ORTHOGRAPHIC INTERFERENCE and THE TEACHING OF BRITISH PRONUNCIATION TO TURKISH LEARNERS

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Ö Z E T

Türk Dili alfabesi her ses için ayrı bir harf ve her harf için yalnız bir ses esasları üzerine düzenlenmiştir. Az sayıda istisnalar dışında (örneğin, k - kâr- q- yegane- gavur, vb.), bütün harfler çoğu zaman yazıldığı gibi seslendirilir. Yalnız ğ harfinin seslendirilmediği ve yerine göre farklı söylendiği olur. Türk Dili'ni seslendirme işleminde yazı diliyle konuşma dili büyük ölçüde bire bir bağlantılıdır. Oysa, bu durum İngiliz Dili'nde farklıdır. Harf ve ses arasında bire bir bağlantı yoktur. Konuşma dili yazıldığı gibi seslendirilmez. İngilizce'de ünlü ve ünsüz toplam 46 değişik ses, yazı dilinde toplam 104 farklı tek veya bileşik harf gruplarıyla gösterilmektedir.

Türkçe ve İngilizce dillerindeki alfabelerin harf ve ses ilişkilerindeki bu farklı durum, İngilizceyi öğrenmiş veya öğrenmekte olan Türklerde, Türk Dili yazım düzeninin İngilizce telaffuza aktarılmasından kaynaklanan telaffuz güçlüklerine yol açmaktadır. Buna "yazımsal etki (aktarım)" denilmektedir. Bu tür güçlükler, Türkçe ve İngilizce dillerinin sesbilgisel yapılarının farklı olmasından kaynaklanan diğer telaffuz güçlüklerinden nitelik bakımından farklıdır.

Bu makalede, karşılaşılan bu tür gerçek telaffuz güçlükleri, ayrıntılı bir biçimde ele alınan sesbilgisel çözümleme teknikleri aracılığıyla, Uygulamalı Dilbilim ve Yabancı Dil Öğrenimi alanlarında etkili yaklaşımlar olan " yanlış çözümlemesi" ve " karşıtsal çözümleme" yöntemlerine ugulanarak incelenmektedir.

İlgili telaffuz güçlükleri sınıflandırılarak değerlendirilmiş olup bunların nereden kaynaklandıkları açıklanarak İngilizce öğrenen Türk öğrenciler için öğretim ve öğrenimde uygulanabilecek düzeltici alıştırmalar önerilmektedir.

Anahtar Kelimeler: *Yazımsal Etki (Aktarım), Karşıtsal Çözümleme, Yanlış Çözümlemesi, Sesbilgisel Çözümleme*

S U M M A R Y

This article is the report of an investigation of pronunciation difficulties of Turkish speakers/learners of English which are due to differences in the sound-letter representations in the orthographies of the two languages, namely called "ortographic interference". These difficulties are different in nature than those arising from differences in the sound sysytems of Turkish and English.

While Turkish orthography is to a large extent phonemic, i.e. employing a one-to-one letter-sound correspondence (with few exceptions such as k - kâr- q - yegane- gavur, etc.), English orthography, on the other hand, represents 46 sounds of the spoken language with 102 single or group of letters in the written language.

Such actual difficulties arising from the differences in the orthographic sound-letter represenatations of Turkish and English are classified, evaluated, and their sources are explained through a detailed phonetic analysis as applied to research methods of "contarstive analysis" and "error analysis", which are effective approaches in the field of Applied Linguistics and Foreign Language Learning.

For different categories of difficulties, corrective exercises are recommended for the teaching and learning of English pronunciation to Turkish students.

 Key Words: orthographic interference, contrastive analysis, error analysis, phonetic analysis

ORTHOGRAPHIC INTERFERENCE

Although Turkish uses essentially the same alphabet as English, its orthographic system, which employs to a large extent one-to-one letter-sound correspondence, causes interference with English pronunciation.

Turkish has eight vowels, one semi-vowel, and twenty consonants, and therefore twenty-nine phonemes in all. There is a one-to-one correspondence between the phonemes and the letters (apart from the letter **ğ**), and as each phoneme is represented by only one letter individually, there are also twenty-nine letters in total in the Turkish orthography.[1]

English, on the other hand, has (according to the phonemic analysis, i.e. the transcription system we accept) twenty-four consonants, twenty vowels and therefore forty-four phonemes in all.[2] Furthermore, the English orthography has only twenty-six letters that can be used for representing these forty-four phonemes. Unlike Turkish however, for almost every English phoneme there is a large number of different ways of representing it. That is to say, although there are not enough letters in proportion to all the phonemes needing to be represented in the orthography, there is a marked lack of economy in the choice of letter representation for the English phonemes. Therefore, it can be said that the difficulties of Turkish speakers, i.e. the interference of the

Turkish regular orthography, are solely with the fact that the confused and irregular[3] spelling of English offers such poor guidance as to its pronunciation. The resulting errors are called **"problems of spelling pronunciation"** by Lado (1957), the sources of which may be traceable to one of two possible causes:

"One possibility is that the same symbol might represent two different sounds in the two languages. In such a case the student tends to transfer the native language symbolization to the foreign language….The other possibility of spelling interference with pronunciation arises with inconsistencies in the spelling of the foreign language. The symbol which in one word represents the one sound turns out to represent a different sound in another word. The student mispronounces the word by assuming that the symbol represents the same sound in both cases." (p.20)

The third possibility of orthographic interference, which Lado does not mention, can be due to the "silent-letters" (i.e. **b in debt** /dɛt/) in English which are pronounced by Turkish speakers as if such letters represent the same sound as in Turkish or the usual sound they have in English.

METHOD:

An error[4] analysis[5] was conducted to see if it could prove fruitful to examine the above predictions in the light of actual pronunciation errors made by a homogeneous sample of fourteen Turkish adult speakers of English. Moreover, as part of our error analysis, an intelligibility[6] test was designed as a central part of this investigation.

As a result of the error analysis, we set up the following model of classification of pronunciation errors, the sources of which are all to be found in the interference of L1 (Turkish)[7] :

     i. **Phonemic Errors: Types 1(a) and 1(b)**

     ii. **Phonemic-Distributional Errors : Types 2(a) and 2(b)**

     iii. **Phonetic Errors: Type 3(a)**

     iv. **Allophonic Errors: Type 4(a)**

     v. **Allophonic-Distributional Errors: Type 5(a)**

     vi. **Orthographic Errors: Type 6 (a)**

We designed this model by establishing a hierarchy[8] of priorities in teaching ranging from the most important, concerning the phonemic differences in the sound systems of L1 and L2, to the least important, concerning the phonetic and allophonic differences. For each different type is also given a general description of the exercise needed for its elimination.

However, **orthographic interference**, as mentioned above, is different in nature in that the sources of pronunciation errors are mainly due to differences of one-to-one letter-sound correspondence in the orthographies of L1 and L2 rather than the differences in the sound systems[9]. Therefore, it deserves a special category of errors in its own right which is entirely independent from the above established model of classifying pronunciation errors and its hierarchy of difficulties in teaching. Accordingly, it brings special challenges not only to the Teaching/Learning of English Pronunciation but also to the Reading and Spelling of English.

PRONUNCUATION DIFFICULTIES

The following are the actual pronunciation difficulties of Turkish speakers of English which are due to orthographic interference as found in our error analysis:

(1)
In Turkish, the letters **s** and **z** always represent the sounds of **/s/** and **/z/** respectively. In English, on the other hand, the letter **s** represents both the **/s/** and **/z/** sounds.

In the plural and genitive ending of English regular nouns and the third person singular of the present tense verbs, and also in the final positions alone, while the letter **s** is pronounced **/s/** when preceded by a voiceless consonant, i.e. **cats** **/kæts/, takes /teɪks/,** it is also pronounced **/z/** when preceded by a vowel or a voiced consonant, i.e. **trees** /triː z/, **needs** /niː dz/**.

It should, however, be noted that when the English letter **s**, while representing the **/z/**, is preceded by a voiced consonant and followed by a pause or by a voiceless consonant in the following word, it is completely devoiced, i.e. **these things** [ˈðiː z̥

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θ ɪ ŋ z̥]   (it differs here from /s/ by the weakness of its articulation); and when

followed by a pause in final positions, it is partially devoiced, i.e. **bees** [ˈb̥ i ː z̥] .

Examples:

(a) *In the plural ending of nouns with final consonant clusters:*

[-bz̥] was substituted by **[-ps]** , i.e. **cabs** [ˈkʰæbz̥] was pronounced as [ˈcʰæps], and

therefore identified by native speakers of English as **caps** [ˈkʰæps] at a rate of 73.21%

in the intelligibility test.

[-dz̥] was substituted by **[-ds]** and **[-ts]**, i.e. **seeds** [ˈsiːdz̥] was pronounced as [ˈsiːds]

and was therefore identified by native speakers of English as **seats** [ˈsiˑts] at a rate of

74% in the intelligibility test.

[-nz̥] was substituted by **[-ns]** i.e. <u>gardens</u> /ˈg ɑ ː d ə n z / → /ˈg ɑ ɹ d ɯ n s /

[-lz̥] "   "   " **[-l s]** i.e. <u>bottles</u> / ˈb ɒ t l z / → /ˈb ɑ t ɯ l s /

[-gz̥] "   "   " **[-ɟ s]** i.e. <u>eggs</u> /ˈe g z / → [ˈɛ ɟ s]

[-mz̥] "   "   " **[-m s]** i.e. <u>rooms</u> / ˈ ɹ u ː m z / → /ˈ ɹ u m s /

[-ɪz] "   "   " **[-ɪ s]**   i.e. <u>edges</u> / ˈe d ʒ ɪ z / → / ˈ ɛ d ʒ i s /

                             <u>branches</u> /ˈb ɹ ɑ ː n tʃ ɪ z / → /ˈb ɹ ɛ n tʃ i s /

(b) *In the third person singular of the present tense form:*

[-vz̥] was substituted by **[-ʋ s]** i.e. <u>lives</u> [ˈl, ɪ v z̥] → [ˈl, i ʋ s]

[-ŋz̥] "   "   " **[-ŋ s]** i.e. <u>rings</u> [ˈ ɹ ɪ ŋ z̥] → [ˈ ɹ ɪ ŋ s]

[-nz̥] "   "   " **[-n s]** i.e. <u>turns</u> [ˈtʰ ɜ ː n z̥] → [ˈt̥ʰ œ ɹ n̥ s̥]

[-gz̥] was substituted by **[- ɟ s]** i.e. <u>begs</u> [ˈb̥ e g z̥] → [ˈb̥ ɛ ɟ s]

[-lz̥] "   "   " [- l s] i.e. <u>falls</u> [ˈ f ɔ ː ɫ z̥] → [ˈ ɸ ɔ ɫ s] and therefore

identified as <u>false</u> [ˈ f ɔ ː ɫ s] by the native speakers at a rate of 71.43% at the

intelligibility test.

       (c) *In words where the letter <u>s</u> is not an inflexional suffix, or part of a final cluster:*

<u>knees</u> [ˈ n i ː z̥] was pronounced as [ˈ n i s] and therefore identified as <u>niece</u> [ˈn i· s]

at a rate of 51.79% by the native speakers.

<u>lose</u> [ˈl,u ː z̥] was pronounced as [ˈɫ u · s] , and therefore identified as **<u>loose</u>** [ˈl,u · s]

at a rate of 54.14%.

<u>as</u> [ˈæ z̥] (strong form) → [ˈ ɛ s]

<u>has</u> [ˈ h æ z̥] (strong form) → [ˈh ɛ s]

<u>is</u> [ɪ z̥] → [ɪ s]

<u>was</u> [ˈw ɒ z̥] (strong form) → [ˈ ʊ ɐ s]

<u>his</u> [ˈh ɪ z̥] → [ˈhɪ s]

In word medial positions:

<u>easy</u> [ˈ i · z ɪ]   pronounced as   ˈ[ˈ iː s i]

<u>reason</u> [ˈɹ i· z n̩]   "   "   [ˈɹ i s ɯ n]

<u>causes</u> [ˈkʰ ɔ· z ɪ z̥]   "   "   [ˈk ɔ s ɯ s]

<u>uses</u> [ˈ j ü · z ɪ z̥]   "   " [ˈj u s ɯ s]

<u>desire</u> [d ɪ ˈz a · ɪ ə]   "   " [ˈd ɪ s a j ɹ]

<u>noises</u> [ˈn ɔ· ɪ z ɪ z̥]   "   " [ˈn ɔ j s ɯ s]

 (2)

In the Turkish orthography, due to its phonemic nature, the letter **r** is pronounced in every environment. The English **r** , on the other hand, is pronounced only before a vowel sound as in **story** ['s t ɔ · ɹ ɪ], **merry** ['m e ɹ ɪ], run ['ɹ ʌ n], including when it is used as a link to the following word which begins with a vowel, i.e. **sister and daughter** ['s ɪ s t ə ɹ   ə n   'd ɔ · t ə] , more and more ['m ɔ : ɹ   ə n   'm ɔ :] . Therefore, the Turkish speakers of English pronounced the English letter **r** in final positions and also when preceding a consonant, as in Turkish.
Examples:

poor ['pʰ ʊ : ə]   pronounced as   ['pʰ u : ɹ̩]

fear ['f ɪ : ə]   "   "   ['ɸ i · ɹ̩]

card ['kʰ ɑ : ḍ]   "   "   ['kʰ ɑ ɹ t̪ʰ]

beard ['ḅ ɪː ə ḍ]   "   "   ['ḅ i ɹ t̪ʰ]

hurt ['h ɜ · t]   "   "   ['h ø ɹ t̪ʰ]

barn ['ḅ ɑ : n]   "   "   ['ḅ ɑ ɹ n̩]

(3)

The English vowels /ə/ and /ɪ/ of the unstressed syllables are pronounced by the Turkish speakers like the sound that orthographic symbol represents when they are in stressed syllables. Examples:

  (a) *When /ə/ is represented by* **a** *in pre-tonic positions, i.e. when the stress falls on the immediately following syllable, it is pronounced as an* **[a]** type of vowel. Examples:

 address [ə' ḍ ɹ ɛ s]   pronounced as   [ạ ḍ ' ɹ ɛ s]

dramatic [d ɹ ə ˈ m æ t ɪ k] " " [d̤ ɯ ɹ a m ɐ ˈ t̰ʰ i cʰ]

assistant [ə ˈ s ɪ s t ə n t] " " [a̰ s i s ˈ t̰ʰ ũ n̥ t̰]

arrived [ə ˈ ɹ aː ɪ v d̥] " " [ɑ ˈ r a j ʊ t̰ʰ]

about [ə ˈ b a · ʊ t] " " [ɑ ˈ b aᵘ t̰ʰ]

again [ə ˈ g ɛ n] " " [ɑ ˈ ɟ ɛ n]

among [ə ˈ m ʌ ŋ] " " [ɑ ˈ m ɔ ŋ kʰ]

(b) *When /ə/ is represented by* **a** *in post- tonic positions, it was pronounced as an* [a] *type of vowel as well.* Examples:

atlas [ˈ æ t̰ ə s] pronounced as [a̰ t̰ʰ ˈ ɫ ɐ s]

alternative [ɔ · ɫ ˈ t � · n ə t ɪ ɣ] " " [ɑ ɫ t̰ʰ ɛ ɹ n ɑ̰ ˈ t̰ʰ i ʋ]

sympathy [ˈ s ɪ m p ə θ ɪ] " " [s i m pʰ a ˈ t̰ʰ i]

diploma [d ɪ ˈ p ḻ ɔ · ʊ m ə] " " [d̤ i pʰ ˈl̩ ɔ m ɑ̰]

biography [b a · ɪ ˈ ɒ g ɹ ə f ɪ] " " [b i j ɔ g ɹ ɐ ˈ ɸ i]

(c) *When /ə/ is represented by* **o** *in pre-tonic positions, it was pronounced as an* [ɔ] *type of vowel.* Examples:

etymological [ɛ t ɪ m ə ˈ l̩ ɒ d ʒ ɪ k ̰ɫ] pronounced as [ɛ t̰ʰ i m ɔ ɫ ɔ ˈ d ʒ i kʰ ɯ ɫ]

consider [k ə n ˈ s ɪ d ə] " " [kʰ ɔ n ˈ s i d̤ ɯ ɹ]

locomotive [l̩ ˌ ə ʊ k ə ˈ m ə ʊ t ɪ ɣ] " " [ɫ ɔ kʰ ɔ m ɔ ˈ t̰ʰ i ʋ̥]

pronounce [p ɹ ə ˈ n a ʊ n s] " " [p ɹ̥ ɔ ˈ n aᵘ n s]

(d) *When /ə/ is represented by* **o** *in post-tonic positions, it was pronounced as an* [ɔ] *type of vowel as well.* Examples:

development [d ɪ ' v ɛ l, ə p m ə n t] pronounced as [d e ' ʋ ɛ ɫ ɔ pʰ m ɯ ṇ ṭʰ]

acrobat [' æ k ɹ ə b æ t] " " [ɑ kʰ ɹ ɔ ' b ɐ ṭʰ]

automobile [' ɔ t ə m ə ʊ b ɨ· ɫ] " " [ɔ ṭʰ ɔ m ɔ ' b i l,]

geology [dʒ ɪ ' ɒ l ə dʒ ɪ] " " [dʒ i ' ɔ ɫ ɔ ʒ i]

      (e) *In post-tonic positions when /ə/ is represented by __e__ , it was pronounced as*

          an [ɛ] type vowel. Examples:

energy [' ɛ n ə dʒ ɪ] pronounced as [ɛ ṇ e ɹ ' ʒ i]

cinema [' s ɪ n ə m ə] " " [s i ' n ɛ m ɑ]

arithmetic [ə ' ɹ ɪ θ m ə t ɪ k] " " [ɑ ' ɹ i ṭʰ m ɛ ṭʰ i cʰ]

      (f) *When /ɪ / is represented by __e__ in pre-tonic and post tonic positions, it was*

          pronounced as an [ɛ] type vowel by the Turkish speakers. Examples:

detective [d ɪ ' tʰ ɛ k t ɪ ɣ] pronounced as [ḍ ɛ ṭʰ e cʰ ' ṭʰ i ʋ̥]

telescope [' tʰ ɛ l, ɪ s k ə ʊ p] " " [ṭʰ ɛ l, e s ' kʰ ɔ pʰ]

democracy [d ɪ ' m ɒ k ɹ ə s ɪ] " " [ḍ ɛ ' m ɔ kʰ ɹ a s i]

electric [ɪ ' l, ɛ k t ɹ ɪ k] " " [ɛ l, e cʰ ṭ̥ i ' ɹ i cʰ]

Recommended Practice for / ə / :

Although / ə / does not occur in Turkish, its substitutions by the Turkish speakers does not cause any problems of intelligibility despite the fact that it causes an unnatural pronunciation of English. The chief difficulty for Turkish speakers lies not only in making the sound of / ə /, but also in knowing when to use it. Therefore,

sufficient practice with / ə / is particularly important as fluency and a correctly rhythmical pronunciation of English cannot be attained without mastering the use of it. Its occurrence is limited to unstressed syllables exclusively, and also occurs in many of the **"weak forms"** of common words. Ordinary English orthography is of no help in this matter, since it does not indicate this type of **"weak"** form which is, in fact, far more common than the **"strong"**. As was found out in the transcriptions of the connected speech, reading passage, sentences, and isolated words of the Turkish speakers in our error analysis, they continually used **"strong forms"** in the case of words which have "strong" and "weak" forms. For example, they failed altogether to use the weak forms of such common words as:

them [ˈð ə m]	pronounced as	[ˈd̪ e m]
have [ˈh ə ɣ̊]	" "	[ˈh e ʊ̯]
and [ˈə n d̪] [ˈə n]	" "	[ˈe̞ n̪ t̪ʰ]
of [ˈe ɣ̊]	" "	[ˈɔ̝ ɸ]
from [ˈf ɹ ə m]	" "	[ˈɸ ɨ ɹ ɔ m]
for [ˈf ə]	" "	[ˈ ɸ ɔ ɹ̥]

In rapid speech, English people use weak forms more often than the strong forms, though there are a certain number of cases as slow style in which the strong forms must be used. As Jones (1969a) points out,

The proper use of / ə / in words which are said sometimes with this vowel and sometimes with another can be acquired by extensive reading of phonetically transcribed texts....(p.97)

(4)

While the pronunciation of the letter **j** is / dʒ / in some English loanwords, it is /ʒ/ in Turkish loanwords. Therefore, due to having different rules in each language, the Turkish speakers of English pronounced the letter **j** as /ʒ/ in the following English loanwords as they do in Turkish.

<u>jet</u> [ˈdʒ e t]   pronounced as   [ˈʒ ɛ t̪ʰ]

<u>jury</u> [ˈdʒ ʊˑ ə ɹ ɪ]   "   "   [ˈʒ uˑ ɾ i]

<u>pyjamas</u> [p ə ˈdʒ ɑˑ m ə z̪]   "   "   [ˈpʰ i ʒ ɑ m a s]

(5)

Although the spelling of <u>l</u> is silent in the pronunciation of some common English words, the Turkish speakers, due to the interference of the phonemic nature of Turkish orthography, pronounced it as /l/. Examples:

<u>would</u> [ˈw ʊ d̪] (strong form) pronounced as [ˈʋ u ɬ t̪ʰ]

<u>should</u> [ˈʃ ʊ d̪]   "   "   "   " [ˈʃ u ɬ t̪ʰ]

<u>could</u> [ˈk ʊ d̪] "   "   "   " [ˈkʰ u ɬ t̪ʰ]

<u>half</u> [ˈh ɑˑ f]   "   " [ˈh ɑ ɬ f]

(6)

Although the spelling of <u>**b**</u> is silent in the pronunciation of some English words ending with <u>**mb**</u>, and in inflected and derivative forms, the Turkish speakers pronounced it as /**-mp**/. Apart from being an orthographic interference, this is also a phonemic distributional interference since /**b**/ does not occur in final positions in Turkish, and therefore was substituted by /**p**/. Examples:

climb [ˈk l̥ a ː ɪ m] pronounced as [ˈk ɬ ɑ j m pʰ]

climed [ˈk l̥ a ː ɪ m d̟]   "   " [ˈk ɬ ɑ j m p t̥ʰ]

lamb [ˈl æ m]   "   " [ˈl̥ ɛ m pʰ]

(7)

The English dental fricatives / θ, ð / do not exist in Turkish. As the only orthographic representation for both / θ / and / ð / is consistently <u>th</u> in English, the Turkish speakers, apart from substituting them by [t̪] and [s] and by [d̪] respectively, had also a strong tendency to pronounce <u>th</u> interchangeably as either / θ / or / ð / , substituting / θ / for / ð / and / ð / for / θ / , and therefore used / θ , ð / at random in a word where it ought only to be / θ / (or / ð /).

The variability of substitutions, and therefore the identifications by the native speakers of English concerning /θ , ð / are as follows in the descending order of percentages as identified in the intelligibility test.

1. Identification of /ð/ as /θ/ [92.86%]

2.   "   " /θ/ " /ð/ [80.36%]

3.   "   " /θ/ " /t/ [71.43%]

4.   "   " /ð/ " /d/ [57.14%]

5.   "   " /d/ " /ð/ [47.02%]

6.   "   " /s/ " /θ/ [36.61%]

7.   "   " /θ/ " /s/ [19.64%]

8.   "   " /ð/ " /t/ [17.86%]

9.   "   " /z/   " /θ/   [17.86%]

10. "   " /t/   " /θ/   [14.29%]

11. "   " /d/   " /θ/   [7.14%]

12. "   " /θ/   " /d/   [5.36%]

Furthermore, the **variability** of the above substitutions could further be classified according to their sources as follows:

I.   Substitutions 1 and 2 (/ð/ by /θ/ and /θ/ by /ð/) could be explained as the **"overgeneralization"** of the two non-existent English phonemes in Turkish. As the orthographic representation of /θ , ð / is **th** in English, the Turkish speakers over-generalize its phonemic representation and use / θ , ð / interchangeably in most cases.

II. Substitutions 3, 4, 8, and 12 are the clear evidence of the **Turkish interference** into English. As / θ, ð / do not occur in Turkish, the Turkish speakers substituted their own Turkish sounds for / θ, ð / which are in turn identified by the native speakers of English as the sounds of their English phonemes.

III. Substitutions 5, 6, 9, 10, and 11 could be explained as the type of interference which occurs within the English sound system itself. Although /d/, /s/, /z/, and /t/ occur in Turkish, it can be said that interference is caused by the newly learned sounds, i.e. / θ, ð / , which are examples of **intra-lingual** interference, the sources of which are not traceable to L1 interference.

Such examples in **I** and **III** above show that the Turkish speakers have modified their pronunciations in the direction of the new sounds, i.e. / θ, ð /, but have not achieved full control of them. From what has been found about the sources of such pronunciation errors, we may say that while interference from the Turkish sound

system and its orthographic representation plays the *major* role, it is not the *only* interfering factor. Interference from Turkish was plainly obvious in most errors but there was also interference between the newly learned English sounds in combination with the general learning strategies.

Corrective Exercises for / θ , ð /:

Exercises should consist of English utterance pairs containing the difficult sounds and sound contrasts, i.e. /θ ɪ n / - / t ɪ n /, / θ ɪ n / - / s ɪ n / , etc. First, a student should be able to tell whether the pairs of utterances he hears consist of repetition of an identical utterance. i.e. / θ ɪ n / - / θ ɪ n /, or a sequence of two different utterances, i.e. /θ ɪ n / - / t ɪ n /. Secondly, a learner should practise the pronunciation of English minimal pairs. The third step is to require students to give correct a phonemic label to the troublesome sounds occurring in English utterances. Gimson (1970) points out that

"..... the difficulty of / θ, ð / lies not so much in their articulation, which
most learners can perform correctly in isolation, as in their combination
with other fricatives, especially / s / and / z / . Learners should,
therefore, practise with drills containing such combinations involving
*rapid tongue glides, e.g. / s + θ / **this thing** , **sixth** , / z + θ / **his***
thumb** , / s + ð / **pass the salt** , / z + ð / **is this it?** , / θ + s / **fifths
*, / θ + s + ð / **Smith's there** , / ð + z + ð / **soothes them** , / s , z*
/ preceding / θ , ð / should never be allowed to assimilate to / θ , ð /.
(pp.184-85)

Following Gimson's advice, English initial and final double clusters
involving / θ , ð / in minimal pairs should also be dealt with in
teaching:

Initial double clusters:

[θr -]

three [ˈθ ɹ̥ iː] → tree [ˈt ɹ̥ iː]

through [ˈθ ɹ̥ uː] → true [ˈt ɹ̥ uː]

[θw-]

thwart [ˈθ w ɔ· t] → thought [ˈ θ ɔ· t]

Final double clusters:

[- θs]

debts [ˈd̥ e t s] → deaths [ˈ d̥ e θ s]

mats [ˈm æ t s] → maths [ˈ m æ θ s]

mass [ˈ m æ s] → maths [ˈ m æ θ s]

miss [ˈm ɪ s] → myths [ˈm ɪ θ s]

[- θt]

berthed [ˈ b̥ ɜː θ t] → burst [ˈ b̥ ɜː s t]   Bert [ˈ b̥ ɜː t]

[-ðz]

loads [ˈ l̩ ə· ʊ d z̥] →   loathes [ˈ l ə· ʊ ð z̥]

sides [ˈ s aː ɪ d z̥] →   scythes [ˈ s aː ɪ ð z̥]

sues [ˈs uː z̥] →   soothes [ˈ s uː ð z̥]

bays [ˈ b̥ eː ɪ z̥] →   bathes [ˈ b̥ e ɪ ð z̥]

[-ðd]

sued [ˈ s uː d̥] →   soothed [ˈ s uː ð d̥]

load [ˈl̩ ɔː ʊ d̥] →   loathed [ˈl̩ ɔː ʊ ð d̥]

sized [ˈs aː ɪ z d̥] →   scythed [ˈs aː ɪ ð d̥]

seized [ˈs iː z d̥] →   seethed [ˈs iː ð d̥]

[-θs]

fifth [ˈf ɪ f θ]   → fifths [ˈf ɪ f θ s]

depth [ˈd̥ e p θ] → depths [ˈd̥ e p θ s]

[-tθ]

eights [ˈe · ɪ t s] ; eight [ˈe · ɪ t]   →   eighth [ˈe · ɪ t̪ θ]

[-dθ]

wit [ˈw ɪ t] ; wits [ˈw ɪ t s] →   width [ˈw ɪ d̥ θ]

bread [ˈb̥ ɹ e d̥] →   breadth [ˈb̥ ɹ e d̥ θ]

hundred [ˈh ʌ n d ɹ e d̥] → hundredth [ˈh ʌ n d ɹ e d̥ θ]

[-mθ]

warm [ˈw ɔ ː m] →   warmth [ˈw ɔ ː m θ]

[- nθ]

tenth [ˈt e n̪ θ] ; nineth [ˈn a · ɪ n̪ θ] , etc.

tense [ˈtʰ e n s] ; tent [ˈtʰ e n t] →   tenth [ˈtʰ e n̪ θ]

[- ɫθ]

health [ˈh e ɫ̪ θ] ;   wealth [ˈw e ɫ̪ θ]

welt [ˈw e ɫ t] →   wealth [ˈw e ɫ̪ θ]

[- ŋθ]

length [' l̩ e ŋ θ] ;   strength [' s t ɹ̩ e ŋ θ]

STRESS

The orthography of English is deficient in its capacity for showing clearly the pronunciation that a word or sequence of words should have. Stress is an integral part of word-shape in English which has the vowel differences of quality, quantity, and distribution, and above all, the rhythmical patterns of words correlated with it. However, in Turkish, vowels have much the same quality, quantity, and distribution in both stressed and unstressed syllables.

Turkish speakers, therefore, are unable to control the qualitative and the quantitative changes of English vowels in unstressed syllables. They pronounce the English vowels with much the same quality in both stressed and unstressed syllables. For example, they are unable to alternate the English long vowels and diphthongs either with / ə / or / ɪ / when occurring in unstressed syllables, although both vowels have a high frequency of occurrence in English, and / ə / is limited to unstressed syllables exclusively.

Moreover, as the stress usually falls on the last syllable of the word in Turkish[10], Turkish speakers, therefore, should first pay particular attention to the position of stress in English words, and extensive practice is needed with English words having different stress patterns.

Certain features of English speech, notably the idiosyncratic nature of English word stress, and the phenomenon of the occurrence of a high proportion of neutral vowels in weakly stressed syllables, are in no circumstances recorded in the orthography. There are weakened pronunciations of certain frequently occurring words whose function in the sentence is structural rather than semantic. As it is normal for such

words to be unstressed, they are particularly subject to weakening influences. Certain changes are characteristic of the way in which "strong forms" are replaced by "weak" ones. They are: the replacement of a strong vowel by one of the three weak ones. They are: the replacement of a strong vowel by one of the three weak ones / ɪ /, / ə /, / ʊ / , the replacement of a vowel plus consonant by a syllabic consonant, or the omission of a vowel or consonant, which are in no way shown in the English orthography. But in Turkish orthography, an entirely different state of affairs is found in which there are no neutral vowels, and the vowels in weakly stressed syllables are indistinguishable in quality from those in strongly stressed syllables. The phonemes are consistently and invariably shown in the spelling, though not, of course, certain additional phonetic features of pronunciation, notably palatalization of consonants, stress, intonation, etc.

RHYTHM

Moreover, since Turkish is a **"syllable-timed"** language, as opposed to English which is a **"stressed-timed"** language, the problem of unstressing in English is a very difficult one for the Turkish speakers. They tend to pronounce the sequences of English syllables, whether stressed or unstressed, at a steady rate as they do in their Turkish speech. In English, however, it is only the stressed syllables that occur at regular intervals of time, and the unstressed ones are compressed so that they are pronounced more rapidly than the stressed syllables.

For all Turkish speakers, therefore, the stress-timing of English constitutes a fundamental difficulty, which can be overcome only by paying deliberate and systematic attention to it. The syllable-timed speech habits of Turkish continually interfere in speaking English and it is probably more worthwhile for the Turkish speaker of English to pay attention to the stress-timing of English than any other single feature. Even if an acceptable articulation of each individual vowel and consonant of English has been acquired, Turkish speakers will not achieve the pronunciation of English really well with a good accent so long as they still carry the syllable-timing of Turkish over into English.

Gimson (1970) gives the following advice to the foreign learners of English:

"Of all the features of accent in connected speech, the foreign learner should pay particular attention to:

> **(1) *The choice of words upon which speaker's stress and accent (primary and secondary) fall and the situation of the nucleus. This placing of the accent in connected speech will usually be determined by the meaning which is to be conveyed, subject to the constraints imposed by the context and total situation.***

> **(2) *The rhythmic nature of connected English. The accented syllables follow each other at roughly equal intervals of time; any intervening unaccented syllables are said rapidly, the greater the number of such syllables the more rapidly they are uttered; unaccented syllables are associated with the hub of an accented syllable, so that an utterance is divisible into a serious of rhythmic groups, themselves closely related usually to syntactic groups.***

> **(3) *The related weakening of unaccented words, e.g. the appropriate use of weak forms. A strong form in what is intended to be an unaccented position will give an impression of accent to the English ear. Thus, <u>He was late</u> pronounced /hiː wɒz ˈleɪt/ instead of /hɪ (or hi) wəz ˈleɪt/ gives undue prominence to <u>was</u> and may appear to contradict some such statement as <u>He wasn't late.</u>"*** (p.285)

CONCLUSION:

PHONEMIC TRASCRIPTION: A PEDAGOGICAL PRIORITY

We can conclude by saying that phonemic transcription exercises are indispensable as a means of separating Turkish students' perceptions of English sounds from their orthographic representations. Roach (2005) suggests two different kinds of transcription exercise: *"in one, **transcription from dictation**, the student must listen to a person – or a tape recording – and write down what he hears; in the other,*

transcription from a written text, *the student is given a passage of dialogue written in orthography and must use phonemic symbols to represent how she or he thinks it would be pronounced by a speaker of a particular accent".* (p.42) As a third kind of exercise, we should add **reading phonemic transcriptions**, as mentioned by Celce-Mucia *et al.(2005),* which *"will enable the students to comprehend the elements of pronunciation   visually as well as aurally.   Moreover, students will be better equipped to check pronunciation autonomously in their dictionaries – assuming they use a dictionary that employs a transcription system similar to the one being taught. Even if the system is different, students would be more aware of what sounds were included in this inventory of English phonemes and therefore of what sounds were likely to be represented in the dictionary's inventory of symbols".* (p.40)

In conclusion, we concur with Celce-Mucia *et al. (Ibid)* that while in dealing with pronunciation difficulties / errors, which are specifically due to orthographic interference, phonemic transcription *"is a useful tool not only for teachers in teaching pronunciation but for creating some psychological distance between the English sound system and the writing system. Such separation helps both in teaching pronunciation and in presenting the correspondences between the English writing system and the English sound system. It is also useful for presenting some of the conventions of English spelling, which has many rules that are based in part on sounds".* (p.270)

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[1] The regular letter representations of Turkish phonemes are as follows:

a /a/	**h** /h/	ö /œ/	y /j/
b /b/	ı /ɯ/	p /p/	z /z/
c /dʒ/	i /i/	r /r/	
ç /tʃ/	j /ʒ/	s /s/	
d /d/	k /k/	ş /ʃ/	
e /ɛ/	l /l/	t /t/	
f /f/	m /m/	u /u/	
g /ɡ/	n /n/	ü /y/	
ğ -	o /ɔ/	v /v/	

VOWELS and DIPHTONGS:				CONSONANTS:			
/i:/	as in	s*ee*d	/si:d/	/p/	as in	pea	/pi:/
/ɪ/	as in	s*i*t	/sɪt/	/t/	as in	tea	/ti:/
/e/	as in	s*e*t	/set/	/k/	as in	key	/ki:/
/æ/	as in	s*a*t	/sæt/	/b/	as in	bee	/bi:/
/ɑ:/	as in	h*a*rd	/hɑ:d/	/d/	as in	deed	/di:d/
/ɒ/	as in	h*o*t	/hɒt/	/g/	as in	gay	/gei/
/ɔ:/	as in	sw*o*rd	/sɔ:d/	/tʃ/	as in	cheese	/tʃi:z/
/ʊ/	as in	f*u*ll	/fʊl/	/dʒ/	as in	judge	/dʒʌdʒ/
/u:/	as in	f*oo*l	/fu:l/	/f/	as in	five	/faɪv/
/ʌ/	as in	h*u*t	/hʌt/	/θ/	as in	thigh	/θaɪ/
/ɜ:/	as in	h*ea*rd	/hɜ:d/	/s/	as in	sigh	/saɪ/
/ə/	as in	b*a*nan*a*	/bə`nanə/	/ʃ/	as in	shy	/ʃaɪ/
/ei/	as in	h*a*te	/heit/	/h/	as in	high	/haɪ/
/əʊ/	as in	b*oa*t	/bəʊt/	/v/	as in	vine	/vaɪn/
/aɪ/	as in	h*ei*ght	/haɪt/	/ð/	as in	these	/ði:z/
/aʊ/	as in	*ou*t	/aʊt/	/z/	as in	zeal	/zi:l/
/ɔɪ/	as in	ch*oi*ce	/tʃɔɪs/	/ʒ/	as in	measure	/meʒə/
/ɪə/	as in	f*ie*rce	/fɪəs/	/r/	as in	read	/ri:d/
/eə/	as in	t*ea*r	/teə/	/m/	as in	meal	/mi:l/
/ɔə/	as in	m*o*re	/mɔə/	/n/	as in	kneel	/ni:l/
/uə/	as in	t*ou*r	/tuə/	/ŋ/	as in	king	/kɪŋ/
				/l/	as in	lean	/li:n/
				/j/	as in	year	/jɪə/
				/w/	as in	west	/west/

The following 60 symbols are normally used to represent the above vowels and diphthongs in the written language:

a, e, i, y, o, u,; ar,er, ir, yr, or, ur; aa, ae,æ, ai, ay, au, aw; ea, ee, ei, ey, eu, ew; ie, ye,; oa, oe, œ, oi, oy, oo, ow; ue, ui, uy: aer, air, ayr; ear, eer, eir, eyr, eur, ew(e)r; iar, ier, yer; oar, oor, our, ow(e)r; uer; igh, aigh, augh, eigh, ough (Wijk (1966) p. 13)

In the written language the above consonant sounds are normally represented by the following 44 symbols:

b, c, ch, d, dg, f, g, gh, gn, gu, h, j, k, l, m, n, ng, p, ph, q, qu, r, s, sc, sch, sh, si, ssi, sci, ti, ci, ce, t, tch, th, u, v, w, wh, x, xc, y, z, zi (Wijk (1966) p. 13)

[3]Even though the English spelling system may seem irregular, it is by no means wholly so (Van Wijk, 1966); it does in fact follow certain regular pattern in regard to spelling and pronunciation (i.e. /ɪ/ is represented by **i** as in **hit** /hɪt/, /ɛ/ by **e** in **set** /sɛt/, /t/ by **t** in **tip** /tip/, etc.). In general, English orthography does afford to each phoneme of the language, at least one regular, clear and consistent representation. However, by no means all the English words are written with such regular and consistent spellings, and there still remains a sizeable residue of words whose spelling is irregular. Most irregular spellings are irregular only in the representation of one or two of the phonemes contained in the word (i.e. **choir** with **ch=/k/**, and with the unique spelling of **/waɪə/** as **oir**). Moreover, even the irregular spellings are by no means wholly random; they fall, to a large extent, into certain sub-sets which are consistent within themselves. They might be called **"regular irregularities"**, such as **ee** and **ea** for **[i]**, **oa** and **oe** for **[o]**,etc., or in the writing of consonants, is the use of double consonant letters at the end of words, and after vowel letters in their 'short' values in the middle of words: i.e. **muff, till , mitt** , etc., **sitting , hatter , kidded** , and so on.

In conclusion, there are three main types of divisions in English spelling, which are : **"the regular"**, **"the semi-regular",** and **"the downright irregular".** As Van Wijk (1966) points out, *"it may be worth while to make the foreign learners of English familiar with the general rules of spelling that govern English pronunciation".* (p.8)

[4] For the purpose of the investigation, an ***"error"*** is defined in very general terms as any deviation from BBC English Pronunciation which is recurrent and systematic. Corder (1971a) distinguishes between ***"errors"*** and ***"mistakes"*** . The latter are the random slips of the tongue, or performance failures made by the speakers. They are not systematic and are of no significance in language learning.

[5] An error analysis (Bayraktaroğlu (1979)) has been applied to the recorded specimens of fifteen minutes connected speech, a reading passage, forty sentences, and ninety-three isolated words of each of the Turkish informants. The recorded materials of the informants were then analysed and transcribed carefully in allophonic transcription. Narrow transcriptions were made of all the recordings of the subjects using the symbols of I.P.A. BBC English Pronunciation, which is readily intelligible and acceptable within the English – speaking world, was taken as the norm against which the English pronunciation of the Turkish informants were assessed. No restrictions were imposed on the choice of data in our experimental procedures, which were not designed specifically to catch the errors that an *a priori* type of contrastive analysis would predict, and thus were not intentionally biased in favour of the predicted pronunciation errors of the Turkish informants.

As mentioned above, error analysis was based primarily on recurrent, systematic errors that were made by a number of Turkish informants, and that could be readily traced to their sources, no matter whether they reflected defects in their knowledge of English Phonetics or whether they resulted from inadequate habit formation.

[6] A list of 108 single words, which are distinguished simply by one sound segment from a different word (i.e. part of a minimal pair) was prepared, and then recorded by the fourteen Turkish informants. Each informant was listened to by four different native speakers of English (totalling fifty-six listeners) who were left free to write down any word they heard or even to leave the item without giving any response. There were no contextual clues in such single words, and therefore, precision in the production of the speaker and identification on the part of the hearer were all-important. Our aim was not to measure intelligibility by scores, or to find out the most and least intelligible speakers; but simply, for our practical purposes, to identify the pronunciation errors causing total unintelligibility which were common to all of the Turkish informants. However, the overall percentage of each error was calculated to give an idea of its frequency among all the errors occurring. Finally, in order to to assess the reliability of the recorded single word list in the intelligibility test, a controlled experiment was carried out between English speakers and listeners. Two native speakers with BBC English pronunciation – one man and one woman – were recorded and their recordings were played back to two listeners, one man and one woman, who were again native speakers with BBC English pronunciation. Words which were unintelligible were taken off the list, and reliability was achieved in this way.

Generally speaking, by **"intelligible"**, we mean a pronunciation which can be understood with little or no conscious effort on the part of the listener. Abercrombie (1963) states that the aim of pronunciation teaching should have *"a limited purpose which will be completely fulfilled: the attainment of intelligibility"* (pp.36 -37). Similarly, Gimson (1975) reports that "*if the essence of language is its grammar, communication by language clearly relies crucially on the effectiveness of the transmission phase, i.e. for our purposes, the easy intelligibility of the pronunciation…..Undoubtedly the minimum standard of performance which any ordinary learner should aim at is one which is easily understood by the native speaker of English".* (pp. 1-3). Also, Hockett (1949) points out that any foreign language learner must attain a good pronunciation, by which he means *"one which will not draw the attention of a native speaker of that language away from what we are saying to the way in which we are saying it."* (p.62).

Following these, Collins and Mees (2006) establish **hierarchy of errors** in terms of "*1. errors which lead to a breakdown of intelligibility 2. errors which give rise to irritation or amusement 3. errors which provoke few such reactions and may even pass unnoticed"* (p.186).

[7] For a detailed discussion of this model and the subcategories of each type, cf. Bayraktaroglu (1989) and Bayraktaroğlu (forthcoming).

[8] The model has taken into account a careful survey of the publications on hierarchy of difficulties: H. Wolff (1950); R. Stockwell and D.I. Bower (1965); U. Weinreich (1953); R. Lado (1957); W.G. Moulton (1962a) (1962b); K. Wiik (1965); Most recently, Collins and Mees (2006)

[9]

The following table shows pronunciation difficulties of Turkish speakers/learners of British English at the phonemic and phonetic levels which are due to differences in the sound systems of Turkish and English, i.e. interference of Turkish (L1). For the purposes of teaching British English Pronunciation to Turkish Learners of English, these difficulties are applied to the classification model mentioned above. **Please note that orthographic difficulties are shown as 6(a) type in the table.** Cf. also Bayraktaroğlu (forthcoming)

C O N S O N A N T A L:		
PHONEMIC ERRORS: **Phonemic Distinctions Between:**	**CLASSIFIED TYPES OF L1 (TURKISH) INTERFERENCE DIFFICULTIES:**	**RECOMMENDED TYPES OF EXERCISES:** **1.Comparison Drills between Turkish and English ("T/E")** **2.English Contrastive Drills ("E/E")** **3.Phonemic Transcription Exercises ("PTE") for all 6(a) type of difficulties, i.e. orthographic errors.**
/ v / - / w /	**1(a) and 4(a)**	T/E: /v/; *söv - serve* E/E : /v/-/w/; *vest - west*
/ t / - / θ /	**1(a) and 3(a)**	T/E: /t/; *tip – tip; bit – bit* E/E: /t/ - /θ/; *tin – thin*
/ d / - / ð /	**1(a) and 3(a)**	T/E: /d/ ; *dek – deck* E/E: /d/-/ð/; *doze – those*
/ s / - / θ /	**1(a)**	E/E : /s/ - /θ/ ; *sick – thick*
/ θ / - / ð /	**1(a) and 6(a)**	E/E: /θ/ - /ð/ : *thigh – thy* PTE
/ ð /- / t /	**1(a) and 3(a)**	T/E : /t/; *tip –tip* E/E: /ð/ - /t/; *then – ten*

/ z / - / θ /	1(a)	E/E: /z/ - /θ/; *zinc – think*
/ d / - / θ /	1(a) and 3(a)	T/E: /d/; *dem – damn* E/E: /d/ - /θ/; *din – thin*
/ n / - / ŋ /	1(b) and 3 (a)	T/E: /n/; *in – in* E/E: /n/ - /ŋ /; sin - sing
/-ŋ / - /-ŋk /	1(b)	E/E: /-ŋ / - / -ŋk/; *sing-sink*
[-ḓ] – [-t]	3(a), 4(b), and 2(a)	T/E : /d/; *kod -cod* T/E: /t/ ([-t̪]– [-t]); *bit - bit* E/E: [-ḓ] – [-t]; *seed –seat*
[-g̊] – [-k]	2(a) and 4(b)	T/E: /k/ ([-kʰ]-[-k]); d*ek-deck* E /E: [-g̊] – [-k]; *dog - dock*
[-dʒ̊] – [-tʃ]	2(a)	E/E: [-dʒ̊] – [-tʃ]; ridge –rich
[-ɣ̊] – [-f]	4(a)	T/E: /v/, /f/; *kof –cough*; *söv - serve* E/E: [-ɣ̊] – [-f] ; leave –leaf
[b̥ -] – [ɣ -]	4(a)	T/E : /v/; ver – very E/E : [b̥-] – [ɣ-] best = vest
PHONETIC and ALLOPHONIC ERRORS:		

Substitution of E alveolar /t/ and /d/ by T dental [t̪] and [ḓ]	3(a)	T/E: [t̪] / [t] ; bit - bit
		   [ḓ] / [d];
		   dem - damn

Substitution of E post-alveolar [t̠] and [ḓ] in [t̠ ɹ̥] and [ḓ ɹ̥] by T alveolar [t] and [d]; but also by T dental [t̪] and [ḓ] when a vowel is inserted	4(b)	First, T/E alveolar (or dental) / post-alveolar; tren-train; dram-drum secondly, E/E alveolar and post-alveolar. toll –troll; died-dried

Aspiration of T [pʰ], [tʰ] and [kʰ] in all positions; only in initial stressed syllables in E.	4(b)	T/E : pil-peel; top-top; kar-car; kapı–copper; site-city; iki-Mickey; ip-lip; sat-set; şok-shock E/E: pin-spin tie-try cock-clock
E nasal and lateral release, and incomplete plosion.	4 (b)	PTE
Substitution of E /f/ by T [f], [f̪], [ɸ], and [ɸ̪] interchangeably.	4(a)	T/E: lif- leaf kof-cough fors-force
Substitution of E /v/ by T [ʋ], [ʋ̪], [β], and [β̪] interchangeably.	4(a)	T/E: söv-serve ov-of eve-ever av-love
Substitution of E /r/ by T post-alveolar fricative [ɹ] initially; by T alveolar tap [ɾ] medially; silent E /r/ in final positions by T [ɹ] or [ɾ] .	4(a) and 4(b); 2(b) and 6(a)	T/E: renk – rank; seri –ferry; T/E; kar-car; and English post-vocalic /r/: card, barn, fear

Substitution of E voiceless glottal fricative /h/ by T [ç] and [x] in initial positions.	4(a)	**T/E comparing pairs:** **his-his; hop-hop**
Substitution of E alveolar /n/ by T dental [n̪] .	3(a)	**T/E [n̪] / [n] ; not – not**
Substitution of E dental [n̪] and post-alveolar [n] by T alveolar and dental [n̪] variably.	4(b)	**E/E dental [n̪] / post-alveolar [n] ; tenth, southern,- lunch, ocean**
Substitution of E alveolar / l / by T dental [l̪]	3(a)	**T/E Comparing pairs;** **lif –lip;**
Substitution of E [l,] by T [ł] before back vowels; E [ł] by T [l,] after front vowels; but usually T [l,] and [ł] interchangeably in many contexts.	5(a)	**T/E Comparing pairs;** **loş- long; fil-fill ; hol- hall**
Palatalization of E consonants before or after front vowels	4(a)	**T/E Comparing pairs**
Close lip rounding of E consonants	4(a)	**T/E Comparing pairs**
FINAL DOUBLE CONSONANT CLUSTERS ("-CC ") :		
DOUBLE CONSONANT CLUSTERS INVOLVING PHONEMES WHICH DO NOT OCCUR IN L1 (TURKISH):		

/- ɵ s /	1(a); 6(a)	E: /-ts/ - /- ɵs /; debts-deaths; mats-maths; miss-myths; PTE
/ - θ t /	1(a) ; 6(a)	E : /-ɵ t / - / -s t/ and /- t/; berthed- burst,Bert PTE
/- ð z /	1(a); 6(a)	E: /-dz/ - /-ðz /; loads-loathes; PTE
/- ð d /	1(a); 6(a)	E : /-d/ - /ðd/; sued-soothed; load-loathed; sized-scythed PTE
/ - f θ /	1(a) ; 6(a)	E : /-ft/ - /fɵ/; fifth PTE
/ - p θ /	1(a) ; 6(a)	E : / -pt/ - /pɵ/ depth PTE
/ - t θ /	1(a); 6(a)	E : /-tɵ/ - / - ts/ and /-t/ eighth –eights, eight PTE

/ - d θ /	1(a); 6(a)	E : /-dө/ - /-t/, /-ts/ and /-d/ width – wit,wits breadth- bread hundredth-hundred PTE
/ - m θ /	1(a); 6(a)	E: /-m/ - /mθ/ warm- warmth PTE
/ - n θ /	1(a) ; 6(a)	E: /-nθ/ - /-ns/, /-nt/ tenth- tense,ten PTE
/ - l θ /	1(a); 6(a)	E: /-lt/ -/-lθ/ welt –wealth PTE
/ - ŋ θ /	1(a); 6(a)	E: /-ŋθ/ length, strength PTE
/ - ŋ z /	1(b); 6(a)	E: /-ŋks/ -/ŋz/ rinks – rings sinks- sings PTE
/ - ŋ d /	1(b); 6(a)	E: /-ŋt/ - /-ŋd/ Clanked – clanged PTE
FINAL DOUBLE CONSONANT CLUSTERS INVOLVING VOICED PLOSIVES OR AFFRICATIVES:		
/ - n d /	2(a); 6(a)	E: /-nt/ - /-nd/ sent – send PTE

	2(a); 6(a)	E: /-lt/ - /-ld/
/ - l d /		built- build
		PTE
	2(a); 6(a)	E: /-ntʃ/ - /-ndʒ /
/ - n dʒ /		lunch – lunge
		PTE
/ - g z /	2(a) ; 6(a)	E: /-gz/ - /-ks/
		begs- backs
		PTE
/ - d z /	2(a) ; 6(a)	E: /-dz/ - /-ts/
		seeds – seats
		PTE
/ - b z /	2(a) ; 6(a)	E: /- bz/ - /-ps/
		cabs – caps
		PTE
/ - g d /	2(a); 6(a)	E: / -gd/ - /-kt/
		begged – backed
		PTE
/ - b d /	2(a) ; 6(a)	E: / -bd/ - /-pt/
		mobbed – mopped
		PTE
/ - dʒ d /	2(a); 6(a)	E: /-dʒd/ - /-tʃt/
		edged – etched
		PTE
/ - z d /	2(a); 6(a)	E: /-zd/ - /-st/
		raised – raced
		PTE
/ - v d /	2(a); 6(a)	E: /-vd/ - /-ft/
		PTE
OTHER FINAL DOUBLE CONSONANT CLUSTERS IN L2 (English) WHICH DO NOT OCCUR IN L1 (Turkish):		

/ - m z /	2(a);6(a)	PTE
/- n z /	2(a);6(a)	PTE
/ - l z /	2(a);6(a)	PTE
/ - v z /	2(a);6(a)	PTE
LONGER CLUSTERS (- CCC and - CCCC)		
/ - m p s /	2(a); 6(a)	E: camps – campus; PTE
/ - ŋ k s /	1 (b); 6(a)	E: thanks – thank us PTE
/ - s k t /	2(a); 6(a)	E: basked – basket PTE
/ - n s t /	2(a); 6(a)	E: I rinsed – I rinse it PTE
/ - k s t /	2(a);6(a)	E:I mixed – I mix it PTE
/ - n dʒ d /	2(a); 6(a)	E: changed it – change it PTE

/ - l p t /	2(a); 6(a)	E: helped it – help it PTE
/ - ŋ θ n d /	1(a) (b); 6(a)	E: lengthened it – lengthen it PTE
/ - l d z /	2(a); 6(a)	E: folds – folders PTE
/ - n d z /	2(a);6(a)	E: tends – tenders PTE
/ - ŋ k θ s /	1(a)(b); 6(a)	E: strengths –strength PTE
/ - z n t θ /	1(a)(b); 6(a)	E: thousandths – thousandth PTE
INITIAL CLUSTERS (CC- , CCC-)		
INITIAL CLUSTERS WHICH OCCUR IN ENGLISH BUT NOT IN TURKISH:		
/ t w - /	1(a); 4(a)	E: twin – tin, win
/ k w - /	1(a); 4(a)	E: quick – kick, wick
/ d w - /	1(a); 4(a)	E: dwell – dell, well

/ g w - /	1(a); 4(a)	
/ s w - /	1(a); 4(a)	E: sway – say, way
/ θ r - /	1(a) ; 6(a)	E: three- tree **PTE**
/ θ j - /	1(a) ; 6(a)	**PTE**
/ θ w - /	1(a) ; 6(a)	E: thwart – thought, wart **PTE**
INITIAL CLUSTERS WHICH INVOLVE FAMILIAR SOUNDS BUT UNFAMILIAR COMBINATIONS IN TURKISH :		**AVOIDANCE OF INSERTION OF A VOWEL OR OMITTING /j/**
/ p j - /	2(a); 6(a)	**PTE**
/ t j - /	2(a); 6(a)	**PTE**
/ k j - /	2(a); 6(a)	**PTE**
/ b j - /	2(a) ; 6(a)	**PTE**
/ d j - /	2(a); 6(a)	**PTE**
/g j - /	2(a); 6(a)	**PTE**
/m j- /	2(a); 6(a)	**PTE**
/ n j -/	2(a); 6(a)	**PTE**
/ l j-/	2(a); 6(a)	**PTE**
/ f j-/	2(a); 6(a)	**PTE**
/ v j -/	2(a); 6(a)	**PTE**
/ s j - /	2(a); 6(a)	**PTE**
/ h j- /	2(a); 6(a)	**PTE**
/ g l- /	2(a); 6(a)	**PTE**
/ s l - /	2(a); 6(a)	**PTE**
/ ∫ r - /	2(a); 6(a)	**PTE**

INITIAL CLUSTERS WHICH OCCUR BOTH IN TURKISH AND ENGLISH :		AVOIDANCE OF INSERTION OF /ə/, /i/, and /ɪ/ between the two consonants in the following intial clusters; Utterances of phonetically similar words with and without the insertion of /ə/, /i/, and /ɪ/ ; PTE
/pl-/	6(a)	E: *plight – polite* PTE
/pr-/	6(a)	E: *prayed – parade; Prayed – paid, raid* PTE
/tr-/	6(a)	E: *tree -* PTE
/kl-/	6(a)	E: *claps – collapse* PTE
/kr-/	6(a)	*Cress- caress*
/bl-/	6(a)	*Blow – below*
/br-/	6(a)	*Bright – bite, right*
/dr-/	6(a)	*Drive – derive*
/gr-/	6(a)	*Griller – gorilla*
/fr-/	6(a)	*Fright – fight, right*
/fl-/	6(a)	*Fled- fed,led*
/sp-/	6(a)	*Sport – support*
/st-/	6(a)	*Steam – seam, team*
/sk-/	6(a)	*Scum – succumb; Scow – sea-cow*
/sm-/	6(a)	*Smock- sock, mock*
/sn-/	6(a)	*Snow – so, no*
V O C A L I C: **PHONEMIC ERRORS** **Phonemic Distinctions Between:**		
/ iː / - / ɪ /	1(b)	E: *sit – seat; live –leave; bit- beat*

/ æ / - / e /	**1(b)**	**E: set – sat ; bed – bad**
/ ʌ / - / ɑː /	**1(b)**	**E : cut – cart**
/ ɒ / - / ɔː /	**1(b)**	**E: don – dawn; cock-cork**
/ ʊ / - / u ː /	**1(b)**	**E: full –fool; look – Luke**
/ e / - / e ɪ /	**1(a) and 3(a)**	**T/E: kek – cake; tek – take; tel – tale; bey – bay** **E : bet- bate; fell-fail; west- waist**
/ ɔ ː / - / ə ʊ /	**1(a) and 3(a)**	**E: called – cold; bought – boat**
/ ɒ/ - / ə ʊ /	**1(a) and 3(a)**	**E: cost – coast; knot-note**
/ ɑː / - / a ʊ /	**1(a) and 3(a)**	**E: darn – down**
/ iː / - /ɪə /	**1(a) and 3(a)**	**E: bee – beer; tea – tear**
/e / - / e ə /	**1(a) and 3(a)**	**E: very – vary; merry-Mary**
/ æ / - / e ə /	**1(a) and 3(a)**	**E: marry – Mary**
/ u / - / u ə /	**1(a) and 3(a)**	**E: too – tour**
PHONETIC ERRORS:		
Substitution of E /3:/ with neutrally spread lips by lip rounding of T [œ] type sounds.	**3(a)**	**T/E : göl – girl**
Substitution of E /eɪ / by the T [ej]	**3(a)**	**T/E : bey /bej / - bay /beɪ/**
Substitution of E /aɪ / by the T [aj]	**3(a)**	**T/E : bay /baj/ - buy /baɪ/; tay /taj/ - tie/taɪ/**
Substitution of E /ɔɪ/ by the T [ɔj]	**3(a)**	**T/E : toy /tɔj/ - toy /tɔɪ/ boy /bɔj/ - boy /bɔɪ/**

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[10] For a detailed study of word stress in Turkish cf. Demircan, Ö. *Türkçenin Ses Dizimi, Sesler, Sesbirimler, Ayrıcı Özellikler, Ses Değişimleri, Vurgu, Vurgulama, Ezgi, Ezgileme,* Der Yayınları, İstanbul, 2006