Measuring Persian Speakers' Acquisition of English Phonology across Proficiency Levels[1]

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Abstract

This research article focuses on the English pronunciation of Iranian students who are learning English as a foreign language in a language school in Tehran, Iran. The participants are eighteen adult language learners with three different proficiency levels: beginner, intermediate, and advanced. A quantitative method was used to gather and analyze the data. This study reveals the pronunciation errors of students based on their proficiency level and shows what features of their L1 affects their intelligibility. In order to gain a better understanding of the strengths and weaknesses of students in each level, a pronunciation diagnostic test designed in accordance with their proficiency level was given to them. This test evaluated students based on the production of the segmental and suprasegmental features of English. Also, a picture story was given to the students in order to understand how students' pronunciation changes when they produce language spontaneously. The results indicated that students' production of segmental features improves as they become more proficient in English; however, the errors made in the production of suprasegmental features were mostly shared among all proficiency levels. Moreover, the study provided evidence that students' inability to produce the segmental features, affected their intelligibility negatively whereas advanced students' inability to produce the suprasegmental features of English slightly affected their intelligibility.

Resumen

El artículo reporta los resultados de una investigación del desarrollo de las habilidades de pronunciación en inglés de alumnos iraníes quienes aprenden inglés como lengua extranjera en una escuela de idiomas ubicada en Tehran, Irán. Los participantes son 18 adultos con distintos niveles de competencia: principiantes, intermedios, y avanzados. Se utilizó un método cuantitativo para recolectar y analizar los datos, cuyos resultados revelaron cuáles fueron los errores de pronunciación de los estudiantes de acuerdo a su nivel, y cuáles características de su L1 afectaron la inteligibilidad en inglés. Para entender mejor las destrezas y debilidades de los participantes en cada nivel se diseñó un examen diagnóstico para evaluar su producción tanto de aspectos segmentales como suprasegmentales del inglés. Además, los participantes contaron una historia basada en dibujos para medir su pronunciación en una situación de producción espontánea. Los resultados indicaron que los alumnos avanzan de acuerdo a su nivel de competencia en la pronunciación de aspectos segmentales, sin embargo los errores en la pronunciación de elementos suprasegmentales fueron similares entre todos los niveles de competencia. Las conclusiones argumentan que las dificultades que tienen los alumnos para producir sonidos segmentales afectaron de manera negativa su inteligibilidad en inglés, mientras que para los participantes avanzados sus problemas con aspectos suprasegmentales afectaron muy poco la inteligibilidad.

Introduction

As the preeminent international language, English has become the most studied foreign language around the world. In order to be able to communicate with native and non-native speakers, L2 English learners must be able to make themselves understood. However, we recognize that in English as a Second or Foreign Language classes (ESL/EFL), pronunciation is one of the areas that can be neglected easily, due to the complexity of acquiring communicative competence and the time constraints most teachers work with.

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In this paper, we discuss that in order to maximize the effects of pronunciation practice, EFL teachers should focus on helping students develop *intelligibility:* the ability to make themselves understood in real-world communicative situations rather than having native-like pronunciation. We will demonstrate that one of the principal factors that can cause intelligibility problems is the phonological differences between learners' first language and the target language. This article presents the results of an empirical study carried out in a language institute in Tehran, Iran of adult students' development of second language English intelligibility in EFL courses. We will show how specific features of the Persian and English phonological systems differ, and how their differences can show teachers where to anticipate pronunciation problems. Using a graded phonological measurement diagnostic instrument, we demonstrate how these L1 Persian students are acquiring the English phonological system at the beginner, intermediate, and advanced levels.

English has been taught in Iran for more than thirty years and it has become part of the K-12 education curriculum. Iranian students begin taking mandatory English classes when they are in the sixth grade; however, the main focus is on grammar and vocabulary. Some students find the classes offered in schools inadequate and therefore, they attend English language institutes where they can learn the required skills to communicate successfully. These language institutes generally take a more communicative orientation (Brown, 2004), focusing on the four skills: reading, writing, listening, and speaking. Being able to speak in English is important to students because college graduates and job seekers who can speak fluently have a higher chance of finding a job and individuals who are already employed have a better chance to receive a promotion.

One of the major factors that contributes to effective communication is the ability to speak with clear pronunciation. In work on pronunciation for second language speakers, Jenkins (2000) has argued that we should conceptualize L2 pronunciation in terms of *comprehensibility* or *intelligibility*, rather than based on an idealization of native speaker accents. Although in an EFL context such as Iran where EFL teachers still tend to think in terms of "correct" pronunciation based on native speaker norms, we approached the evaluation of students' pronunciation based on standards of overall intelligibility, and not on judgments of "correctness" or "nativeness" in this study. Intelligibility, then, is a central concern for teachers working with students to develop their pronunciation. The concept intelligibility is related, but distinct, from the notion of comprehensibility. According to Seidlhofer (2004), *comprehensibility* may include aspects of intelligibility, but it also describes in general to what extent the listener can understand the speaker, including issues of coherence of the speaker's ideas, and other aspects related to discourse competence and intercultural communication.

In recent years, Iranian language teachers and learners have been focusing on pronunciation and intelligibility. Pronunciation is described as "the articulation of individual sounds like voicing and aspiration, voice-setting features, and stress and intonation. Attention to these aspects also requires attention to the blending and omission of sounds, and the effect of the various aspects on intelligibility" (Esling & Wong, 1983, as cited in Nation & Newton, 2009, p. 76). The differences between English and Persian become problematic for adult language learners when acquiring the English phonological system. Analyzing differences between L1 and L2 phonologies is not a new

idea in applied linguistics and language teaching. In fact, the Contrastive Analysis Hypothesis (CAH) was introduced by Lado over fifty years ago, and asserts that unequal features between two languages create "interference" errors. Lado stated that "those structures that are different will be difficult because when transferred they will not function satisfactorily in the foreign language and will therefore have to be changed" (Lado, 1957, as cited in Gass & Selinker, 2008, p. 96). This study suggests that the differences between students' L1 and L2 impact students' intelligibility and comprehensibility especially in lower levels.

Most researchers have conducted studies that focus on the different grammatical elements between the two languages; however less attention has been given to the language learners' progress in the articulation of the English phonological features. While there is still much debate in second language acquisition (SLA) circles over the exact time and effects of the *critical period* (Birdsong, 1999), Huang and Jun (2011) have established that L2 phonology is one area where later acquisition is more difficult than early acquisition Hence, children and pre-adolescents who attend language institutes acquire English pronunciation faster and retain fewer non-target language features than adult students. The goal of this research article is to focus on the pronunciation errors of adult language learners who are taking English classes after the age of 18, or after the so-called critical period of L2 learning around adolescence. Since intelligibility difficulties are more salient among adult language learners, the negative transfer of L1 into L2 will be analyzed.

In this article, we will establish the pronunciation errors that are produced by students in each proficiency level and analyze whether their intelligibility increases as they acquire higher levels of proficiency. Additionally, we will provide examples of the production of the segmental (individual phonemes, i.e., consonant and vowels) and suprasegmental (word stress, intonation, linking, prominence and rhythm) features of English among Persian speakers and will explain what phonological features (segmental or suprasegmental) hinder language learners' intelligibility. The study was guided by the following research questions:

- What phonological errors do adult Iranian EFL students make in Iran? How do the differences between the phonological system of Persian and English affect students' intelligibility?
- What are the differences in pronunciation abilities and errors for beginner, intermediate, and advanced L1 Persian learners of English?

We begin with the review of the literature to address the first question above, and shed light on the differences between the segmental and suprasegmental features of English and Persian, and the negative transfer of L1 into L2. Next, we describe the methods of data collection and provide some demographic information about the participants and the location of the study. We, then, examine the second research question, and present the pronunciation challenges among adult language learners. Additionally, students' pronunciation progress in three proficiency levels (beginner, intermediate, and advanced) will be shown in forms of table and charts. We conclude by explaining how the research questions were answered and what methods can be used to improve students' pronunciation and increase their intelligibility.

Literature Review: Contrastive Analysis of Phonologies

According to the Contrastive Analysis Hypothesis, the unequal features between languages are the main source of errors (Gass & Selinker, 2008). Lado (1957) claims that "those structures that are different will be difficult because when transferred they will not function satisfactorily in the foreign language and will therefore have to be changed" (cited in Gass & Selinker, 2008, p. 96). Work in second language acquisition (SLA) over the past fifty years has shown there are other important influences on the L2 learning process besides just L1 interference, including the important role of Universal Grammar (Ortega, 2009). However, since we are looking specifically at L2 phonology acquisition after the critical period, the CAH still serves as a useful starting point. In order to understand the role of the first language in the phonological acquisition of the second language, emphasis has been given to the studies that have focused on the differences between English and Persian phonological systems.

Comparison of English and Persian Segmental Features

The individual sounds of a language are called the *segmental* level. All languages are unique in terms of their consonant and vowel systems, and the specific set of sounds, or phonemes, employed in a given language is its *phonological inventory.* Standard American English (SAE) has about 46 phonemes: 24 consonants and 22 vowels and diphthongs (Olive, Greenwood & Coleman, 1993). On the other hand, Wilson and Wilson (2001) analyzed the phonological features of Persian and asserted that the "Persian alphabet consists of 32 characters written in Arabic script...and eleven vowels and diphthongs" (p. 179). Moreover, the research conducted by Hall (2007) analyzed the place of vowels in Persian and asserted that "vowels do not have any variation in length in formal speech" (p. 10). As a result, Persian speakers do not elongate vowels when pronouncing English words. Tables 1 and 2 compare and contrast between English and Persian consonants, vowels, and diphthongs.

English Consonants				Persian Consonants			
b	tʃ	z	l	b	tʃ	ʃ	x
d	dʒ	ʃ	θ	d	dʒ	h	ɣ
g	m	h	ð	g	m	v	
p	n	v	w	p	n	ʒ	
t	ŋ	ʒ		t	f	y	
k	f	y		k	s	r	
ʔ	s	r		ʔ	z	l	

Table 1. Comparison of English and Persian Consonants.

English Vowels and Diphthongs			Persian Vowels and Diphthongs			
i	ɔ	ʌ	ɔɪ	i		ɔ
ɛ	ɑ	ʊ	oʊ	ɛ		ɑ
æ	ɪ	ɑɪ	eɪ	æ	oʊ (not used in Standard Persian)	ɑɪ
u	ə	ɑʊ		u	eɪ	uɪ

Table 2. Comparison of English and Persian Vowels and Diphthongs.

In the above two charts, the non-shared phonemes are shaded. There are three consonants and six vowels and diphthongs in English that are not part of the phonological inventory of Persian. Hence, these are the phonemes that CAH predicts will be the most problematic for Persian speakers learning English. Note that there are other aspects – such as voicing, aspiration, and allophones – that slightly complicate the comparison shown in Table 1.

Comparison of English and Persian Suprasegmental Features

Word stress in English and Persian

Suprasegmental aspects of a language are involved with word stress, intonation, and prominence and rhythm (Celce-Murcia, Brinton, & Goodwin, 1996). Word stress, or stressed syllables, is defined as "those syllables within an utterance that are longer, louder, and higher in pitch" (Celce-Murcia, et al., 1996, p. 131). Since English is a stress-timed language, there are different levels of word stress, which is an indication of where the stress falls in the word. This indicates that some syllables in stress-timed languages should be articulated rapidly as the stresses between each syllable are not distributed equally (Nation &Newton, 2009, p. 90). Content words such as nouns and verbs, numbers, prefixes, and compound words tend to be strongly stressed, whereas suffixes and function words such as auxiliaries and prepositions can affect word stress themselves in accordance with their position (Celce-Murcia, et al., 1996). Although the studies have not indicated how the negative transfer of first language into second language varies in accordance with language learners' proficiency level, studying the factors that contributed to the transfer of L1 into L2 lead one to better understand the challenges that Persian speakers of English encounter throughout the process of English language acquisition.

In contrast to the variability of word stress and timing in English, Persian pronunciation is predictable as it is considered a syllable-timed language. Ferguson (1957) examined the Persian syllabic structure and remarked that Persian word pronounced in isolation has one syllable of heavier stress than the others. When the word is used in a sentence usually the same syllable is stressed or the word has no syllable at all; rarely the stress is shifted, i.e. falls on a syllable other than the one stressed when the word is spoken alone (ibid, p. 124).

The syllabic structure (called *phonotactics*) in Persian includes CV, CVC, and CVCC. Also, stress usually falls on the final syllable of a word (Ferguson, 1957; Shiri, 1987; Yarmohammadi, 1996, as cited in Keshavarz & Ingram, 2002, p. 257). Although most researchers such as Ferguson (1957) and Wilson & Wilson (2001), who examined syllable and word stress in Persian, claimed that syllables are predictable in Persian,

other researchers, such as Scott (1964, p. 29), have asserted that word stress in Persian can only be predictable within a word and not a sentence. However, the important point to note here is that there is a difference in the typical word stress patterns between English and Persian which may cause students to misplace the stress of words in English. Furthermore, stress tends to be very salient for intelligibility, even more so than segmental levels.

Prominence, intonation, and linking in English and Persian

Prominences are known as the stressed words that influence the meaning of a sentence. In other words, speakers tend to highlight certain words to express their meaning when they convey new information (Celce-Murcia, Brinton & Goodwin, 1996). Another way of emphasizing new information in spoken language is through rising-falling intonation. Declarative sentences, *wh*- questions, requests and agreements in English are articulated with a rising-falling intonation, whereas yes-no questions and repetitions (echo questions) are uttered with rising intonation. Additionally, linking occurs when one word within a sentence ends with a consonant and the next word begins with a vowel; the two words are connected to each other for better flow and vice versa.

Similarly, in Persian, prominences are used to highlight the importance of the message being conveyed, and Persian sentences can be classified into varying tone groups. Furthermore, studies that have examined Persian intonation indicated that there is an intonation pattern in Persian for declarative sentences, relative clauses, yes-no questions and interrogative words (Arbisi-Kelm, 2002; Wilson & Wilson, 2001). An analysis of prominence in Persian indicated that content words are stressed and produced with higher pitch (Scarborough, 2007). Although researchers such as Yarmohammadi (1996) who conducted a study on Persian intonation observed different intonation patterns in varieties of Persian language, they all provided evidence that Persian speakers use rising-falling intonation in accordance with the sentence they produce. Unlike English, linking can occur when one word within a sentence ends with either a consonant or a vowel. Like word stress, prominence is important for intelligibility. For example, a Japanese speaker may say "sank you" instead of "thank you" but this will probably not affect the listener's ability to understand. However, if the person says sank you (stressing the second part instead of the first), this may lead to misunderstanding.

The following table shows the differences between English and Persian phonological features. Although different sources have reported slightly different numbers of consonant and vowels in Persian, the numbers could differ based on the dialectal varieties of Persian language. The table below represents the similarities and differences between segmental and suprasegmental features of Standard English and Standard Persian.

		English	Persian
Segmental	**Consonants**	24	23
	Vowels & Diphthongs	10 vowels, 5 diphthongs	6 vowels, 4 diphthongs
Suprasegmental	**Stress**	Stress-timed (irregular)	Syllable-timed (final syllable)
	Intonation	Rising-Falling: declarative, requests, agreements Rising: yes-no questions and repetitions	Rising-falling: declarative, interrogative, yes-no questions
	Prominence & Rhythm	Content words are stressed.	Content words are stressed.
	Linking	When one word ends with a consonant and the next word starts with a vowel with a sentence	Irregular: linking can occur when one word ends with a consonant and next word starts with either a vowel or consonant within a sentence.

Table 3. Comparison of English and Persian Segmental and Suprasegmental Features.

The above contrastive analysis and summary in Table 3 illustrate the main differences between the phonologies of Persian and English. According to the CAH, we can use these differences to predict the problem areas that L1 Persian speakers will have when learning English. In order to conduct the study, we took these contrasting features and incorporated them into an instrument that would allow us to measure how problematic each feature is for adult L2 English learners at a language school in Tehran.

Methodology

This paper is based on a larger study of EFL learners in Tehran which was conducted for a MA thesis research. A quantitative method was used to collect data. A pronunciation diagnostic test was designed to analyze students' pronunciation errors. Each pronunciation diagnostic test included six sections. They began with two reading passages, minimal pairs, intonation, linking, prominence and rhythm exercises, and with a picture story.

The pronunciation of all language learners was analyzed based on the errors expected from the Persian speakers of English. The researchers focused on the articulation of the consonants such as: /w/, /θ/, /ð/, /s/, /p/, /b/, /t/, /d/, /k/, /g/, /ŋ/, /l/, /ɹ/, /v/, /m/, and /n/ in the first two sections. If one of the consonants did not exist in the reading passages, students' articulations of the missing consonants were analyzed in other sections of the test. Additionally, students' vowel articulations were analyzed in reading passages and minimal pairs section. Sections three, four, and five of the pronunciation diagnostic tests are shared by all levels and assess students' articulation of word stress, rhythm, rising-falling intonation, linking, and prominence.

The prominence and rhythm exercises evaluated students' ability to articulate the content words with a higher pitch and stress. Although each section of the pronunciation diagnostic test was designed to assess a specific feature, the researchers continued to

focus on the errors related to both segmental and suprasegmental features of English language in all sections.

The last section of the pronunciation diagnostic test was designed to assess students' pronunciation and intonation while they produced spoken language spontaneously. Therefore, a picture story taken from the *New Interchange Student's Book* level 2 (Richards, Hull, & Proctor, 2005) was given to the participants. Students were asked to describe what they saw in the picture. During the read aloud tests, students might be conscious about their pronunciation and not use the correct intonation since they were reading from a text; therefore, the picture story helped the researcher examine the students' pronunciation and intonation while producing spontaneous unplanned spoken language. The participants were audio-recorded while they were reading the pronunciation diagnostic test. Their pronunciation errors were marked once at the time of reading the diagnostic test and once after their voices were recorded.

Setting

This study took place at Melody[4] English Language School in Tehran, Iran. Melody English language school was officially established in 1987 in Tehran's northern district. The analysis reported in this article was part of a broader study by the first author looking at Persian speakers' acquisition of English phonology, including interviews with teachers about their perceptions of students' L2 pronunciation. However, in this paper we will only focus on the participants' pronunciation errors. The English language school enrolls 800 students per semester. The classes are heterogeneous and students have different language backgrounds. The majority of students are Iranian; however, Taiwanese, Korean, and Chinese students also attend the language school. The school identifies 18 proficiency levels for adult language learners which include Adult Courses (AC) 1-12 and First Certificate in English (FCE) 1-6. AC 1-3 are considered true beginner; AC 4-6 are considered false beginner; AC 7-9 are low intermediate; and AC 10-12 are known as high intermediate level. FCE 1-3 are considered low advanced and FCE 4-6 are advanced. In order to obtain a better picture of the participants' proficiency level the Council of Europe's *Common European Framework of Reference of Languages* (2001) states that it would be easier to understand the common reference levels when they are presented as a global scale. Therefore, the three different proficiency levels presented as a global scale include: basic users, independent users, and proficient users. Basic users have been divided into A1 and A2 categories; independent users into B1 and B2; and proficient users into C1 and C2.

Based on the participants' proficiency level in this study, beginners can be grouped as A2 basic users, whereas intermediate and advanced learners can be grouped as B2 independent users, and C2 proficient users. A2 basic users are described as learners who can produce simple sentences and express themselves by providing short and direct information. B2 independent users are learners who can understand complex sentences and express their view points on given topics. Finally, C2 proficient users are learners who can understand everything easily and can express themselves fluently and incisively (Coe, 2001, p. 24). After students complete the FCE courses, Complementary Courses in English (CCE) 1-3 are also offered by the language institute which has been designed for

[4] All names are pseudonyms. This study was conducted according to the ethical standards in social science research and under human subjects' approval of the authors' institution.

high advanced students who are interested in improving their pronunciation and communication skills. Although English is part of general education curriculum in K-12, emphasis has been given to traditional grammar teaching. Therefore, adult students who typically take EFL courses at private language institutes are college students who plan to transfer their credits to universities and colleges in English speaking countries, or individuals who need to learn English as their job requirement. Moreover, when college graduates know English their chances for employment are higher than those who do not know a foreign language.

Participants

Eighteen Iranian EFL students (six at each A2, B2, and C2 levels) who are native speakers of standard Persian participated in this study. They do not speak different dialects and varieties of Persian, and they are college students and graduates. The participants were selected on the basis that they were all adult language learners who had begun learning English after the age of eighteen.

Pronunciation diagnostic tests

In order to measure the relationship between pronunciation ability and learning, three pronunciation diagnostic tests were designed for beginner, intermediate, and advanced learners. Brown (2004) explains that "a diagnostic test is designed to diagnose specified aspects of a language. A test in pronunciation, for example, might diagnose the phonological features of English that are difficult for learners and should therefore become part of a curriculum" (p. 46). Therefore, the primary goal of the pronunciation tests was to measure students' pronunciation abilities and errors at three different levels, monitor student's development in the production of segmental and suprasegmental features of English language, and determine the shared pronunciation errors among students with different proficiency level.

As mentioned earlier, each pronunciation diagnostic test included six sections (see Appendix A). They began with two reading passages, minimal pairs, intonation, linking, prominence and rhythm exercises, and with a picture story. Moreover, the picture story is used to evaluate students' pronunciation errors when spoken language is produced spontaneously and to determine how their pronunciation errors differ from one another in diagnostic tests and spoken language. The pronunciation tests are specifically targeted at common problems for L1 Persian students of English to uncover instances of negative transfer from the students' L1 phonological system. The exercises have been retrieved from various ESL websites and chosen because of the phonological features we wanted to isolate and test, and their level of difficulty has been selected based on the textbooks used in the classrooms.

We also wanted to examine the progression of learners' pronunciation, and to what extent advanced learners were able to master these difficult features. Therefore, we designed three versions of the instrument: one each for beginner, intermediate, and advanced-level learners.

Analysis and Interpretation of Findings of Students' Errors in Producing the Segmental Features of English

Researchers such as Yarmohammadi (1969; 1996) and Wilson and Wilson (2001) analyzed the pronunciation errors of Persian speakers; however, they did not consider

the speakers' proficiency level in English and whether the pronunciation errors applied to all Iranian language learners. Therefore, this section will report the progress of Iranian EFL students based on their proficiency level. In particular, we wanted to document the progress Iranian students made in pronunciation as they moved from the beginner to intermediate to advanced levels.

All the common consonant errors predicted by Contrastive Analysis Hypothesis between Persian and English and discussed in the comparison section above applied to the beginner level students. While stop consonants such as /p/, /b/, /t/, /d/, k/, and /g/ were articulated with a stronger puff of air, /k/, /p/, /g/ and /t/ became aspirated when they were placed in the post coda position. The consonants /v/, /θ/, /ð/, and /s/ were substituted and articulated for other consonants such as /w/, /t/ and /s/, /z/ and /d/, and /ɛs/. Nasal consonant /ŋ/ was articulated as /n/ and /g/, and /m/ and /n/ were articulated with a stronger puff of air. Moreover, the retroflex liquid /ɹ/ was trilled, and it was produced with the vibration of the tongue. Lateral liquid consonant /l/ was pronounced with a stronger puff of air, and the glide consonant /w/ was replaced by /v/ according to the contrastive analysis of English and Persian conducted by Yarmohammadi (1969; 1996) and Wilson and Wilson (2001). Table 4 presents the common consonant errors produced by beginner level students.

Consonant Errors in Beginner Levels				
p	k	ð	r	l
b	g	s	m	ɹ
t	v	z	n	w
d	θ	ʒ	ŋ	ŵ

Table 4. Consonant Errors in Beginner Levels.

Intermediate level students' consonant errors were similar to the beginner level students except for / ŵ/ and /ʒ/. Although /ʒ/ exists in Persian, beginner level students replaced it by /ʃ/**.** However, intermediate level students showed progress in producing the correct consonants. The progress of intermediate level students is presented in Table 5.

Consonant Errors in Intermediate Levels					
p	d	v	s	m	l
b	k	θ	z	n	ɹ
t	g	ð	r	ŋ	w

Table 5. Consonant Errors in Intermediate Levels.

Moreover, advanced and intermediate level students shared most consonant errors except for /v/, /z/, /m/, /n/, /l/, and /ɹ/ which were produced correctly by the advanced students but not by intermediate students. Table 6 provides the consonant errors produced by advanced level students.

Consonant Errors in Advanced Levels			
p	d	θ	r
b	k	ð	ŋ
t	g	s	w

Table 6. Consonant Errors in Advanced Levels.

Sadeghi (2009) asserted that lower level students tend to transfer L1 habits into L2 more frequently as a result of their lack of knowledge in the target language. This seemed to be especially true with vowel sounds. Iranian EFL students in the beginner level produced vowels such as /ɛ/ and /æ/, /ʌ/ and /ɑ/, /ʊ/ and /u/, /ɪ/ and /i/ interchangeably and substituted /ɑ/ for /aʊ/ and /ɔ/ for /oʊ/ while reading the minimal pairs. However, students' vowel errors decreased as their proficiency level increased. While intermediate level students shared some vowel and diphthong errors with the beginner and advanced level students did not produce any diphthong errors. Tables 7 and 8 identify students' progress in the articulation of English simple and complex vowels. Note that the following tables generalize the analysis of all learners across the three levels, and (+) indicates students' generally made the correct pronunciation and (-) indicates the problematic areas among different proficiency levels.

Vowels	Beginner	Intermediate	Advanced	Vowels	Beginner	Intermediate	Advanced
i	_	_	_	ʊ	_	_	_
ɪ	_	_	_	ɔ	_	_	_
ɛ	_	+	+	ɑ	_	_	_
æ	_	+	+	ʌ	_	_	_
u	_	_	_	ə	_	_	_

Table 7. The Production of English Vowels by Level.

Diphthongs	ɑɪ	ɑʊ	ɔɪ	oʊ	eɪ
Beginner	_	_	+	_	_
Intermediate	_	+	+	_	_
Advanced	+	+	+	+	+

Table 8. Production of Complex Vowels (Diphthongs) by Level.

All students demonstrated the same segmental errors as shown in Tables 4 through 8 while describing the picture story.

The Interpretation of Beginner, Intermediate, and Advanced Level Students' Errors in Producing the Suprasegmental Features of English

We also analyzed the students' pronunciation at the suprasegmental level, which includes word stress, intonation, linking, and rhythm, and we will briefly discuss the

results and differences across levels. The phonotactics in Persian includes limited range of consonant-vowel combinations, namely CV, CVC, and CVCC. Also, word stress tended to fall regularly on the final syllable of a word (Ferguson, 1957; Shire, 1987; Yarmohammadi, 1996, as cited in Keshavarz & Ingram, 2002, p. 257). However, the same principle did not apply to words with more than three syllables, as advanced level students placed the stress in English words on both first and last syllable. Moreover, advanced level students did not produce words distinctively by including a vowel after each consonant. Instead, beginner and intermediate level students transferred the Persian syllabic structure into English and produced each consonant distinctively by including a vowel after the consonants. Table 9 presents students' weaknesses and strengths in the articulation of word stress.

Word Stress	1 syllable	2 syllables	3 syllables	4+ syllables
Beginner	+	-	-	-
Intermediate	+	+	-	-
Advanced	+	+	-	-

Table 9. The Production of English Word Stress by Level.

As with word stress, students also had problems with prosodic features including pitch and intonation. As discussed in the literature review, "the pitch accent patterns in Persian are the same whether the sentence is declarative or interrogative... This pattern leads into a terminal intonation in which the pitch decreases at the end and it seems the message is completed" (Ahmad Soltani, 2007, p. 43). The intonation of EFL students in the current study was found to be similar to that of the students in the study of Ahmad Soltani (2007) with the exception of the intonation exercises included in the diagnostic test. Advanced students did not produce any errors while reading aloud the pronunciation diagnostic test; however, when they were asked to describe the picture story (which requires spontaneous speech production, which puts more cognitive demands on L2 learners than reading a script and means L2 learners are often unable to monitor their pronunciation as closely), their intonation changed and was similar to intermediate and beginner level students. Although researchers such as Arbisi-Kelm (2002), Wilson and Wilson (2001), and Scarborough (2007) have focused on different patterns of intonation in Persian and English, it should be noted that the advanced students produced the correct intonation as long as they were not producing language spontaneously. When the same groups of students were asked to describe a picture, they articulated all the sentences with falling-rising intonation and stressed the last word in each sentence. This implies that when focusing on form (consciously paying attention to correct pronunciation), they could produce the correct word stress, but while focusing on meaning (more concerned with what they wanted to say) they reverted to Persian-like word stress patterns.

Since Persian speakers do not link the words within a sentence, all the beginner level students and some intermediate students had difficulty with linking the correct segmental features. Table 10 presents the students' progression among the three levels of proficiency.

Linking	V-V	C-V
Beginner	_	_
Intermediate	_	+
Advanced	+	+

Table 10. Linking Errors Produced by Level.

Beginner and intermediate level students had difficulty stressing the correct content word within each sentence. However, advanced level students stressed the correct content word in both the prominence and rhythm exercise and the picture story. Table 11 presents a summary of students' strengths and weaknesses in the production of suprasegmental features in English.

Suprasegmental features	Word stress	Intonation	Linking	Prominence/ rhythm
Beginner	-	-	-	-
Intermediate	-	-	+/-	-
Advanced	+/-	-	+	+

Table 11. Summary of Suprasegmental Errors by Level.

Conclusion and Implications

The aim of this study was to determine what phonological errors Iranian EFL students make, and how their pronunciation errors differ among proficiency levels. As a result, 18 adult English language learners with different levels of proficiency in a private language school in Tehran, Iran participated in this study. Based on the analysis of English and Persian phonological features presented in this article, all the anticipated segmental and suprasegmental pronunciation errors of Persian speakers applied to the beginner level students. The pronunciation errors produced by the beginner level students provided evidence that Iranian English language learners transfer all the learned L1 habits into L2. However, documentation of intermediate and advanced levels students' pronunciation provided further evidence that students who had a higher proficiency level made fewer pronunciation errors when producing the segmental features (consonant and vowels) of English language; however, intermediate and advanced level students shared the same pronunciation errors with the beginners when it came to the production of suprasegmental features of English such as intonation and word stress. In other words, as students' proficiency level increased, their production of consonant and vowels

improved. However, their intonation and word stress did not improve as they became more proficient in English language.

The second research question considered the types of errors produced by language learners in three different levels of proficiency. This study revealed that intermediate level and advanced level students produced fewer consonant and vowel errors compared to beginner level students whereas their intonation and word stress were similar to beginner level students. The consonant errors that were mostly shared among all language learners included /k/, /g/, /θ/, /ð/, /r/, and /w/. The vowel errors which were executed interchangeably among all language learners included /ɪ/, /i/, /ʌ/, /ʊ/, and /ɑ/. Although higher level students were given different reading passages, they all had difficulty producing the suprasegmental feature of English language. Advanced level students produced very few suprasegmental errors when reading aloud the pronunciation diagnostic tests; however, all the students used rising-falling intonation when producing spoken language spontaneously. This indicates that even advanced level students transferred the suprasegmental features of Persian into English when they spoke. Therefore, students with higher proficiency levels demonstrated the ability to produce most of the segmental features of English language without negative transfer. They also had fewer errors when reading aloud with linking, prominence and rhythm exercises.

This study provided evidence that students' inability to produce the segmental features of English, especially in the lower levels, influences their intelligibility negatively. Therefore, it can be concluded that students' errors in the production of segmental features of English, affects their intelligibility and comprehensibility greater than their errors in the suprasegmental features. However, advanced level students' inability to produce the correct word stress affected their intelligibility more than their errors in intonation.

Although factors, such as age, motivation, previous knowledge, and negative transfer of L1 into L2, can influence English language learners' pronunciation, the results of this study illustrated that students are able to progress in the production of segmental and suprasegmental features of English. According to the results shown in this study, we suggest that, EFL teachers need to focus on teaching the suprasegmental features of English in advanced level courses because most second language learners still have difficulty with word stress and intonation even when they become highly proficient in English. Researchers, such as Wilson and Wilson (2001), and Yarmohammadi (1996), have focused on the intonation pattern of Persian language and how such patterns are transferred into English, but less attention has been given to the proficiency level of the learners and how the negative transfer of L1 into L2 differs among language learners based on their varying proficiency levels. Therefore, more research needs to be conducted on the articulation of different aspects of English phonological features based on students' proficiency level to indicate the extent of negative transfer among English language learners.

A second area of potential future research on teaching English phonology to Iranian students would be investigating the mismatch between the belief held by students and teachers alike that native-like, specifically American English, pronunciation is the preferred goal, but intelligible pronunciation is the actual goal of language instruction. In

conclusion, if English continues to gain more acceptance in Iran and becomes integrated into global community, there would be a Persian English or variety that is legitimate.

References

Ahmad Soltani, M. (2007). *Contrastive analysis of English-Persian Intonation*. Retrieved from http://isba.ir/e-book/soltani1.pdf.

Arbisi-Kelm, T. (2007). An analysis of the intonation of complex sentences in Persian. *UCLA Working Papers in Phonetics*, No. 105, 35-50. Retrieved from http://escholarship.org/uc/item/95h2x0jd?query=arbisi.

Birdsong, D. (Ed.), (1999). *Second language acquisition and the critical period hypothesis.* Mahwah, NJ: Lawrence Erlbaum.

Brown, H.D. (2004). *Language assessment: Principles and classroom practices*. New York, NY: Pearson Education.

Celce-Murcia, M., Brinton, D. M. & Goodwin, J. M. (1996). *Teaching pronunciation: A reference for teachers of English to speakers of other languages*. Cambridge, UK: Cambridge University Press.

Esling, J. H. & Wong R. F. (1983). Voice quality settings and the teaching of pronunciation. *TESOL Quarterly*, *17*(1), 89-95.

Ferguson, C. A. (1957). Word stress in Persian. *Language*, *33*(2), 123-135.

Gass, S. M. & Selinker, L. (2008). *Second language acquisition: An introductory Course* (3rd ed.). New York: Routledge

Hall, M. (2007). *Phonological characteristics of Farsi speakers of English and L1 Australian English speakers' perceptions of proficiency* (Unpublished master's thesis). Curtin University, Perth, Australia. http://asian-efl-journal.com/2294/thesis/2009/06/phonological-characteristics-of-farsi-speakers-of-english-and-l1-australian-english-speakers-perceptions-of-proficiency.

Huang, B.H. & Jun, S-A. (2011). The effect of age on the acquisition of second language prosody. *Language and Speech*, 54(3), 387-414. doi: 10.1177/0023830911402599

Jenkins, J. (2000). *The phonology of English as an international language*. Oxford: Oxford University Press.

Keshavarz, M. H., & Ingram, D. (2002). The early phonological development of a Farsi-English bilingual child. *International Journal of Bilingualism*, 6(3), 255-269. doi:10.1177/13670069020060030301

Lado, R. (1957). *Linguistics across cultures*. Ann Arbor: University of Michigan Press.

Nation, I. S. P. & Newton, J. (2009). *Teaching ESL/EFL listening and speaking*. New York, NY: Routledge.

Olive, J. P., Greenwood, J. S & Coleman, J. (1993). *Acoustics of American English Speech: A dynamic approach*. New York: Springer [electronic source] Retrieved from: http://books.google.com/books.

Ortega, L. (2009). *Understanding second language acquisition*. New York: Routledge.

Poe, E.A. (2010). The fall of the house of usher. EnglishClub. Retrieved February 30, 2010 from http://www.englishclub.com/reading/story-house-of-usher.htm.

Richards, J. C., Hull, J., & Proctor, S. (2005). *Interchange: Student's book*. (3rd ed.) Cambridge, UK: Cambridge University Press.

Sadeghi, K. (2009). Collocational differences between L1 and L2: Implications for EFL learners and teachers. *TESL Canada Journal*, 26(2), 100-124. doi: http://dx.doi.org/10.18806/tesl.v26i2.417

Scarborough, R. (2007). *The intonation of focus in Farsi*. UCLA Working Papers in Phonetics, No. 105, 19-34. Retrieved from http://www.escholarship.org/uc/item/83k7q53v.

Scott, C. T. (1964). Syllable structure in Teheran Persian. *Anthropological Linguistics*, 6(1), 27-30.

Seidlhofer, B. (2004). Research perspectives on teaching English as a lingua franca. *Annual Review of Applied Linguistics*, 24, 209–239. doi: 10.1017/S0267190504000145

Shiri, R. (1987). *A contrastive study of stress placement on English and Persian words including frequency considerations for pedagogical purposes*. Unpublished MA Thesis: Shiraz University.

The common European framework in its political and educational context. (n.d.). Cambridge, UK: Cambridge University. Retrieved from: http://www.coe.int/t/dg4/linguistic/source/Framework_EN.pdf.

Wilson, L., & Wilson, M. (2001). Farsi speakers. In M. Swan and B. Smith (Eds.), *Learner English: A teacher's guide to interference and other problems* (pp.179-194). Cambridge, UK: Cambridge University Press.

Yarmohammadi, L. (1969). English consonants and learning problems for Iranians: A contrastive sketch. *TESOL Quarterly*, 3(3), 231-236.

Yarmohammadi, L. (1996). *A contrastive phonological analysis of English and Persian*. Shiraz, Iran: Shiraz University Press.

Appendix A. Pronunciation Diagnostic Test

*Note: This is a sample instrument given to advanced level students. The instruments were tailored for each of the three levels based on the problems predicted by CAH. The words and sounds in **bold font** were areas that we predicted would be problematic, and which we used in our analysis at segmental and suprasegmental levels. However, the version we gave to students was a "clean" copy with no markings.*

Part I: Reading
Read the following passage out loud:

The Fall of the House of Usher, by Edgar Allan Poe

During the **whole** of a **dull**, dark, and **sound**less day in **th**e **au**tumn of the year, **w**hen the cl**ou**ds **hung oppressively low** in the h**ea**vens, I had been passing alone, on horseback, **th**rough a **singularly dreary** tract of country; and at leng**th found** myself, as the **shades** of the evening drew on, wi**th**in view of the **melancholy** House of Usher. I know not how it **w**as--but, **with** the first **glimpse** of the buildin**g**, a sense of **insufferable gloom pervaded** my **spirit**. I say insufferable; for the feeling was **unrelieved** by any of that half-**pleasurable**, because poetic, **sentiment**, with which the mind usually **receives** even the **s**ternest natural **images** of the **desolate** or terrible. I looked **upon** the scene before me--upon the **mere** house, and the simple land**s**cape **features** of the **domain**--upon the **bleak w**alls--upon the **vacant** eye-like windows--upon a few rank **sedges**--and upon a few **w**hite tr**u**nks of **decayed** trees--with an **utter depression** of soul which I can **compare** to no ear**th**ly **sensation** more **properly** than to the after-dream of the **reveler** upon **opium**--the **bitter lapse** into everyday life-the **hideous dropping** off of the reveler upon opium--the bitter lapse into everyday life--the hideous dropping off of the **veil.** There was an **iciness**, a **si**nkin**g**, a **sickening** of the heart--an **unredeemed dreariness** of **th**ought which no **goading** of the **imagination** could **torture** into **aught** of the **sublime**. **W**hat was it--I paused to think--what was it that so **unnerved** me in the **contemplation** of the House of Usher? It was a **mystery** all **insoluble**; nor could I **grapple** with the **shadowy fancies** that **crowded** upon me as I **pondered**. I was forced to fall back upon the **unsatisfactory conclusion**, that while, beyond **doubt**; **th**ere are **combinations** of very simple natural objects which have the **power** of **th**us **affecting** us, **s**till the **analysis** of this **power** lies among **considerations** beyond our **depth**. It was possible, I **reflected**, that a **mere different arrangement** of the **particulars** of the scene, of the **details** of the picture, would be **sufficient** to **modify**, or perhaps to **annihilate** its **capacity** for **sorrowful impression**; and, acting upon this **idea**, I **reined** my horse to the **precipitous** brink of a black and **lurid tarn** that lay in **unruffled luster** by the **dwelling**, and **gazed down**--but with a **shudder** even more **th**rilling than before--upon the **remodeled** and **inverted images** of the gray sedge, and the **ghastly** tree-**stems**, and the **vacant** and eye-like **w**indows.
Source: http://www.englishclub.com/reading/story-house-of-usher.htm

Read out loud the following dialogue:

Police Officer: Hello. 24th Precinct. Officer Jones **s**peaking.
Man: Help. Yeah, uh, it **w**as **w**ild, I mean **really bizarre**.
Police Officer: Calm **down** sir! Now, what do you want to report?
Man: Well, I'd like to report a UFO **sighting**.
Police Officer: A what?
Man: What do you mean "what?" An **unidentified** flying object!
Police Officer: Wait, tell me exactly what you saw.
Man: **W**ell, I was **driving** home from a party about **th**ree hours ago, so it was about 2:00 AM, when I saw this bright light overhead.
Police Officer: Okay. And then what **happened**?

Man: Oh, man. Well, it was out of this world. I **stopped** to **w**atch the light when it **disappeared** behind a **hill** about a **kilometer** ahead of me.
Police Officer: Alright. Then what?
Man: Well, I got back in my car and I **s**tarted driving **toward** where the UFO landed.
Police Officer: Now, how do you know it was a UFO? Perhaps you only **saw** the lights of an **airplane** [*No*], or the **headlights** of an **approaching** car [*No*]. **Things** like that happen, you know.
Man: Well if it was that, how do you explain "the **BEAST**"?
Police Officer: What do you mean, "the BEAST"?
Man: Okay. I kept driving for about five minutes when all of a sudden, this **giant**, hairy **creature** jumped out in front of my car.
Police Officer: Oh, yeah. Then what?
Man: Well, then, the beast picked up the front of my car and said, "Get out of the car. I'm taking you to my master!" Something like that.
Police Officer: Wow? A hairy **alien** who can **speak** English! Come on!
Man: I'm not making this up, if that's what you're **suggesting.** Then, when I didn't get out of the car, the beast opened the car door, carried me on his shoulders to this round-shaped flying **saucer**, and well, that's when I **woke up** alongside the road. The beast must have knocked me out and left me there.
Police Officer: Well, that's the best story I've heard all night, sir. Now, have you been taking any medication, drugs, or alcohol in the last 24 hours? You **mentioned** you went to a party.
Man: What? Well, I did have a few **beers**, but I'm telling the **truth**.
Police Officer: Okay, okay. We have a great **therapist** that deals with **THESE** kinds of cases.
Man: I'm not **crazy**.
Police Officer: **W**ell, we'll look into your story. **Th**ank you.
Source: http://www.esl-lab.com/story1/storysc1.htm

Part II: Minimal Pairs

Read each pair of words and sentences out loud:

1	beat | bit, lead | lead			Please sit in this seat.			
2	beat | bait, pay | pea			I hate this heat.			
3	bet | bet, mean | men			The step is steep.			
4	bit | bait, give | gave			The pill made her pale.			
5	lid | led, left | lift			He hid his head.			
6	bag | bag, dish | dash			Give the ham to him.			
7	rib | rub, did | did			That bug is big.			
8	lace | less, gate | get			Don't let them be late.			
9	made | mad, past | past			I hate this hat.			
10	but | but, sum | same			They run in the rain.			
11	raid | road, cone | cane			Please taste the toast.			
12	head | had, mass | mess			This bed is bad.			
13	three | though, they | throw			They threw the ball.			
14	leg | log, stop | step			The rod was red.			
15	tug | tug, cup | cap			My hat is in that hut.			
16	rack | rock, tap | top			She sang a song.			

17	hide | had, I'm | am			Put back my bike.			
18	done | done, suck | sock			I hope that's not a nut.			
19	stud | stood, put | put			This book cost a buck.			
20	rum | roam, nut | note			He must have the most.			
21	sun | sawn, boss | bus			My gun is gone.			
22	lock | look, would | would			He put down the pot.			
23	cot | cot, want | won't			Who's got your goat?			
24	cot | caught, are | are			He taught the tot.			
25	swim | swings, rang | ram			He hangs the hams.			
26	theme | theme, debt| death			Please sit in this seat.			

Source: http://www.susancanthony.com/Resources/ESL/prondiag.html

Part III: Intonation

Read out loud the following sentences with the correct intonation (rising/falling):

1- You already!
2- You shouldn't have!
3- It's unbelievable!
4- That's not very nice!
5- I don't think I will.
6- How could you?
7- Why should I tell you?
8- You must be joking!
9- So what?
10- Well, I never!
11- You know best, don't you?

Source: http://www.tolearnenglish.com/exercises/exercise-english-1/exercise-english-674.php

Part IV: Linking

Read the following phrases as if you were saying them to a friend:

1. Turn off the light.
2. Can I have some water?
3. Come over here!
4. Did you do all your homework?
5. I don't see my friends too often.
6. Who is John?
7. Do you have any plans for tomorrow?

Source: http://www.englishclub.com/pronunciation/linking-3.htm

Part V: Prominence and Rhythm

Read the sentences as you would say them to a friend:

1. I **read** a lot of science magazines.
2. I **registered** for my biology class yesterday.
3. I **have to** study hard for my **final** exams.
4. My favorite sport is **basketball.**
5. I can't read without **wearing** my glasses.
6. Is your **birth**day in **November**?

7. I **booked** my **ticket** on the twenty-**seventh**.

Part VI: Describing a picture

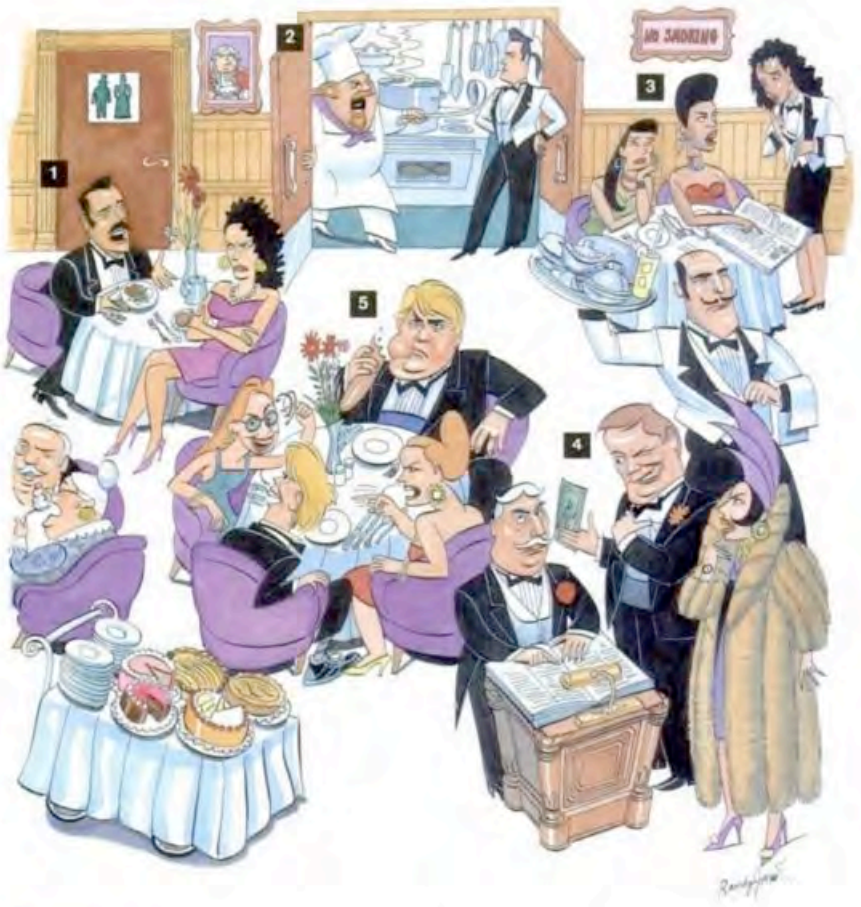
Interchange Activities

interchange 14 WHAT'S GOING ON?

A ***Pair work*** Look at this scene of a crowded restaurant. What do you think is happening in each of the five situations? Look at people's body language for clues.

A: Why do you think the woman in situation 1 looks upset?
B: Well, she might be having a fight with . . . .

A: What do you think the woman's gesture in situation 5 means?
B: Maybe it means she . . . .



B ***Group work*** Compare your interpretations. Do you agree or disagree?

Source: Richards, J. C., Hull, J., & Proctor, S. (2005). *Interchange: Student's book. (3rd ed.)* Cambridge, UK: Cambridge University Press.