CHAPTER FIVE

ERROR ANALYSIS

5.1 Introduction

Arising from the shortcomings of the Contrastive Analysis to adequately account for second language learners' errors, researchers began to look for an alternative approach for the study of errors, an approach which would be theoretically justifiable and pedagogically practicable. This new approach which is based on theories of first and second language learning and possible similarities between them is called Error Analysis.

As a result of the new research interest in the processes and strategies of first and second-language acquisition, the study of errors, both those made by the native child and the second-language learner, gained unprecedented momentum. This is because errors were seen as evidence of the processes and strategies of language acquisition. Menyuk claims that "the study of the child native language errors throws light on the types of cognitive and linguistic processes that appear to be part of the language learning process." (Menyuk, 1971: 127)

In second language learning, a more positive attitude developed towards learners' errors compared to what was common in the Contrastive Analysis tradition. Errors were no longer considered as signs of failure, in teaching and learning; rather they were seen as a necessary part of the language learning process.

As Richards (1971) states, Error Analysis appeared as a reaction to the view of second-language learning suggested by Contrastive Analysis theory, which saw language transfer as the central process involved in second and foreign language learning. This view of transfer was connected to behavioral views of learning. Error Analysis, on the other hand, tries to account for learning performance in terms of cognitive processes learners make use of in recognizing the input they receive from the target language. A primary focus of error analysis is on the evidence that learners' errors provide an understanding of the underlying processes of second-language acquisition.

It is now widely believed that language learning, like acquiring any other human learning involves making errors. The learner profits from his errors by using them to obtain feedback from the environment and using that feedback to test and modify his assumption about the target language. Thus, from the study of learner's errors we are able to get some information about the nature of his knowledge of the target language in his learning career and discover what he still has to learn. By describing and classifying his errors in linguistic terms, we come by the features of the language which cause problems in his learning. In this respect, the information we get is similar to that provided by Contrastive Analysis. Error Analysis, thus, provides a check on the predictions of bilingual comparisons, and in so far as it does this, it is an important additional source of information for the selection of items to be included in the syllabus.

Corder (1967) states that the claim for using error analysis as the primary pedagogical tool was based on three arguments. Firstly, error analysis did not suffer from the inherent limitations of CA, restriction to errors caused by mother tongue interference. Error Analysis reveals many other types of errors frequently made by learners. Secondly, error analysis, unlike contrastive analysis, provides data on actual, attested problems and

hypothetical problems, and thus forms a more efficient and economical basis for designing pedagogical strategies. Thirdly, Error analysis is not confronted with the complex theoretical problems encountered by CA.

Many scholars in the field of error analysis have stressed the significance of second-language learners' errors. Pit Corder (1967: 167), for instance, in his article remarks that "they are significant in three ways. First to the teacher, in that they tell him, if he undertakes a systematic analysis, how far towards the goal the learner has progressed and, consequently, what remains for him to learn. Second, they provide to the researcher of how language is learnt or acquired, what strategies or procedures the learner is employing in his discovery of the language. Thirdly, they are indispensable to the learner himself, because we can regard the making of errors as a device the learner uses in order to learn. It is a way the learner has for testing his hypotheses about the nature of the language he is learning."

Choi kim Yok (1996: 91) states that "the study of errors committed by the L2 learners is significant, first, due to its pedagogical importance, i.e. it enables us to classify and explain errors and to take steps to correct them. Second, due to its theoretical value, which helps for a better comprehension of L2 acquisition."

Jain (1974: 211) also maintains that errors are significant for two reasons. First, for understanding the process of second-language acquisition. Second, for planning courses incorporating the psychology of second-language learning.

One of the common difficulties in understanding the linguistic systems of language learners is the fact that such systems cannot be directly observed. They must be inferred by means of analyzing production and comprehension data. In general, it is easier to detect productive errors; that is, errors which occur in the speech or writing of second language

learners as opposed to errors in the receptive skills: reading and listening comprehension. This is because productive linguistic behaviour is easily recordable; whereas, receptive behaviour most often is not observable. The hearer does not always demonstrate unambiguously that he has understood fully what we say. In this case, the researcher or teacher should ask the learner further questions to check his comprehension.

After detecting production and comprehension errors, it is time to interpret what the learner has desired to say and to reconstruct it in the target language. There are basically two types of interpretations: (a) authoritative and (b) plausible. If we cannot interpret and describe a learner's errors and if we have access to the learner we can ask him to express his meaning so that we can interpret his utterance in an acceptable form. This is known as authoritative interpretation and authoritative reconstruction. However, when the learner is not available, we have to do our best we can to infer what he/she desired to say from his utterance, its context and whatever we know about his knowledge of the target language. This is called plausible interpretation and the corresponding reconstruction is known as plausible reconstruction.

After interpreting the errors, it is time to do remedial treatments. Corder (1986: 45) states that "in general we can say that remedial actions become necessary when we detect a mismatch or disparity between the knowledge, skill, or ability of someone and the demands that are made on him by the situation he finds himself in".

5.2 Objective

The objective of this error analysis is pragmatic and pedagogical. This study is to identify and classify Iranian learners' errors at the level of phonetics and phonology, and to explain with regard to the causes of errors and present some recommendations in order to be

used for organizing remedial courses and devising appropriate materials and strategies of teaching English to Persian speakers.

This error analysis can be useful both at the theoretical and practical levels. Apart from its innate validity as an effective instrument for research in second language acquisition, it can be of great help to the syllabus designer and classroom teacher. The insight gained from this error analysis with regard to the processes and strategies of second-language learning provides valuable information for devising appropriate materials and effective teaching techniques for Iranian learners of English.

5.3 Method

5.3.1 Speaker and Participants

The speaker was a male 28 year old whose father was Iranian and his mother was from London. He was born in London and lived there for 22 years. He was fluent in English, with an RP accent, and reasonably fluent in Persian. He had an MA degree in Linguistics. For the purpose of this test, he was asked to pronounce all the items in the test with a clear natural RP accent.

The participants in the test were 25 students studying in the last semester of their high school, all of whom were taught by the same teacher, a Persian native speaker teaching English as a second language. None of the participants had studied the English language in other language institutes, and their knowledge of English was limited to what they had been taught in school. All the participants were of the same age and their mother tongue was Persian.

5.3.2 The Tests

The test consists of four parts: Part I, which is a discrimination test, was designed and carried out to find out whether Persian speakers have problems in discriminating and perceiving speech sounds, syllabic consonants, and stress oppositions. The participants were asked to listen to a recording of 50 sequences of four English words (Appendix A). They were informed that within each sequence, three words were identical, but one word was slightly different. The participants were asked to indicate the deviant item on the listener script (Appendix B) by circling the number that corresponded to the word which they thought was different from the others. For example, if the sequence of words they heard was

sip sip sip zip then they would circle 4 on their script: $1) \hspace{1.5cm} 1 \hspace{1.5cm} 2 \hspace{1.5cm} 3 \hspace{1.5cm} 4 \hspace{1.5cm} 0$

If the four utterances seemed identical to them, they would circle 0.

 $1) \qquad \qquad 1 \qquad \qquad 2 \qquad \qquad 3 \qquad \qquad 4 \qquad \qquad \boxed{0}$

The 'Dictation Test' was designed and carried out to examine the perception of English consonant clusters. The test participants were asked to listen to 40 English words, 22 with initial and 18 final consonant clusters (Appendix C). Two and three-consonant clusters in initial position and two to four consonant clusters in final position were included in the test.

The participants were supposed to listen carefully and write down the words they heard. Parts of the words were spelled out in their script, and they had to add the missing parts. For example, if they heard the word "trunk" and in the script they saw "----unk", they would be expected to add "tr" before the letters "unk". If what they heard was "first" and the script indicated "fi-----", they would be expected to add "rst" after the letters "fi" (Appendix D). The listener script followed the English spelling system, and the test participants were asked to follow the same procedure without being anxious about the spelling errors. For example, if they heard the word 'screen', and they had '----een' on their script, they could complete the word by inserting 'skr' in the blank space.

In the 'Repetition Test', since the focus was on sound production, the speaker pronounced the words directly to the test participants in order to give them the opportunity to watch his lip movements to facilitate sound perception.

The speaker read 71 words and phrases (Appendix E), in which the participants were asked to repeat. The test contained speech sounds occurring only in English, such as $[\theta, \delta, \tau]$, $[\theta, \delta, \tau]$ etc., sounds that occur in both languages but in different areas of articulation, for example, $[t, \int, z, \tau]$ etc., English words with syllabic consonants, and words with primary and secondary stress.

Throughout doing the repetition test, a handy cam was recording the face of the participants to capture the changes in the shape of the lips while producing the sounds. This would be used later on in our analysis, to be compared with the shape of the lips while producing the same vowel by English speakers.

The 'Combination Test' was designed to test the production of consonant clusters in both initial and final position (Appendix G). As in the 'repetition test', the speaker read the words, 22 for testing initial consonant clusters and 18 for testing final consonant clusters. The speaker read the part of the word before or after the consonant clusters, and the participants were asked to combine the letters they would find in their script with the sounds they heard. For example if what you heard was "ipt" and in their answer sheet they read "scr-----", they would be expected to pronounce the word "script".

All the twenty five participants were tested one by one to prevent them from imitating each other. Upon request, the girls were allowed to have a chaperon during the test. All the participants were divided into 5 groups, each group to be tested in one day. Altogether it took five days to complete the test.

5.4 Analysis and Recommendations

The results of the different perception and production tests are discussed in this section. Recommendations are also given for the correction of the errors. In view of the pedagogical purposes of this study, the differences in features such as phonation, aspiration and nasalization will be overlooked in this analysis for two main reasons. First, the absence of the speech sounds with these features in one language and their occurrence in another language is partly due to the lack or existence of the context in which these sounds are produced; i.e., they are context-dependant for example, unaspirated [p] after [s] in initial position is a context that exist in English, but not in Persian. The second reason is that discussing the speech sounds with partial differences such as phonation, aspiration and nasalization is not of pedagogical value. Therefore, the differences between Persian and English speech sounds which arise from variation in aspiration, phonation and nasalization will not be included in error anal

5.4.1 Results of the Analysis

5.4.1.1 Consonants

(i) Alveolar fortis and lenis plosives [t] & [d]

Alveolar fortis plosive [t]

Perception test

take (alveolar) take (alveolar) take (dental-alveolar)

Result: All the participants could distinguish between the alveolar and the dental-alveolar [t].

Production test

tie attack write

Result: All the participants produced the dental-alveolar [t] instead of the alveolar.

Alveolar lenis plosive [d]

Perception test

dark (alveolar) dark (dental-alveolar) dark (alveolar) dark (alveolar)

Result: All the participants could distinguish between the alveolar and the dental-alveolar [d].

Production test

double hiding road

Result: All the participants produced the dental-alveolar [d] instead of the alveolar.

Cause of error

The consonants [t] and [d] are alveolar in English, while in Persian they are dentalalveolar. Therefore, the error committed is the result of the mother tongue interference.

Recommendation:

The general articulation of English [t] & [d] is alveolar, made with the tongue blade pressed against the alveolar ridge, while in Persian the tongue is in contact with alveolar ridge as well as the upper front teeth. Persian students aiming at RP pronunciation should be

asked to practice producing alveolar [t] & [d] as they do it in the following words in casual speech: ([t] & [d] in Persian are alveolar just after [l], [n] & [r]). The following Persian words include the speech sounds [t] & [d] preceded by [l], [n] & [r], which can be useful for the Persian students to locate the precise place of articulation as well as practicing the RP pronunciation of [t] & [d].

Examples:

(ii) Alveolar fortis and lenis fricatives [S] & [Z]

Alveolar fortis fricative [S]

Perception test

site (alveolar) site (alveolar) site (alveolar) site (dental-alveolar)

Result: All the participants could distinguish between the alveolar and the dental-alveolar

[S].

Production test

tie attack write

Result: 25/25 of the participants produced the dental-alveolar [S] instead of the alveolar.

Alveolar lenis fricative [Z]

Perception test

zero (alveolar) zero (alveolar) zero (dental-alveolar)

Result: All the participants could distinguish between the alveolar and the dental-alveolar

[Z].

Production test

double hiding road

Result: 25/25 of the participants produced the dental-alveolar [z] instead of the alveolar.

Cause of error

The errors committed by the participants is due to the absence of the alveolars [s] and [z] in Persian. They replace them with the Persian [s] and [z], which are dental-alveolar.

Recommendation:

The articulation of English [S] & [Z] is alveolar, made with the tongue blade touching the alveolar ridge, while the Persian pronunciation is dental-alveolar with the tongue tip touching the lower front teeth. Persian students aiming at RP pronunciation should be asked to practice producing alveolar [S] & [Z] as they are able to do it in the following Persian words in casual speech: [S] & [Z] in Persian are alveolar just after [l], [n] & [r].

The following Persian words include the speech sounds [S] & [Z] preceded by [l], [n] & [r], which can be useful for the Persian students to locate the precise place of articulation as well as practicing the RP pronunciation of [S] & [Z]:

[fɔrsæt], [tærs], [ʔensαn], [færz], [tænzim], [mælzum]
 (iii) Dental fortis and lenis fricatives [θ] & [ð]

Dental fortis fricatives $[\theta]$

Perception test

sink [s] $think [\theta]$ sink [s] sink [s] both $[\theta]$ both $[\theta]$ both $[\theta]$

Result: All the participants could distinguish between the alveolar fricative [s] and the dental fricative $[\theta]$.

They were also able to perceive the difference between the alveolar stop [t] and the

dental fricative $[\theta]$.

Production test

thin ether earth

Result: 18/25 produced the dental-alveolar stop [t], while 5/25 produced the dental-alveolar fricative [s] instead of dental fricative [θ], and the rest produced the sound correctly.

Dental lenis fricatives[ð]

Perception test

they [ŏ] they [ŏ] they [ŏ] day [d] breathe [ŏ] breathe [ŏ] breeze [z]

Result: All the participants could distinguish between the dental fricative [ð] and the dental-alveolar stop [d].

Production test

they worthy bathe

Result: 17/25 produced dental-alveolar stop [d], while 6/25 produced the dental-alveolar stop [z] instead of the dental fricative [ŏ], and the rest pronounced it correctly.

Cause of error

The errors committed by the participants is due to the absence of the alveolars $[\theta]$ and $[\delta]$ in Persian.

Recommendation

The articulation of the English $[\theta]$ & $[\delta]$ is dental. According to Peter Roach (2002: 50-51), "the dental fricatives are sometimes described as if the tongue were placed between the teeth, while, the tongue is normally placed behind the teeth, with the tip touching the inside of the lower front teeth and the blade touching the inside of the upper teeth. The air escapes through the gaps between the tongue and the teeth."

Although the two places of articulation mentioned above have the capability of producing the speech sounds $[\theta]$ & $[\delta]$, what is preferred here is adapting the way which is used in RP; that is, the teachers should teach the Persian learners to put the blade of the tongue behind the upper front teeth and the tip of the tongue behind the lower front teeth, while they let the air to pass through the gaps between the tongue and the teeth.

The teachers can pronounce the words such as the following examples, while they slow down the articulation to let the students see their tongue and teeth during the production of $[\theta]$ & $[\delta]$.

Example:

 $[\theta]$: thought thick method ether cloth path

[ð]: though they leather gather with lathe

(iv) Post-alveolar fortis and lenis fricatives [ʃ] & [ʒ]

Post-alveolar fortis fricative [f]

Perception test

shy (Persian) shy (Persian) shy (RP)

Result: All the participants could distinguish between the English and the Persian [ʃ].

Production test

sheet fission niche

Result: 25/25 produced the post-alveolar fricatives [ʃ] with the tip of the tongue touching the lower alveolar ridge and there was no lip rounding

Post-alveolar lenis fricative [3]

Perception test

genre (RP) genre (Persian) genre (Persian) genre (Persian)

Result: All the participants could distinguish between the English and the Persian [3].

Production test

gigolo vision rouge [3]

Result: 25/25 produced the post-alveolar fricatives [3] with the tip of the tongue touching the lower alveolar ridge and there was no lip rounding.

Cause of error

Although [ʃ] & [ʒ] are post-alveolar fricatives in both languages, Persian is different from English in that there is a touch between the tongue tip and the lower alveolar ridge. There is no lip rounding in Persian, while in English the tongue tip is free and the lips are rounded in the production of these two consonants.

Recommendation

The teachers should ask the students to produce [ʃ] & [ʒ] with the lips rounded, as they are produced before the back vowels [u] & [ɔ]; since, in Persian, after these back vowels, [ʃ] & [ʒ] are pronounced with the rounded lips. In addition, the students should be taught not to place their tongue against the lower alveolar ridge by raising the tip and pulling the tongue back a little while articulating these two speech sounds.

The following Persian examples in casual speech can help students to practice lip rounding which is found in the RP pronunciation of [ʃ] & [ʒ].

(v) Post-alveolar fortis and lenis affricates [tf] & [dʒ]

Post-alveolar fortis affricate [tʃ]

Perception test

children (Persian) children (RP) children (RP) children (RP)

Result: All the participants could distinguish between the English and the Persian [tf].

Production test

change lecture patch

Result: 25/25 produced the post-alveolar affricats [tf] with the tip of the tongue touching the lower alveolar ridge and there was no lip rounding

Post-alveolar lenis affricate [dʒ]

Perception test

germ (RP) germ (RP) germ (Persian)

Result: All the participants could distinguish between the English and the Persian [dʒ].

Production test

judge danger badge

Result: 25/25 produced the post-alveolar affricates [dʒ] with the tip of the tongue touching the lower alveolar ridge and there was no lip rounding

Cause of error

In English, the articulation of [tf] & [dʒ] is post-alveolar. The tip of the tongue touches the upper alveolar ridge in the first phase of production, and the lips are rounded. In Persian, although these sounds are post-alveolar, there is a contact between the tongue tip and lower alveolar ridge, and there is no lip rounding.

Recommendation

The teacher can ask the students to produce [tf] & [dʒ] with the lips rounded, as they are produced before back vowels [u] and [ɔ] because in Persian, after these vowels, [tf] & [dʒ] are pronounced with the rounded lips. In addition, the students can be taught to touch

the back of the upper alveolar ridge with the tip of their tongue to produce the closure in the first phase.

The following Persian examples, in casual speech, can help students to practice lip rounding which is found in the RP pronunciation of [tf] & [dʒ]. The students are asked to start articulating the following words with a closure formed by the tip and blade of the tongue with the post-alveolar area, while they focus on the lip rounding They are taught to articulate the speech sounds [tf] & [dʒ] with the lips rounded, even if the following speech sound is not a back vowel.

Examples:

(vi) Velar lenis nasal [ŋ]

Perception test

sing [ŋ]	sing [ŋ]	sin [n]	sing	$[\mathfrak{y}]$
ring [ŋ]	rig [g]	ring [ŋ]	ring	[ŋ]

Result: All the participants could distinct between $[\eta]$ and $[\eta]$ as well as $[\eta]$ and [g].

Production test

ankle	hunger	hanger	[ŋ]	
ring	sink	long	[n]	

Result: 25/25 produced the sequence of n and k as [ŋk] and the sequence of n and g as [ŋg] in all contexts; that is, in medial and final positions.

Cause of error

In English, the articulation of the sequence of n and k is $[\eta k]$, and a sequence of n and g is articulated as $[\eta g]$, within a morpheme, as in the example, finger $[\eta g]$. These two cause no problem for the Iranian students, but the sequence of n and g is articulated as a single $[\eta]$ at the end of a morpheme, as in the examples, singer $[\eta g]$ and hang $[\eta g]$. Iranian students produce these sequences as $[\eta g]$, that is $[\eta g]$ and $[\eta g]$.

Recommendation:

The teacher can teach the students about morphemes, and mention that where there is a sequence of n & g within a word the pronunciation is the same as Persian, that is, $[\eta g]$, but at the end of the morpheme, $[\eta]$ is not followed by [g]. The students are informed that although each of the comparative and superlative forms consists of more than one morpheme, they are behaved as single morphemes. For example, the pronunciation of the words 'longer' and 'longest' are [longe] and [longest], respectively. To teach the students how to pronounce the words consisting $[\eta]$ without following [g], the teachers can pronounce the following words, and ask the students to focus on the sound $[\eta]$.

Examples:

Final: sing song hang ring tongue

Medial: singer hanger anxiety hanged longing

(ix) Alveolar lenis lateral [1]

Perception test

eel [l] eel [l] eel [l]

Result: All the participants in the test could distinguish between clear [l] and dark [1].

Production test

melt dull canal [1]

Result: 21/25 produced clear [I] instead of dark [1], and the rest produced it with a quality similar to dark [1]

Cause of error

There is no dark [1] in Persian; that is, the consonant has a quality rather similar to [i:] in all positions. But in English, dark [1], which resembles [u:] in quality, occurs in all

contexts but not before vowels and [j]. As a result, Iranian students replace the dark [1] with the clear [l] in all English words.

Recommendation:

It is true that, since there is no phonemic opposition between [I] and [1] in English, learners will be perfectly intelligible if they use only [I]. But, for the students to speak with an RP accent, they should learn to pronounce the dark [1]. According to English text books, the essential feature of [1] may be said to be the accompanying the weakly rounded [2] in quality. The learners should, therefore begin by pronouncing a vowel of the [2] type for the syllabic [1] in words such as bubble, people, and awful. The relationship of [1] and [2] can further be represented by practicing the alternation of [2]-[1]-[2]-[1], with only the tongue tip moving and the [2] resonance continuing. After [1] is achieved, then the following two groups of words should be presented to the students for further practice; first the syllabic cases and then non-syllabic.

Examples:

- 1. table, middle, eagle, tumble, angle, fondle
- 2. feel, canal, doll, milk, film, health

The students should be informed that the dark [1] occurs in all contexts, but before vowels and the [j].

(vii) Bilabial lenis approximants [w]

Perception test

vine[v]vine[v]wine[w]vine[v]wider[w]rider[a]rider[a]

Result: 2/25 could not distinguish between [w] and [J].

Production test

world always now

Result: 23/25 produced alveolar lenis trill [r] instead of the post-alveolar approximant [J].

The shape of the lips affected by the following vowel is rounded, neutral or spread.

Cause of error

The errors committed by the participants is due to the absence of the post-alveolar approximant [J] in Persian.

Recommendation:

The teacher can ask the students to protrude and round their lips, ensuring that there is no contact between the teeth and the lips. If necessary, in practice, he/she can ask the students to produce an energetically rounded full [u:] vowel. For example the word *wine* is pronounced as [u:ain], and a clear distinction is made between this word and *vine*.

Ask the students to start articulating the following groups of word pairs, with the labio-dental [v] for the initial sound of the first word and the full [u:] for the initial sound of the second. Then they are asked to produce [u:] as short as possible.

Examples:

vest/west vine/wine verse/worse veil/wail veer/weir

(viii) Post-alveolar approximant [J]

Perception test

right [1] right [1] right [1] right [r] wider [w] rider [1] rider [1]

Result: 25/25 could distinguish between [J] and [r], but 2/25 could not distinguish between [J] and [w].

Production test

read rude arrive [J]

Result: 23/25 produced the alveolar lenis trill [r] instead of the post-alveolar approximant [J], and the shape of the lips affected by the following vowel, is rounded, neutral or spread.

Cause of error

The error committed by the participants is due to the absence of the alveolar [W] in Persian.

Recommendation:

In English, the articulation of this sound is a post-alveolar in which there is no contact between the tongue and post alveolar area, and the lips are rounded In Persian, the tongue tip touches the alveolar ridge, but the touch is so soft that the air flow can pass through with a little pressure and cause the tip of the tongue to vibrate in two or three periods. In Persian, there is no lip rounding.

The teacher can ask the students to practice producing this speech sound with the tongue tip touching the alveolar ridge, as if they are going to articulate the English [t] or [d]. The students are taught to curl the tip of their tongue backward and pull the body of the tongue back, so that there is no contact between the tongue and the alveolar ridge.

All this is done while the lips are slightly rounded. It is important that [J] should be made unusually long in this position until the tongue articulation is established, e.g. [J:ed]. The students should be informed that [J] is articulated just before vowels, not in all positions, as it is in the Persian language.

5.4.1.2 Vowels

(i) Front, close, short vowel [1]

Perception test

disk [1] disk [1] desk [e]

Result: 25/25 could discriminate between [1] and [e].

Production test

ill hid

Result: 18/25 produced the front, close, tense vowel [i:], 2/25 produced the front, mid, vowel [e] instead of the front, close, lax vowel [1] and the rest had a nearly correct pronunciation.

Cause of error

The errors committed by the participants is due to the absence of the lax vowel [1] in Persian.

Recommendation:

The Persian students are familiar with the vowels [i:] and [e], but not with [1]. We should inform the students that this sound is different from [i:], [e] and the reduced form of [i:]. In addition, they should know that this sound is different from [i:] both in quality and quantity.

Since there is no central vowel in Persian, we should ask the students to produce a vowel which is intermediate between [i:] and [e]. To teach the students the exact pronunciation of this speech sound, we can articulate the following groups of words clearly and ask the students to listen carefully and repeat what they hear.

[i:] [I] [e]

neat knit net

reach rich wretch

reed rid red feel fill fell

(ii) Short, neutral, central vowel [ə]

Perception test

about [ə] about [ə] about [e]

Result: 3/25 could not discriminate between [ə] and [e].

Production test

accept carrot character

Result: 25/25 produced the front, mid, vowel [e], with the lips slightly spread instead of the short, neutral, central, vowel [ə].

Cause of error

The errors committed by the participants is due to the absence of the short, neutral, central, mid vowel [ə] in Persian.

Recommendation:

Since there is no central vowel in the Persian phonetic system, teaching how to pronounce this vowel to the Persian speakers is not an easy task. In this connection, we may put the emphasis on the two more tangible features of this vowel, which are the shape of the lips and the length of the vowel.

We ask the students to articulate the English [ə] extremely short, and neutral; that is, with no lip-rounding or lip-spreading. Moreover, we can inform the students of the very high occurrence of this vowel in unaccented syllables, in the weak forms of function words like: 'a' [ə], 'an' [ən], 'the' [ðə], 'to' [tə], 'for' [fə], 'but' [bət], 'and' [ənd], 'has' [həz], 'from' [frəm], etc.

(iii) Long, neutral, central, mid vowel [3]

Perception test

bird [3:] bird [3:] bed [e]

Result: 9/25 could not discriminate between [3] and [e].

Production test

purr fern worse purse [3]

Result: 25/25 produced the front, mid, vowel [e], with the lips slightly spread instead of the neutral, central, vowel [3].

Cause of error

The errors committed by the participants is due to the absence of the neutral, central, vowel [3] in Persian.

Recommendation:

Like the schwa, this central vowel also does no occur in the Persian phonetic system. As a result, teaching how to pronounce this vowel to the Persian speakers is not so easy. For this purpose, it would be better to put emphasis on the two main features of this vowel which are the shape of the lips and the length of the vowel. We can ask the students to articulate the English [3] fairly long, and neutral; that is, with no lip-rounding or lip-spreading. Moreover, they must be informed that nearly all cases of [3] occur in words having an r in the spelling; [3] appears before r, as in the examples fur, burn, earth, church, earl, bird, etc. The students who are familiar with the correct way of articulating [Θ] notice that the quality of [3] is approximately the same as [Θ], and the only difference is length.

(iv) Short, neutral, central, open vowel [A]

Perception test

march [a] much [A] much [A]

Result: 8/25 could not discriminate between [Λ] and [α].

Production test

rush some

Result: 23/25 produced the back, open, vowel [a], with the lips slightly rounded the instead of neutral, central, open, vowel $[\Lambda]$ and the rest pronounced it correctly.

Cause of error

The errors committed by the participants is due to the absence of the short, neutral, central, open vowel $[\Lambda]$.

Recommendation:

As in [ə] and [3], since there is no central vowel in the Persian phonetic system, teaching how to pronounce this vowel to Persian speakers is not an easy task. To achieve this purpose, we may put the emphasis on the two main features of this vowel, which are more tangible; i.e. the shape of the lips and the length of the vowel.

We ask the students to articulate the English [Λ] fairly short, and neutral; that is, with no lip-rounding or lip- spreading. The students should be asked to produce a short vowel between the Persian front vowel [α] and back vowel [α], with the lips neutral. To teach them the exact pronunciation of this speech sound, we articulate the following groups of words clearly and ask the students to focus on the middle vowel and repeat what they hear.

[æ] $[\Lambda]$ [a:] ban bun barn hut heart hat match much march harm ham hum cat cut cart lark lack luck

(v) Short, slightly rounded, back, open vowel [D]

Perception test

stock [c] stock [c] stalk [c]

Result: 2/25 could not distinguish between [D] and [D].

Production test

gone cross

Result: 20/25 produced the back, mid, vowel [c], with the lips fully rounded instead of the slightly rounded, back, open vowel [c], and the rest had a nearly correct pronunciation.

Cause of error

The errors committed by the participants is due to the absence of the rounded, back, open vowel [p] in Persian.

Recommendation:

Most of the Persian students pronounce this vowel with the jaws half closed and a strong lip rounding very close to the mid vowel [5]. The students should be taught that this sound is nearly as open as [a:] and the position of the tongue is as far back as possible in the mouth.

The students can be asked to pronounce the words *part*, *large* and *calf* with the jaws wide apart and with only the very slightest lip-rounding. In this way, a quality close to the [D] of *pot*, *lodge*, and *cough*, may be obtained. In addition, we can articulate the following groups of words clearly and ask the students to listen carefully and repeat what they hear in

order to help them to maintain a proper qualitative distinction between the vowels [D] and [D:] as well as [D] and [C:].

[a]	[a:]	[a]	[ɔ:]
lodge	large	cod	cord
cot	cart	don	dawn
cough	calf	stock	stalk

(vi) Short, rounded, back, close, lax vowel [v]

Perception test

wooed [u:]	wood [v]	wood [v]	wood [v]
ward [ɔ:]	ward [ɔ:]	wood [v]	ward [ɔ:]

Result: 25/25 could discriminate [v] from [u:] and [o:].

Production test

hood push

Result: 18/25 produced the back, close, tense vowel [uː], 5/25 produced the back, mid, vowel [ɔː] instead of the short, rounded, back, close, lax vowel[u] and the rest pronounced it correctly.

Cause of error

The errors committed by the participants is due to the absence of the short, rounded, back, close, lax vowel [v] in Persian.

Recommendation:

The difficulty of [0] is similar to that of [1]. The Persian students are familiar with the vowels [u:] and [5:], but not with [0]. We have to inform the students that this sound is

different from [uː], [ɔː] and the reduced form of [uː]. In addition, they should know that this sound is different from [uː] in quality.

Since there is no central vowel in Persian, we can ask the students to produce a short vowel intermediate between [u:] and [ɔ:]. To teach the students the exact pronunciation of this speech sound, we articulate the following groups of words clearly and ask the students to listen carefully and repeat what they hear.

[ʊ] [u:] [ʊ] [:c] full fool could cord wood wooed wood ward pull pool put port good food bull ball

5.4.1.3 Diphthongs

(i) Closing diphthong [əu]

Perception test

code [au] cord [b] cord [c]

Result: 25/25 could discriminate [əu] from [ɔ].

Production test

old load no [əu]

Result: 11/25 produced a diphthong similar to [50], 9/25 produced [5:], and the rest produced a diphthong similar to [60].

Cause of error

The errors committed by the participants is due to the absence of diphthong $[\vartheta \upsilon]$ in Persian.

Recommendation:

We should ask the students to avoid starting the glide with the back vowel [5], or the front vowel [e]. We will advise them to learn [3:] first and modify [3:] by adding liprounding to the end of the vowel. To achieve this aim, we can ask the students to start articulating the words such as *fur*, *girl*, and *burn* with the vowel [3:] by adding lip-rounding to the end of the vowel, so that the words *foe*, *goal*, and *bone* will be the resulted. Then, we should ask the students to reduce the length of the glide, so that they will be able to produce the diphthong [90].

In addition, we can articulate the following groups of words clearly and ask the students to listen carefully and repeat what they hear in order to help them to maintain a proper qualitative distinction between the vowels [əu], [3:], and [ɔ:].

[ve] [:c] [3:] walk woke work coat curt caught coal curl all bone burn born foe fur four

(ii) Closing diphthong [av]

Perception test

out [av] ought [c] out [av] out [av]

Result: 25/25 could discriminate [au] from [3].

Production test

owl foul cow

Result: 25/25 had no problem with the starting point of the first element, but all of them ended the diphthong with a vowel very close to the Persian [u].

Cause of error

The errors committed by the participants is due to the absence of diphthong $[\alpha \upsilon]$ in Persian.

Recommendation:

The teacher should teach the students how to produce the vowel [v] by using the procedures presented in this chapter, and then point out that the first element should be the most prominent. The tongue should be close to a position not higher than close- mid.

To help the students make a distinction between different shapes of the lips and different positions of tongue in producing [u] and [v], as the second element of a diphthong, the teacher can ask them to listen to pairs of words such as the followings, while looking at the teacher's articulators carefully during the production.

 [av]
 [u:]

 how
 who

 cow
 coo

 foul
 fool

(iii) Centering diphthong [19]

Perception test

bead [i:] bead [i:] bead [ii]

Result: 25/25 could discriminate [19] from [it].

Production test

ear peer dear

Result: 22/25 had a starting point very close to the Persian [i:], and an ending very similar to the vowel [e], with the lips slightly spread. The rest had a more natural pronunciation.

Cause of error

The errors committed by the participants is due to the absence of the diphthong [19] in Persian.

Recommendation:

After teaching the students how to produce the vowel [I], we ask the students to avoid using a first element which is too close, i.e. [I] should be used rather than [i:]. Then we focus on the second element of the diphthong, which is the schwa. We remind the learners that this vowel is very short and the lips are neutral. We can add that during the production of this diphthong the articulator's muscles are lax. To show the learners the exact shape of the lips and the laxity of the speech organs, we can articulate the following words and ask them to repeat after us.

here dear tear cheer fear beard pierce fierce real idea ian

(iv) Centering diphthong [və]

Perception test

tour [və] tour [və] two [u:]

Result: 25/25 could discriminate [uə] from [uː].

Production test

moored poor

Result: 22/25 had a starting point very close to the Persian [u], and an ending very similar

to the vowel [e], with the lips slightly spread. The rest had a more natural

pronunciation.

Cause of error

The errors committed by the participants is due to the absence of the diphthong $[\mathbf{u} \circ]$ in Persian.

Recommendation:

After teaching the students how to produce the vowel [v], we can ask them to avoid using a first element which is too close, i.e. [v] should be used rather than [u:]. Then we focus on the second element of the diphthong, which is the schwa. We remind the learners that this vowel is very short and the lips are neutral. We can add that during the production of this diphthong the articulator's muscles are lax. To show the learners the exact shape of the lips and the laxity of the speech organs, we can articulate the following words and ask them to repeat after us.

moor poor tour cure sure cruel fluent gourd endure

(v) Centering diphthong [ea]

Perception test

care [ea] cur [at] cur [at]

Result: 7/25 could not distinguish [ea] from [3].

Production test

aired scarce pair

Result: 23/25 produced a long [e:], with the lips slightly spread throughout the

production. The rest made a glide very similar to [ea].

Cause of error

The errors committed by the participants is due to the absence of the diphthong [ea] in Persian.

Recommendation:

After teaching the students how to produce the vowel [ə], we can ask them to start articulating the first element of the glide with the Persian [e], with the lips are slightly spread, and end it with [ə], with the lips in neutral position. We can add that there is some change in the position of the tongue during the production.

To illustrate the change in the shape of the lips and position of the tongue, which leads to some alteration in the voice during the articulation and to show the precise pronunciation of this glide, we can articulate the following words and ask the learners to repeat after us.

rare care mare chair share bear pear fair wear air

5.4.1.4 Triphthongs

(i) [əʊə]

Perception test

mower [วบอ] mower [วบอ] mower [วบอ] mower[วบอ]

Result: 25/25 could discriminate [əvə] from [ɔvə].

Production test

lower slur

Result: 18/25 produced [5ve], 5/25 produced a triphthong close to [5ve], and the rest a triphthong similar to [9ve].

Cause of error

The error committed by the participants is due to the absence of the triphthong [əuə] in Persian.

Recommendation:

As we did in the case of the diphthong [əu], We should ask the students to avoid starting the glide with the back vowel [ɔ], or the front vowel [e]. We will advise them to

learn [3:] first and modify [3:] by adding lip-rounding to the end of the vowel, and then end the glide by shifting to a very short [3:], which is the schwa. We should emphasize that there is no [v] sound in this glide, so there should be no contact between the lips and teeth.

In addition, we can articulate the following words clearly and ask the students to listen carefully and repeat what they hear in order to help them to learn the correct pronunciation of this triphthong.

blower lower slur mower rower

(ii) [auə]

Perception test

sour [auə] sour [a:ə] sour [auə] sour [auə]

Result: 25/25 could distinguish [auə] from [aːə].

Production test

power hour

Result: 17/25 produced [ave], and the rest produced a triphthong similar to [ave].

Cause of error

The errors committed by the participants is due to the absence of the triphthon [auə] in Persian.

Recommendation:

By using the procedures presented in this chapter, the teacher should first teach the students how to produce the diphthong [au], and then point out that after producing [au], they should continue and end the articulation with a very short form of [3:], that they have learned before. The students should be told that all the three vowels are produced continuously, that is there is no pause after each vowel. In addition, it should be emphasized

that there is no [v] sound in this glide, so there should be no contact between the lips and teeth.

In order to help the students to learn the correct pronunciation of this triphthong, we can articulate the following words clearly and ask the students to listen carefully and repeat what they hear.

power hour coward shower tower sour

5.4.1.5 Syllables

5.4.1.5.1 Syllable initial

(i) Vowel

Perception test

ash	[?æʃ]	ash	[æ∫]	ash	[æʃ]	ash	[æ∫]
ate	[eit]	ate	[eit]	ate	[?eit]	ate	[eit]
hour	[anə]	hou	r [auə]	hou	r [anə]	hou	r [ʔɑʊə]

Result: 25/25 could distinguish between the words starting with the glottal stop [7] and those without the glottal stop.

Production test

ask owner ear

Result: 25/25 preceded the initial vowels with the glottal stop [7]

Cause of error

The error committed by the participants is due to the fact that there is no syllable in the Persian Language which begins with a vowel.

Recommendation:

Since the onset is an inseparable part of the Persian syllable structure, there is no syllable in the Persian Language which begins with a vowel. Therefore, Persian speakers

add the glottal stop /7/ to the beginning of the words made up of only a vowel or beginning with a vowel, such as vc, vcc, vccc, and vcccc, to make them easier to pronounce. For example, the word *oil* is pronounced as [721], and the word *hour* is produced as [7a02].

The students should be informed that there is no glottal stop at the beginning of such words. To help them to produce such words without the initial glottal stop, the teachers can articulate the following English words clearly and ask the students to focus their attention specially on the first sounds intentionally placed at the beginning of the word, and then gradually pronounce the [h] sound weaker and weaker until it is not perceptible to the ear.

hold hour hache hisle hout hoil haunt hant

(ii) Two and three -consonant clusters

Perception test

spectacle [spektəkl] – trial [traiəl] – flower [flauə] – sphere [sfiə] – friendly [frendli] – music [mju:zik] – Tuesday [tju:zdei] – fuel [fju:əl] – client [klaiənt] – lude [lju:d] – smiley [smaili] – sweaty [sweti] – sliding [slaidin] – straddle [strædl] – sclerosis [sklerəusis] – screen [skri:n] – spray [sprei] – squeak [skwi:k] – splay [splei] – spew [spju:] – stew [stju:] – skewer [skjuə]

Production test

spinal [spanəl] – trousers [trauzəz] – flasher [flæʃə] – spherical [sferɪkl] – frankly [fræŋklı] – mutilate [mju:tɪleɪt] – tuner [tju:nə] – funeral [fju:nərəl] – clarity [klrətɪ] – mutiny [mju:tɪnɪ] – smiling [smaɪlɪŋ] – swaying [sweɪiŋ] – sliming [slɪmɪŋ] – stranger [streɪndʒə] – sclerosis [sklerəusɪs] – scramble [skræmbl] – sprinkle [sprɪŋkl] – squeeze [skwi:z] – splash [splæʃ] – spuria [spju:rɪə] – student [stju:dnt] – skewer [skjwə]

Most of the students had serious problems with the production of some of the clusters; that is, they added the glottal stop [7] and a vowel to the beginning of some of the clusters or inserted a vowel between the consonants. The tests results are presented in detail under 'Test Results (5.5.1.5.4).

Cause of error

Initial consonant clusters of English have proved to cause great difficulty for Persian students. This is due to the fact that initial consonant clusters do not occur in Persian; Therefore, Persian speakers tend to add a glottal stop plus a vowel at the beginning or insert a vowel in the cluster to make it easier to pronounce. To be more precise, [7] + vowel is added to the beginning of the clusters beginning with the consonant [5]. When [5] is followed by one of the approximants, a vowel is inserted after [5]. In the case of other clusters a vowel is inserted between the consonants. For example, the word 'screen' is pronounced as *[7eskerin], 'sweaty' as *[5pweti], and 'music' as *[mejuzik]. The following exercises can help students overcome their pronunciation problems.

Recommendation

The teacher can ask the students to pronounce phrases such as 'sunglasses' and 'low fly' while the first sound of the second word is pronounced as the last sound of the first word, so that the phrases are pronounced as 'sung lasses' and 'lowf ly' without any pause between the two parts. Another way that can help the students to avoid inserting a glottal stop and a vowel before [s] is to pronounce a sequence of consonants across a word boundary or even within a word and then dropping the earlier part of the first word or the same word; for example, they can pronounce the phrase 'bus stop' or the word 'mistake', and then reducing them to 'stop' and 'steak'. Finally the teacher can articulate the following group of words while lengthening [s] and ask the students to do the same. Then they are asked to pronounce the word at a more normal speed.

sky star slide spot small splash stop sphere scream special

5.4.1.5.2 Syllable final

Perception test

backed $[b \times \underline{kt}]$ – placed [pleist] – hushed $[h \wedge \underline{ft}]$ – planets $[pl \times \underline{nb}]$ – puls $[p \wedge \underline{ls}]$ – plant $[pl \times \underline{nts}]$ pins [pinz] – waves [weivz] – bonds $[b \times \underline{ndz}]$ – helped $[he\underline{lpt}]$ – cramped $[kr \times \underline{mpt}]$ – twelfth $[twe\underline{lf\theta}]$ – next $[ne\underline{kst}]$ – fifths $[fi\underline{f\theta s}]$ – banks $[ba\underline{nks}]$ – prompts $[pr \times \underline{npt}]$ – sixths $[si\underline{k\theta s}]$ – texts $[te\underline{ksts}]$

Result: Most of the test participants had some perception problems with three and four-consonant clusters.

Production test

backed $[bæ\underline{kt}]$ – crossed $[kr\underline{Dst}]$ – brushed $[br\underline{\Lambda}\underline{ft}]$ – blankets $[blænk\underline{\partial ts}]$ – couples $[k\underline{\Lambda}\underline{plz}]$ – front $[fr\underline{\Lambda}\underline{nt}]$ – prawns $[pr\underline{Dst}]$ – gloves $[gl\underline{\Lambda}\underline{vz}]$ – hounds $[ha\underline{undz}]$ – helped $[he\underline{lpt}]$ – clamped $[klæ\underline{mpt}]$ – twelfth $[twe\underline{lf\theta}]$ – next $[nek\underline{sts}]$ – fifths $[f\underline{uf\theta s}]$ – hunks $[h\underline{\Lambda}\underline{nks}]$ – prompts $[pr\underline{Dmpts}]$ – sixths $[s\underline{uk\theta s}]$ – nexts $[ne\underline{ksts}]$

Result: Most of the test participants had some production problems with three and fourconsonant clusters.

Cause of error

The error is due to the absence of final consonant clusters consisting of more than two consonants in Persian.

Recommendation:

It is believed that no normal English speaker would ever pronounce all the consonants between the two words like 'six's throne' [sɪksθs θrəun]. Therefore Persian

students should not expect to hear all the consonants in a cluster when listening to a native speaker. Contexts in which those words are used are important factors that can help them to recognize the words with reduced consonant clusters.

There are two ways to simplify the production of these difficult consonant clusters. First, in clusters of three plosives or two plosives plus a fricative, the middle plosive may disappear, so that the words 'looked back', 'acts' and 'scripts' are pronounced as [lok bæk], [æks] and [skrɪps]. Second, one can break a cluster between syllables, making it easier to pronounce. This process which is called *phonetic syllabification* occurs most often when a final consonant cluster precedes a word beginning with a vowel sound. The final consonant of the cluster moves forward to the next syllable. For example, the phrases 'charged out' and 'cooks it' are pronounced as [tʃa:dʒ- daut] and [kuk-sɪt].

5.4.1.5.3 Syllabic consonants

Perception test

[kætl]	[kætˌl]	[kætļ]	[kætəl]
[hæpənɪŋ]	[hæpənɪŋ]	[hæpn̩ɪŋ]	[hæpənɪŋ]
[ʌpəməʊst]	[ʌpm̩əʊst]	[ʌpm̩əʊst]	[ʌpm̞əʊst]
[bṛəʊkŋ]	[bṛəʊkŋ]	[brəʊkŋ]	[bṛəʊkən]
[hɪstṛɪi]	[hɪstṛɪi]	[hɪstṛɪi]	[hɪstərɪi]
[vetrən]	[vetrən]	[vetrən]	[vetrn]

Result: 25/25 could distinguish the words consisting of the syllabic consonant [1] from the words without the syllabic consonant.

Production test

muddle	[]	tunnel	[]
rotten	[ņ]	often	[ņ]
let them	[m̩]	happen	[m̩]
thicken	[ŋ]	broken	[ŋ]
Hungary	[ŗ]	history	[ŗ]
literal	[r̩l]	national	[n̩ḷ]

Result: Most of the test participants had problems with the production of syllabic consonants.

Cause of error

The error is due to the absence of syllabic consonants in Persian.

Recommendation:

The Persian learners need to know that the RP syllabic consonants are important for two main reasons: first, in some cases they show a contrast with non-syllabic ones. For example, the words 'Hungary' [hʌŋgri] and 'hungry' [hʌŋgri] are in contrast only because of the syllabic and non-syllabic [r], and the two words 'coddling' (derived from the verb 'coddle') and 'codling' (meaning 'small cod') show a contrast between the syllabic and non-syllabic [l]: 'coddling' [kɒdlɪŋ] and 'codling [kɒdlɪŋ]. Secondly, in RP, inserting the vowel instead of articulating the syllabic consonant, if there is no change in meaning, would be a mispronunciation. For example, [kætəl] is the mispronunciation of [kæt1].

The Persian learners should also notice that a syllabic consonant occurs after another consonant and the way it is produced depends to some extent on the nature and place of articulation of those consonants. In words such as $[t\Lambda\eta]$, [ped], [bæt], $[\theta k\eta]$, the two consonants are co-articulators so the articulatory movement from the preceding consonant to the syllabic consonant is quite simple; that is the tongue, which is in contact with the

roof of the mouth, does not move until the articulatory contact for the second consonant is released. In the case of other words in which the two consonants are not co-articulators such as [beɪbl], [strʌgl], [pfn], [sevn], the students should be careful not to insert a vowel between the two consonants, as they have learned how to pronounce the consonant clusters without inserting a vowel.

5.4.1.5.4 Test Results

The results of the 'Consonant Clusters Test' and 'Syllabic Consonants', including the score for each item is presented as follows:

a) Initial Consonant Clusters

1. spinal [sp...]

Perception: The spelling presented by the participants was correct.

Production: 25/25 added the glottal stop [7] + [e] to the beginning of the consonant [s].

2. trousers [tr....]

Perception: The spelling presented by the participants was correct.

Production: 21/25 inserted a short form of [e] between [t] and [r] and 4/25 produced the cluster correctly.

3. flasher [fl...]

Perception: 2/25 inserted the letter e between f and l.

Production: 22/25 inserted a short form of [e] between [f] and [l] and 3/25 produced the cluster correctly.

4. spherical [sf...]

Perception: 5/25 added letter e to the beginning of the word.

Production:25/25 inserted the glottal stop [?] and the vowel [e] before the consonant [s].

5. frankly [fr...]

Perception: 2/25 inserted the letter e between f and r.

Production: 22/25 inserted a short form of the vowel [e] between the consonants [f] and [r] and 3/25 produced the cluster correctly.

6. mutilate [mj...]

Perception: The spelling presented by the participants was correct.

Production: 11/25 inserted the vowel [e] between [m] and [j] and 5/25 added the vowel [i] after [m], and 9/25 produced the cluster correctly.

7. tuner [tj...]

Perception: The spelling presented by the participants was correct.

Production: 11/25 inserted the vowel [e] between the consonants [t] and [j], 5/25 added the vowel [i] after [t], and 9/25 produced the cluster correctly.

8. funeral [fj...]

Perception: The spelling presented by the participants was correct.

Production: 14/25 inserted the vowel [e] between the consonants [f] and [j] and 11/25 produced the cluster correctly.

9. clarity [kl...]

Perception: 4/25 inserted the letter e between k and l.

Production: 21/25 inserted [e] between the consonants [k] and [l] and 4/25 produced the cluster correctly.

10. lubricate [lj...]

Perception: The spelling presented by the participants was correct.

Production: 11/25 inserted the vowel [e] between [l] and [j] and 5/25 added the vowel [i] after [l], and 9/25 produced the cluster correctly.

11. smiling [sm...]

Perception: The spelling presented by the participants was correct.

Production: 25/25 added the glottal stop [7] and the vowel [e] before the consonant [s].

12. swaying [sw...]

Perception: 3/25 inserted the vowel [5] between [8] and [w]

Production:14/25 inserted the vowel [5] between [8] and [w], and 11/25 produced the cluster correctly.

13. slimming [sl...]

Perception: 5/25 added he letter e to the beginning of the word.

Production: 25/25 inserted the glottal stop [?] and the vowel [e] between [s] and [l].

14. stranger [str...]

Perception: 7/25 only added the letter e to the beginning of the word, but 5/25 also inserted e between t and r.

Production: 25/25 added the glottal stop [?] and the vowel [e] to the beginning of the word, and 13/25 inserted a short form of the vowel [e] after [t].

15. sclerosis [skl...]

Perception: 7/25 only added the letter e to the beginning of the word, but 5/25 also inserted e between k and l.

Production: 25/25 added [7] + [e] to the beginning of the word, and 11/25 inserted the vowel [e] between [k] and [l], as well.

16. scramble [skr...]

Perception: 7/25 only added the letter e to the beginning of the word, but 3/25 also inserted e between k and r.

Production: 25/25 added [7] + [e] to the beginning of the word, and 8/25 inserted the vowel [e] between [k] and [r].

17. sprinkle [spr...]

Perception: 6/25 only added the letter e to the beginning of the word, but 1/25 also inserted e between p and r.

Production: 25/25 added the glottal stop [7] + [e] to the beginning of the consonant [s], 8/25 inserted [e] between [p] and [r].

18. squeeze [skw...]

Perception: 4/25 added the letter e to the beginning of the word, and inserted o between k and w.

Production: 25/25 added the [?] + [e] to the beginning of the consonant [s], and 14/25 inserted [5] between [k] and [w].

19. splash [spl...]

Perception: 8/25 added the letter e to the beginning of the word, and 3/25 inserted e between p and l.

Production: 25/25 added the glottal stop [7] + [e] to the beginning of the consonant [s], and 10/25 inserted [e] between [p] and [l].

20. spuria [spj...]

Perception: 6/25 added the letter e to the beginning of the word.

Production: 25/25 added [7] + [e] to the beginning of the word, and 11/25 inserted the vowel [e] between [p] and [j].

21. student [stj...]

Perception: 6/25 added the letter e to the beginning of the word.

Production: 25/25 added [?] + [e] to the beginning of the consonant [s], 13/25 inserted [e] between [t] and [j], and 4/25 added [i] after [t].

22. skewer [skj...]

Perception: 6/25 added the letter e to the beginning of the word.

Production: 25/25 added [7] + [e] to the beginning of the word, 15/25 inserted [e] after [k], and 4/25 added [i] after [k].

b) Final Consonant Clusters

1. backed [...kt]

Perception: The spelling presented by the participants was correct.

Production: 5/25 inserted a short form of [e] between [k] and [t], and 20/25 produced the cluster correctly.

2. hounds [...ndz]

Perception: 8/25 omitted [d]

Production: No production problem

3. helped [...lpt]

Perception: 3/25 omitted [d]

Production: No production problem

4. clamped [...mpt]

Perception: 8/25 omitted [p]

Production: 8/25 inserted a short [e] between [p] and [t], and 17/25 produced the

cluster correctly.

5. twelfth $[...lf\theta]$

Perception: 6/25 omitted [θ]

Production: 9/25 inserted a short [e] between [f] and $[\theta]$, 12/25 produced [t] instead

of $[\theta]$, and 4/25 produced the cluster correctly.

6. next [...kst]

Perception: 8/25 omitted [t]

Production: No production problem

7. fifths $[...f\theta s]$

Perception: 11/25 omitted [θ], and 4/25 changed [f] into [v]

Production: 9/25 inserted a short [e] between [f] and $[\theta]$, 12/25 produced [t] instead

of $[\theta]$, and 4/25 produced the cluster correctly.

8. hunks [...ŋks]

Perception: 2/25 omitted [k]

Production: 9/25 tried to pronounce all the consonants separately and inserted a

short [e] after [k], and 16/25 produced the cluster correctly.

9. prompts [...mpts]

Perception: 13/25 omitted [p] and [t], and 10/25 omitted only [p]

Production: 7/25 tried to pronounce all the consonants separately and inserted a short [e] between [p] and [t], and 18/25 produced the cluster correctly.

10. sixths $[...ks\theta s]$

Perception: 8/25 omitted [θ] and [s], 11/25 omitted final [s] and 4/25 changing [θ] to [t].

Production: 10/25 produced [t] instead of $[\theta]$, 12/25 produced a long [s] in the place of all the fricatives of the cluster, and 3/25 had a correct pronunciation.

11. nexts [...ksts]

Perception: 12/25 omitted [t] and [s], and 11/25 omitted final [s]

Production: 3/25 produced all the consonants separately, 2/25added a short [e] before final [s] and 20/25 produced the cluster correctly.

The test participants had no production or perception problem with the final clusters [...st], [...ft], [...ts], [...lz], [...nz], and [...vz].

c) Syllabic Consonants

1. mud<u>dle/ tunnel</u> [l]

Perception: 25/25 could discriminate the word consisting of the syllabic consonant [1] from the words without the syllabic consonant.

Production: 21/25 inserted a short form of [e] before [l], and 4/25 produced them Correctly.

2. rotten/often [n]

Perception: 25/25 could discriminate the word consisting of the syllabic consonant [n] from the words without the syllabic consonant.

Production: 24/25 inserted a short form of [e] before [n], and 1/25 produced them

correctly

3. let them/ happen [m]

Perception: 25/25 could d discriminate the word consisting of the syllabic consonant [m] from the words without the syllabic consonant.

Production: 24/25 inserted a short form of [e] before final consonants in both words, and produced the second word with final [n], and 1/25 produced them correctly

4. thicken/broken [ŋ]

Perception: 25/25 could discriminate the word consisting of the syllabic consonant Production: 23/25 inserted a short form of [e] before [n] and produced them with

final [n] in both words, 2/25 had a correct pronunciation.

5. Hungary/ history [r]

Perception: 25/25 could discriminate the word consisting of the syllabic consonant [r] from the words without the syllabic consonant.

Production: 18/25 inserted a short form of [e] before [r], and 7/25 had a nearly correct pronunciation.

6. literal [rl]

Perception: 25/25 could discriminate the word consisting of the syllabic consonant [rl] from the words without the syllabic consonants.

Production: 8/25 inserted a short form of [e] before and after [r], 12/25 added [e] or [a] after [r] and 5/25 seemed to have a correct pronunciation.

7. national [nl]

Perception: 25/25 could discriminate the word consisting of the syllabic consonant [nl] from the words without the syllabic consonants.

Production: 13/25 inserted a short form of [e] before and after [n], 10/25 added [e] or [a] after [n] and 2/25 pronounced the word correctly.

5.5 Stress

Perception test

refund	[n]	re'fund	[v]	'refund	[n]	refund	[n]
im'port	[v]	'import	[n]	'import	[n]	'import	[n]
abstract	[adj]	ab'stract	[v]	ab ['] stract	[v]	ab ['] stract	[v]
present	[adj]	'present	[adj]	'present	[adj]	pre ['] sent	[v]
formidable	[adj]	'formidable	[adj]	'formidab	le [adj]	for midab	le [adj]

Result: 25/25 could distinct the words with primary stress on the first syllable from the same words with primary stress on a different syllable.

Production test

per'haps - 'terri.ble - pi'ano - ref 'lect - re'fuse - 'market - de'story - 'concentrate - 'pleasant - 'fallible - 'dictio,nary - neverthe'less - next 'door - 'practical - 'period - 'personal - 'parent - 'purchace - 'clearly - 'naturally -

Result: Most of the participants applied the Persian stress placement rules to the English syllables; for example, influenced by the Persian rules, 13/25 pronounced the English word 'dictionary'(n) with the stress on the last syllable, and 14/25 pronounced 'terrible' (adj) with the stress on the last syllable. Furthermore, the test participants used only one level of stress, not two.

The results of the 'Stress Test', including the correct and incorrect answers as well as the percentage for each item is presented in the following table:

word par	t of speech	first syllable	second syllable	third syllable	forth syllable	percentage
1. per'haps	(adv)	17	8	-	-	32%
2. 'terri.ble	(adj)	8	3	14	-	32%
3. pi'ano	(n)	-	6	19	-	24%
4. ref'lect	(v)	5	20	-	-	80%
5. re¹fuse	(v)	3	22	-	-	88%
6. 'market	(n)	7	18	-	-	28%
7. de stroy	(v)	7	18	-	-	72%
8. 'concentrate	(v)	8	4	13	-	32%
9. 'pleasant	(adj)	4	21	-	-	16%
10. fallible	(adj)	9	1	15	-	36%
11. dictio nary	(n)	5	7	-	13	20%
12.,neverthe'less	(adv)	15	3	-	7	28%
13.,next'door	(adv)	21	4	-	-	16%
14. practical	(adj)	6	-	19	-	24%
15. period	(n)	6	19	-	-	24%
16. personal	(adj)	6	1	18	-	24%
17. parent	(n)	9	16	-	-	36%
18. purchase	(v)	8	17	-	-	32%
19.'clearly	(adv)	12	13	-	-	48%
20. 'naturally	(adv)	10	-	-	15	40%

Cause of error

The errors are due to the fact that there is only one level of stress in Persian while there are two levels of stress in English. Furthermore, the stress placement rules in Persian are different from English.

Recommendation:

The Persian students need to know that the position of syllables carrying the primary and secondary stresses is as important as the sequence of phonemes composing the word. It is possible that a word pronounced with the correct sound sequence may be misunderstood if the stress is not placed on the proper syllable. Learners should also be careful to make appropriate reduction of unstressed vowels or elision of weak vowels in some cases, as in 'geography' ['dʒpgrəfi].

There are two different views among phoneticians about learning stress. One is that stress is not predictable by rule and must be learned word by word. This view roots from the fact that there are a lot of exceptions to the stress placement rules. The second is to say that, difficult though the task is, one must try to find a way of writing rules that state what native speakers naturally do in placing stress (Roach 2002: 101). But, at this point in time, what is the best method for the teachers to apply in order to help their students learn the proper use of English stress?

Although there are exceptions to the rules of English word stress stated by phoneticians, the teachers can definitely help their students by teaching them some of the tendencies. For example, they can pay attention to the influence of suffixes on the placement of primary stress. Some of the most common tendencies are as follows:

(i) The primary stress is placed on the final syllable of the root preceding the following:

suffixes.

-ity uni¹versity

-ion 'million

-ian ma'gician

-ic dra matic

-ify 'terrify

-ible in credible

-able 'portable

-igible 'negligible

-ish (v) 'publish

(ii) The primary stress is placed on the penultimate syllable of the root in verbs of three syllables or more ending in the suffix -ate:

Example: 'penetrate, ne'gotiate

(iii) The primary stress is placed on the suffix -ate in disyllable verbs:

Example: cre'ate, dic'tate, trans'late

(iv) The primary stress is placed on the first syllable of the suffix -ation:

Example:

nationali'zation, pressuri'zation, privati'zation, demilitari'zation

5.6 Hierarchy of Difficulty

Compared to the production tests, the number of incorrect answers in the perception tests is small, and even in some cases, such as syllabic consonants, stressed syllables, and syllable initial vowels, no perception error is committed. It doesn't mean that the subjects have fewer problems with the perception of the English speech sounds, placement of stress, consonant clusters, etc. but it suggests that their ears can distinguish between the words,

which are the same in all their features but one. In other words, if they listen attentively to the production of the words used in the perception tests they are able to discriminate one sound from the other. For example, when they listen to the words 'sheep' [ʃi:p] and 'ship' [ʃɪp], they realize that the articulation is not the same. This doesn't imply that Persian speakers can produce both words exactly in the same way that English speakers do. This might be the reason why Persian speakers have evidently fewer problems with perception than production as illustrated in the following diagrams.

5.6.1 Speech Sounds

a) production

	wrong answers	percentage of errors	the most difficult
1. [t, d, tʃ, dʒ, s, z, ∫, ʒ, ŋ, ə, ϶, aυ]	25/25	100 %	
2. [θ, ð, ɹ, w, υ, ʌ, eə, əυə]	23/25	92 %	ļ.
3. [10, U0]	22/25	88 %	l I
4. [1]	21/25	84 %	*
5. [əʊ, ɒ, ɪ]	20/25	80 %	
			the least difficult

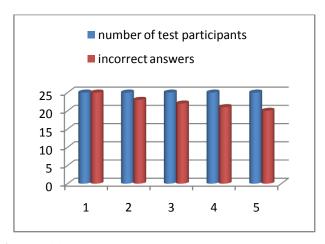


Diagram 5.1 The production of speech sounds

19, 90, 909, aua] are absent in Persian, while [t, d, tf, d3, s, z, f, 3, 1] occur in Persian but with a different distribution and/or manner of articulation.

a) perception	wrong answers	percentage of errors	the most difficult
1. [w]	9/25	36%	
2. [p]	8/25	32%	İ
3. [3]	4/25	16%	
4. [Λ]	3/25	14%	l I
5. [ə]	2/25	8%	į
6. [eə]	1/25	4%	*
			the least difficult

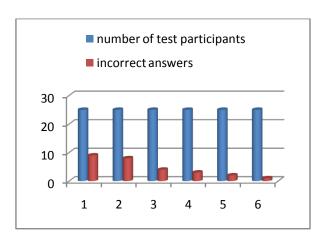


Diagram 5.2 The perception of speech sounds

As the above diagram shows, although most of the subjects have been able to distinguish between the speech sounds and their counterparts, there are still some sounds which lead to problems for some learners. For example, some students could not discriminate between [w] and $[\mathfrak{I}]$ or $[\mathfrak{D}]$ and $[\mathfrak{I}]$. The reason lies in the fact that $[\mathfrak{I}]$ is a vowel-like consonant and phonetically similar to [w]. In the case of $[\mathfrak{D}]$ and $[\mathfrak{I}]$, their common feature such as roundness and backness make it difficult for subjects to perceive the difference between these two vowels. Some of these problems might be the result of non-linguistic factors such as lack of concentration from the side of the subjects when listening to the tests. The faulty perception of the speech sounds $[\mathfrak{ea}]$, $[\mathfrak{I}]$ and $[\mathfrak{I}]$ may be due to the above factors.

5.6.2 Initial Vowels, Diphthongs, Triphthongs, Consonant Clusters and Syllabic Consonants

5.6.2.1 Initial Vowels, Diphthongs and Triphthongs

a) production

wrong answers percentage of errors

1. vowel / diphthong / triphthong

25/25

100%

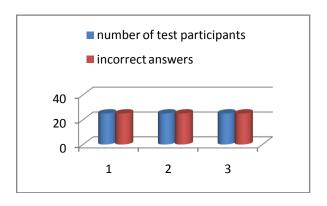


Diagram 5.3 The production of initial vowels, diphthongs, and triphthongs

Since the onset is an inseparable part of the Persian syllable structure, there is no syllable in the Persian Language beginning with a vowel, diphthong, or triphthong. That is why all the participants in the test added the glottal stop [7] to the beginning of the words made up of only a vowel or beginning with a vowel, a diphthong or a triphthong.

b) perception

	wrong answers	percentage of errors
1. vowel / diphthong / triphthong	0/25	0%

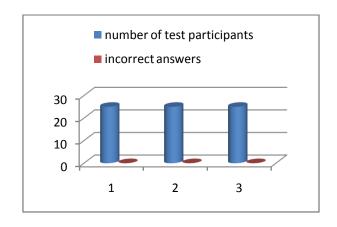


Diagram 5.4
The perception of initial vowels, diphthongs, and triphthongs

As it is illustrated in the above diagram, the subjects faced no serious problem distinguishing between the words beginning with vowels, diphthongs, and triphthongs on the one side and the same words beginning with the glottal stop [7] on the other. The reason might be that all the English words beginning with a vowel, diphthong, or triphthong are pronounced with the glottal stop [7] by Persian students. The lack or presence of [7] at the beginning of a word is perceived easily by Persian speakers, for example, the difference between hour [$\alpha \cup \theta$] and hour with the glottal stop [$\alpha \cup \theta$].

5.6.2.2 Initial Clusters

a) production

	wrong answers	percentage of errors	the most difficult
1. [sp, sf, sm, sl, str, skl, skr,			1
spr, skw, spl, spj, stj, skj]	25/25	100 %	i
2. [fl, fr]	22/25	88 %	İ
3. [tr, kl]	21/25	84 %	ļ.
4. [mj, lj, tj]	16/25	64 %	
5. [fj, sw]	14/25	52 %	•
-			the least difficult

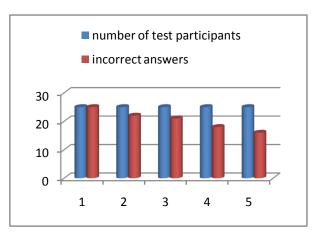


Diagram 5.5 The production of initial clusters

Based on the results of the test, the initial consonant clusters can be divided into two groups. The first group consists of [mj, lj, tj, fj, sw], which are two-consonant clusters ending in [j] or [w], and the second group consists of [sp, sf, sm, sl, str, skl, skr, spr, skw, spl, spj, stj, skj, fl, fr, tr, kl]. The number of incorrect answers for the clusters in the first group is less than the number of incorrect answers in the second group. The reason might be that [j] and [w] phonetically resemble the vowels [i] and [u]. Therefore, the production of these consonant clusters is not as difficult as the production of the clusters in the second group. In the case of the three-consonant clusters [skw, spj, stj, skj], which occur in the second group, the main problem is not with the last consonant, but the first one, which is produced with a glottal stop and a vowel.

b) perception

r) Printer	wrong answers	percentage of errors	the most difficult
1. [str, skl]	12/25	48 %	Ţ
2. [spl, skr, spr]	10/25	44 %	
3. [spj, stj, skj]	9/25	40 %	
4. [sf, sl, skw]	8/25	28 %	i
5. [kl, sw]	2/25	24 %	
6. [fl, fr]	1/25	20 %	+

the least difficult

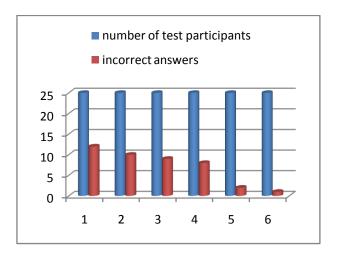


Diagram 5.6 The perception of initial clusters

The problem that Persian students have with the initial clusters beginning with [s] followed by a consonant is noticeably greater than the clusters beginning with [s] followed by a vowel-like consonant like [w] or the other consonant clusters like [kl], [fl], or [fr]. This might be due to the fact that Persian speakers tend to add the glottal stop [7] and a vowel to the beginning of the first group.

Misspelling is another factor which should not be ignored when studying such tests because some subjects added the letter e to the beginning of the first group of words and inserted the letters o or e between the consonants in the second group.

5.6.2.3 Final Clusters

a) production

	wrong answers	percentage of errors	the most difficult
			1
1. [$ks\theta s$]	22/25	88%	į.
2. [fθs, lfθ]	21/25	84%	l I
3. [ŋks]	9/25	36%	i
4. [mpt]	8/25	32%	ļ.
5. [mpts]	7/25	28%	
6. [ksts, kt]	5/25	20%	\
			the least difficult

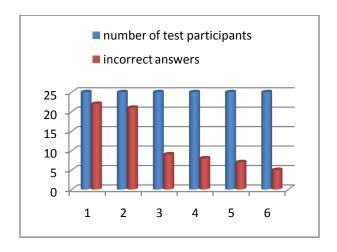


Diagram 5.7 The production of final clusters

As the results of the test shows, Persian speakers have a serious problem with the final clusters [ks θ s], [f θ s], and [lf θ]. This problem lies in the fact that each of these clusters consists of a sequence of three fricative consonants, while the sequences do not occur in Persian.

Although the participants in the test were expected to have problems with the production of clusters consisting of more than two consonants, namely [ŋks], [mpt], [mpts], and [ksts], most of them produced the clusters correctly. This might be due to the fact that these clusters are made up of sequences of stops or fricatives which exist in Persian two-consonant clusters. This facilitates the production of these clusters by Persian speakers.

Due to the existence of two-consonant clusters in Persian most of the participants in the test faced no problem with the cluster [kt]. However, 5 of the 25 students produced the cluster incorrectly. These errors could have resulted from the fact that there are very few words in Persian ending in a sequence of stops, the second stop of which is frequently omitted.

b) perception			
	wrong answers	percentage of errors	the most difficult
1. [ksθs, mpts, ksts,]	23/25	92 %	l I
2. [fθs]	15/25	60 %	i
3. [ndz, mpt, kst]	8/25	32 %	
4. [lfθ]	6/25	24 %	
5. [lpt]	3/25	12 %	<u>i</u>
6. [ŋks]	2/25	8 %	▼
			the least difficult

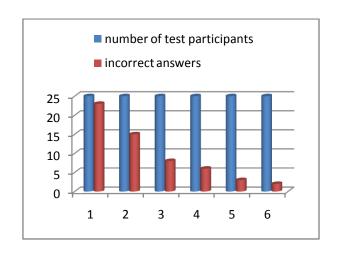


Diagram 5.8 The perception of final clusters

As the hierarchy of difficulty of final consonant clusters and the above diagram illustrate, Persian learners have great problems with four-consonant clusters. The problems with three-consonant clusters comparatively are not so great. However, there are common sources for incorrect answers. They are mostly due to the lack of four and three-consonant clusters in Persian. Furthermore, sequences of two or three fricatives such as [lf0], [ks0s], and [f0s] do not occur in Persian, and sequences of stops like [lpt] and [mpt] are not common in this language. In addition, the more the number of consonants in the cluster, the greater the problem. Four-consonant clusters produce more serious problems for Iranian learners of English than three-consonant clusters. Finally, non-linguistic factors such as poor memory, might have been involved in the production of incorrect answers especially in the case of four-consonant clusters.

5.6.2.4 Syllabic consonants

a) production

_	wrong answers	percentage of errors	the most difficult
1. [ņ], [ṃ]	24/25	96%	
2. [n], [n]]	23/25	92%	į
3. [l]	21/25	84%	
4. [r̞l]	20/25	80%	į
5. [r̩]	18/25	72%	*
			the least difficult

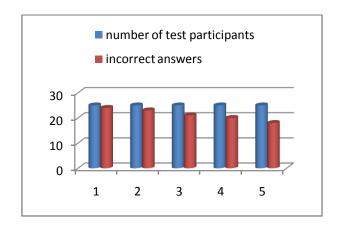


Diagram 5.9
The production of syllabic consonants

Due to their absence in Persian, syllabic consonants can create problems for Iranians learning English. As illustrated above, more than 70% of the test participants cannot pronounce the English words comprising syllabic consonants in a correct manner. A careful study of the test results reveals that Persian speakers produce these final consonants, known as syllabic consonants, by inserting vowels before or after. Even some of the answers labeled as correct, are intended to have very short vowels between the consonants.

b) perception

As was mentioned before, the test participants could discriminate the same words but placed the stress on different syllables.

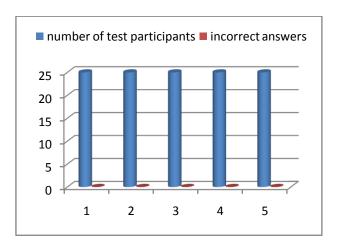


Diagram 5.10 The perception of syllabic consonants

As the above diagram shows, all the subjects could perceive the difference between the words containing syllabic consonants and the same words containing non-syllabic consonants. For example, they could differentiate between [kætl] and [kætəl] or [hæpənɪŋ] and [hæpnɪŋ]. This might be for the fact that syllabic consonants do not exist in Persian.

5.6.3 stress

a) production

Parts of speech	wrong answers	percentage of errors	the least difficult
 Noun & Adjective Adverb Verb 	92/125 84/125 49/125	73 % 67 % 39 %	
			the most difficult

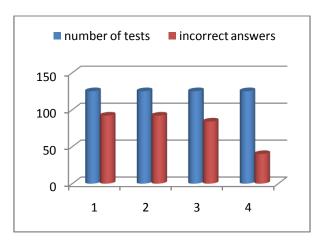


Diagram 5.11 The production of stressed syllables

As illustrated above, in the case of nouns, adjectives and adverbs, the number of incorrect answers is around 70%, while the number of incorrect answers for verbs is less than 40%. The justification which can be given for such a gap is that although there is a great difference between English and Persian in the stressing of nouns, adjectives, and adverbs, there might be similarities between the two languages in the stressing of verbs.

Persian speakers, for example, pronounce the verbs 'open', 'enter', and 'close' correctly, since two-syllable verbs in Persian are stressed on the first syllable.

b) perception

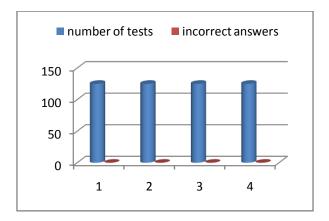


Diagram 5.12 The perception of stressed syllables

As mentioned in section 5.5, the test participants had no problem discriminating the words that have the primary stress on different syllables. It seems that the shift of stress on a word, specially when there is only one level of stress, makes such a great difference in its articulation that no Persian speaker fails to distinguish it from the same word with a different stress. For example, the audial difference between the words *im'port* and *'import*, which is caused by the shift of stress, makes it very easy for the Persian speakers to perceive the problem.

5.7 Summary

Based on the test results, the participants are found to have problems with the production of 14 English consonants, 6 vowels, 5 diphthongs and 2 triphthongs, which have been discussed, and for each problem some remedial recommendations have been presented.

In general, English sounds which do not occur in Persian are replaced with Persian sounds. The results of the syllable test show that Persian learners of English have problems with initial vowels, initial two and three-consonant clusters, final three and four-consonant clusters as well as syllabic consonants.

The result of the stress test reveals that the Persian learners of English have problems with the English levels of stress, that is, they make use of only one level of stress, not two or more, as it is done by English speakers.

They also have problems with the placement of stress due to the different rules for the stress pattern in the two languages. The stress pattern rules for Persian is simple and straightforward, while they are more complicated in English. Many phoneticians believe that stress is not predictable by rules and must be learned together with the words.