spoken in countries like Afghanistan and, in an archaic form, in Tajikistan and the Pamir Mountain region. In addition, there are other minority groups of native speakers in many other places of the world including Europe and North America. It is estimated that there are over 40 million Farsi speakers in the world (Farsinet, n.d.).

Many languages of the world, like English and Farsi, are alphabetic in the sense that they represent their vowels and consonants in the form of letters in their orthography. In these languages, words are composed of one or more syllables.

Every syllable has an obligatory nucleus which is usually a vowel (if there is no vowel, it maybe a syllabic liquid or nasal); moreover, the nucleus may be preceded by one or more phonemes called the onset, and sometimes followed by one or more segments called the coda. It should be noted that both onset and coda are variant elements. Now, we can identify that "the syllable consists of one obligatory vowel potentially surrounded by consonants" (Collins & Mees, 2003, p. 72). Therefore, a vowel functions as the syllable nucleus and a consonant occurs at the margins of the syllable.

According to Windfuhr (1979, p. 529), Farsi is characterized as a syllable-timed language. In other words, the syllables are said to occur at approximately regular intervals of time, and the amount of time it takes to say a sentence depends on the number of syllables in the sentence, not on the number of stressed syllables as in stress-timed languages like English and German. Furthermore, Farsi syllables always take one of these patterns (i.e., CV, CVC, or CVCC) presented in Table 2.1 below:

FARSI SYLLABLES	EXAMPLES
CV	ma/**mɒ**/ meaning 'we'
CVC	toop/**tup**/ meaning 'ball'
CVCC	mard/**mærd**/ meaning 'man'

Table 2.1: Farsi Syllable Structure

As shown in Table 2.1, the syllable structure of Farsi can only be presented as CV (C) (C) which identifies that Farsi syllables cannot be initiated with vowels, even words that start with a vowel include the glottal stop /ʔ/ as the syllable onset: e.g.

'abru' /ˈʔæbru/ meaning ˈeyebrowˈ. Another interesting observation is that syllable-initial consonant clusters are impossible in Farsi and syllable-final consonant clusters normally take no more than two consonants in their structure.

2.1.2 Farsi Sound System

2.1.2.1 Consonants

In an overview of the Farsi sound system, its alphabet is based on Arabic which is a consonantal system and contains thirty two letters: twenty three consonants and six vowels. Of the six vowels, there are three lax vowels (/a/, /e/, /o/) and three tense vowels (/æ/, /i/, /u/) as well as two diphthongs /ei/, /ou/ and a total of twenty nine phonemes (Windfuhr, 1979, p.526 & Samareh 2000, p.85). The classification of Farsi consonants according to place of articulation (horizontal column) and manner of articulation (vertical column) is given in Table 2.2 followed by the examples of Farsi consonants in words with English meanings in Table 2.3:

	Bilabial	Labiodent.	Dental	Postalv.	Palatal	Velar	Glottal
Plosive	p b		t d			k g	ʔ
Nasal	m		n				
Fricative		f v	s z	ʃ ʒ		x ɣ	h
Affricate				tʃ dʒ			
Trill			r				
Approximant					j		
Lateral Approximant			l				

Table 2.2: (Farsi Consonants), International Phonetic Alphabet (IPA), 1999, p. 124

p	/p̱or/	ˈfullˈ	d	/ḏir/	ˈlateˈ	k	/ḵæm/	ˈlittleˈ
b	/ḇɒm/	ˈroofˈ	n	/ṉɒṉ/	ˈbreadˈ	g	/g̱uni/	ˈsackˈ
m	/m̱æn/	ˈIˈ	s	/s̱ærd/	ˈcoldˈ	χ	/χ̱æm/	ˈsorrowˈ
f	/nɒf̱/	ˈnavelˈ	z	/ẕir/	ˈbelowˈ	ɣ	/ɣ̱uri/	ˈpotˈ
v	/gɒv̱/	ˈcowˈ	ʃ	/ʃ̱en/	ˈsandˈ	ʔ	/tæʔ̱sir/	ˈimpressionˈ
r	/ṟʊz/	ˈdayˈ	ʒ	/ʒ̱ærfa/	ˈdepthˈ	h	/kɒẖ/	ˈhayˈ
l	/siḻi/	ˈslapˈ	tʃ	/ṯʃin/	ˈcreaseˈ	j	/j̱ek/	ˈoneˈ
t	/ṯir/	ˈarrowˈ	dʒ	/ḏʒɒn/	ˈsoulˈ			

Table 2.3: Examples of Farsi Consonants in Words with English Meanings

As shown in Table 2.2, of the seven plosives /p, b, t, d, k, g, ʔ/ in the horizontal column, /p, t, k/ are voiceless and strongly aspirated in all positions; /**b**/ and /**g**/ are voiced and slightly palatalized initially and medially before front vowels and in syllabic-final position; /t/ and /d/, voiceless and voiced, have dental-alveolar articulation, and /ʔ/ is voiceless glottal post-velar. Another observation is that Farsi has nine fricatives as follows: /**f, v, s, z, ʃ, ɣ, ʒ, χ, h**/**.** Four /**f, χ, h, v**/ are plain and the rest are complex; /**v, z, ʒ**/ are voiced, whilst /**f, s, ʃ, ɣ, χ, h**/ are voiceless. However, when /ɣ/ occurs at the beginning of a word and after nasals, it is realized as a voiced uvular plosive [ɢ] as in 'ghabul' /ɢæbul/ meaning ˈacceptanceˈ; otherwise, it is postvelar [χ] as in 'maghbul' /mæɣbul/ meaning ˈacceptedˈ. In addition, /**s**/ and /**z**/ have dental alveolar articulation.

Table 2.2 also shows that there are two nasals in the Farsi consonantal system: /**m**/ and /**n**/ which are categorized as plain voiced nasals; /**m**/ is bilabial, whilst /**n**/ has dental-alveolar articulation. There are also two affricates /**tʃ**/ and /**dʒ**/ which are voiceless and voiced respectively and have post alveolar articulation.

In considering the phoneme /**r**/, there are three different allophones for this phoneme in Farsi: the most common is [R], an unvoiced variant which occurs in final positions; e.g. [**p**æR] meaning 'feather'; [**ř**]**,** a flap variant which occurs inter-vocally; e.g. [**bɒřɒn**] meaning 'rain', and [**r**] a trill allophone which occurs initially and medially, e.g. [**ruz**] meaning 'day' and [**mærd**] meaning 'man'. Finally, in the bottom two rows of Table 2.2, there is also phoneme /**l**/ which is mainly considered as a clear /**l**/ in Farsi and has dental-alveolar articulation, and the approximant /**j**/ which is complex and voiced.

2.1.2.2 Vowels

Consonants and vowels are the basic elements of each language; furthermore, the difference in pronunciation of a word uttered by speakers of different languages is mainly due to the variations in vowels and the way they are pronounced. In Farsi, as discussed earlier, there are six distinct vowels demonstrated as three lax vowels (/**ɒ**/, /e/, /o/) and three tense vowels (/æ/, /i/, /u/). Since the lax vowels are not inscribed in Farsi, they can be pronounced with different vowel combinations which may create ambiguities for the learners of Farsi. For instance, the word 'krm' 'کرم' has five possible lexical elements and the reader determines the appropriate word to be used in the sentence from the context:

Root Form

كرم   k_r_m

Five words derived from the Root Form

كرم	/kɒrɒm/	'benevolence'
كرم	/kerem/	'cream'
كرم	/kɒrm/	'vine'
كرم	/korom/	'chrome'
كرم	/kerm/	'worm'

Moreover, Farsi vowels do not have any variation in length in formal speech; however, in informal speech when vowel length changes due to compensatory lengthening, the meaning of the word will not be affected. For instance, in these Farsi words 'begu'/**begu**/ 'tell'; 'gush' /**guʃ**/ 'ear'; 'gusht' /**guʃt**/ 'meat', we can change the length of vowels in each case and L1 Farsi speaker will understand it. The Farsi vowels are given in Table 2.4:
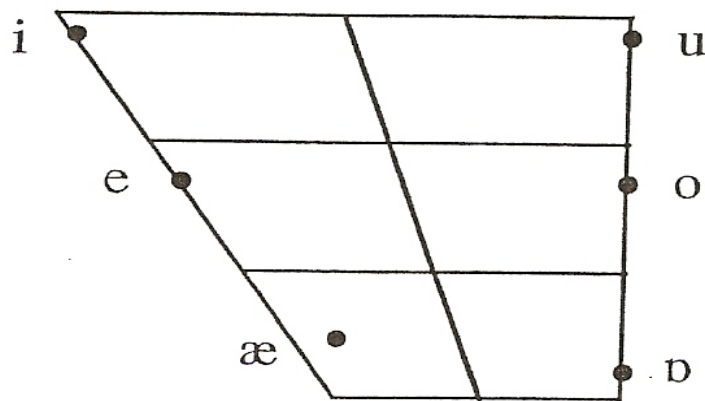
Table 2.4: (Farsi Vowels), International Phonetic Alphabet (IPA), 1999, p. 124

As shown in Table 2.4, of the three tense vowels /æ, **i, u,**/, /æ/ is a mid-front unrounded vowel which rarely occurs in word-final except for in /næ/ meaning ˈnoˈ; /**i**/ is a high-front-unrounded vowel, and /**u**/ is a high-back-round sound. In addition, of the three lax vowels /**ɒ, e, o**/, /ɒ/ is a low central unrounded vowel; /**e**/ is a mid-front-unrounded sound that also can be considered as a tense mid-front vowel depending on whether it is in an unstressed position or a stressed one, and finally, /**o**/ is a mid-back sound which does not occur frequently except for the pronoun 'to'/**to**/, meaning ˈyouˈ**.** To illustrate this further, the author has provided another table (Table 2.5) of Farsi vowels including examples that simplify these explanations:

		Front	Back	
High	[+Tense]	/i/ e.g. /**ki**/ meaning ˈwhoˈ	/**u**/ e.g. / **tu**/ meaning ˈinˈ	Rounded Vowels
	[-Tense]	----------------------------	----------------------------	
Mid	[+Tense]	----------------------------	----------------------------	
	[-Tense]	/**e**/ e.g. /**tʃe**/ meaning ˈwhatˈ	/**o**/ e.g. /**to**/ meaning ˈyouˈ	
Low	[+Tense]	/æ/ e.g. /næ/ meaning ˈnoˈ		
	[-Tense]	----------------------------	----------------------------	
			/ɒ/ e.g./**bɒ**/ meaning ˈwithˈ	

Table 2.5: Farsi Vowels

2.2 Background of English Language Syllable Structure and Sound System

2.2.1 English Syllable Structure

English language like Farsi is a member of the Indo-European languages and its system is alphabetic based on Latin which represents the vowels and consonants in the form of letters in its orthography. It should be noted that in alphabetic languages like English, the number of vowels that appear in the word can be used as an index for determining the number of syllables that make up the word.

According to Windfuhr (1979), English is characterized as a stressed-timed language. In stress-timed languages, the amount of time it takes to say a sentence depends on the number of syllables that receive stress. In English, possible syllable structures can be represented as (C) (C) (C) V (C) (C) (C) (C) where parentheses indicate variant insertion. This means that English permits up to three consonant clusters initially and four finally. For example, in a word like scrambles /**skræmblz/** three consonant clusters together at the beginning and four at the end to produce a CCCVCCCC syllable. A selection of possible vowel and consonant structures for English syllables is shown in Table 2.6:

ENGLISH SYLLABLES	EXAMPLES
V	I/**i**/
VC	am/æ**m**/
VCC	ant**/ænt/**
VCCC	asks**/æsks/**
CV	key/**ki**/
CVC	seek/**sik**/
CVCC	cattle/**kætl**/
CVCCC	pants**/pænts/**
CCV	tree**/tri/**
CCVC	speak/**spik**/
CCVCC	stamp/**stæmp**/
CCVCCC	trends **/trendz/**
CCVCCCC	trampled **/træmpld/**
CCCV	spree/**spri**/
CCCVC	scram/**skræm**/
CCCVCC	script/**skrɪpt**/
CCCVCCC	strands/**strændz**/
CCCVCCCC	scrambles **/skræmblz/**

Table 2.6: English Syllable Structure

As presented in the table above, consonant clusters can occur in both syllable-initial (onset) and syllable-final (coda) positions in English; moreover, unlike many languages like Turkish and Farsi, consonant clusters in English are not limited to two consonants, but they permit up to three consonant clusters initially and four finally. In addition, vowels can initiate syllables in English.

2.2.2 English Sound System

2.2.2.1 Consonants

In an overview of the English sound system, its alphabet is based on Latin which contains twenty six letters: twenty- four consonants; twelve vowels; eight diphthongs and a total of 44 phonemes (Sousa, 2005, p. 37). It should be noted that other authorities vary slightly from this, but the number is between 43 and 45 phonemes.

The classification of English consonants according to place of articulation (horizontal column) and manner of articulation (vertical column) is given in Table 2.7 below:

	Bilabial	Labio-dental	Dental	Alveolar	Post-alveolar	Palatal	Velar	Glottal	Examples
Plosive	p b			t d			k g		**p̱in ṯin ḵin** **ḇust ḏust g̱ust**
Affricate					tʃ dʒ				**c̱ẖeap j̱olly**
Nasal	m			n			ŋ		**seem̱ sceṉe siṉg**
Fricative		f v	θ ð	s z	ʃ ʒ			h	**f̱in ṯẖin s̱in s̱ẖin ẖit** **v̱an ṯẖe ẕoo meas̱ure**
Approximant				r		j	w		**ṟate y̱ell ẉell**
Lateral Approximant				l					**ḻate**

Table 2.7: (English Consonants), International Phonetic Alphabet (IPA), 1999, p. 41

As shown in Table 2.7, of the six plosives /**p, b, t, d, k, g**/ in the horizontal column, /**p, t, k**/ are voiceless; aspirated initially and medially before a stressed vowel in syllable-initial position and un-aspirated finally; medially after /**s**/ as in 'spy', 'sty', and 'sky', and before unstressed vowels. /**k**/ and /**g**/, voiceless and voiced, are slightly palatalized before front vowels. /**t**/ and /**d**/, voiceless and voiced, have dental-alveolar articulation; moreover, /**t**/ and /**d**/ have un-aspirated flaps inter-vocalically after a stressed syllable as in 'foot̲y' and 'ki̲d̲ding'. In fact, /**t**/ and /**d**/ in these words have voiced flaps, resembling /**r**/**.** Another observation is that English has nine fricatives as follows: /**f, v, θ, ð, h, z, s, ʃ, ʒ, h**/. The first five

/**f, v, θ, ð, h**/ are plain and the rest are complex; moreover, /**v, ð, z, ʒ**/ are voiced and the rest are voiceless. In addition, /**s**/ and /**z**/ have alveolar articulation.

Table 2.7 also shows that there are three nasals /**m, n , ŋ**/ in the English consonantal system which are categorized as plain voiced nasals. /**m**/ is bilabial; /**n**/ has dental-alveolar articulation, and /**ŋ**/ as a velar occurs finally as in ˈringˈ /**rɪŋ**/; and inter-vocalically as in ˈsingingˈ /**sɪŋgɪŋg**/**,** and pre consonantly as in ˈsingleˈ /**sɪŋgl**/, but never initially. Moreover, /**m, n, ŋ**/ have syllabic allophones [**m**], [**n**], and [**ŋ**] respectively**.** There are also two affricates /**tʃ**/ and /**dʒ**/ which are voiceless and voiced respectively and have post alveolar articulation.

In considering the phoneme /**r**/, after researching numerous resources, it was concluded that there is no agreement amongst the authors as to the number of allophones for the phoneme /**r**/; therefore, the author of this paper will only mention examples of the three that are considered to be the most important in a Contrastive Analysis of Farsi and English: an alveolar tap (sometimes called flap) [**ɾ**] is often found in British English when the phoneme /**r**/ occurs between vowels as in ˈveryˈ [**veɾɪ**]; retroflex tap [**ɽ**] as in ˈhardˈ [**haɽd**], and voiced continuative [**r**] which occurs elsewhere as in ˈsereneˈ [**se<u>r</u>in**]**.** Furthermore, the phoneme /**r**/ along with /**j**/ and /**w**/ are considered as approximant which are complex; /**j**/ has palatal, and /**w**/ has velar articulation.

Finally, in the bottom row of Table 2.7, there is one phoneme /l/ which has four allophones in English. Of these four allophones, two occur more frequently: clear /l/ that occurs syllable and word initially as in 'lamp' and after voiced consonants as in 'blast'; dark [ɫ] which occurs syllable and word finally as in 'canal' and inter-vocalically as in 'milk'. There are also two other allophones of /l/ which are dental /l̪/ as in 'stealth' and voiceless /l̥/ as in 'play'.

2.2.2.2 Vowels

After covering the twenty-four consonants in the English sound system, the author will discuss the English vowels here. It should be noted that there is disagreement amongst phoneticians as to the number of vowels that exist in English. Some signify that there are twelve; the majority classify them as eleven. Therefore, the author will only be covering the eleven vowels that appear in Table 2.8 below:
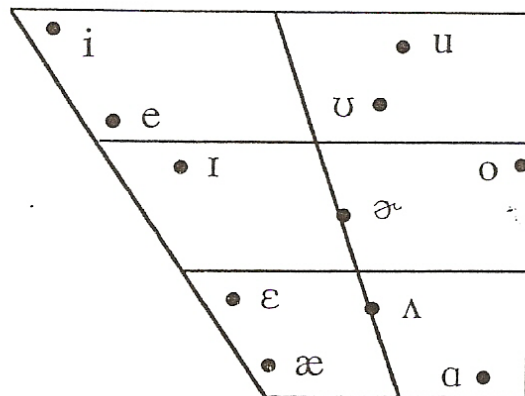
Table 2.8: (English Vowels), International Phonetic Alphabet (IPA), 1999, p. 42

As shown in Table 2.8, of the eleven English vowels, /**i, e, u, ʊ**/ are high; /**ɪ, ə, o**/ are mid, and /**ɛ, æ, ʌ,** ɑ/ are low; moreover, /**i, e, ə, u, o**/ are tense, whilst all others are lax. It should also be pointed out that English does have variation in vowel length; therefore, there are two major types of vowels (long and short) on the basis of their length. Long vowels are usually noticeable from short vowels in the duration of time that speakers spend in articulating them. In English, there are four long vowels /**i, u, o, ɛ**/ and seven short vowels /**e, ə, æ, ʌ,** ɑ, **ɪ, ʊ**/ which lack the length features. The author has provided another table (Table 2.9) of English vowels including examples to illustrate these explanations:

		Front	Central	Back	
High	[+Tense]	/**i**/ (l**ea**ve)		/**u**/ (**soon**)	Rounded Vowels
		-----------------------	----------------------	-----------------------	
	[-Tense]	/**ɪ**/ (l**i**ve)		/**ʊ**/ (w**oo**d)	
Mid	[+Tense]	/**e**/ (p**ay**)	/**ɚ**/ (s**ir**)	/**o**/ (b**oa**t)	
		-----------------------	----------------------	-----------------------	
	[-Tense]	/**ɛ**/ (**bet**)	/**ʌ**/ (**but**)		
Low	[+Tense]				
		-----------------------	--------------------	-----------------------	
	[-Tense]	/**æ**/ (**bat**)		/ɑ/ (**not**)	

Table 2.9: English Vowels

2.3 Contrastive Analysis

Comparing one language with another is not new in linguistics; many linguists have been comparing languages as they are used today to determine the differences and similarities between them. Since the 1940s, this kind of activity has been referred to as Contrastive Analysis.

Contrastive Analysis is concerned with the comparison and contrast of two languages; hence, it conveys insights to the differences and the similarities of languages being compared. That is to say, contrastive studies contribute to our knowledge of language structure and of the relations obtained between language systems; therefore, Contrastive Analysis is mainly concerned with linguistic matters.

In the 1940s, Fries (1945, p.9) claimed that "[t]he most effective materials [for language teaching] are those that are based upon a scientific description of the language to be learned carefully compared with a parallel description of the native language of the learner." Throughout the 1950s to the late 1960s, Pedagogical Contrastive Analysis was recognized as an important and integrated part of foreign language teaching as it was based on the underlying assumption of Behavioristic psychology which has viewed first language acquisition as the new habits acquired through repetition and strengthened by reinforcement of correct responses. However, this theory did not view the language acquisition as an active mental process, but as a passive mechanical one. As far as second language acquisition is concerned, Contrastive Analysis is founded on the assumption that second or foreign language learners will tend to transfer the formal features of their L1 to their L2 utterances.

This assumption was clearly stated by Lado (1957, p.2) in *Linguistics Across Cultures* as follows*:*

> Individuals tend to transfer the forms and meanings, and the distribution of forms and meanings of their native language and culture to the foreign language and culture – both productively when attempting to speak the language …and receptively when attempting to grasp and understand the language… as practiced by natives.

Based on this assumption, structural linguists systematically compared and contrasted the structure of the learner's native language with that of the target language in order to identify areas of difficulty for second language learners and to produce appropriate teaching materials to overcome their difficulties.

2.4 Contrastive Analysis Hypothesis (CAH)

Contrastive Analysis Hypotheses (CAH) is an extension of the notion of Contrastive Analysis attributed to the ability to predict errors to the Contrastive Analysis of two languages depending on the similarities and differences between the structure of the learner's (L1) and that of the (L2). For example, the use of inflection indicating number is similar in Farsi and English; however, in considering the word order in English, the second noun is the head noun, and the first one is the modifier; whereas in Farsi, the roles are reversed. Therefore, the inference of this is that wherever there are significant differences between a pattern in the learners L1 and L2, it can be predicted that the learner will experience difficulties. In the words of Lado:

> The student who comes in contact with a foreign language will find some features of it quite easy and others extremely difficult. Those elements

that are similar to his native language will be simple for him, and those

elements that are different will be difficult (Lado, 1957, p.2).

In addition, the principle of transfer has been suggested to be the psychological foundation of CAH which comes in two basic types: positive or negative. Positive transfer will occur if learners' L1 structure is similar to their L2; in this case, facilitation happens due to the fact that the learners would face no difficulties since what they have learnt in their L1 learning situation is positively transferred into the L2. On the other hand, negative transfer occurs when the structure of the L1 is dissimilar to that of the L2. This difference is problematic and causes interference as it impedes the learning of the L2.

To discuss this further, the supporters of the principle of transfer in foreign language learning assumed that the learning of similar items (sounds, words, structures, and cultural items) in the foreign language is easy and that of the different patterns is difficult, and the degree of difficulty depends on the degree of differences between the two languages. This assumption was later labelled as the strong version of the CAH, and it was credited with being the version that was able to be helpful in predicting the difficulties and errors of second language learners. For instance, Lado (1957, p.VII) made a strong claim that "…the assumption that we can predict and describe the patterns that will cause difficulty in learning, and those that will not cause difficulty, by comparing systematically the language and culture to be learned with the native language and culture of the student ", or in another example by Lee (1968, p.186) "The difficulties are chiefly, or wholly, due to differences between the two languages; the greater these differences are, the more acute the learning difficulties will be."

According to Oller and Ziahosseiny (1970), the value of the strong version of the CAH is that it has validity as a device for predicting some, but not all of the errors a second language learner will make. However, it should be noted that this version of the CAH has a number of shortcomings which have been well documented since the 1970s. To illustrate this point, one of the shortcomings is that it can only describe the errors in the foreign language which are caused by interference from the L1 language (interlingual errors); however, studies have shown that only one third of these types of errors are committed by foreign language learners. In addition, another shortcoming is the major criticism of the association of the CAH with Behaviorism, which gradually lost credibility with the emergence of the review of Skinner's *Verbal Behavior* by Norm Chomsky in which he seriously challenged the Behaviorist's view of language.

Following the criticism of the strong version of Contrastive Analysis, Wardhaugh (1970) proposed a more tenable weak version of Contrastive Analysis. The weak version he writes, "starts with the evidence provided by linguistic interference and uses such evidence to explain the similarities and differences between the two systems" (Wardhaugh, 1970, p.15).

In this version, errors are studied after they have been made by second language learners and the Contrastive Analysis explains why those errors have occurred. For instance, in the case of Farsi learners of English, if they have a problem producing the interdental fricatives, (**θ** and **ð**), and substitute them with alveolar fricatives and stops **(s, t, z, d)**, this is not because they are doing this deliberately or consciously; rather, they have not learnt how to produce the English sounds. Thus, they revert

back to the comfort of their L1 Farsi sounds. In simple terms, according to the weak version, the L1 does not interfere but helps in L2 learning. It is obvious that the weak version is more predictable than the strong version; however, it is still restricted to the notion of linguistic interference and seems only to account for errors caused by language transfer.

Considering these shortcomings of the weak and strong versions of the CAH, Oller and Ziahosseiny (1970) from the results of a study that they have conducted, proposed a third version of Contrastive Analysis (moderate version). The basis of their analysis was the spelling errors made by some foreign learners of English with different L1 backgrounds. Contrary to the expected outcomes of the strong version of the CAH, they found that English spelling was more difficult for learners whose L1 used the Roman alphabet (Spanish, Germanic), than those whose L1 used a non-Roman alphabet (Japanese, Chinese). Besides, according to the weak version of the CAH, students whose native language uses the Roman alphabet would be expected to do better than the other group because of greater positive transfer, but Oller and Ziahosseiny proved this was not the case. Thus, they rejected the strong and weak versions in favor of their moderate version of the CAH.

Oller and Ziahosseiny (1970) from their study claimed that instead of transfer, the principle of 'stimulus generalization' is active in the learning of a foreign language. Put simply, wherever patterns are minimally distinct in form or meaning in one or more systems, confusion may occur. Moreover, they concluded that Farsi learners of English make fewer errors on the English items that are different from their L1 due to the fact that they pay more attention to different items, which is the

motivational factor in learning, other than those that are similar. As a result of this, Oller and Ziahosseiny claimed that the moderate version has more power to explain as it centres on the nature of human learning more than the other two versions whose focus is only on the contrast between the two languages.

Since Contrastive Analysis was seen to be subjective and did not meet the 'scientific description' criterion of Behavioristic psychology, some of the advocates of CAH endeavoured to formalize the prediction stage of Contrastive Analysis to reduce some of the subjectivity which is involved.

The most recognized attempt to formalize the prediction stage of Contrastive Analysis was made by Stockwell, Bowen, and Martin (1965, p.15) who constituted a hierarchy of difficulty by which a teacher or linguist may recognize which kinds of differences will be the most difficult to master and which will be easiest, in order to allow them to grade their teaching materials, arrange them into a sequence that is effective, and decide how much drill is needed on each point of the hierarchy. To achieve this goal, for phonological systems in contrast, they suggested eight possible degrees of difficulties that were based upon the principles of transfer (positive, negative, zero) and of optional and obligatory choices of certain phonemes. In addition, based on the same principles used to assemble the phonological criteria, they also constructed a hierarchy of difficulty for grammatical structure which is based on sixteen levels of difficulty. It should be noted that, though Stockwell and his associates devised their hierarchy for English and Spanish, they claimed that the hierarchy had a universal application.

Two years after Stockwell and his associates, another linguist (Prator, 1967; cited in Brown, 1994, p.195) condensed this grammatical hierarchy into six categories in an ascending order of difficulty and stated that this grammatical hierarchy is also applicable to the phonological features of language. It should be mentioned that the six categories which are presented below are in the same ascending order as (cited in Brown, 1994, p.195), and the examples in these six categories are provided by the author of this paper.

Level 0- Transfer

There is no difference or contrast in sounds, lexical items, or structures between the two languages. The assumption can be made that due to positive transfer, the learner will face no difficulties learning these elements of the L2. Examples can be found in the following phonemes in Farsi and English: /**b, f, m, ʒ, ʃ, tʃ, o, i, u**/.

Level 1- Coalescence

Two or more items in the L1 amalgamate into one item in the target language; however, this requires the learner to ignore the distinction they have been used to in the L1. For example, in Farsi, two phonemes /**g**/ and /**ɣ**/ will be merged into one phoneme /**g**/ because the phoneme /**ɣ**/ is absent in English. Another example is the lexical coalescence in the case of a Farsi learner of English who must merge two words (*amoozegar & dabir*) meaning 'teacher' into one single word 'teacher' in English.

Level 2- Underdifferentiation

The equivalent item in the L1 is absent in the L2. For example, the phonemes /χ/ and /ɣ/ ,which are present in Farsi, do not exist in English.

Level 3- Reinterpretation

An item that exists in the L1 is given a new shape or distribution in the L2. For example, the phoneme /l/ is present in both Farsi and English; however, the Farsi learner of English must learn the allophones for the phoneme /l/ because, Farsi /l/ is mainly a clear /l/; whereas in English, there are four different allophones of /l/ (voiceless /ɬ/, clear /l/, dark /ɫ/ and dental /l̪/) which can be used in different phonological environments.

Level 4- Overdifferentiation

A new item in the L2 is completely absent from the L1, so learners are required to learn the new item. For example, the Farsi learner of English must learn new English phonemes /θ/, /ð/, /ɪ/, and /ɔ/.

Level 5- Split

An item in the L1 separates into two or more items in the L2. For example, the Farsi learner of English should make a distinction between 'he' and 'she' as the equivalent of these two pronouns in Farsi is only one single pronoun which is '*u*': 'او'.

From the hierarchy of difficulty detailed above and the procedures for Contrastive Analysis, we can make simple predictions about the difficulties learners will encounter; however, as Brown (1994, p.199) states, "the procedure is not without glaring shortcomings", because minor phonetic distinctions maybe overlooked and allophonic variants of phonemes which occur in different phonological environments may be ignored. Therefore, the selection of which category a particular contrast sits into is not as easy as it may seem.

Irrespective of such heated controversy surrounding Contrastive Analysis, it should be mentioned that this field is largely associated with language teaching, where many language teachers from all around the globe would find it useful in dealing with the learning difficulties of their students, especially in the phonological aspects of language.

2.5 Contrastive Analysis of English and Farsi Syllable Structures and Sound Systems

Farsi and English, though belonging to the same language family (Indo-European), are very different in alphabet, sound system, and syllable structure. The Farsi alphabet is based on Arabic, which is a consonantal system and contains thirty two letters: twenty three consonants and six vowels as well as two diphthongs and a total of 29 phonemes (Windfuhr, 1979, p.526 & Samareh 2000, p.85). Whereas, the English alphabet is based on Latin which contains twenty-six letters: twenty four consonants; twelve vowels; eight diphthongs and a total of 44 phonemes (Sousa, 2005, p. 37). As mentioned earlier, other authorities vary slightly on this, but the

number is between 43 and 45 phonemes. To draw a comparison of the two languages, a notable point is that English has fifteen more phonemes than Farsi.

2.5.1 Farsi and English Syllable Structures in Contrast

As discussed earlier, according to Windfuhr (1979, p. 529), Farsi is characterized as a syllable-timed language. In other words, the syllables are said to occur at approximately regular intervals of time, and the amount of time it takes to say a sentence depends on the number of syllables in the sentence, not on the number of stressed syllables as in stress-timed languages like English. To illustrate the point further, the author has provided a table (Table 2.10) to show this comparison:

English Syllables	Examples	Farsi Syllables	Examples
V	I /**i**/	CV	ma/**mɒ**/ meaning 'we'
VC	am/**æm**/	CVC	toop/**tup**/ meaning 'ball'
VCC	ant/**ænt**/	CVCC	mard/**mærd**/ meaning 'man'
VCCC	asks/**æsks**/		
CV	key /**ki**/		
CVC	seek/**sik**/		
CVCC	lawns/**lonz**/		
CVCCC	pants/**pænts**/		
CCV	tree/**tri**/		
CCVC	speak/**spik**/		
CCVCC	stamp/**stæmp**/		
CCVCCC	trends /**trendz**/		
CCVCCCC	trampled /**træmpld**/		
CCCV	spree/**spri**/		
CCCVC	scram/**skræm**/		
CCCVCC	script/**skrɪpt**/		
CCCVCCC	strands/**strændz**/		
CCCVCCCC	scrambles /**skræmblz**/		

Table 2.10: Farsi and English Syllable Structures in Contrast

27

A close look at the syllable structures presented in Table 2.10 reveals that Farsi syllables cannot be initiated with vowels; on the other hand, vowels can initiate syllables in English. Another interesting observation is that syllable-initial consonant clusters are impossible in Farsi; however, some consonant clusters can occur in both syllable-initial (onset) and syllable-final (coda) positions in English. In addition, syllable-final consonant clusters in Farsi normally take no more than two consonants in their structure but, in English, consonant clusters are not limited to two consonants. For example, in a word like splints /splɪnts/, three consonant clusters together at the beginning and again at the end of the syllable to produce a CCCVCCC syllable. Finally, we can conclude that the syllable structure of Farsi can only be presented as: CV (C) (C), whereas the syllable structure of English can be presented as: (C) (C) (C) V (C) (C) (C) (C) which shows that English permits up to three consonant clusters initially and four finally.

As was illustrated in Table 2.10, the syllable structure of English includes at least eighteen different types of syllables; whereas, there are only three syllable patterns in Farsi. It should be noted that according to CAH, the difference in the number of syllable pattern may cause problems for Farsi speakers of English in pronunciation. These speakers often have difficulty producing English words with consonant clusters, which is caused by the fact that Farsi does not allow a word to begin with two consonants. Thus, "initial consonant clusters in English words are broken up by vowel epenthesis" (Shademan, 2002, p.1).

According to Shademan (2002), if a consonant's features are compatible with the vocalic features of spreading, the inserted vowel is a copy of the following vowel

(i.e., the vowels share their features). However, when a consonant's features are not compatible with the feature(s) being spread, the default vowel /e/ will be inserted. It should be noted that all SC (S+ Consonant) clusters have epenthetic /e/. Thus, in these cases, it is consistently observed that the epenthetic vowel is located before the /s/ which may cause problems for Farsi speakers of English. Some examples are given below:

ski→ [eski]

small→ [esmal]

student→ [estudent]

spell→ [espel]

street→ [estirit]

On the other hand, in non-SC clusters, the second member of the cluster is either /l/ or /r/. In these cases, if the cluster is followed by a high vowel, then there is copy epenthesis.

For example:

freezer→ [firizer]

clean→ [kilin]

group→ [gurup]

blue→ **[bulu]**

drink→ [**dirink**]

Furthermore, if the cluster is followed by a low vowel, then /**e**/ is inserted. For example:

flower→**[felower]**

traffic→ [**terɑfik**]

flask→**[felask]**

class→ [**kelɑs**]

blossom→**[belosom]**

Finally, if the cluster is followed by a mid vowel, then there is copy epenthesis if the second member is /**r**/, and default epenthesis if the second member is /**l**/.

bronze→ [**boronz**]

press→**[peres]**

green→**[girin]**

flute→ [**fulut**]

chrome→**[korom]**

From these examples, we notice that each consonant in the initial position is either preceded or followed by a vowel. Thus, it is not at all surprising that Farsi speakers of English have difficulties pronouncing English words with consonant clusters.

2.5.2 Farsi and English Sound Systems in Contrast

2.5.2.1 Consonants

A comparison between the Farsi consonant system and that of the English consonant system reveals noticeable differences in consonantal distribution between the two languages. As cited in Yavaş (2006, p.197), the overlay of the Farsi consonants on the English inventory results in the following:

Table 2.11: Overlay of the Farsi Consonants on the English Inventory (Yavas, 2006, p. 197)

31

It should be noted that the four consonants identified in the squares are absent in the Farsi consonantal system and the r-sound identified in the circle presents a phonetic differential with its allophones that the author will discuss later.

To start with the plosives, /**p**/ and /**b**/ are respectively voiceless and voiced in Farsi and English, but /**p**/ in Farsi is strongly aspirated in all positions. However, in English /**p**/ is often un-aspirated in syllable-final position; medially after /**s**/ as in 'spring' /**spriŋg**/, and before unstressed vowels.

The stops /**t**/ and /**d**/ are respectively voiceless and voiced plosives in both languages, but as far as the position of the tongue is concerned, they both have dental articulation in Farsi and /**t**/ can also be dentalised in English [t̪]. Moreover, /**t**/ in Farsi is strongly aspirated in all positions; however, in English it is un-aspirated in syllable-final position, medially after /**s**/ as in 'stamp' /**stæmp**/**,** and before unstressed vowels.

The velars /**k**/ and /**g**/ are voiceless and voiced plosives respectively in Farsi and English and they can be identified as mediovelar in Farsi, but postvelar in English. Moreover, they are strongly palatalized initially and medially before front vowels in syllabic-final position in Farsi; whereas, in English, they are slightly palatalized before front vowels.

Moving onto the nasals, /**m**/ and /**n**/ are categorized as plain voiced nasals in both languages: /**m**/ is bilabial, whilst /**n**/ has dental-alveolar articulation. An interesting observation is that /ŋ/ is absent in Farsi; however, [ŋ] as an allophone of /**n**/ does exist as in 'nan' [**nɒŋ**] meaning ˈbreadˈ. On the other hand, /ŋ/ exists in English and has velar-articulation which occurs finally as in 'ring' /**rɪŋ**/; inter-vocalically as in 'singing' /**sɪŋɡɪŋɡ**/, and pre consonantly as in 'single' /**sɪŋɡl**/, but never initially. It should be noted that the problem that comes from the lack of phoneme /ŋ/ in Farsi is that Farsi speakers of English substitute two separate phonemes /**n**/ and /**ɡ**/ instead of /ŋ/ which does not exist in Farsi. For example, 'sing' may be pronounced [sing] instead of /**siŋ**/, which may cause misunderstanding.

In considering the fricatives, /**f**/ and /**v**/ are voiceless and voiced respectively in Farsi and English; however, in Farsi, a larger part of the lower lip touches the upper teeth in articulating these phonemes. The fricatives /**s**/ and /**z**/, voiceless and voiced, fricatives appear in both languages: In English they have alveolar articulation, but in Farsi they have dental articulation. The fricatives /ʃ/ and /ʒ/ are voiceless and voiced post-alveolar respectively in both languages which are produced in the same way. The phoneme /**h**/ also exists in both languages as a voiceless glottal fricative which is articulated in the same way.

Moreover, in a detailed examination of Table 2.11, we can observe that the fricatives /χ/ and /ɣ/ are absent in English and the two fricatives /θ/ and /ð/ do not exist in Farsi. It should be noted that Farsi speakers of English have difficulties in articulating these voiceless/voiced pair of fricatives /θ/ and /ð/, which are absent in

Farsi; therefore, they choose to substitute the nearest phonemes to them, /t/ and /d/ respectively. According to Mirhassani (2003, p.7), in some cases, it is seen that some Farsi speakers of English studying overseas or in Iran adopt /s/ for /θ/ and sometimes /z/ for /ð/, which cause problems and misunderstanding. For example, 'thin' /θin/ may be pronounced as /sin/ and 'that' /ðæt/ may be pronounced as /zæt/.

There are also two affricates /tʃ / and /dʒ/ which are voiceless and voiced and have post alveolar articulation in both languages. Moving on to the approximants, the palatal /j/, also called a semivowel, is realized the same way in both languages. In considering the phoneme /r/, there are three different allophones for this phoneme in Farsi: the most common is [R] an unvoiced variant which occurs in final positions, e.g. [pæR] meaning 'feather'; [ř] a flap variant which occurs inter-vocally, e.g. [bɒřɒn] meaning 'rain'; and [r] a trill allophone which occurs initially and medially, e.g. [ruz] meaning 'day' and [mærd] meaning 'man'. On the other hand, in English, there are also three major allophones for the phoneme /r/: alveolar tap (sometimes called flap) [ɾ] is found often in British English when the phoneme /r/ occurs between vowels as in 'very' [veɾɪ]; retroflex tap [ɽ] as in 'hard' [haɽd], and voiced continuative [r] which occurs elsewhere as in 'serene' [se̱rin]. In fact, the differentiation of allophones for the phoneme /r/ in both languages is responsible for Farsi speakers of English having a foreign-accent which may cause misunderstanding.

Another problem that comes from the lack of particular consonants in Farsi which exist in English is the pronunciation of approximant-velar /**w**/**.** Thus, Farsi speakers of English usually replace the English vowel /**w**/ with /**v**/, which results in the production of an inaccurate word. For example, 'west' and 'vest' may be pronounced /**vest**/ in both cases by some Farsi speakers of English.

Finally, /**l**/ which appears in both languages is mainly considered as a clear /**l**/ in Farsi and has dental-alveolar articulation; however, it has four allophones in English. Of these four allophones, two occur more frequently: clear /**l**/ that occurs syllable and word initially as in 'lamp' and after voiced consonants as in 'blast'; dark [ɫ] that occurs syllable and word finally as in 'canal' and inter-vocalically as in 'milk'. In addition, there are also two other allophones of /**l**/ which are dental /**l̪**/ as in 'stealth' and voiceless /l̥/ as in 'play.

2.5.2.2 Vowels

As with the differences in the consonant systems, there are also noticeable differences in vowel systems between Farsi and English. As cited in Yavaş (2006, p.197), the comparison between English and Farsi vowels are shown in the following Table 2.12 (the English vowels are identified in ovals):
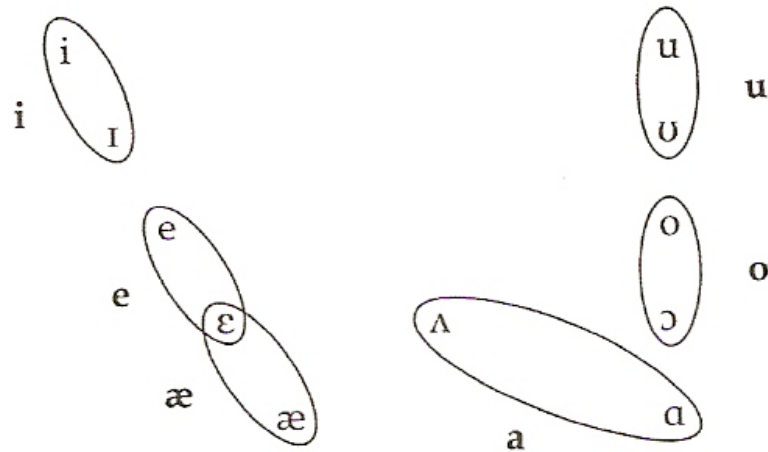
Table 2.12: Comparison between English and Farsi Vowels (Yavas, 2006, p. 197)

The comparison between the Farsi vowel system and that of the English vowel system reveals some significant differences in the following three areas:

- The number of vowels

- Tense/lax distinctions

- The length of vowel

In the English vowel system, there are eleven or twelve different vowels identified; whereas, Farsi has only 6 vowels in its vowel inventory. Although the number of vowels that can be identified in English and Farsi can differ depending on different analyses of linguists, it is obvious that there are considerably more vowels in English than in Farsi (see Table 2.12).

Another characteristic that typically differentiates the English vowel system from the Farsi vowel system is whether there is a distinction between lax and tense vowels in either of the two systems. As shown in Table 2.12, the tense/lax vowel pairs in English such as /i/ vs. /ɪ/, /e/ vs. /ɛ/, /u/ vs. /ʊ/ do not exist in the six-vowel system

of Farsi. However, according to Mirhassani (2003) although long vowels of Farsi are sometimes analysed as having the same quality as English tense vowels, this claim is difficult to support because those vowels of Farsi are not always contrastive in nature as the English tense/lax vowel pairs.

In addition, when we look at the vowel length differentials between the English and Farsi vowel system, we discover that as opposed to English, Farsi does not have any variation in vowel length in formal speech; however, in informal speech, when vowel length changes due to compensatory lengthening, the meaning of the word will not be affected. Consider two English words 'live' and 'leave'. In this case, the length of the vowel is changed and the meaning changes as well; however, as discussed earlier, contrary to English in these Farsi words: 'begu'/**begu**/ ˈtellˈ; 'gush' /**guʃ**/ ˈearˈ; 'gusht' /**guʃt**/ ˈmeatˈ, we can change the length of vowels in each case and the L1 Farsi speaker will understand them.

The fact that the Farsi vowel inventory is characterized as a typical six-vowel system suggests that Farsi speakers of English would have difficulties producing English vowels that do not exist in the Farsi vowel system. For instance, in Farsi, /**i**/ is similar to the close-front-tense /**i**/ in English but /ɪ/, which is a half-close, front-lax vowel in English is absent in Farsi. Thus, the result will be the use of /**i**/ instead of /ɪ/ which would create misunderstanding and in some cases embarrassment for Farsi speakers of English. For example, some may pronounce the words 'ship' and 'sheep' the same. This scenario may also happen in many other words such as: 'eat/it; keen/kin; seen/sin; heat/hit; least/list; beat/bit, and cheap/chip'. In addition, in

English, /æ/ is an open-low-front vowel which does not correspond exactly with the Farsi equivalent. Therefore, Iranian Students tend to use /ɒ/ instead, in which the mouth is not as open as in English. Moreover, /ʌ/ a mid-lax-central vowel; /ɔ/ a mid-low-back vowel, and /ʊ/ a high-back-lax vowel in English do not exist in Farsi. Finally, /e/ in Farsi corresponds to the English vowels /ɛ/ and /e/ depending on whether it is in either a stressed or an unstressed position. Thus, it is quite probable that vowel distinctions made by the change of tongue positioning between Farsi and English vowels may cause problems for Farsi speakers of English.

CHAPTER 3

METHODOLOGY

This chapter presents the objectives and significance of this research, details the research methodology and principles underpinning the study and finally, it concludes with the limitations of the research.

3.1 Objectives of the Research

This study investigates the phonological characteristics of Farsi speakers of English and L1 Australian English speakers' perceptions of proficiency. Specifically, this study has two main objectives:

1. To examine the extent to which phonological characteristics of Farsi speakers of English interfere with their intelligibility when they interact with L1 Australian English speakers.

2. To examine L1 Australian English speakers' perceptions of the effect of pronunciation on the intelligibility of Farsi speakers of English.

3.2 Significance of the Research

Two important elements make the present study significant. Firstly, the research in the area of Contrastive Analysis of English and Farsi language syllable structures and sound systems is currently limited and more research is needed to identify the problematic areas that are responsible for pronunciation errors of Farsi speakers of English.

Secondly, there is no evidence that any study has ever been conducted that examines the extent to which phonological characteristics of Farsi speakers of English interfere with their intelligibility when they interact with L1 English speakers. In fact, EFL learners in Iran, as well as Farsi speakers of English abroad, have difficulties in pronunciation that have an effect on their intelligibility when they interact with L1 English speakers.

By noting the extent of these problems and the limitations of research in this field, the author of this paper has conducted the present research to identify the phonological errors by focusing on the 'segmental features' of Farsi speakers of English in Australia. It is hoped that the findings of this research present to the EFL teachers, specifically Iranian EFL teachers, a set of general ideas about the possible problems that Farsi speakers of English may encounter in pronunciation. Furthermore, by teachers being aware of the likely problems to be incurred by the students' lack of familiarity with certain phonemes, EFL teachers can accommodate these problems by allowing more time to focus on phonemes that are likely to cause problems.

3.3 Participants

There were two different and distinctive groups of participants taking part in this research. The first group consisted of four adult female Farsi speakers of English between the ages of 26 to 42 who were all from Iran. Each member of the group had a similar level of English education in Iran and all had achieved an IELTS test score of six in speaking; however, it should be mentioned that one member of the group had lived in France for one year to complete a Master's Degree before coming to

Australia. It must be noted that all the participants had lived in Australia for at least one year and are currently studying various Master's Degrees at Curtin University. Moreover, the participants were recruited through the author's contacts at university and acquaintances of other students.

The second group of participants consisted of six L1 Australian English speakers, one female and five males, who have lived in Australia for almost all of their lives. It should be noted that a male participant withdrew from the study due to ill health. The ages of the remaining five members of this group varied from 38 to 50 and they all worked in professional roles, although none had any formal linguistic knowledge. Moreover, these participants were recruited from friends and acquaintances who had no direct link to any linguistic studies.

3.4 Instruments

Before conducting this study, the author investigated the use of minimal pairs in word initial, word medial, and word terminal positions in a Pilot Study in order to examine the intelligibility of Farsi speakers of English to L1 Australian English speakers. It should be noted that after analysing the outcomes of the Pilot Study, the author decided to expand the research to examine L1 Australian English speakers' perceptions of the effect of pronunciation on intelligibility of Farsi speakers of English. To achieve this, minimal pairs were inserted into sentences where alternate but different meanings were possible.

In the present study, the author has used six instruments: three of them were related to the Farsi speakers of English, and three were designed to be used by the L1

Australian English speakers. A Micro Cassette Recorder was used to record the Farsi speakers of English participant' voices, to be played back by the L1 Australian English speakers to interpret what had been said.

3.4.1   Instruments for Farsi Speakers of English

Firstly, a questionnaire consisting of five open-ended questions relating to the topic of how the Farsi speakers of English (identified as A, B, C, and D) felt about their time in Australia was used in an unstructured interview to examine the extent to which phonological characteristics of Farsi speakers of English interfere with their intelligibility when they interact with L1 Australian English speakers (see Appendix 1: Part A, p.79).

Secondly, twenty sentences including specific words were used by asking the Farsi speakers of English to read them aloud. It should be noted that the specific words in these sentences contained specific consonants and vowels which were identified previously in the literature review to have caused difficulties for Farsi speakers of English to be understood by the L1 Australian English speakers (see Appendix 1: Part B, p.80).

Finally, ten sentences including specific words were used by asking the Farsi speakers of English to read them aloud. It should be mentioned that these words contained the consonant clusters which were identified previously in the literature review to have caused difficulties for Farsi speakers of English in being understood by the L1 Australian English speakers (see Appendix 1: Part C, p.81).

3.4.2   Instruments for L1 Australian English Speakers

After the participation of Farsi speakers of English, the tape recording of the results was given to each of the L1 Australian English speakers to interpret what had been said by the Farsi speakers of English.

Firstly, after listening to the interview of each Farsi Speaker of English, a questionnaire consisting of three open-ended questions was given to be answered by the L1 Australian speakers of English (identified as P1, P2, P3, P4, and P5). It should be noted that in these questions, the Australian participants were asked to rate the Farsi speakers of English from best to worst (giving the reasons why) based on their intelligibility (see Appendix 2: Part A, p.82).

Secondly, the Australian participants were given twenty pairs of sentences in a limited multiple choice format including minimal pairs, half being identical to the sentences given to the Farsi speakers of English to be read aloud. The Australian participants were asked to listen to the twenty sentences read aloud by each Farsi speaker of English, and then select and mark one of the paired sentences provided to indicate the sentence that they had heard whilst listening to the tape recording (see Appendix 2: Part B, p.83).

Finally, a list of ten sentences, each with some missing words including consonant clusters was provided to the L1 Australian English speakers to fill in the missing words as they had understood them whilst listening to the tape recording of each individual Farsi speaker of English (see Appendix 2: Part C, p.85).

3.5 Data Collection Procedure

At the beginning of the research process, the participants were informed of the purpose of the study and that their identity would be kept confidential in the research report. Each participant was given an information sheet (see Appendix 3, p.86) and a consent form (see Appendix 4, p.87) that they were required to read and sign. Furthermore, the process of data collection was explained verbally in detail to all the participants.

The first stage commenced with an interview of unstructured spontaneous speech in the form of a questionnaire consisting of five open-ended questions with the Farsi speakers of English relating to the topic of how they felt about their time in Australia. Next, by using the elicited speech method, participants were asked to read aloud twenty sentences to demonstrate the likely pronunciation errors of Farsi speakers of English and finally, the participants were asked to read aloud ten sentences to demonstrate the likely pronunciation errors in consonant clusters by Farsi speakers of English.

The second stage commenced with the L1 Australian English speakers (identified as P1, P2, P3, P4, and P5) listening to four interviews relating to how the Farsi speakers of English (identified as speakers A, B, C and D) felt about their time in Australia, and then answering three open-ended questions relating to these interviews. Next, the Australian participants were asked to listen to twenty sentences which were read aloud by the identified Farsi speakers of English and subsequently, they were asked to select and mark one of the pairs of sentences provided to indicate the sentence that they had heard whilst listening to the tape recording. Finally, after

listening to ten sentences read by the identified Farsi speakers of English, the Australian participants were asked to fill in the missing words from ten sentences provided as they had understood them whilst listening to the tape recording.

3.6 Limitations of the Research

In conducting this research, the author was faced with a number of limiting factors that inhibited the process of this study. The major limitation was a lack of access to resources within Iran. Although very little research has been conducted on this topic, finding related books written by Iranian authors was impossible in Australia, which compelled the author to have them sent from Iran. The other limitation was that the author did not have any access to the Iranian learners of English within Iran, which prompted the involvement of Iranians residing in Australia in this study; however, this also had the limitation of being a small sample as the author could only get participation from four Iranian females.

CHAPTER 4

PRESENTATION AND THE ANALYSIS OF FINDINGS

This chapter presents the findings of this research in three sections: A, B, and C. Section A presents the findings of the four unstructured interviews completed by the Australian participants, in which they were asked to rate the four Farsi speakers of English based on the intelligibility of these speakers. Section B shows the findings of the twenty multiple choice questions completed by the Australian participants. Section C sets out the findings indicated by the Australian participants, in which they were asked to fill in the missing words from ten sentences after listening to the complete sentences read by the four Farsi speakers of English.

4.1 Section A: Findings of the Four Unstructured Interviews

In this section, the five Australian participants (identified as P1, P2, P3, P4, and P5) were asked to listen to four interviews relating to how the Farsi speakers of English (identified as A, B, C, and D) felt about their time in Australia and then record their answers to three questions relating to these interviews.

4.1.1 Australian Participant 1

Participant 1 rated speaker B as the best speaker and speaker C as the worst speaker. Moreover, this participant mentioned that speaker C spoke too quickly to be understood and, in considering speaker D, the participant specified that this speaker was very close to speaker B and that speaker A could also be understood easily.

Overall, participant 1 rated the four Farsi speakers of English from best to worst as follows: B, D, A, and C (see Appendix 5: Participant 1, p.88).

4.1.2 Australian Participant 2

Participant 2 rated speaker D as the best speaker and supported this view by stating that "speaker D had the least accent [and] their ideas were clearer" (Appendix 5: Participant 2, p.89). Moreover, speaker A was rated as the worst speaker by participant 2, due to the speaker's strong accent. In addition, participant 2 stated that, "speaker B expresses ideas more clearly [and] speaker C [is] better than [speaker] A" (Appendix 5: Participant 2, p.89). Overall, participant 2 rated the four Farsi speakers of English from best to worst as follows: D, B, C, and A.

4.1.3 Australian Participant 3

Participant 3 rated speaker B as the best speaker and supported this view by mentioning that speaker B was a confident English speaker who gave the impression that they had spent a long time learning English and had been settled in Australia for a long period of time. Moreover, speaker C was rated as the worst speaker by participant 3 due to the volume of speech and limited English vocabulary. In addition, participant 3 mentioned that speaker D had a wide range of vocabulary and spoke very clearly, but with a slight accent; whereas, speaker A had a good grasp of English and spoke quietly but quickly. Overall, participant 3 rated the four Farsi speakers of English from best to worst as follows: B, D, A, and C (see Appendix 5: Participant 3, p.90).

4.1.4 Australian Participant 4

Participant 4 rated speaker B as the best speaker and stated that "speaker B was the best as she was very confident when she spoke and had a good grasp of spoken English" (Appendix 5: Participant 4, p.91). Moreover, speaker A was rated the worst speaker by participant 4 due to the accent that made the conversation difficult to understand. In addition, participant 4 specified that, "speaker D was a close second behind speaker B as she could express herself better than the others" (Appendix 5: Participant 4, p.91). In considering speaker C, it was mentioned by participant 4 that this speaker was less confident and paused to think often. Overall, participant 4 rated the four Farsi speakers of English from best to worst as follows: B, D, C, and A.

4.1.5 Australian Participant 5

Participant 5 rated speaker D as the best speaker, but mentioned that it was hard to separate D and B as an "outright winner". Moreover, participant 5 rated speaker A as the worst speaker as this speaker spoke a little too quickly and rushed when reading sentences. Overall, participant 5 rated the four Farsi speakers of English from best to worst as follows: D, B, C, and A (see Appendix 5: Participant 5, p.92).

The summary of the findings of four unstructured interviews by the five Australian participants is given in Table 4.1:

Farsi Speakers of English	Australian Participants					
	P1	P2	P3	P4	P5	Results
Speaker A	third	worst	third	worst	worst	Worst
Speaker B	best	second	best	best	second	Best
Speaker C	worst	third	worst	third	third	Third
Speaker D	second	best	second	second	best	Second

Table 4.1: Summary of the Findings of Four Unstructured Interviews

As presented in Table 4.1, speaker B was rated the best by three participants and the second best by the other two participants; this clearly demonstrates the overall opinion that speaker B was the best (i.e., the most intelligible). However, speaker D was also rated highly with two participants rating this speaker as the best and the three remaining participants rating this speaker as the second best. In addition, the five participants rated speaker C the worst speaker twice and the second worst three times and finally, speaker A was rated by the five participants as the worst speaker on three occasions and the second worst in the remaining two occasions. This clearly demonstrates that the five participants viewed that this speaker was the worst (i.e., the least intelligible).

4.2 Section B: The Analysis of Twenty Multiple Choice Questions including the Minimal Pairs.

In section B, the five Australian participants (identified as P1, P2, P3, P4, and P5) were asked to listen to twenty multiple choice questions including minimal pairs

which were read aloud by the (identified Farsi speakers of English A, B, C, and D) and subsequently, they were asked to select and mark one of the paired sentences provided to indicate the sentence that they had heard. It should be noted that the minimal pairs in these sentences contained specific consonants and vowels which were identified previously in the literature review to have caused difficulties for the Farsi speakers of English in being understood by the L1 Australian English speakers. After collating the information provided by the five Australian participants, the author of this paper analysed and tabulated this information into four separate tables (identifying speaker A, B, C, and D) to give an accurate percentage of the selection of the minimal pairs for each speaker (see Appendix 6, p.93). Moreover, the analysis of the findings of this information is summarized and presented in Table 4.2 below:

Summary of the Analysis of 20 Multiple Choice Questions (Minimal Pairs)								
Farsi speakers of English		Australian Participants						
		P1	P2	P3	P4	P5	Total	Percentage
Speaker (A)	+	11	10	14	10	11	56	56%
	-	9	10	6	10	9	44	44%
Speaker (B)	+	14	13	13	14	14	68	68%
	-	6	7	7	6	6	32	32%
Speaker (C)	+	12	12	12	11	12	59	59%
	-	8	8	8	9	8	41	41%
Speaker (D)	+	12	11	10	9	14	56	56%
	-	8	9	10	11	6	44	44%

Table 4.2: Summary of the Analysis of Twenty Multiple Choice Questions (Minimal Pairs)

As shown in Table 4.2, in the summary of the analysis of the multiple choice questionnaire, it was ascertained that speaker B could be understood the best by the five Australian participants with a 68% rating. Speaker C was rated the second best at 59% and finally speakers A and D were the least intelligible with a joint rating of 56%.

As mentioned previously, the minimal pairs in the multiple choice questionnaire contained specific consonants and vowels which were identified previously in the literature review to have caused difficulties for the Farsi speakers of English in being understood by the L1 speakers of Australian English. It should be noted that these specific consonants and vowels have been analysed by the author of this paper after collating the information from the results of the twenty limited multiple choice questions (minimal pairs) by the Australian participants and the results are tabulated in two parts as follows: consonants perceived by the Australian participants (4.2.1) and vowels perceived by the Australian participants (4.2.2).

4.2.1 Consonants Perceived by the Australian Participants

In the following four Tables (4.3, 4.4, 4.5, and 4.6), the author will detail the results of the three specific consonants /w, θ, ð/ perceived by the five Australian participants for each of the Farsi speakers of English:

Speaker (A)		Consonants Perceived by the Australian Participants					
Consonants Spoken by the Farsi Speakers of English		Australian Participants					
		P1	P2	P3	P4	P5	Percentage
w	Perceived as **(w)**	4 of 4	4 of 4	3 of 4	3 of 4	2 of 4	80%
	Perceived as **(v)**	-	-	1 of 4	1 of 4	2 of 4	20%
θ	Perceived as **(θ)**	1 of 4	2 of 4	2 of 4	1 of 4	2 of 4	40%
	Perceived as **(t)**	3 of 4	2 of 4	2 of 4	3 of 4	2 of 4	60%
ð	Perceived as **(ð)**	1 of 4	1 of 4	3 of 4	2 of 4	1 of 4	40%
	Perceived as **(d)**	1 of 4	1 of 4	-	-	1 of 4	15%
	Perceived as **(z)**	2 of 4	2 of 4	1 of 4	2 of 4	2 of 4	45%

Table 4.3: Consonants Spoken by the Farsi Speakers of English (Speaker 'A')

As presented in Table 4.3, speaker A was perceived by the Australian participants to have pronounced the consonant /**w**/ as /**w**/ 80% of the time and as /**v**/ 20% of the time. For example, the word 'wiper' was perceived as 'wiper' 80% of the time which is the correct choice and perceived as 'viper' 20% of the time. In considering the consonant /**θ**/, this speaker was perceived to have pronounced /**θ**/ as /**θ**/ only 40% of the time and as /**t**/ 60% of the time which caused the Australian participants to choose the incorrect word in many instances. For example, the word 'thought' was perceived as 'taught', which is the incorrect choice. Finally, the consonant /**ð**/ was perceived as /**ð**/ only 40% of the time; as /**d**/ 15% of the time and as /**z**/ 45% of the time, which caused the Australian participants to mark the incorrect choice of words in many instances. For example, the word 'they' was perceived as 'day' and the word 'writhe' was perceived as 'rise' which are both the incorrect choices.

Speaker (B)		Consonants Perceived by the Australian Participants					
Consonants Spoken by the Farsi Speakers of English		Australian Participants					
		P1	P2	P3	P4	P5	Percentage
w	Perceived as (**w**)	3 of 4	4 of 4	4 of 4	4 of 4	4 of 4	95%
	Perceived as (**v**)	1 of 4	-	-	-	-	5%
θ	Perceived as (**θ**)	4 of 4	2 of 4	2 of 4	3 of 4	3 of 4	70%
	Perceived as (**t**)	-	2 of 4	2 of 4	1 of 4	1 of 4	30%
ð	Perceived as (**ð**)	2 of 4	3 of 4	2 of 4	3 of 4	3 of 4	65%
	Perceived as (**d**)	-	-	-	-	-	0%
	Perceived as (**z**)	2 of 4	1 of 4	2 of 4	1 of 4	1 of 4	35%

Table 4.4: Consonants Spoken by the Farsi Speakers of English (Speaker 'B')

As shown in Table 4.4, speaker B was perceived by the Australian participants to have pronounced the consonant /**w**/ as /**w**/ 95% of the time and as /**v**/ 5% of the time. For example, the word 'wail' was perceived as 'wail' 95% of the time, which is the correct choice and perceived as 'veil' 5% of the time. In considering the consonant /**θ**/, this speaker was perceived to have pronounced /**θ**/ as / **θ**/ 70% of the time and as /**t**/ 30% of the time, which caused the Australian participants to choose the incorrect word in some instances. For example, the word 'booths' was perceived as 'boots', which is the incorrect choice. Finally, the consonant /**ð**/ was perceived as /**ð**/ only 65% of the time and as /**z**/ 35% of the time, which caused the Australian participants to mark the incorrect choice of words in some instances. For example, the word 'teething' was perceived as 'teasing', which is the incorrect choice.

Speaker (C)		Consonants Perceived by the Australian Participants					
Consonants Spoken by the Farsi Speakers of English		Australian Participants					
		P1	P2	P3	P4	P5	Percentage
w	Perceived as (**w**)	3 of 4	3 of 4	2 of 4	3 of 4	4 of 4	75%
	Perceived as (**v**)	1 of 4	1 of 4	2 of 4	1 of 4	-	25%
θ	Perceived as (**θ**)	1 of 4	1 of 4	2 of 4	1 of 4	1 of 4	30%
	Perceived as (**t**)	3 of 4	3 of 4	2 of 4	3 of 4	3 of 4	70%
ð	Perceived as (**ð**)	2 of 4	3 of 4	2 of 4	1 of 4	2 of 4	50%
	Perceived as (**d**)	1 of 4	-	1 of 4	1 of 4	1 of 4	20%
	Perceived as (**z**)	1 of 4	1 of 4	1 of 4	2 of 4	1 of 4	30%

Table 4.5: Consonants Spoken by the Farsi Speakers of English (Speaker 'C')

As presented in Table 4.5, speaker C was perceived by the Australian participants to have pronounced the consonant /**w**/ as /**w**/ 75% of the time and as /**v**/ 25% of the time. For example, the word 'west' was perceived as 'west' 75% of the time, which is the correct choice and perceived as 'vest' 25% of the time. In considering the consonant /**θ**/, this speaker was perceived to have pronounced /**θ**/ as / **θ**/ only 30% of the time and as /**t**/ 70% of the time, which caused the Australian participants to choose the incorrect word in many instances. For example, the word 'theme' was perceived as 'team', which is the incorrect choice. Finally, the consonant /**ð**/ was perceived as /**ð**/ only 50% of the time; as /**d**/ 20% of the time and as /**z**/ 30% of the time, which caused the Australian participants to mark the incorrect choice of words in many instances. For example, the word 'they' was perceived as 'day' and the word 'writhe' was perceived as 'rise', which are both the incorrect choices.

Speaker (D)		Consonants Perceived by the Australian Participants					
Consonants Spoken by the Farsi Speakers of English		Australian Participants					
		P1	P2	P3	P4	P5	Percentage
w	Perceived as (**w**)	3 of 4	3 of 4	2 of 4	3 of 4	3 of 4	70%
	Perceived as (**v**)	1 of 4	1 of 4	2 of 4	1 of 4	1 of 4	30%
θ	Perceived as (**θ**)	2 of 4	2 of 4	2 of 4	2 of 4	2 of 4	50%
	Perceived as (**t**)	2 of 4	2 of 4	2 of 4	2 of 4	2 of 4	50%
ð	Perceived as (**ð**)	3 of 4	2 of 4	2 of 4	1 of 4	4 of 4	60%
	Perceived as (**d**)	-	1 of 4	1 of 4	1 of 4	-	15%
	Perceived as (**z**)	1 of 4	1 of 4	1 of 4	2 of 4	-	25%

Table 4.6: Consonants Spoken by the Farsi Speakers of English (Speaker 'D')

As shown in Table 4.6, speaker D was perceived by the Australian participants to have pronounced the consonant /**w**/ as /**w**/ 70% of the time and as /**v**/ 30% of the time. For example, the word 'wine' was perceived as 'wine' 70% of the time, which is the correct choice and perceived as 'vine' 30% of the time. In considering the consonant /**θ**/, this speaker was perceived to have pronounced /**θ**/ as / **θ**/ only 50% of the time and as /**t**/ 50% of the time, which caused the Australian participants to choose the incorrect word in many instances. For example, the word 'thought' was perceived as 'taught', which is the incorrect choice. Finally, the consonant /**ð**/ was perceived as /**ð**/ 60% of the time; as /**d**/ 15% of the time and as /**z**/ 25% of the time which caused the Australian participants to mark the incorrect choice of words in some instances. For example, the word 'they' was perceived as 'day' and the word 'teething' was perceived as 'teasing', which are both the incorrect choices.

The summary of the analysis of consonants spoken by the Farsi speakers of English is shown in Table 4.7:

Summary of the Analysis of Consonants Spoken by the Farsi Speakers of English							
Consonants Spoken by the Farsi Speakers of English		Australian Participants					
		P1	P2	P3	P4	P5	Percentage
Speaker	**w**	100%	100%	75%	75%	50%	80%
	θ	25%	50%	50%	25%	50%	40%
A	**ð**	25%	25%	75%	50%	25%	40%
Speaker	**w**	75%	100%	100%	100%	100%	95%
	θ	100%	50%	50%	75%	75%	70%
B	**ð**	50%	75%	50%	75%	75%	65%
Speaker	**w**	75%	75%	50%	75%	100%	75%
	θ	25%	25%	50%	25%	25%	30%
C	**ð**	50%	75%	50%	25%	50%	50%
Speaker	**w**	75%	75%	50%	75%	75%	70%
	θ	50%	50%	50%	50%	50%	50%
D	**ð**	75%	50%	50%	25%	100%	60%

Table 4.7: Summary of the Analysis of Consonants Spoken by the Farsi Speakers of English

A close investigation of Table 4.7 reveals that, of the three specific consonants /**w, θ, ð** /, /**w**/ was perceived as /**w**/ 80% of the time and as /**v**/ 20% of the time by the Australian participants. This demonstrates that although /**w**/ is absent in the Farsi consonantal system, it did not cause any major problems in the intelligibility of Farsi speakers of English. However, the consonant /**ð**/ was perceived as /**ð**/ 54% of the time; as /**d**/ 12% of the time, and as /**z**/ 34% of the time. This finding shows that the absent consonant /**ð**/ in Farsi caused some problems for the intelligibility of the Farsi speakers of English as they tried to substitute the two phonemes /**d**/ and /**z**/ instead of the absent phoneme /**ð**/. Finally, in considering the consonant /**θ**/ that is also absent

in the Farsi consonantal system, the results revealed that it was perceived as /θ/ only

47% of the time and substituted by /t/ 53% of the time, which indicates a major

problem in the intelligibility of Farsi speakers of English. To highlight this further,

the author of this paper has provided Figure 4.8 to graphically demonstrate these

findings.
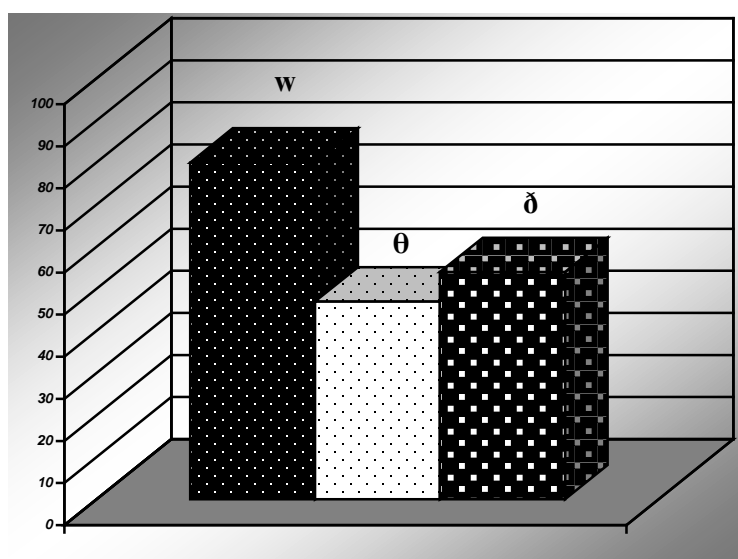
Figure 4.8: The Percentage Rate of Intelligibility of Three Specific Consonants

4.2.2 Vowels perceived by the Australian participants

In the following four Tables (4.9, 4.10, 4.11, and 4.12), the author will detail the

results of the four specific vowels /ɪ, ɔ, ɒ, æ/ perceived by the five Australian

participants for each Farsi speaker of English:

Speaker (A)		Vowels Perceived by the Australian Participants					
Vowels Spoken by the Farsi Speakers of English		Australian Participants					
		P1	P2	P3	P4	P5	Percentage
ɪ	Perceived as (ɪ)	3 of 3	2 of 3	3 of 3	3 of 3	2 of 3	85%
	Perceived as (i)	-	1 of 3	-	-	1 of 3	15%
ɔ	Perceived as (ɔ)	-	-	-	-	1 of 1	20%
	Perceived as (ʌ)	1 of 1	1 of 1	1 of 1	1 of 1	-	80%
ɒ	Perceived as (ɒ)	-	-	-	-	1 of 1	20%
	Perceived as (ʌ)	1 of 1	1 of 1	1 of 1	1 of 1	-	80%
æ	Perceived as (æ)	1 of 1	1 of 1	1 of 1	1 of 1	1 of 1	100%
	Perceived as (ɒ)	-	-	-	-	-	0%

Table 4.9: Vowels Spoken by the Farsi Speakers of English (Speaker 'A')

As presented in Table 4.9, speaker A was perceived by the Australian participants to have pronounced the vowel /ɪ/ as /ɪ/ 85% of the time and as /i/ 15% of the time. For example, the word 'bins' was perceived as 'beans' in some instances, which was the incorrect choice. In considering the vowel /ɔ/, this speaker was perceived to have pronounced /ɔ/ as /ɔ/ only 20% of the time and as /ʌ/ 80% of the time, which caused the Australian participants to choose the incorrect word in many instances. For example, the word 'caught' was perceived as 'cut' which is the incorrect choice. In addition, the vowel /ɒ/ was perceived as /ɒ/ only 20% of the time and as /ʌ/ 80% of the time, which caused the Australian participants to mark the incorrect choice of words in many instances. For example, the word 'wandering' was perceived as 'wondering', which is the incorrect choice. Finally, the vowel /æ/ was perceived as /æ/ 100% of the time by the Australian participants, which indicates that this vowel did not cause any problems for the intelligibility of this speaker. For example the word 'knack' was perceived as 'knack' in all instances.

Speaker (B)		Vowels Perceived by the Australian Participants					
Vowels Spoken by the Farsi Speakers of English		Australian Participants					
		P1	P2	P3	P4	P5	Percentage
ɪ	Perceived as (ɪ)	3 of 3	3 of 3	3 of 3	3 of 3	3 of 3	100%
	Perceived as (i)	-	-	-	-	-	0 %
ɔ	Perceived as (ɔ)	-	-	-	-	-	0 %
	Perceived as (ʌ)	1 of 1	1 of 1	1 of 1	1 of 1	1 of 1	100%
ɒ	Perceived as (ɒ)	-	-	-	-	-	0 %
	Perceived as (ʌ)	1 of 1	1 of 1	1 of 1	1 of 1	1 of 1	100%
æ	Perceived as (æ)	1 of 1	1 of 1	1 of 1	1 of 1	1 of 1	100%
	Perceived as (ɒ)	-	-	-	-	-	0%

Table 4.10: Vowels Spoken by the Farsi Speakers of English (Speaker 'B')

As shown in Table 4.10, speaker B was perceived by the Australian participants to have pronounced the vowel /ɪ/ as /ɪ/ 100% of the time, which indicates that this vowel did not cause any problems for the intelligibility of this speaker. For example, the words 'bins', 'ship', and 'live' were perceived correctly in all instances. In considering the vowel /ɔ/, this speaker was perceived to have pronounced /ɔ/ as /ɔ/ 0% of the time and as /ʌ/ 100% of the time, which caused the Australian participants to choose the incorrect word in all instances. For example, the word 'caught' was perceived as 'cut' in all instances, which is the incorrect choice. In addition, the vowel /ɒ/ was perceived as /ɒ/ 0% of the time and as /ʌ/ 100% of the time which caused the Australian participants to mark the incorrect choice of words in all instances. For example, the word 'wandering' was perceived as 'wondering' in all instances, which is the incorrect choice. Finally, the vowel /æ/ was perceived as /æ/ 100% of the time by the Australian participants, which indicates that this vowel did not cause any problems for the intelligibility of this speaker. For example, the word 'knack' was perceived as 'knack' in all instances.

Speaker (C)		Vowels Perceived by the Australian Participants					
Vowels Spoken by the Farsi Speakers of English		Australian Participants					
		P1	P2	P3	P4	P5	Percentage
ɪ	Perceived as (ɪ)	3 of 3	2 of 3	3 of 3	3 of 3	2 of 3	85%
	Perceived as (i)	-	1of 3	-	-	1 of 3	15%
ɔ	Perceived as (ɔ)	1 of 1	1 of 1	1 of 1	1 of 1	1 of 1	100%
	Perceived as (ʌ)	-	-	-	-	-	0%
ɒ	Perceived as (ɒ)	1 of 1	-	-	-	-	20%
	Perceived as (ʌ)	-	1 of 1	1 of 1	1 of 1	1 of 1	80%
æ	Perceived as (æ)	1 of 1	1 of 1	1 of 1	1 of 1	1 of 1	100%
	Perceived as (ɒ)	-	-	-	-	-	0%

Table 4.11: Vowels Spoken by the Farsi Speakers of English (Speaker 'C')

As presented in Table 4.11, speaker C was perceived by the Australian participants to have pronounced the vowel /ɪ/ as /ɪ/ 85% of the time and as /i/ 15% of the time. For example, the word 'bins' was perceived as 'beans' in some instances, which was the incorrect choice. In considering the vowel /ɔ/, this speaker was perceived to have pronounced /ɔ/ as /ɔ/ 100% of the time, which indicates that this vowel did not cause any problems for the intelligibility of this speaker. For example, the word 'caught' was perceived as 'caught' in all instances. In addition, the vowel /ɒ/ was perceived as /ɒ/ only 20% of the time and as /ʌ/ 80% of the time which caused the Australian participants to mark the incorrect choice of words in many instances. For example, the word 'wandering' was perceived as 'wondering', which is the incorrect choice. Finally, the vowel /æ/ was perceived as /æ/ 100% of the time by the Australian participants, which indicates that this vowel did not cause any problems for the intelligibility of this speaker. For example, the word 'knack' was perceived as 'knack' in all instances.

Speaker (D)		Vowels Perceived by the Australian Participants					
Vowels Spoken by the Farsi Speakers of English		Australian Participants					
		P1	P2	P3	P4	P5	Percentage
ɪ	Perceived as (ɪ)	2 of 3	1 of 3	2 of 3	2 of 3	1 of 3	53%
	Perceived as (i)	1 of 3	2 of 3	1 of 3	1 of 3	2 of 3	47%
ɔ	Perceived as (ɔ)	1 of 1	1 of 1	1 of 1	1 of 1	1 of 1	100%
	Perceived as (ʌ)	-	-	-	-	-	0%
ɒ	Perceived as (ɒ)	-	-	1 of 1	-	1 of 1	40%
	Perceived as (ʌ)	1 of 1	1 of 1	-	1 of 1	-	60%
æ	Perceived as (æ)	1 of 1	1 of 1	1 of 1	1 of 1	1 of 1	100%
	Perceived as (ɒ)	-	-	-	-	-	0%

Table 4.12: Vowels Spoken by the Farsi Speakers of English (Speaker 'D')

As shown in Table 4.12, speaker D was perceived by the Australian participants to have pronounced the vowel /ɪ/ as /ɪ/ only 53% of the time and as /i/ 47% of the time. For example, the word 'live' was perceived as 'leave' in all instances, and the word 'bins' as 'beans' in many instances, which caused the Australian participants to choose the incorrect choice in many instances. In considering the vowel /ɔ/, this speaker was perceived to have pronounced /ɔ/ as /ɔ/ 100% of the time, which indicates that this vowel did not cause any problems for the intelligibility of this speaker. For example, the word 'caught' was perceived as 'caught' in all instances. In addition, the vowel /ɒ/ was perceived as /ɒ/ only 40% of the time and as /ʌ/ 60% of the time, which caused the Australian participants to mark the incorrect choice of words in many instances. For example, the word 'wandering' was perceived as 'wondering' which is the incorrect choice. Finally, the vowel /æ/ was perceived as /æ/ 100% of the time by the Australian participants, which indicates that this vowel did not cause any problems for the intelligibility of this speaker. For example, the word 'knack' was perceived as 'knack' in all instances.

The summary of the analysis of vowels spoken by the Farsi speakers of English is shown in Table 4.13:

Summary of the Analysis of Vowels spoken by the Farsi Speakers of English							
Vowels Spoken by the Farsi Speakers of English		Australian Participants					
		P1	P2	P3	P4	P5	Percentage
Speaker A	ɪ	100%	66%	100%	100%	66%	85%
	ɔ	-	-	-	-	100%	20%
	ɒ	-	-	-	-	100%	20%
	æ	100%	100%	100%	100%	100%	100%
Speaker B	ɪ	100%	100%	100%	100%	100%	100%
	ɔ	-	-	-	-	-	0 %
	ɒ	-	-	-	-	-	0 %
	æ	100%	100%	100%	100%	100%	100%
Speaker C	ɪ	100%	66%	100%	100%	66%	85%
	ɔ	100%	100%	100%	100%	100%	100%
	ɒ	100%	-	-	-	-	20%
	æ	100%	100%	100%	100%	100%	100%
Speaker D	ɪ	66%	34%	66%	66%	34%	53%
	ɔ	100%	100%	100%	100%	100%	100%
	ɒ	-	-	100%	-	100%	40%
	æ	100%	100%	100%	100%	100%	100%

Table 4.13: Summary of the Analysis of Vowels Spoken by the Farsi Speakers of English

A close investigation of Table 4.13 shows that of the four specific vowels /ɪ, ɔ, ɒ, æ/, /ɪ/ was perceived as /ɪ/ 80% of the time and as /i/ 20% of the time by the Australian participants. This demonstrates that although /ɪ/ is absent in the Farsi vowel system, it did not cause any major problems in the intelligibility of Farsi speakers of English. However, the vowel /ɔ/ was perceived as /ɔ/ 55% of the time and as /ʌ/ 45% of the time. This finding demonstrates that even though both of these vowels are absent in Farsi, the Australian participants selected /ʌ/ 45% of the time because it sounded closer to the vowel /ɒ/, which was pronounced mistakenly by

some of the Farsi speakers of English. In considering the vowel /ɒ/ which exists in Farsi, the author found a surprising result that 80% of the time the Australian participants perceived /ʌ/ instead of /ɒ/, which reveals that /ɒ/ in English can be pronounced as /ʌ/ by Farsi speakers of English causing the L1 Australian English speakers to misinterpret what was being spoken. Finally, as mentioned previously by the author in the literature review, the vowel /æ/, which exists in both languages does not correspond exactly in English with the Farsi equivalent and subsequently Farsi speakers of English tend to use /ɒ/ instead of /æ/. However, the results of the findings concluded that the vowel /æ/ was perceived 100% of the time by all five Australian participants, which indicates that this vowel did not cause any problems for the intelligibility of the Farsi speakers of English. To highlight this further, the author of this paper has provided Figure 4.14 to graphically demonstrate these findings:
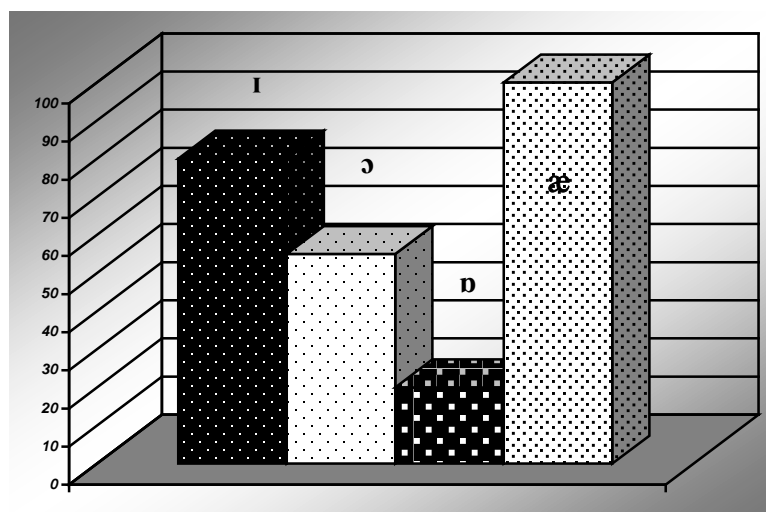
Figure 4.14: The Percentage Rate of Intelligibility of Four Specific Vowels

4.3 Section C: The Analysis of Ten Sentences with Missing Words including Consonant Clusters

In this section, the five Australian participants (identified as P1, P2, P3, P4, and P5) were asked to listen to ten sentences which were read aloud by the (identified Farsi speakers of English as A, B, C, and D) and subsequently, they were asked to fill in the words that were missing as they had heard them. It should be noted that these missing words contained the consonant clusters which were identified previously in the literature review to have caused difficulties for the Farsi speakers of English in being understood by the L1 Australian English speakers. Moreover, the results of the analysis of these ten completed sentences for each of the Farsi speakers of English as perceived by the Australian participants are given separately in four Tables (4.15, 4.16, 4.17, and 4.18) as follows:

Results of the Analysis of Consonant Clusters and how they were Perceived						
Speaker A	Australian Participants					
	P1	P2	P3	P4	P5	Percentage
Flower	√	√	√	√	√	100%
Toothbrush	√	√	√	√	√	100%
Clean	√	three	clothes	three	√	40%
Spelt	√	-	spelled	-	√	40%
Group	√	√	√	√	√	100%
Bronze	√	√	-	-	√	60%
Strict	√	6th	√	-	√	60%
Flute	-	suit	√	suit	√	40%
Stuck	-	tall-	parked	-	√	20%
Traffic	-	√	√	√	√	80%
Skiing	attuned	killed	-	-	-	0%
Bring	-	√	remove	-	√	40%
Class	-	√	cloth	√	√	60%

Table 4.15: Results of the Analysis of Consonant Clusters and how they were perceived (speaker 'A')

As shown in Table 4.15, speaker A was perceived correctly by all the Australian participants in only three words (flower, toothbrushes, and group) out of the total of thirteen words. It should be noted that the Australian participants misunderstood this speaker in thirteen instances and did not recognize the words in fifteen instances.

Results of the Analysis of Consonant Clusters and how they were Perceived						
Speaker B	Australian Participants					
	P1	P2	P3	P4	P5	Percentage
Flower	√	√	√	√	√	100%
Toothbrush	√	√	√	√	√	100%
Clean	√	in	√	√	√	80%
Spelt	√	√	spelled	√	√	80%
Group	√	√	√	√	√	100%
Bronze	√	√	raw	√	√	80%
Strict	√	√	√	√	√	100%
Flute	√	√	√	√	√	100%
Stuck	√	√	√	√	√	100%
Traffic	√	√	√	√	√	100%
Skiing	√	√	√	√	√	100%
Bring	√	√	√	√	√	100%
Class	√	√	√	√	√	100%

Table 4.16: The Results of the Analysis of Consonant Clusters and how they were perceived (speaker 'B')

As presented in Table 4.16, speaker B was perceived correctly by all the Australian participants in ten words out of the total of thirteen words. However, in three words (clean, spelt, and bronze) some participants misunderstood this speaker.

Results of the Analysis of Consonant Clusters and how they were Perceived						
Speaker C	Australian Participants					
	P1	P2	P3	P4	P5	Percentage
Flower	√	√	√	√	√	100%
Toothbrush	√	√	√	√	√	100%
Clean	√	√	√	√	√	100%
Spelt	-	heard	spoke	spoke	√	20%
Group	√	√	grove	√	√	80%
Bronze	√	√	raw	√	√	80%
Strict	√	√	√	√	√	100%
Flute	√	√	√	√	√	100%
Stuck	√	√	caught	caught	√	60%
Traffic	√	√	√	√	√	100%
Skiing	√	√	√	√	√	100%
Bring	√	√	√	√	meal-bring	80%
Class	√	√	√	√	√	100%

Table 4.17: Results of the Analysis of Consonant Clusters and how they were perceived (speaker 'C')

Table 4.17 reveals that speaker C was perceived correctly by all the Australian participants in eight words out of the total of thirteen words. It should be noted that the Australian participants misunderstood this speaker in eight instances and did not recognize a word at all in one instance.

Results of the Analysis of Consonant Clusters and how they were Perceived						
Speaker D	Australian Participants					
	P1	P2	P3	P4	P5	Percentage
Flower	√	√	√	√	√	100%
Toothbrush	√	√	√	√	√	100%
Clean	√	√	√	√	√	100%
Spelt	stared	√	spoke	spoke	√	40%
Group	√	√	√	√	√	100%
Bronze	√	√	√	√	√	100%
Strict	√	sea-strict	√	√	√	80%
Flute	√	√	√	√	√	100%
Stuck	√	√	√	√	√	100%
Traffic	√	√	√	√	√	100%
Skiing	skilled	√	ski	skilled	√	40%
Bring	√	√	√	√	√	100%
Class	√	√	√	√	√	100%

Table 4.18: Results of the Analysis of Consonant Clusters and how they were perceived (speaker 'D')

As presented in Table 4.18, speaker B was perceived correctly by all the Australian participants in ten words out of the total of thirteen words. However, in three words (spelt, strict, and skiing) some participants misunderstood this speaker.

Overall, a close examination of these four tables reveals that each of these Farsi speakers of English had problems with English consonant clusters to a varying degree. For instance, speaker B was perceived correctly by the Australian participants 94% of the time, and in only three instances, she was understood to have spoken other than the correct words. Speaker D was perceived by the Australian participants 89% of the time; whilst speaker C was perceived 86% of the time. On the other hand, speaker A was only perceived 58% of the time, with thirteen instances where words were misunderstood and fifteen instances where words were not at all recognizable by the Australian participants.

It should be noted that after analysing the results drawn from these four tables, the author has further support for the earlier discussion in the literature review which concluded that SC (S+ Consonant) clusters caused major problems for all four Farsi speakers of English. Further to this, an interesting observation is that the rating of the best to worst speaker from section A is fully supported by the rating of the percentages of the Farsi speakers of English in this section (See Figure 4.19):
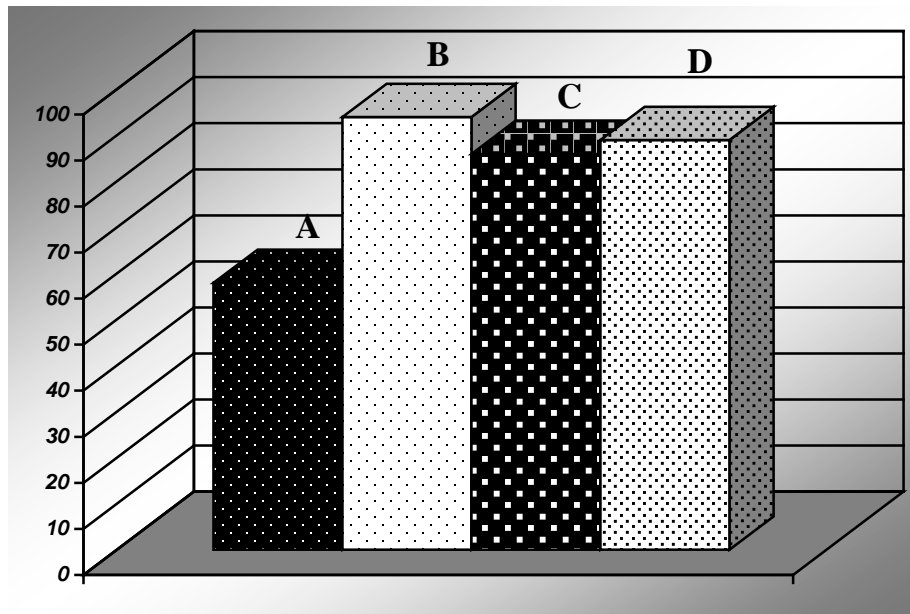
Figure 4.19: The Percentage Rate of Intelligibility of Words including the Consonant Clusters for Four Farsi Speakers of English (identified as A, B, C, and D)

CHAPTER 5

DISCUSSION AND CONCLUSION

This final chapter presents the discussion and conclusion to the study. It begins with an overview of the objectives of this study and compares the findings of the current study with previous results of other similar studies. The major findings of the study are then summarised in an attempt to provide answers to the objectives posed in the methodology chapter. In addition, implications for theoretical development and practical applications are considered and finally, the chapter concludes with suggestions for further research in this field.

5.1 Discussion

Essentially, the analysis of findings supports the notion that phonological characteristics (segmental features) of Farsi speakers of English interfere with their intelligibility when they interact with L1 Australian English speakers. In addition, this study highlights the extent to which phonological characteristics of Farsi speakers of English affect their intelligibility whilst conversing with L1 Australian English speakers which was the first objective of the study.

The results of the current study confirmed the prediction of Contrastive Analysis Hypothesis that the absent phonemes /**w, θ, ð, ɔ , ɪ**/ in the Farsi sound system do cause difficulties for the intelligibility of Farsi speakers of English. To illustrate the point, of three absent consonants /**w, θ, ð**/, the phoneme /**θ**/ with the intelligibility rate of 47% and the phoneme /**ð**/ with the intelligibility rate of 54% demonstrate the

high functional load of these phonemes. On the other hand, the phoneme /w/ with the intelligibility rate of 80% revealed that this phoneme has a low functional load; however, the study found that for 20% of the time, this phoneme still caused some problems for the Farsi speakers of English.

In considering the absent vowels /ɔ/ and /ɪ/, the phoneme /ɔ/ with an intelligibility rate of 55% highlighted the fact that this phoneme has a high functional load; conversely, the phoneme /ɪ/ with an intelligibility rate of 80% showed that this phoneme has a low functional load which may cause less problems for Farsi speakers of English.

It should be mentioned that when the author considered the two vowels /æ/ and /ɒ/ that both exist in Farsi and English vowel systems in this study, the expectation was that they would have caused no difficulties at all for the Farsi speakers of English. In the case of the phoneme /æ/, the findings supported this expectation; however, surprisingly, the author found that the phoneme /ɒ/ in English, which is classified as the same phoneme /ɒ/ in Farsi caused a profound number of difficulties with an intelligibility rate of 20% for the Farsi speakers of English. In fact, this finding agrees with the moderate version of Contrastive Analysis Hypothesis that claims, wherever patterns are minimally distinct in form or meaning in two systems, confusion may occur. Moreover, the author believes that the phoneme /ɒ/ in Farsi is more similar to the phoneme /ʌ/ in English that is absent in the Farsi sound system. Indeed, this might be the reason that the Farsi speakers of English participating in the

study were understood to have said 'wondering' instead of 'wandering' by the L1 Australian English speakers 80% of the time.

In considering consonant clusters, the analysis of findings showed that due to the differences between the Farsi and English syllable structures, the Farsi speakers of English experienced problems with English consonant clusters to a varying degree. Specifically, the author found that SC (S+ Consonant) clusters which are absent in Farsi caused more problems for the Farsi speakers of English than non- SC clusters.

It should be mentioned that the findings of this study have similar results to a study conducted by Major and Kim (1999) in which they found that beginning and advanced Korean learners of English performed better with similar sounds. For example, the similar sound /dʒ/ was pronounced better by both groups of learners than the dissimilar sound /z/. In fact, they concluded that Korean learners of English often substituted the absent phoneme /f/ with the phoneme /p/ which exists in the Korean consonantal system. It is an interesting observation that the Korean learners of English chose the phoneme /p/ as the nearest phoneme to /f/, as this exactly corresponds to the conclusions of this study where Farsi speakers of English often substituted the phonemes /θ/ with /t/ and /ð/ with /d/ or /z/, which are the nearest phonemes in the Farsi consonantal system.

In contrast, in another study conducted by Bohn and Fledge (1992), they discovered that even German speakers of English with an extended exposure to English did not produce the similar English sounds /i, ɪ, ɛ/ authentically; however,

some of the German speakers of English produced the dissimilar sound /æ/ authentically. Thus, they concluded that it is usually similarities and not differences which are harder to acquire because the gross differences are often more noticeable; whereas, minor differences are likely to be noticed and in turn, result in misunderstanding.

Nevertheless, the findings of the current study contradict the findings of Bohn and Fledge (1992) as they provide evidence that similar sounds will result in misunderstanding more than dissimilar sounds. However, one exception in the findings of the current study supports the findings of Bohn and Fledge (1992) where similar phoneme /ɒ/, that exists in both English and Farsi sound systems, caused the Farsi speakers of English to be misunderstood by the L1 Australian English speakers 80% of the time.

In another study, Major (1987) found that advanced speakers of Brazilian/ Portuguese performed better with the dissimilar sounds than with the similar sounds, but the situation was opposite for the beginning learners who performed better than the advanced speakers with the similar sounds. It should be noted that the findings of the current study contradict the findings of Major's study, as the advanced-level Farsi speakers of English with an IELTS test score of six in speaking, all encountered difficulties with dissimilar sounds and in only one instance, a similar sound, /ɒ/, caused a significant problem for most of the Farsi speakers of English.

Another important finding of the current study is related to the second objective, which is the L1 Australian English speakers' perceptions of the effect of

pronunciation on the intelligibility of Farsi speakers of English. In fact, the analysis of findings revealed that overall, speaker B in spontaneous speech was rated as the most intelligible speaker by the L1 Australian English Speakers amongst the four Farsi speakers of English. Moreover, speaker B was rated the most intelligible speaker (at 95%) in the findings related to consonant clusters and also perceived as the most intelligible speaker in producing consonants. However, in producing vowels, speaker B was perceived to only be intelligible 50% of the time.

In contrast, speaker A was rated in spontaneous speech as the least intelligible speaker. Likewise, speaker A was rated the least intelligible speaker 58% of the time in the findings related to consonant clusters and also perceived as the least intelligible speaker in producing consonants; although, in producing vowels, speaker A was rated third at 58% by the L1 Australian English speakers. Therefore, these findings support the understanding that pronunciation does affect the intelligibility of Farsi speakers of English.

5.2 Implication of Findings

The findings of this study have implications for theoretical development and practical applications. In considering the theoretical development, more research needs to be done with a larger sample of Farsi speakers of English, outside or within Iran, to build on the understanding of the extent to which phonological characteristics of Farsi speakers of English interfere with their intelligibility when they interact with L1 speakers of English.

In terms of practical applications, the findings of this study can act as an intelligible model to assist both learners and teachers in English language learning and teaching. Firstly, it can assist learners who may not realise the extent to which L1 English speakers misunderstand them as they have not been familiarised with the phonetic differences between the model of English pronunciation that they were taught and more intelligible models. Secondly, it may allow teachers to obtain an awareness of the likely problems to be incurred by the learners' lack of familiarity with the phonetic differences between the learners' own pronunciation and more intelligible models, which would enable the learners to detect their own pronunciation errors and subsequently work towards correcting them. In addition, teachers need to be trained to obtain a thorough knowledge of the L2 sound system and the appropriate intelligible models to encourage them to devote time specifically to focus on phonemes that are identified to have caused problems for L2 learners.

5.3 Recommendations for Future Research

It is recommended that future studies need to be conducted due to the limited number of studies in this field. Moreover, future research could be improved by involving larger sampling groups that are balanced in gender and age orientation. However, if research is conducted on sample groups within Iran, the research would require the participation of L1 English speakers to assess the intelligibility of Farsi speakers of English. In addition, the scope of this research could be enlarged to investigate the suprasegmental features of phonology rather than only focusing on segmental features.

5.4 Conclusion

The aim of the study was to investigate the phonological characteristics of Farsi speakers of English and L1 Australian English speakers' perceptions of proficiency; therefore, the study was conducted to cover three areas that were related to the aim of the study. Subsequently, the analysis of findings was classified into three sections: an unstructured interview, a twenty multiple choice questionnaire, and ten sentences with missing words.

The analysis of findings revealed that the absent phonemes in the Farsi sound system do cause difficulties for the intelligibility of Farsi speakers of English. In addition, the differences in the Farsi and English syllable structures also cause difficulties to a varying degree for Farsi speakers of English. Moreover, the findings showed that speaker B was perceived to be the most intelligible speaker by the five Australian participants, and this finding was also supported by the author's analysis from the results of the twenty multiple choice questionnaire, which included minimal pairs and ten sentences with missing words which included consonant clusters. As a result of these findings, the conclusion is drawn that pronunciation does affect intelligibility of Farsi speakers of English.

REFERENCES

Avery, P. & Ehrlich, S. (1992). *Teaching American English Pronunciation*. Oxford: Oxford University Press.

Bohn, O., & Flege, J. E. (1992). The Production of New and Similar Vowels by Adult German Learners of English. *Studies in Second Language Acquisition, 14(2), 131-158.*

Brown, H. D. (1994). *Principles of Language Learning and Teaching* (3rd ed.). Englewood Cliffs, NJ: Prentice Hall.

Collins, B., & Mees, I. M. (2003). *Practical Phonetics and Phonology: A Resource Book for Students.* London: Routledge

Farsinet (n.d.). *Farsi - Persian Language*. Retrieved March 20, 2007, from http://www.farsinet.com/farsi/

Fraser, H. (2000). *Coordinating Improvements in Pronunciation Teaching for Adult Learners of English as a Second Language* (Gov. Rep.). Canberra: DETYA (ANTA Innovative Project).

Fries, C. C. (1945). *Teaching and Learning Language as a Foreign Language*. Ann Arbour: University of Michigan Press.

International Phonetic Alphabet: Handbook of the International Phonetic Association: A guide to the use of the International Phonetic Alphabet. (1999). Cambridge, U.K. & New York, NY: Cambridge University Press.

James, E. F. (1976). The Acquisition of Prosodic Features of Speech Using a Speech Visualizer. *International Review of Applied Linguistics in Language Teaching*, 14(3), 227-243.

Kenworthy, J. (1987). *Teaching English Pronunciation.* London & New York: Longman.

King, R. D. (1967). Functional Load and Sound Change. *Language*, 43(4), 831-852.

Lado, R. (1957). *Linguistics Across Cultures*: *Applied Linguistics for Language Teachers.* Ann Arbour: University of Michigan Press.

Lee, W. R. (1968). Thoughts on Contrastive Linguistics in the Context of Foreign Language Teaching. In J. E. Alatis (Eds.), *Contrastive Linguistics and its Pedagogical Implication: The Report of the 19th Annual Round Table on Contrastive Linguistics* (pp.185-194). Washington DC: Georgetown University Press.

Major, R. C. (1987). English Voiceless Stop Production by Speakers of Brazilian Portuguese. *Journal of Phonetics*, 15, 197-202.

Major, R. C., & Kim, E. (1999). The Similarity Differential Rate Hypothesis. *Language Learning*, 46, 465-496.

Mirhassani, A. (2003). *A Contrastive Analysis of Persian and English Parts of Speech*. Tarbiat Modarres University: Tehran.

Oller, J. W., & S. M. Ziahosseiny (1970). The Contrastive Analysis Hypothesis and Spelling Errors. *Language Learning*, 20, 183-189.

Samareh, Y. (2000). *The Arrangement of Segmental Phonemes in Farsi:* Tehran UP.

Shademan, sh. (2002). Epenthesis Vowel Harmony in Farsi. Masters of Arts Dissertation: University of California. Retrieved March 15, 2007, from http://www.linguistics.ucla.edu/people/grads/shademan/ShademanThesis.pdf

Sousa, A. D. (2005). *How the Brain Learns to Read*. California: Crowin Press.

Stockwell, R. P., & Bowen, D. J. (1965). *The Sounds of English and Spanish*. Chicago & London: The University of Chicago Press.

Stockwell, R. P., Bowen, D. J., Martin, J. W. (1965). *The Grammatical Structures of English and Spanish.* Chicago & London: The University of Chicago Press.

Swan, M., & Smith, B. (Ed.). (1987). *Learner English: A Teacher's Guide to Interference and Other Problems*. Cambridge: Cambridge University Press.

Wardhaugh, R. (1970). The Contrastive Analysis Hypothesis. *TESOL Quarterly*, 4, 120-130.

Windfuhr, G. L. (1979). Persian. In B. Comrie (Ed.). (1987). *The World's Major Languages* (pp. 523-547): Oxford UP.

Yavas, M. (2006). *Applied English Phonology*. Malden: Blackwell.

APPENDIX 1

Instruments for Farsi Speakers of English

Part A

The questionnaire

1. How do you like Australia?

2. What are the differences that you like?

3. How did you feel in the first month you were here?

4. How do you feel now?

5. Would you prefer to live here permanently in the future? Why?

Part B

Please read the sentences below:

1. He is going to live here.

2. That's a big ship over there.

3. She bought a bowl at the shop.

4. My friends had a lot of wines.

5. I thought it while I was at university.

6. When exactly will they come?

7. My neighbours soothe me often.

8. The little girls are teething.

9. The snake is beginning to writhe.

10. Mary took the bins to the warehouse.

11. A wiper was used in the experiment.

12. Did you happen to look in the west?

13. The group was wandering about the forest.

14. Sarah saw the path and took it.

15. The new manager really liked his new theme.

16. After the rain, the booths were covered with mud.

17. Fiona's son was caught in the playground after dark.

18. Jack's body needed exercise.

19. Her view was changed by a wail.

20. John had a knack for getting good grades.

Part C

Please read the sentences below:

1. He bought a blue flower.

2. I want three toothbrushes.

3. The children wore clean black clothes.

4. The students spelt the words correctly.

5. A group of girls use bronze cream.

6. It's the strict law.

7. My brother has the other green flute.

8. They were stuck in the traffic.

9. The small kids were skiing.

10. Please bring the meal to the class.

APPENDIX 2

Instruments for L1Australian English Speakers

Part A

1. Which of these four speakers of English (A, B, C, or D) do you think is the best? Why do you think this person is the "best" speaker?

....
....
....
....
....
....
....
....
....
....

2. Which of these four speakers of English (A, B, C, or D) do you think is the worst? Why do you think this person is the "worst" speaker?

....
....
....
....
....
....
....
....

3. Do you have any comments on the other two?

....
....
....
....
....
....

Part B

Speaker ( )

Below are pairs of similar sentences. You will hear speakers reading one of each pair. Please tick the box to indicate the sentence you hear.

1. He is going to leave here. ☐

   He is going to live here. ☐

2. That's a big ship over there. ☐

   That's a big sheep over there. ☐

3. She bought a ball at the shop. ☐

   She bought a bowl at the shop. ☐

4. My friends had a lot of wines. ☐

   My friends had a lot of vines. ☐

5. I taught it while I was at university. ☐

   I thought it while I was at university. ☐

6. When exactly will day come? ☐

   When exactly will they come? ☐

7. My neighbours soothe me often. ☐

   My neighbours sued me often. ☐

8. The little girls are teasing. ☐

   The little girls are teething. ☐

9. The snake is beginning to rise. ☐

   The snake is beginning to writhe. ☐

10. Mary took the bins to the warehouse. ☐

    Mary took the beans to the warehouse. ☐

11. A wiper was used in the experiment. ☐

    A viper was used in the experiment. ☐

12. Did you happen to look in the vest? ☐

    Did you happen to look in the west? ☐

13. The group was wondering about the forest. ☐

    The group was wandering about the forest. ☐

14. Sarah saw the path and took it. ☐

    Sarah saw the pass and took it. ☐

15. The new manager really liked his new theme. ☐

    The new manager really liked his new team. ☐

16. After the rain, the boots were covered with mud. ☐

    After the rain, the booths were covered with mud. ☐

17. Fiona's son was cut in the playground after dark. ☐

    Fiona's son was caught in the playground after dark. ☐

18. Jack's buddy needed exercise. ☐

    Jack's body needed exercise. ☐

19. Her view was changed by a veil. ☐

    Her view was changed by a wail. ☐

20. John had a knock for getting good grades. ☐

    John had a knack for getting good grades. ☐

Part C

Speaker (   )

After listening to the sentences read by these speakers, please fill in the missing word or words.

1. He bought a blue.............

2. I want three.............

3. The children wore .... black clothes.

4. The students .... the words correctly.

5. A............ of girls use .... cream.

6. It's the .... law.

7. My brother has the other green.............

8. They were .... in the.............

9. The small kids were.............

10. Please .... the meal to the.............

APPENDIX 3

Information Sheet

Information Sheet

Title of this project: <u>Phonological characteristics of Farsi speakers of English and Australian English L1 speakers' perceptions of proficiency.</u>

The aim of this project is to <u>examine L1 Australian English Speakers' perceptions of the effect of phonological transfer on the intelligibility of Farsi speakers of English</u>.

You will be asked to <u>listen to 4 interviews and answer 3 questions.</u> This should take about <u>20 Minutes</u> .You will then be asked to <u>listen to pairs of sentences and then tick the box to indicate the sentence you hear.</u> This will take about <u>12 Minutes.</u> Finally, you will be asked to <u>listen to 10 sentences and fill in the missing word or words.</u> This should take about <u>8 minutes</u>.

All data you provide will be stored in a secure place and will only be accessible to my Supervisor and to the Unit Coordinator. You will not be identifiable in the reporting of the results of this research.

Participation in this research is purely voluntary, and you are at liberty to withdraw your participation at any time without negative consequences.

My contact details and those of my supervisor are:

<u> Mrs. Mahnaz Hall </u>   <u>   Dr. Chris Conlan   </u>

<u>   Researcher</u>   <u>   Supervisor</u>

This study has been approved by the Curtin University Human Research Ethics Committee. If needed, verification of approval can be obtained by writing to the Curtin University Human Research Ethics Committee, C/- Office of Research and Development, Curtin University of Technology, GPO Box U1987, Perth, 6845, or by telephoning 92662784.

APPENDIX 4

Consent Form

Consent Form

Title of project: <u>Phonological characteristics of Farsi speakers of English and Australian</u>

<u> English L1 speakers' perceptions of proficiency.</u>

I have been informed of and understand the purposes of the study. I have been given an opportunity

to ask questions. I understand I can withdraw at any time without prejudice. Any information which

might potentially identify me will not be used in published material.

I agree to participate in the study as outlined to me.

Name of the participant _____

Signature _____

Date: _____

Contact Details: _____

APPENDIX 5

Results of Four Unstructured Interviews

1. Which of these four speakers of English (A, B, C or D) do you think is the best? Why do you think this person is the "best" speaker?

Speaker no B would be the best all round speaker of English

2. Which of these four speakers of English (A, B, C or D) do you think is the worst? Why do you think this person is the "worst" speaker?

N° C I believed was the worst, to me needed to slow down. The overall recording was a bit to soft for me

3. Do you have any comments on the other two?

"D" was close to "B"
speaker A speaking was still very good

1. Which of these four speakers of English (A, B, C or D) do you think is the best? Why do you think this person is the "best" speaker?

Speaker B had the least accent
Their ideas were clearer
The words they chose were better

2. Which of these four speakers of English (A, B, C or D) do you think is the worst? Why do you think this person is the "worst" speaker?

Speaker A strongest accent Ideas
seemed to be not ordered correctly
Put the wrong words into the sentences
and said the wrong words

3. Do you have any comments on the other two?

Speaker A & A. Speaker A's accent stronger than
Student B
B Expresses ideas more clearly
C Speaker C better than A
D

1. Which of these four speakers of English (A, B, C or D) do you think is the best?
Why do you think this person is the "best" speaker?

(B). Was a confident English speaker and sounded as if she had a outgoing personality and had spent some time learning English and had been settled in Australia for a period. Had a wide range of vocabulary

2. Which of these four speakers of English (A, B, C or D) do you think is the worst?
Why do you think this person is the "worst" speaker?

(C). English vocabulary limited and found it hard to enlarge on subjects but I was able to understand content of what she was trying to say. Spoke very quietly and I really had to concentrate on what she was saying but when reading and answering a direct question she sounded more confident and was easier to understand I feel that when this student is more settled into Australian life she will gain in confidence and her English will improve markedly

3. Do you have any comments on the other two?

(A). Has a good grasp of English and wants to improve for the sake of her family and herself. Speaks quietly but fast

(D). Has a wide range of vocabulary and expresses self well. Spoke clearly but with slight accent

90

1. Which of these four speakers of English (A, B, C or D) do you think is the best?
Why do you think this person is the "best" speaker?

I believe that speaker "B" was the best as she was very confident when she spoke and had a good grasp of spoken English

2. Which of these four speakers of English (A, B, C or D) do you think is the worst?
Why do you think this person is the "worst" speaker?

Speaker A was the worst as she had an accent that made it difficult to understand what was being said

3. Do you have any comments on the other two?

Speaker D was a close second behind B as she could express herself better than the others

Speaker C was less confident and paused to think often, repeating words that made listening to what was said difficult.

1. Which of these four speakers of English (A, B, C or D) do you think is the best?
Why do you think this person is the "best" speaker?

I find it hard to seperate B and D.
as an out right winner.
I feel they were both very good but they
both had problems with different sounds and
words.
But I would say D just gets the vote
as best then B just slightly better then C
and A. I found the hardest.

2. Which of these four speakers of English (A, B, C or D) do you think is the worst?
Why do you think this person is the "worst" speaker?

A : not as sure of the word(s) a little
too fast and rushed with the sentences.

3. Do you have any comments on the other two?

I found that there really was not
much to choose between D-B-C.
I could understand them better than A.
the main thing was I believe, they
took their time and were a little less
nervous then A.

APPENDIX 6

Results of Twenty Limited Multiple Choice Questions Tabulated in Four Separate Tables (1,2,3, and 4)

	Farsi Speaker of English (A)							
				Participants				
	Sentences	P1	P2	P3	P4	P5	Total	Percentage
1	He is going to **leave** here.		√				1	20%
	*He is going to **live** here.*	√	---	√	√	√	4	80%
2	*That's a big **ship** over there.*	√	√	√	√	√	5	100%
	That's a big **sheep** over there.	---	---	---	---	---	0	0%
3	She bought a **ball** at the shop.		√		√	√	3	60%
	*She bought a **bowl** at the shop.*	√	---	√	---	---	2	40%
4	*My friends had a lot of **wines**.*	√	√	√	√	√	5	100%
	My friends had a lot of **vines**.	---	---	---	---	---	0	0%
5	I **taught** it whilst I was at university.	√		√	√		3	60%
	*I **thought** it whilst I was at university.*	---	√	---	---	√	2	40%
6	When exactly will **day** come?	√	√		√	√	4	80%
	*When exactly will **they** come?*	---	---	√	---	---	1	20%
7	*My neighbours **soothe** me often.*	√	√	√	√	√	5	100%
	My neighbours **sued** me often.	---	---	---	---	---	0	0%
8	The little girls are **teasing**.	√	√	√	√	√	5	100%
	*The little girls are **teething**.*	---	---	---	---	---	0	0%
9	The snake is beginning to **rise**.	√	√		√	√	4	80%
	*The snake is beginning to **writhe**.*	---	---	√	---	---	1	20%

No.	Sentence	P1	P2	P3	P4	P5	Count	Percentage
10	*Mary took the **bins** to the warehouse.*	√	√	√	√		4	80%
	Mary took the **beans** to the warehouse.					√	1	20%
11	*A **wiper** was used in the experiment.*	√	√	√	√		4	80%
	A **viper** was used in the experiment.					√	3	20%
12	Did you happen to look in the **vest**?						0	0%
	*Did you happen to look in the **west**?*	√	√	√	√	√	5	100%
13	The group was **wondering** about the forest.	√	√	√	√		4	80%
	*The group was **wandering** about the forest.*					√	1	20%
14	*Sarah saw the **path** and took it.*	√	√	√	√	√	5	100%
	Sarah saw the **pass** and took it.						0	0%
15	*The new manager really liked his new **theme**.*			√			1	20%
	The new manager really liked his new **team**.	√	√		√	√	4	80%
16	After the rain, the **boots** were covered with mud.	√	√	√	√	√	5	100%
	*After the rain, the **booths** were covered with mud.*						0	0%
17	Fiona's son was **cut** in the playground after dark.	√	√	√		√	4	80%
	*Fiona's son was **caught** in the playground after dark.*				√		1	20%
18	Jack's **buddy** needed exercise.	√	√		√		3	60%
	*Jack's **body** needed exercise.*			√		√	2	40%
19	Her view was changed by a **veil**.			√	√	√	3	60%
	*Her view was changed by a **wail**.*	√	√				2	40%
20	John had a **knock** for getting good grades.						0	0%
	*John had a **knack** for getting good grades.*	√	√	√	√	√	5	100%

Table 1: Results of Twenty Limited Multiple Choice Questions (Minimal Pairs) by the Australian Participants (Farsi Speaker of English 'A').

Note 1: Sentences written in *italic* are the correct choice.

Results of Twenty Limited Multiple Choice Questions (Minimal Pairs) by the Australian Participants

	Farsi Speaker of English (B)							
		Participants						
	Sentences	P1	P2	P3	P4	P5	Total	Percentage
1	He is going to **leave** here.						0	0%
	*He is going to **live** here.*	√	√	√	√	√	5	100%
2	*That's a big **ship** over there.*	√	√	√	√	√	5	100%
	That's a big **sheep** over there.	---	---	---	---	---	0	0%
3	She bought a **ball** at the shop.					√	1	20%
	*She bought a **bowl** at the shop.*	√	√	√	√		4	80%
4	*My friends had a lot of **wines**.*	√	√	√	√	√	5	100%
	My friends had a lot of **vines**.	---	---	---	---	---	0	0%
5	I **taught** it whilst I was at university.			√		√	2	40%
	*I **thought** it whilst I was at university.*	√	√	---	√	---	3	60%
6	When exactly will **day** come?						0	0%
	*When exactly will **they** come?*	√	√	√	√	√	5	100%
7	*My neighbours **soothe** me often.*	√	√	√	√	√	5	100%
	My neighbours **sued** me often.	---	---	---	---	---	0	0%
8	The little girls are **teasing**.	√	√	√	√	√	5	100%
	*The little girls are **teething**.*	---	---	---	---	---	0	0%
9	The snake is beginning to **rise**.	√		√			2	40%
	*The snake is beginning to **writhe**.*	---	√	---	√	√	3	60%

#	Sentence						Count	%
10	*Mary took the **bins** to the warehouse.*	√	√	√	√	√	5	100%
	Mary took the **beans** to the warehouse.	---	---	---	---	---	0	0%
11	*A **wiper** was used in the experiment.*	√	√	√	√	√	5	100%
	A **viper** was used in the experiment.	---	---	---	---	---	0	0%
12	Did you happen to look in the **vest**?						0	0%
	*Did you happen to look in the **west**?*	√	√	√	√	√	5	100%
13	The group was **wondering** about the forest.	√	√	√	√	√	5	100%
	*The group was **wandering** about the forest.*	---	---	---	---	---	0	0%
14	*Sarah saw the **path** and took it.*	√	√	√	√	√	5	100%
	Sarah saw the **pass** and took it.	---	---	---	---	---	0	0%
15	*The new manager really liked his new **theme**.*	√			√	√	3	60%
	The new manager really liked his new **team**.	---	√	√	---	---	2	40%
16	After the rain, the **boots** were covered with mud.		√	√	√		3	60%
	*After the rain, the **booths** were covered with mud.*	√	---	---	---	√	2	40%
17	Fiona's son was **cut** in the playground after dark.	√	√	√	√	√	5	100%
	*Fiona's son was **caught** in the playground after dark.*	---	---	---	---	---	0	0%
18	Jack's **buddy** needed exercise.	√	√	√	√	√	5	100%
	*Jack's **body** needed exercise.*	---	---	---	---	---	0	0%
19	Her view was changed by a **veil**.	√					1	20%
	*Her view was changed by a **wail**.*	---	√	√	√	√	4	80%
20	John had a **knock** for getting good grades.						0	0%
	*John had a **knack** for getting good grades.*	√	√	√	√	√	5	100%

Table 2: Results of Twenty Limited Multiple Choice Questions (Minimal Pairs) by the Australian Participants (Farsi Speaker of English 'B').

Note 1: Sentences written in *italic* are the correct choice.

Results of Twenty Limited Multiple Choice Questions (Minimal Pairs) by the Australian Participants

	Farsi Speaker of English (C)							
		Participants						
	Sentences	P1	P2	P3	P4	P5	Total	Percentage
1	He is going to **leave** here.						0	0%
	*He is going to **live** here.*	√	√	√	√	√	5	100%
2	*That's a big **ship** over there.*	√	√	√	√	√	5	100%
	That's a big **sheep** over there.						0	0%
3	She bought a **ball** at the shop.	√	√		√		3	60%
	*She bought a **bowl** at the shop.*			√		√	2	40%
4	*My friends had a lot of **wines**.*	√	√		√	√	4	80%
	My friends had a lot of **vines**.			√			1	20%
5	I **taught** it whilst I was at university.	√	√	√	√	√	5	100%
	*I **thought** it whilst I was at university.*						0	0%
6	When exactly will **day** come?	√			√	√	3	60%
	*When exactly will **they** come?*		√	√			2	40%
7	*My neighbours **soothe** me often.*	√	√	√	√	√	5	100%
	My neighbours **sued** me often.						0	0%
8	The little girls are **teasing**.		√	√	√	√	4	80%
	*The little girls are **teething**.*	√					1	20%
9	The snake is beginning to **rise**.	√			√		2	40%
	*The snake is beginning to **writhe**.*		√	√		√	3	60%

#	Sentence	P1	P2	P3	P4	P5	Count	%
10	*Mary took the **bins** to the warehouse.*	√			√		2	40%
	Mary took the **beans** to the warehouse.	---	√	√	---	√	3	60%
11	*A **wiper** was used in the experiment.*	√	√	√	√	√	5	100%
	A **viper** was used in the experiment.	---	---	---	---	---	0	0%
12	Did you happen to look in the **vest**?	√	√	√	√		4	80%
	*Did you happen to look in the **west**?*	---	---	---	---	√	1	20%
13	The group was **wondering** about the forest.		√	√	√	√	4	80%
	*The group was **wandering** about the forest.*	√	---	---	---	---	1	20%
14	*Sarah saw the **path** and took it.*	√	√	√	√	√	5	100%
	Sarah saw the **pass** and took it.	---	---	---	---	---	0	0%
15	*The new manager really liked his new **theme**.*			√			1	20%
	The new manager really liked his new **team**.	√	√	---	√	√	4	80%
16	After the rain, the **boots** were covered with mud.	√	√	√	√	√	5	100%
	*After the rain, the **booths** were covered with mud.*	---	---	---	---	---	0	0%
17	Fiona's son was **cut** in the playground after dark.						0	0%
	*Fiona's son was **caught** in the playground after dark.*	√	√	√	√	√	5	100%
18	Jack's **buddy** needed exercise.	√		√		√	3	60%
	*Jack's **body** needed exercise.*	---	√	---	√	---	2	40%
19	Her view was changed by a **veil**.						0	0%
	*Her view was changed by a **wail**.*	√	√	√	√	√	5	100%
20	John had a **knock** for getting good grades.						0	0%
	*John had a **knack** for getting good grades.*	√	√	√	√	√	5	100%

Table 3: Results of Twenty Limited Multiple Choice Questions (Minimal Pairs) by the Australian Participants (Farsi Speaker of English 'C').

Note 1: Sentences written in *italic* are the correct choice.

Results of Twenty Limited Multiple Choice Questions (Minimal Pairs) by the Australian Participants

	Farsi Speaker of English (D)							
		Participants						
	Sentences	P1	P2	P3	P4	P5	Total	Percentage
1	He is going to **leave** here.	√	√	√	√	√	5	100%
	*He is going to **live** here.*	---	---	---	---	---	0	0%
2	*That's a big **ship** over there.*	√	√	√	√	√	5	100%
	That's a big **sheep** over there.	---	---	---	---	---	0	0%
3	She bought a **ball** at the shop.	√		√	√		3	60%
	*She bought a **bowl** at the shop.*	---	√	---	---	---	2	40%
4	*My friends had a lot of **wines**.*	√	√		√	√	4	80%
	My friends had a lot of **vines**.	---	---	---	---	---	1	20%
				√				
5	I **taught** it whilst I was at university.	√	√	√	√	√	5	100%
	*I **thought** it whilst I was at university.*	---	---	---	---	---	0	0%
6	When exactly will **day** come?		√	√	√		3	60%
	*When exactly will **they** come?*	√	---	---	---	√	2	40%
7	*My neighbours **soothe** me often.*	√	√	√	√	√	5	100%
	My neighbours **sued** me often.	---	---	---	---	---	0	0%
8	The little girls are **teasing**.		√	√	√		3	60%
	*The little girls are **teething**.*	√	---	---	---	√	2	40%
9	The snake is beginning to **rise**.	√			√		2	40%
	*The snake is beginning to **writhe**.*	---	√	√	---	√	3	60%

10	*Mary took the **bins** to the warehouse.*	√					1	20%
	Mary took the **beans** to the warehouse.	---	√	√	√	√	4	80%
11	*A **wiper** was used in the experiment.*	√	√	√	√	√	5	100%
	A **viper** was used in the experiment.	---	---	---	---	---	0	0%
12	Did you happen to look in the **vest**?						0	0%
	*Did you happen to look in the **west**?*	√	√	√	√	√	5	100%
13	The group was **wondering** about the forest.	√	√		√		3	60%
	*The group was **wandering** about the forest.*	---	---	√	---	√	2	40%
14	*Sarah saw the **path** and took it.*	√	√	√	√	√	5	100%
	Sarah saw the **pass** and took it.	---	---	---	---	---	0	0%
15	*The new manager really liked his new **theme**.*	√	√	√	√	√	5	100%
	The new manager really liked his new **team**.	---	---	---	---	---	0	0%
16	After the rain, the **boots** were covered with mud.	√	√	√	√	√	5	100%
	*After the rain, the **booths** were covered with mud.*	---	---	---	---	---	0	0%
17	Fiona's son was **cut** in the playground after dark.						0	0%
	*Fiona's son was **caught** in the playground after dark.*	√	√	√	√	√	5	100%
18	Jack's **buddy** needed exercise.	√	√	√	√	√	5	100%
	*Jack's **body** needed exercise.*	---	---	---	---	---	0	0%
19	Her view was changed by a **veil**.	√	√	√	√	√	5	100%
	*Her view was changed by a **wail**.*	---	---	---	---	---	0	0%
20	John had a **knock** for getting good grades.						0	0%
	*John had a **knack** for getting good grades.*	√	√	√	√	√	5	100%

Table 4: Results of Twenty Limited Multiple Choice Questions (Minimal Pairs) by the Australian Participants (Farsi Speaker of English 'D').

Note 1: Sentences written in *italic* are the correct choice.