



T.C.

UFUK UNIVERSITY

GRADUATE SCHOOL OF SOCIAL SCIENCES

DEPARTMENT OF ENGLISH LANGUAGE TEACHING

ENGLISH LANGUAGE EDUCATION PROGRAMME

**THE WRITTEN, AUDITORY PERCEPTION AND PRODUCTION
OF NORTH AMERICAN ENGLISH DIPHTHONGS
BY NON-NATIVE ENGLISH TEACHERS IN TURKEY**

MASTER'S THESIS

NESLİHAN ÇORAKÇI

SUPERVISOR

MEHMET DEMİREZEN

ANKARA

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KABUL VE ONAY

Neslihan ÇORAKÇI tarafından hazırlanan “The written, auditory perception and production of North American English diphthongs by non-native English teachers in Turkey” başlıklı bu çalışma, 05/07/2019 tarihinde yapılan savunma sınavı sonucunda başarılı bulunarak jürimiz tarafından Yüksek Lisans Tezi olarak kabul edilmiştir.

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Yukarıdaki imzaların adı geçen öğretim üyelerine ait olduğunu onaylıyorum.

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BİLDİRİM

Hazırladığım tezin/raporun tamamen kendi çalışmam olduğunu ve her alıntıya kaynak gösterdiğimi taahhüt eder, tezimin/raporumun kağıt ve elektronik kopyalarının Ufuk Üniversitesi Sosyal Bilimler Enstitüsü arşivlerinde aşağıda belirttiğim koşullarda saklanmasına izin verdiğimi onaylarım:

- Tezimin tamamı her yerden erişime açılabilir.
- Tezim sadece Ufuk Üniversitesi yerleşkelerinden erişime açılabilir.

N. Çorakçı
05/07/2019

Neslihan ÇORAKÇI



To my beloved father, Metin

I thank you very much for your support and belief...

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ABSTRACT

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This study was carried out to investigate the written, auditory perception and production of diphthongs by non-native English teachers of Ministry of Education, who still work in secondary and high schools. Only American English diphthongs are the main concern of this research. They are /eɪ/, /aɪ/, /ɔɪ/, /oʊ/, /aʊ/. What is more, the main purpose of this study is to reveal whether non-native English teachers are aware of diphthongs in written, auditory and production tests or not and the most challenging diphthongs in recognition and production items.

30 non-native English teachers participated in the study from different backgrounds. Just secondary and high school teachers were preferred as testees. A variety of tests were used to collect data such as written, auditory and production tests as instruments. Pre and post-test designs were implemented. The numerical data obtained from the tests were administered with SPSS package program.

The findings revealed that English teachers were successful in the auditory test the most. The most difficult test type for them was the written test since it necessitates phonological knowledge. According to the written and auditory test results, the most challenging diphthong has proved to be /oʊ/ while it is /aʊ/ in production test. Thus, it could be easily inferred from the comparison between pre and post test scores that it is possible to improve perception and production abilities of diphthongs.

Keywords: Diphthongs, perception, pronunciation, audition, monophthong, long vowel, lax vowel, North American English, RP, triphthong

ÖZET

Bu çalışma; Milli Eğitime bağlı ortaokul ve liselerde halen çalışmakta olan ana dili İngilizce olmayan İngilizce öğretmenlerinin çift sesleri yazılı ve dinleme testlerindeki algılarını gözlemlemek ve bu sesleri telaffuzlarını incelemek amacıyla yapılmıştır. Sadece Amerikan İngilizcesindeki çift sesler değerlendirme ölçütü olarak kabul edilmiştir: / eɪ /, /aɪ/, /ɔɪ/, /oʊ/, /aʊ/. Temel hedef; İngilizce öğretmenlerinin bu çift sesleri yazılı ve dinleme testlerindeki algılarına bakmak ve bu ikili ünlüleri kelime içinde telaffuz ederken özellikle hangi seslerde zorluk yaşadıklarını ortaya koymaktır.

Farklı eğitim seviyelerinde çalışmakta olan ve farklı bölümlerden mezun 30 İngilizce öğretmeni gönüllü olarak çalışmaya katılmışlardır. Sadece ortaokul ve lise düzeyinde çalışan öğretmenler denek olarak tercih edilmiştir. Veri toplama amacıyla yazılı, dinleme ve telaffuz testi olmak üzere üç farklı test türü kullanılmıştır. Ön test ve son testten elde edilen sayısal veriler SPSS paket programı kullanılarak işlenmiştir.

Yapılan çalışmalar sonunda İngilizce öğretmenlerinin çift ünlüleri en iyi algıladıkları test türünün dinleme testleri olduğu ve en zorlandıkları test türünün ise ses bilgisi gerektirdiği için yazılı testler olduğu görülmüştür. Yazılı ve dinleme testlerinden elde edilen ortak sonuç ise /oʊ/ sesinin her iki türde de en zor algılanan ses olduğudur. Telaffuz testi sonuçlarında ise /aʊ/ çift ünlüsünün en zor çıkarılan ses olduğu gözlemlenmiştir. Son olarak; ön test ve son arasında bir karşılaştırma yapılarak çift ünlülerin algı ve telaffuzunun geliştirilebileceği görülmüştür.

Anahtar sözcükler: çift ünlü(çift ses), algı, telaffuz, duyma, tek ünlü hece, uzun ünlü, kısa ünlüler, Amerikan İngilizcesi, İngiliz İngilizcesi, üç heceli sesliler

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ABBREVIATIONS

AAM: Audio Articulation Method

BrE: British English

EFL: English as a Foreign Language

L1: First Language

L2: Second Language

IPA: International Phonetic Alphabet

MONE: Ministry of Education

SLM: Speech Learning Method

NAE: North American English

RP: Received Pronunciation

SPSS: Statistical Package for the Social Sciences

TETs: Turkish English Teachers

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CHAPTER 1

INTRODUCTION

1.1. Introduction

This study aims to analyze the process that Turkish English teachers (TETs) go through while recognizing and pronouncing diphthongs in North American English (NAE). It is a kind of study that focuses on the perception and production of diphthongs by Turkish English teachers of Ministry of Turkish National Education (MONE). The target language is American English so the participants of the study are the ones who speak American English (NAE).

Diphthongs have been studied with different groups like university students and English learners but this topic hasn't been studied with Turkish English teachers who have an undeniable effect on students. Akyol (2012, p.1457) said that for English teachers, right pronunciation of the sounds provides students with good communicative skills. In addition to sound near-native like, the primary concern of a better perception and production of diphthongs is to have an accurate and intelligible speech while communicating. Kenworthy (1987,p.13) explained the meaning of intelligible pronunciation as follows: If one is understood in a limited time for communication, then it means that he/ she can convey, get the message clearly and have a comprehensible pronunciation. Correct pronunciation of specific sounds like diphthongs is the prerequisite of an intelligible conversation.

A qualified input, which is intricate and complex like a puzzle, needs to be correct, without accent, fluent and rhythmic. Demirezen (2010,128) asserted that many of non-native English teachers who are on the job, mispronounce words and sentences, and still be understood poorly but they are still unwilling to correct their mistakes and as a result it gives harm to learners due to the lack of correct input. If one likes to be a near native-like speaker, he/she needs to take into consideration of the suprasegmental features of language like stress, intonation, length, tone, juncture etc. (Anderson-Hsieh, Johnson, & Koehler, 1992, p. 529). Diphthongs can be shown as a subtitle of supra segmental features with their characteristic and distinctive features.

Diphthongs are the sounds which have a movement or glide from one vowel to another. (Roach, 2009, p. 28) In British (BrE) and North American English (NAE), there are some common and different diphthongs but in the Turkish vowel system, there are no diphthongs. Because of the lack of diphthongs in the Turkish vowel system, Turkish English teachers may have difficulty in articulating diphthongs correctly in verbal speech and they aren't fully aware of these different sounds. They are tricky sounds, which make them difficult to identify and recognize. The incorrect perception of diphthongs is a handicap for Turkish English teachers who aim to be at least near native-like speaker because Turkish English vowel sounds do not match with each other; therefore mother tongue interference from Turkish becomes inescapable for Turks while learning English.

Incorrect pronunciation of diphthongs is still a dilemma because of the similarity or the differences between Turkish and English sound repertoire. Han (2004, p.3) said that adults' knowledge of L1 either facilitates or hinders the acquisition of a foreign language is related to the basic similarities and differences between L1 and target language. Lado (1957, p. 2) indicated that if the similarity between the mother tongue and the second language is high, it is easier to learn the similar characteristics and the common features in the second language. Toklu (2007, p. 42) stated that Turkish vowel system is composed of vowels like /i/, /e/ (front-unrounded vowels), /ɪ/, /ə/ (back-unrounded vowels), /ü/, /ö/ (front-rounded vowels), /u/, /o/ (back-rounded vowels). They are the pure vowels that are just a single vowel. In contrary to Turkish, North American English vowel system is full of distinctive sounds. Some of them are the double vowels which combine to create a diphthong: /eɪ/, /aɪ/, /ɔɪ/, /oʊ/, /aʊ/. In each diphthong, the tongue moves from one direction to another whereas the tongue is stable in vowels of Turkish. They have all a starting and an ending point. In /eɪ/ vowel, there is an upper movement from mid to high, in /aɪ/ vowel sound there is movement from back to front, in /ɔɪ/ sound tongue glides from back to front, in /oʊ/ vowel sound tongue moves from mid to high and in /aʊ/ sound tongue glides to a higher position that is near the hard palate. Varol (2012, p.13) tried to explain it with an example: Turkish language does not have gender specific pronouns like 'he, she or it'. Instead of these pronouns, 'o' is used for all these three words. As a

consequence, Turkish English learners have difficulty in learning different concepts. In addition to different linguistic differences, phonological differences may cause problems. 'Poor pronunciation brings in a mother tongue accent into teaching the target language, and it is not easy to eradicate all traces of it.' (Demirezen, 2005, p. 82) From this point on, Turkish English teachers may not be aware of diphthongs in the word "open" as in the given example. Instead of /'oʊpn /, they may choose an easier way /opɪn/ or /o:pɪn/ which have similarities with Turkish sounds. The tendency of missing the /oʊ/ sound is as a result of the lack of this sound in Turkish vowel system. Demirezen (2010, p.131) explained it with these words: 'A wrongly articulated phoneme is matched with an easily and correctly pronounced phoneme, a vowel or consonant'. Bhela(1999,p.22) indicated that when learners of a foreign language would like to communicate in the target language they are more inclined to use their first language structures. If the characteristics between mother tongue and foreign language are totally different from one another, errors may appear in the target language. This is an evident between the interference of the first language with the target language. It can be explained with Gass and Selinker's(2008, p. 324) interlanguage hypothesis. Interlanguage reflects the learner's evolving system of rules, and results from a variety of processes, including the influence of the first language, contrastive interference from the target language, and the overgeneralization of newly encountered rules (Crystal, 1997). There are 3 paces in second language learning process: Input, interaction and output. These elements are connected to each other. A deficiency or any lack in one of the steps may cause mispronouncing of diphthongs. At the beginning of the language learning process, target language is a blend of L1 and has L1 traces. Further it is sometimes observed that, Turkish English teachers (TETs) find an easier way: Instead of uttering the diphthongs, they try to use long vowels as in the example 'go'. While the right pronunciation of the word is /goʊ/, they prefer /go: /. It is an inter language articulation that is neither in English nor in Turkish. Vice versa is possible. Kitagawa (2012, p. 217) explained that the perceptually different foreign language structures are more likely to be perceived and produced well by creating a new schema in mind.

Isbell (2016, p. 62) indicated that the perception-production link seems to have stronger foundations in research than being thought. Studies have shown more than just a link between perception and production. These are the terms that are engaged and tangled. If TETs recognize diphthongs, they can have a better pronunciation of diphthongs or vice versa. The increase in the percentage of correct articulation of diphthongs is in direct proportion to an increase in perception of them. It means that perception and production have a mutual effect on each other.

This study has tried to reveal the perceptual and productional process of diphthongs by TETs in Turkey, whether they are fully aware of these sounds and if they could pronounce them accurately. If they couldn't then can they improve their perception and production skills with a training course and treatment? The perception or production of diphthongs is the subject matter of this study. Even if it is hard to determine the proportion of their effects on each other, mutual effect can be seen at the end of the pre and post tests. This study will make Turkish English teachers more aware of diphthongs and their importance in pronunciation. This awareness will fill the gap in order to be near native-like with the correct pronunciation of diphthongs by making communication intelligible.

1.2. Purpose of the Study

Pronunciation is ignored in language classes not only in undergraduate programs but also in English classes in all levels in Turkey while grammar rules are dominant and come first. There are so many reasons behind it. Demircioğlu (2013, p. 2985) said one of them: The number of Turkish English teachers who are willing to teach pronunciation and articulation is decreasing day by day because of the lack of motivation in students. However, the reason may sometimes be totally different. An English teacher may not be qualified enough to speak or he/ she may have an accented speech or just disregard the importance of pronunciation skills. One of the disregarded and underestimated subjects is diphthongs. Teachers have difficulty in producing these sounds that are different from Turkish sound repertoire. While some of them can't produce these sounds,

some aren't aware of them in spite of phonology classes taken in undergraduate courses. The results of this case affect not only teachers but also their students' pronunciation abilities. The issue of pronunciation is a concern because it is not a right way of modeling.

This study tries to inquiry the perception and production levels of diphthongs by TETs in Turkey. The reason why this study focuses on diphthongs is to reveal the perceptual level of diphthongs by TETs secondary and high school level. In addition to perceptual process, correct pronunciation of / eɪ /, /aɪ/, /ɔɪ/, /oʊ/, /aʊ/ sounds is another concern of this study. It is a research topic that has not been studied on with Turkish English teachers in Turkey before. There is a gap concerning the perceptual and productional process of diphthongs.

This study will shed a light on examination of diphthongs' perception and production. Another purpose of the study is to show how TETs produce diphthongs, whether they can improve their correct production skills and if they can improve their articulation patterns.

The other purpose of the study is to show whether TETs confuse diphthongs with long vowels. 'Turkish does not have diphthongs.' (Yavuz & Balci, 2011, p. 39). They explained it with an example: Even if the Turkish word 'ay'(moon) and the English word 'eye' are similar in their pronunciation, there isn't a diphthong in the Turkish word while there is in the English word. It can be observed easily with the phonological transcription. The Turkish word is transcribed as /aj/, a vowel and a consonant, but the English word is transcribed as /aɪ/ with a diphthong. Although these two words have similar phonological sound patterns, their transcription is different from each other. Lack of diphthongs makes it difficult for Turkish learners to articulate them correctly. They can sometimes confuse diphthongs with long vowels because of the articulation similarities in both. According to IPA (International Phonetic Alphabet), long vowels are /i:/, /ɜ:/, /ɔ:/, /u:/, /ɑ:/ and /ju/. As it is seen, contrary to diphthongs, long vowels are the lengthening of short vowels. A short vowel gets longer due to certain reasons. In the example of 'boy' word, there is a diphthong /ɔɪ/ but some learners or TETs prefer a similar sound instead of /ɔɪ/: It is /o:/ which is a long vowel in Turkish

and English . Examples on this subject can be increased. Instead of go /goʊ/, English teachers generally prefer omitting the second vowel /ʊ/ and say /gɔ:/.

1.3. Research Questions

The following questions will guide the study:

Table 1

<i>Research Questions and Instruments</i>	
1. Is written perception, auditory perception or production of diphthongs problematic for Turkish English teachers?	Pre-test, post test
1. Which diphthongs are problematic for Turkish English teachers?	Pre-test , post-test
2. What are the overall correct written perception, auditory perception and production of diphthongs?	Pre-test , post-test
3. Is there a meaningful difference between pre-test and post-test results?	Pre-test , post-test
4. In which of the test type do participants get the highest score?	Post-test
5. Do the participants need treatment teaching?	Post-test
6. Is there a meaningful correlation between the participants' production skills and their school type?	Pre-test, post test

1.4. Significance of the Study

Pronunciation has been a problematic issue for Turkish English teachers for a long time. There are a number of reasons behind it like curriculum, syllabus, educational background of the teachers, target students, mother tongue of learners, individual choices etc. Pennington (1994) stated that teachers tend to view pronunciation as a component of linguistic rather than a necessity for fluency. Another reason can be the vocal differences between English and Turkish. Based on this hypothesis, diphthongs are integral part of articulation. Accurate

pronunciation of diphthongs or correct perception of them paves the way of a near native-like articulation skills for TETs. In addition to sound near-native like, correct articulation makes better communication skills. It is very hard to sound native like. Few adults succeed in native like pronunciation; many fail but just a few number of adults achieve very high level of proficiency in sounding native like given enough time, meaningful input, striving, intrinsic motivation and a suitable atmosphere to learn (Bley & Vroman, 19889, p. 49). Nemati & Taghizade,(2013, p.2479) supported the same idea that that very few L2 learners become successful in achieving native speakers level, the majority of L2 learners cannot achieve native speakers level of ability. Selinker(1972) said only 5% of learners achieve native like accent. Gregg's(1976, p. 52) claim is compatible with Selinkers; ' A fully native-like competence is never achieved.' Pronunciation is a significant item of language that makes our speech comprehensible and intelligible to native speakers. It is not only for its own sake but for an intelligible communication. In addition Varol indicated that the importance of intelligible communication is the ability to be able to produce diphthongs correctly. (Varol, 2012, p.1)

This topic has been studied for a few times with learners of English in Turkey who are undergraduate students or English learners, but it hasn't been studied with an advanced group who teach English in-job at primary, secondary, high school or university level. This study will provide TETs from different backgrounds with a chance to see their perception and production of diphthongs. The results could increase the awareness of diphthongs by TETs. They will benefit from getting more aware of these sounds and new insights.

This research is important since it is an experimental one that analyzes TETs' pronunciation of diphthongs by aiming at coming to a conclusion if it is problematic or not. The results of the study are statistical, numerical and scientific. Although it is possible to observe the productions of diphthongs in uncontrolled situations as Hughes, Dougall and Foulkes (2009) have done to see diphthong dynamics in unscripted speech, this study takes place in both spoken and written-controlled situation. By means of both quantitative and qualitative data from participants, the study will help researchers who would like to study on

diphthongs' perception and production in the future. Since the participants are from different backgrounds, the results could be generalized with the participants' impressions.

1.5. Definition of Terms and Abbreviations

In this study the following terms and abbreviations will be used.

Diphthongs: Diphthongs are the sounds which have a movement or glide from one vowel to another. (Roach, 2009, p. 28) There are two different vowel sounds in the composition of diphthongs.

AAM: Audio Articulation Method

BrE: British English

EFL: English as a Foreign Language

L1: First Language

L2: Second Language

IPA: International Phonetic Alphabet

MONE: Ministry of National Education

NAE: North American English

SLM: Speech Learning Method

SPSS: Statistical Package for the Social Sciences

TETs: Turkish English Teachers

1.6. An Evaluation of the Chapter

In chapter 1, the topic of “diphthongs” and its background have been overviewed. The purpose and the reasons behind why such a study is necessary have been explained. The research questions that guide the study have been mentioned. The significance of the study is another concern of this chapter. The abbreviations and basic terms taking place in the study have been defined to make them clear.



CHAPTER 2

LITERATURE REVIEW

2.1. An overview of the Chapter

In this chapter, an examination of diphthongs both in BrE and NAE will be analyzed. The comparison of long vowels and diphthongs is another concern of this chapter.

Diphthongs have been studied with different groups, educational patterns in Turkey and in the world. These studies and researches will be examined with their results in detail in chapter 2.

2.2. An Examination of Diphthongs

The description of diphthongs has been done by many linguists. All meet at the same point in a way. Dardjowidjojo (2009, p. 33) made a description: Diphthong is a combination of two vowels which is considered as the same syllable. Laszlo (2014, p.13) said that diphthongs are the sounds while uttering, the organs of speech glide from one vowel position to another within one syllable. Fromkin et al (2001, p. 693) stated that tongue glides from one position to another to form diphthongs. It means that to form a diphthong, tongue isn't stable but dynamic. According to the definition in Oxford (2000) dictionary diphthong is a combination of two vowel sounds and two letters as in the example: In the 'pipe' word /aɪ/ and in the 'doubt' word diphthong of /oʊ/ appears. As the definitions show, diphthongs are described almost the same by linguists. Roach (2009, p.28) showed both BrE and NAE diphthongs in a diagram below.

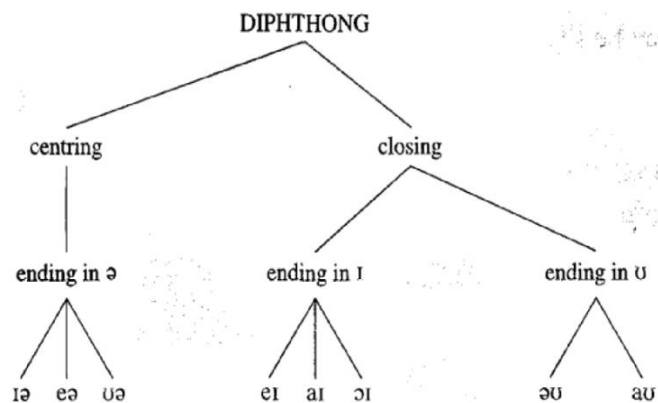


Figure 1. Centering and Closing Diphthongs by Roach (2009)

As seen in the figure 1, Roach categorized diphthongs as centering and closing according to the movement of tongue. While there are 8 diphthongs in BrE, NAE has only 5 diphthongs which don't end with the sound /ə/. British English diphthong sounds are as follows: /ɪə/, /eə/, /ʊə/, /eɪ/, /aɪ/, /ɔɪ/, /əʊ/, /aʊ/. Ward (1958) gave examples for each of these diphthongs: 'Here, hair, your, lady, time, boy, home, now' respectively. American English diphthongs are /eɪ/, /aɪ/, /ɔɪ/, /əʊ/, /aʊ/. The chart below can help the reader to take the first step into diphthongs.

Table 2

Diphthongs with examples

CENTERING

CLOSING

ending in /ə/

ending in /ɪ/

ending in /ʊ/

<u>/ɪə/</u>	<u>/eə/</u>	<u>/ʊə/</u>	<u>/eɪ/</u>	<u>/aɪ/</u>	<u>/ɔɪ/</u>	<u>/əʊ/</u>	<u>/aʊ/</u>
gear	scare	pure	Rain	time	toilet	studio	flower
clear	pair	cure	obtain	guide	voyage	sorrow	about
rear	hair	injurious	major	migraine	destroy	coincide	mountain
hear	bear	tour	Spain	advice	boycott	telephone	cow

Knight(2012, p.74) said that while the tongue sometimes moves from a low to a high position in the mouth in closing diphthongs, the tongue moves from a higher or lower position to a central, schwa-like position in centering diphthongs.

The concern of this study is only NAE diphthongs. BrE ones are not within the scope of the research as it would be trickier to distinguish BrE diphthongs. In the vowel sound /eɪ /, tongue is in front of the mouth while it glides from a high-mid to a higher position. In /aɪ/ diphthong, tongue is near the lower palate in central at the starting point. Tongue not only moves from central to front but also from low to a higher position. While articulating /ɔɪ/ diphthong, firstly tongue is at the back of the mouth in low-mid position following a direction from back to front with a rising trend. In the pronunciation of /oʊ/ diphthong, tongue has a slight rise at the back of the mouth by rounding the lips. The last one is /aʊ/. The starting point of the diphthong is somewhere near lower palate in central. Tongue glides to a higher and back position at the ending point of the sound. As seen in the examples in Table 1, articulation of diphthongs is not just the mission of the tongue; on the contrary it is a mechanism supported by tongue, lips, lower palate and velum.

Ladefoged and Johnson (2010, p. 90) showed both vowels and diphthongs in BrE and NAE with two different figures below. This is a quadrilateral which represents mouth and the directions of tongue's movements in oral cavity.

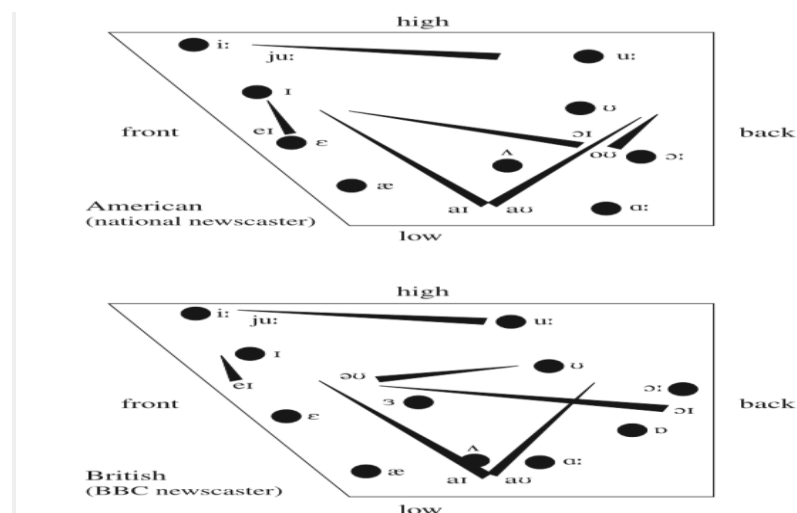


Figure 2. American and British English Vowels and Diphthongs by Ladefoged and Johnson (2010)

The horizontal and vertical lines show the direction of the sounds' starting and ending point. When the structures of the lines are examined, it is seen that starting points are thicker than the ending points in diphthongs. Ladefoged and Johnson (2010, p. 92) stated that "the first part of the diphthong is usually more prominent than the last." It means that while the first sound of a diphthong is easy to detect, the second part is less prominent than the first part. It is difficult to identify for a non-native speaker through which vowel tongue glides. Stokes (2002, p.609) said that glide from a 'marked' tongue position is regarded as more complex than movement from a neutral tongue position. For example, movement from central to front or back is considered as a complexity. The height of tongue is another criterion for the complexity of diphthongs.

2.3. A Comparison of Long Vowels and Diphthongs

There are a number of measures to classify vowels. One of them is the length of the vowel sounds while pronouncing them. The purpose of the comparison of long vowels and diphthongs are length similarities that they have in common. TETs may have a dilemma in discriminating long vowels and diphthongs. Some characteristic similarities between them may create confusion in heads. When compared to short vowels, the span of their utterances is longer and tense. The other name of long vowels is Free Steady State Vowels. As implied in the name, speech organs are stable and steady in long vowels. Roach has used a symbol (length mark / : /) to make it clear and easier for learners. This length marker provides English Language learners with keeping in mind the length differences in vowels. Collins and Mees (2003, p.100) have given some descriptive features of long vowels: They can appear at the words' last syllable unlike the short vowels. In addition they don't occur before the sound / η/ except for a few exceptions. Another study has been conducted by Prinsloo to compare acoustic analysis of long vowels and diphthongs of Africans and South Africans English. He (2000, p.107) justified a claim. According to the results of his study,

/e:/ and /o:/ are actually diphthongs but not long vowels even if they are not considered as diphthongs by phoneticians. Zsiga added that (2013, p. 17), ‘In English, especially the pronunciation of vowels is problematic.’ Diphthongs are considered as long vowels because of their length similarities.’ It is not clear that whether diphthongs or long vowels are more confusable for Turkish learners. Demirezen(2019) conducted a study with 30 Turkish English instructors to observe the written perception of diphthongs and long vowels. 30 M. A. instructors who are taking MA course called ELT 507 educational phonology and intonation analysis of English have participated in this study. 5 AmE diphthongs and 6 steady long vowels have been tested. It was observed that participants perceived the diphthongs (86, 3%) better than long vowels (73, 3%) (Demirezen, 2019, p. 1). That is, it is easier to recognize diphthongs than long vowels. Another finding is that the success scores from the highest one to the lowest are as follows:

/aʊ/	=	100
/ɔɪ/	=	100
/aɪ/	=	96
/eɪ/	=	96
/oʊ/	=	38

It can be easily inferred that /oʊ/ diphthong has proved to be the most difficult one for the testees.

This is a quadrilateral that shows the long vowels’ place of articulation in oral cavity according to their height and frontness.

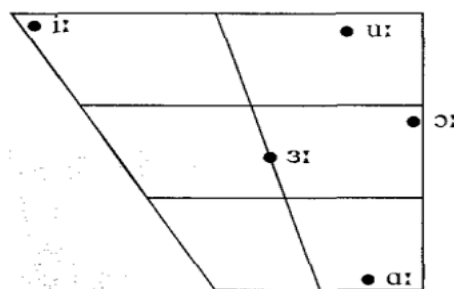
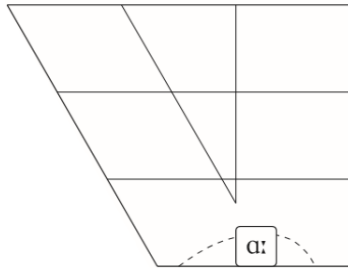


Figure 3: English Long Vowels by Roach (2009)

As seen in the diagram, the characteristic features and examples of long vowels will be given below.

/a:/

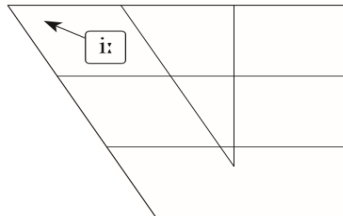


/a:/ is a central, low, unrounded long vowel.

Examples: father: /fɑ:tðər/
 sovereignty: /sɑ:vrənti/
 contact: /cɑ:ntækt/

Figure 4: The range of /a:/ Free Steady State Vowel

/i:/

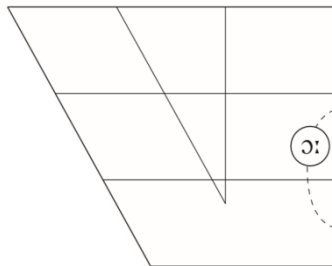


/i:/ is a central, high, unrounded long vowel.

Examples: jeans: /dʒi:nz/
 east: /i:st/
 hygiene: /'haɪdʒi:n/

Figure 5: The range of /i:/ Free Steady State Vowel

/ɔ:/

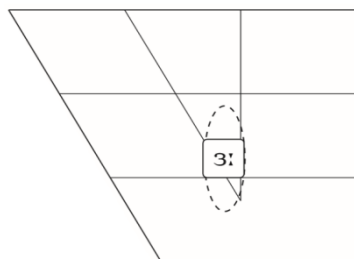


/ɔ:/ is a back, mid, rounded long vowel.

Examples: saw: /sɔ:/
 coffee: /kɔ:fi/
 bord: /bɔ:rd/

Figure 6: The range of /ɔ:/ Free Steady State Vowel

/ɜ:/

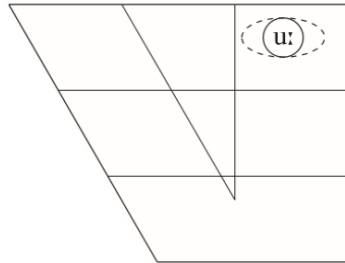


/ɜ:/ is a central, mid and neutral long vowel.

Examples: burger: /bɜ:rgər/
 turn: /tɜ:rn/
 girl: /gɜ:rl/

Figure 7: The range of /ɜ:/ Free Steady State Vowel

/u:/



/u:/ is a back, high and rounded long vowel.

Examples: tooth: /tu:θ/

boomerang: /bu:mərəŋ/

moonlight: /mu:nlaɪt/

Figure 8: The range of /u: / Free Steady State Vowel

Some more examples for long vowels by Gebhart(2010, p.4).

/ɜ:/ girl, burn, word, heard

/ɑ:/ car, art, heart, half

/ɔ:/ or, board, door, small

/ɪ:/ sea, bee, people, receive

/u:/ too, blue, fruit, fool

In addition to these five long vowels of English, /ju:/ is considered as a long vowel while it is sometimes considered as a diphthong by some linguists. In this study, it will be evaluated as a long vowel because of its characteristic features. It is called 'yod'. In the history of this sound, it has undergone a change in different ways like eliding or deleting the sound according to the letter coming before the /ju/ and it is called as 'yod dropping' but it takes place according to a rule. /j/ becomes Ø when it is preceded by a palatal, by /r/ or by a consonant and /l/ and when it is followed by /u/. (Glain, 2012, p.5). Kwon (2006, p.7) explained this rule with examples: In the following words like 'rude, blue, flue', this rule is valid. Because of its strange and odd pronunciation, they are uttered as /blu:/, ru:d/ and flu:/ with a long vowel/u:/ instead of /rjud, blju, flju/.(Wells, 1982, p. 207). The second rule is the palatalisation of yod. It is palatalized into /sju, zju, s and z/ in some of the words. 'Issue and assume' words can be shown as examples for /ju/ palatalisation into /ɪʃu / and / əʒu:m/.(Glain, 2012, p. 11).Hannisdal(2006, p. 121) explained these changes with the process of simplification of languages. It is easier and less time consuming when reduction takes place in the words. In

American English they are generally pronounced as /u, ue, ew).The following list consists of the words with /ju:/ long vowel:

Music /mju:zɪk/

Cube /kju:b/

Pure /pjʊ:r/

Beauty /bju:ti/

Rescue /reskju:/

Since there is a lack of diphthongs in the Turkish sound system, TETs may prefer long vowels instead of diphthongs that necessitate two vowels in a syllable sometimes with a prominent glide sometimes with just a slight one. Although the tongue is generally stable in long vowels, diphthongs have observable tongue movements vertically and horizontally. Roach (2009) indicates that L2 learners of English are inclined to produce monophthong instead of a diphthong. Turkish learners are one of them. Because of the pronunciation and vocal similarities in perception, TETs may also have difficulty in uttering diphthongs. Sounds likely to be confused can be seen in the examples. While the closing diphthongs ending in /ɪ/ aren't an enormous problem for Turkish learners, diphthongs ending in /ʊ/ seem harder to perceive and pronounce for them. /oʊ/ Diphthong's acoustic quality is similar to /ɔ:/ long vowel as in the example "telephone" so the distinction between the two needs to be done well. /aʊ/ is another diphthong that may be articulated as /a:/ long vowel by TETs. The word "cow" is the exact sample for this sound. The right pronunciation of cow is /kaʊ/ but the 'w' letter is perceived as /v/ sound by Turkish learners as a result it causes mispronunciation of the word like so /ka:v/. If any word ends with 'w' in English, Turkish learners perceive it as /v/ because of orthographic similarity.

English diphthongs have been studied by a number of researchers from different countries in the world but there are few studies concerning the perception and production of diphthongs by Turkish English teachers in Turkey.

Hamid, Fidel, Alnour and Mohammed(2017) conducted a study as a master thesis to investigate the problems of learning diphthongs among EFL learners of science and technology in Sudan university. 30 sophomore students took place in the study. They took a recognition test composed of 20 multiple choice questions. They were asked to pick one of the options. The collected data from 30 participants were evaluated with SPSS program. As a result of the study it was found that the average grade of students participated in the test was (9.53), which means that the average success of the students in this exam was very low. Mispronunciation of diphthongs causes misunderstanding. It can be concluded that perception affects production and vice versa.

Peterson (2016) made a research about vowel dispersion in English diphthongs. The participants were three females who were asked to read four paragraphs script from Henry Sweet's work 'Arthur the Rat' in which target the tokens of diphthong vowels that were inserted. The recordings were made while they were reading. Peterson used Flemming's (2004) dispersion theory vowel inventory framework while analyzing the collected data. At the end of the study it was clear that reduction of monophthong and diphthong vowels in the production data was much more than a strict matrix of Flemming had estimated. Reduced effort caused shorter diphthongs. In addition reduced effort led to the onset target to be reduced to a central vowel position. This result doesn't totally match up with previous literature that mostly states that the two targets in a diphthong are inclined to enlarge distance.

Albağlar (2015) conducted a study with all twenty preparatory school students at the Middle East Technical University in Ankara/ Turkey to analyze Turkish university level EFL learners' pronunciation of the diphthongs and triphthongs in English. He divided learners into two groups: First pre-intermediate and the second is advanced level of English learners. Target diphthong and triphthong sounds were selected as stimulus. Authentic sample sentences in which target sounds were embedded were given to the learners. They were asked to read these sentences. The utterances were recorded for 3 times one week apart from each other. In the stimuli different kinds of activities were used like 'read aloud, blank filling, word pronunciation'. The collected data was scored by two native

speakers according to a likert-scale prepared beforehand. At the end of the study it was seen that there was a strong relation between pre-intermediate groups's, and the advanced group's proficiency level and pronunciation of diphthongs-triphthongs. There is a correlation between proficiency level and right articulation of target sounds. The orthographic feature was another variable in the study. It was clear that orthography doesn't play a role in correct articulation of diphthongs and triphthongs.

Venkateswarlu (2014) made a descriptive study to search an effective way of understanding the diphthongs in English in a college in India. He started this study after he recognized that students were having difficulty in comprehending diphthongs because of their complex form when compared to pure vowels. He categorized both BrE and NAE diphthongs and explained their articulations with examples. He used a diphthong song that is composed of frequently used diphthong words to practice and review them. The study showed that it is possible to improve accurate articulation of diphthongs with practice. Venkateswarlu(2014, p.94) asserted that students were slow in their improvement; but the rate of improvement could be increased with regular practice.

Das (2014) carried out a study about the production of central vowels and centering diphthongs by Assamese speakers of English. The participants of the study were five males from colleges of Dhubri district of Assam in India. They were asked to read a word list consisting of 50 tokens (target sounds). They read the list twice in their normal way of speaking while recording. PRAAT was used to analyze the sounds in recordings. At the end of the study it was clear that some of the sounds that are in English language but not in Assamese language were substituted with similar Assamese sounds. Das (2014) explained it with a few examples: Assamese speakers of English pronounce the diphthong /iə/ as vowel glide starting from /i/ and gliding to a back vowel /a/. 'Dear' /diə/ is pronounced as /diar/. 'Onion' /ʌniən/ is pronounced as /onion/. They produce some vowels and diphthongs that are far from native standards. It causes new forms of English.

Lee, Potamianos and Narayanan (2014) conducted a study to see the developmental acoustic study of American English diphthongs. Lee et al.(2014)

made this research by taking into account variables like age and gender. The participants were 492: 426 children (5-18) and 56 adults (25-50). Duration, frequency of diphthongs and three formant trajectories were analyzed according to age group and gender. The target diphthongs were given as isolated words to children between 5-6 years old, while older participants were exposed to diphthongs inserted in sentences. The readings were recorded and evaluated at the end. It was seen that there wasn't a significant gender difference in diphthong durations. The onset or offset formant frequencies are generally different across the American English diphthongs for both males and females. It was observed that younger age groups usually begin diphthong transition much later than older age groups. It means that they spend more time in the first joint of diphthong. Onset and offset positions of diphthongs regarding monophthongs change when speakers improve their diphthong articulation skills.

Demircioğlu(2013) studied on the pronunciation problems for Turkish learners' articulation of diphthongs in English. It was a descriptive study that gave the reasons of inaccurate articulations. It was like a leading lesson for the learners who would like to improve their pronunciation skills of diphthongs. He developed a new technique. By putting your forefinger on your closed rounded lips, one can practice the diphthongs and see lip's movements with the help of tongue. He explained it with an example: Try to make /aʊ/ sound your tongue, forefinger and lips on the mentioned position. You will see that on the gliding sound /ʊ/, your tongue will push your lips through your finger. If it happens, it means that you articulate the diphthongs correctly. He said that thanks to pronunciation practices, it is possible to improve articulation skills.

Tasko and Greilick (2010) conducted a study about the acoustic and articulatory feature of diphthong production. It was a purely scientific work. 57 English-speaking young adult participants joined the study but only 49 of them were evaluated. A kind of x-ray micro beam system was placed on the oral cavity of the participants to observe the articulation movements. The speakers were asked to repeat "combine all the ingredients in a large bowl" clearly and in a conversational condition. They repeated the same sentence for 5 times and they were recorded simultaneously. In the target token, the diphthongs of /aɪ/ and /aʊ/

appear. At the end of the study it was concluded that, clarity-related changes in diphthong production were obtained with larger, longer and slower diphthong transitions. It was another result of the study that speech clarity appears with reduced articulatory movements.

Jacewicz, Fujimura and Fox (2003) carried out a study to show the dynamics in diphthong perception. This study investigated the acoustic and perceptual features regarding formant change of frequency range of /aɪ/ closing diphthong. Nine native speakers (5 males & 4 females) of American English in Ohio were asked to read six repetitions of 'bite and 'bide' words in a carrier sentence. Recordings were examined and collected. Acoustic and perceptual data showed that /aɪ/ diphthong has two joints: The first target joint and a gliding part. The first part is longer than the second part in length. It was clear that terminal frequency level is not an important characteristic of diphthongs.

Gay (1970) conducted a research about a perceptual study of NAE diphthongs. He used synthetic speech tests to observe transitional duration instead of change in onset and offset points. He just studied on the diphthongs /ɔɪ/, /aɪ/, /aʊ/. The study was in two stages. In the first stage the target diphthongs were presented to 10 experienced phoneticians to label phoneme labeling. The purpose of the second study was to see whether the phonetic characteristics of diphthongs were the main tips or not. It was concluded that transition duration is a more important criteria than the frequency change while separating vowels and diphthongs.

2.4. An evaluation of the Chapter

In chapter 2, a general examination of diphthongs both in NAE and BrE have been carried out. The common and different diphthongs have been mentioned in North American English and British English with examples. Long vowels have been given in diagrams to show the place of articulation and length. Some characteristic similarities between long vowels and NAE diphthongs have been analyzed. Another subject of the second chapter is the studies that have been conducted about diphthongs with various participating groups in different ways

like their perception, production, and the reasons behind the mispronunciation of diphthongs. The chapter rounds up with the evaluation of the chapter.



CHAPTER 3

AN ANALYSIS OF DIPHTHONGS

3.1. An overview of the chapter

In this chapter, common and different diphthongs in North American English and British English will be studied in detail with examples. The Turkish vowel system and the vowel sounds are another concern of this chapter. The comparison of NAE vowel system and Turkish vowel system will be examined. Another subtitle of the chapter is metrical phonology and its relationship with diphthongs. Another subtitle of the chapter is the kind of problems and difficulties that language learners come up with while producing diphthongs. All the items above will be explained in this chapter.

3.2. North American English (NAE) diphthongs

Diphthongs are the sounds formed by two vowels, one following the other sound in the same syllable due to movements by the tongue in mouth in a short or in a long space by stressing the first vowel more than the second one. Roach indicated the total number of diphthongs as eight and he divided these eight diphthongs into two as centering and closing diphthongs. NAE just consists of closing diphthongs while BrE have both centering and some of closing diphthongs. Wells showed North American English diphthongs with a figure with their vowel space.

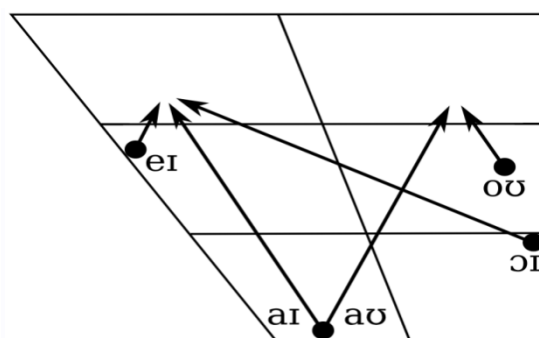
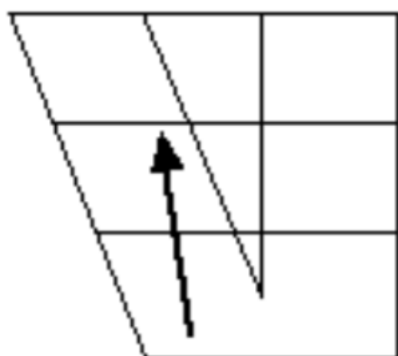


Figure 9: North American English Diphthongs by Wells (1982, p.486)

As the figure suggests, NAE has five diphthongs. Three of them end with /ɪ/ sound as two of them end with /ʊ/. These are /aɪ/, /eɪ/, /ɔɪ/, /aʊ/ and /oʊ/.

The reason why they are called as closing diphthongs is ending position of diphthongs. Mouth moves from an open vowel to a more closed vowel. Although the movement direction is clear and long in /aɪ/, /ɔɪ/ and /aʊ/ sounds, the movement is slight and shorter in /eɪ/ and /oʊ/ diphthongs but it is not a criterion for determining the difficulty of a diphthong's pronunciation. The level of easiness and difficulty of an English diphthong's pronunciation is related to the characteristic similarities and the differences between a learner's mother tongue and English vowel system. In the following figures NAE diphthongs will be presented with the contribution of Collins (2003, p.110-112) IPA (International Phonetic Alphabet) symbols with the Oxford Advanced Learner's Dictionary word samples. The NAE diphthongs will be explained with their characteristic features and samples below.



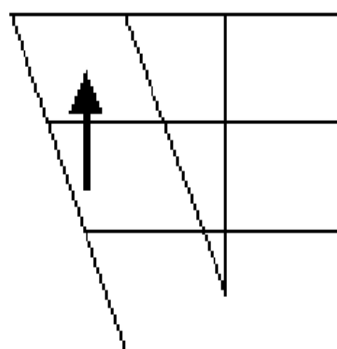
/aɪ/: This diphthong starts with low front vowel /a/ and ends with high front vowel /ɪ/. Stress is on the first vowel.

Examples: flight: /flaɪt/

height: /haɪt/

frighten: /fraɪtn/

Figure 10: /aɪ/ Diphthong in oral cavity



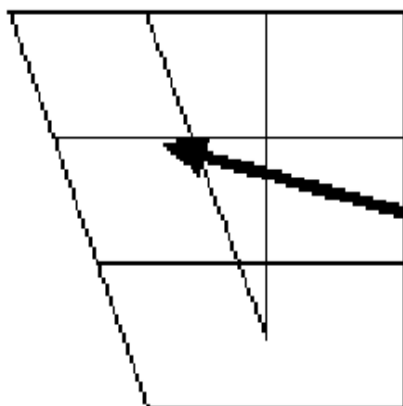
/eɪ/ : The initial vowel /e/ is a mid front vowel that glides through high front vowel /ɪ/. The movement is slight and short.

Examples: examination: /ɪgzæmɪneɪʃən/

airplane: /eɪrpleɪn/

nature: /neɪtʃər/

Figure 11: /eɪ/ Diphthong in oral cavity



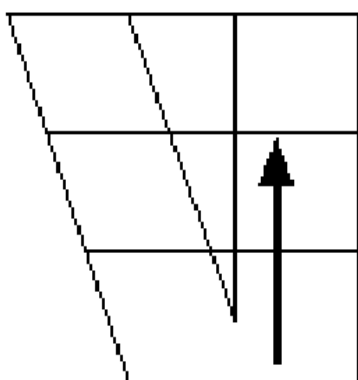
/ɔɪ/: This time the first vowel is a low-mid back rounded sound /ɔ/. It moves through /ɪ/ which is a high front closed vowel to form a diphthong.

Example: employ: /ɪmplɔɪ/

noise: /nɔɪz/

point: /pɔɪnt/

Figure 12: /aʊ/ Diphthong in oral cavity



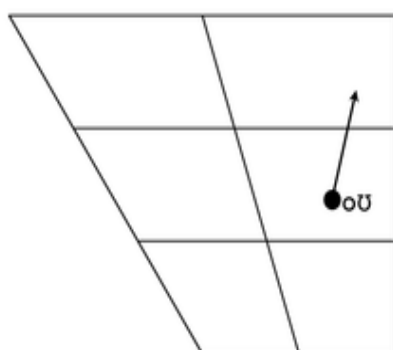
/aʊ/: The starting point of this diphthong is /a/ vowel that is low back and rounded one. It goes through /ʊ/ sound being high back centering vowel vertically.

Examples: around: /əraʊnd/

house: /haʊs/

out: /aʊt/

Figure 13: /aʊ/ Diphthong in oral cavity



/oʊ/: It is a closing diphthong which flows from /o/ mid back rounded vowel to /ʊ/ high back vowel in a short space. The utterance takes place at the back of the mouth.

Examples: tomato: /təmaɪtəʊ/ follow: /fa:ləʊ/

Figure 14: /oʊ/ Diphthong in oral cavity

It can easily be inferred from both the figures and the sample, /y/ and /w/ invisible consonants help speakers to make it easier to utter diphthongs in NAE. (Greenbaum, 1996, p, 571) Even if it is not written in phonetic form, these sounds are heard in diphthongs slightly or hardly audible. /y/ is seen in /aɪ/, /eɪ /, /ɔɪ/ diphthongs while /v/ is heard in /aʊ/ and /oʊ/ diphthongs. In the words above “flight, examination and employ” one can hear the /y/ consonant in diphthongs. Yoshida (2012, p.9) said that ‘we hear a /y/ sound, but it’s not represented in spelling.’

Lastly, there isn’t any centering diphthong in NAE. Centering diphthongs are the ones that end with /ə/ shawa sound: /ɪə/, /ʊə/, /eə/. In NAE vowel system, there is not a diphthong ending with /ə/ (shawa). Instead of /ə/, it is replaced with /r/ sound as in the examples: “There” word is pronounced as /ðeə/ in BrE while it is pronounced as /ðer/ in NAE. Another example is “pure” word. It is uttered as /pjʊə/ in BrE as it is /pjʊr/ in NAE. As it can be inferred easily from the examples, the diphthongs ending with /ə/ is substituted with /r/ consonant in NAE.

3.3. British English Diphthongs (Received Pronunciation)

Even though the main concern of this study is NAE diphthongs BrE diphthongs will be mentioned to highlight the similarities and the differences between these two accents. Javeda and Ahmad (2014, p.22) said that according to the chart by Roach, there are eight diphthongs in BrE sound system. Three of them are centering diphthongs that end with the mid central vowel /ə/ (shawa sound) .These are /ɪə/, /eə/, and /ʊə/ which aren’t found in NAE words. Since /r/ consonant is not put emphasis on or stressed in BrE, there are a number of words having diphthongs ending with /ə/ sound. Why they are called as centering diphthongs is that the tongue glides through the centering vowel /ə/. The remaining five diphthongs are all closing diphthongs. Three of them are the ones that end with /ɪ/: /eɪ/, /aɪ/ and /ɔɪ/. Finally the last two sounds are /əʊ/ and /aʊ/ which ends with /ʊ/. Since /oʊ/ doesn’t exist in BrE, it is replaced with /əʊ/ diphthong.

Centering diphthongs may be difficult to pronounce since the lack of them in mother tongue. Balas(2009,p.132) indicated that Polish learners have difficulty in uttering centering diphthongs because Polish sound system doesn't have similar diphthong characters with BrE. It is the same for Turkish English learners. They may have difficulty in pronouncing BrE diphthongs. In the charts below some of the difference will be given in examples.

Table 3

The Comparison of /ɪə/ Diphthong in British English

<u>Base word</u>	<u>British English</u>	<u>American English</u>
Near	/nɪə/	/nɪr/
Weird	/wɪəd/	/wɪrd/

Adopted from Hosseinzadeh, Kambuziya and Shariati(2015,p.651)

Table 3 shows that British diphthong /ɪə/ is replaced with /ɪ/ vowel in NAE. ‘‘Dear and fear’’ can be shown as examples for this rule. The word ‘‘dear’’ is pronounced as /ɪə/ in BrE while it is /dɪr/ in NAE. More samples may be given for this rule: ‘‘ear, deer, tier, merely, beer etc. As seen in the words, all of the centering diphthongs has ‘‘r’’ letter in written form but ‘‘r’’ is omitted while pronouncing in BrE accent. It can be concluded that if any word has /ɪə/ centering diphthong it means that it has ‘‘r’’ letter in it but it is omitted in speech in BrE.

Another BrE diphthong that doesn't exist in NAE is /əʊ/. It starts with a mid central neutral vowel shawa(ə) and glides through high back rounded vowel /ʊ/ by moving tongue a little rolling backwards than /ə/. This diphthong is substituted with /oʊ/ in NAE vowel system. It is shown in table 4.

Table 4

Comparison of /əʊ/ in British English

<u>Base Word</u>	<u>British English</u>	<u>American English</u>
Go	/gəʊ/	/goʊ/
Home	/həʊ/	/hoʊm/

Adopted from Hosseinzadeh, Kambuziya and Shariati(2015,p.651)

More examples on this rule are as follows: ‘‘Open, program, show, follow, own etc.’’ In all of these examples /əʊ/ BrE closing diphthong is replaced with /oo/. In written form of both of these diphthongs, there is ‘‘o’’ letter but pronounced in a different way in BrE and NAE accent.

Ogden (2009, p.64) explained the closing diphthongs with a few examples. The most obvious diphthongs are the vowels of ‘choice, mouth and price’ in most standard varieties of English like BrE etc. They are as follows: /ɔɪ/ closing diphthong in ‘choice’, /aʊ/ diphthong in ‘mouth’ and /aɪ/ in ‘price’ words. They start with open vowels and then glides to closing vowels, usually in the area of /ɪ/ or /u/ so these are called closing diphthong. Diphthongs are defined by the start and ending points.

3.4. Turkish Vowel System

When compared to consonants, vowels are preceding sounds that one can easily generate unlimited successive phonemes by connecting vowels without any obstruction. Turkish vowel system has eight short vowel sounds. (Topbaş, 2007, p. 570). They are ‘/i/, /y/, /u/, /ɯ/, /e/, /ø-œ/, /a/, /o/’. Kılıç and Öğüt(2004, p.143) stated that Turkish vowel system is a systematic inventory, which is composed of four high and four low, four front and four back, four rounded and four unrounded vowels. The vowels are categorized according to their height, their backness in the oral cavity and their lip position as rounded or unrounded. (Csato´, Johanson, 1998, p.30)

Turkish vowel system is shown with in oral cavity in figure 15. According to the table, /i/, /y/, /u/, /ɯ/ are the high vowels while /e/, /ø-œ/, /o/ mid and /a/ is a low vowel according to the highness of the tongue in the oral cavity.

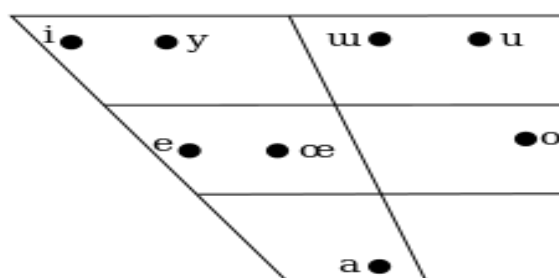


Figure 15: Vowels of Turkish adopted from Zimmer and Orgun (1999, p.155)

There are some sample words for the vowels in Turkish below with their English meanings.

/i/ is a high, front and unrounded vowel.

kirli (dirty), bilgili (sophisticated), dikiş (stitch)

/y/ is a high, front and rounded vowel.

bütün (whole), düşündürücü (thought-provoking), bülbül (nightingale)

/u/ is a high, back and unrounded vowel.

kılıç (sword), bıyık (moustache), sıyrık (scratch)

/ü/ is high, back and rounded vowel.

kuyruk (tale), buyruk (command), turşu (pickle)

/e/ is a mid, front and unrounded vowel.

felek (destiny), melek (angel), kepek (dandruff)

/ø-œ/ is a mid, front and rounded vowel. In words of native origin, /o/ and /ø-œ/ occur only in the first syllable as long as they are not loan words. (Göksel and Celia, 2005, p.10)

göz (eye), söz (promise), çözüm (solution)

/a/ is a low, central and unrounded vowel.

dalga (wave), alçak (low), abartmak (exaggerate)

/o/ is a mid, back and rounded vowel.

konuk (guest) , bol (loose), çok (very)

3.5. A comparison of American English diphthongs and Turkish vowels

NAE vowel sound system is different from Turkish sounds considering morphology, syntax, and vocabulary in some points. While Turkish words are written as they are pronounced and pronounced as they are written (Balpınar, 2006, p.7), the pronunciation of English words aren't related to their orthography at times. Yule (1987) indicated that it is very hard for English learners to produce the correct sounds to predict because of English writing system. Letters and sounds in Turkish are connected to each other while English sounds are sometimes independent from orthography and letters. Varol (2012, p.21) asserted that it is basically the differences between Turkish and English vowels that cause difficulty for Turkish speakers in English pronunciation. He said that even though Turkish lacks some consonants in English, the main issue is the articulation and production of vowels for Turkish English learners.

According to the theory of language learning the similarities and the differences between a mother tongue and a foreign language's sound systems are sometimes an advantage or disadvantage in some circumstances. (Brière, 1966, p. 795. Brière conducted a study with native English speakers of French, Arabic, and Vietnamese sounds, which don't have equivalent in English. Before the study was conducted it was thought that similar sounds would be perceived and produced accurately but at the end of the study the new and novel sounds that don't exist in English were uttered authentically. It is still a controversial matter if the similarities or differences cause the right perception or production of the sounds or make learning harder. Another assumption about it is that if the sound system of one's mother tongue and foreign language is similar; in other ways if sounds are close to each other, it is easier for learners to produce them accurately

(James, 1985, p.186) because acoustic features of mother tongue and target language may be language specific. How different acoustic features first language and foreign language are, it is harder for learners to grasp the novel sounds. (Flege, Schirru and KacKay, 2003, p. 469). Flege explained it with equivalence classification theory. Unlike the research conducted by Brie're, Flege and Port (1981, p.125) conducted another study to clarify if the new sounds are easier to grasp than similar sounds or vice versa. They tested the English spoken by Arabians to decide whether they can produce an English stop /p/ which doesn't have equivalence in Arabic phonetic system. As a result, they concluded that novel sounds are more difficult to perceive and produce unlike Brie're's hypothesis. According to the assumption of Flege and Port, diphthongs like /eɪ/, /aɪ/ and /ɔɪ/ may be pronounced accurately by Turkish English learners because of the sound similarities in English and Turkish although Turkish phonetic transcription is written by inserting /j/ sound between vowels. On the other hand according to Brie're's assumption, it can be concluded that /oʊ/ and /aʊ/ NAE diphthongs may be produced better by Turkish English learners since they are novel and different for learners. Table 5 shows the Turkish vowel system with the vowels' qualifications like front, central, back or close mid and open.

Table 5

Turkish vowel phonemes

	<u>Front</u>		<u>Central</u>		<u>Back</u>	
	Unr.	Rnd.	Unr.	Unr.	Rnd.	
<u>Close</u>	<u>i</u>	y		<u>u</u>	<u>u, u:</u>	
	<u>i:</u>					
<u>Mid</u>	<u>e</u>	ə			<u>o</u>	
	<u>e:</u>					
<u>Open</u>			a, a:			

Retrieved from from Zimmer & Orgun (1999)

In addition to similar common vowels in NAE and Turkish, diphthongs are an exceptional issue since Turkish vowel system lacks diphthongs. Diphthongs are the sounds in which two vowels appear or exist side by side in the same syllable. While pronouncing them, the tongue moves from one vowel to another with a slight or obvious glide with a movement in the oral cavity. American English has 5 diphthongs: /eɪ /, /aɪ/, /ɔɪ/, /oʊ/, /aʊ/. Three of them end with /ɪ/ vowel while two of them end with /ʊ/ sound. These are the examples for NAE diphthongs: ‘yesterday, private, enjoy, promote and flower. The diphthongs in the examples are /eɪ/, /aɪ/, /ɔɪ/ ,/oʊ/, /aʊ/ respectively. When the samples are analyzed, these tricky double vowels are uttered in the same syllable in contrast to Turkish. On the other hand eight vowel sounds exists in Turkish: ‘/i/, /y/, /u/, /u/, /e/, /ø-œ/, /a/, /o/’. They are short vowels but /a/, /e/, /i/, /u/ have the long versions especially in non-native words like ‘adalet (a-da:-let, justice), badem (ba:-dem, almond), beraber (be-ra:-ber, together), idare (İ-da:-re, management)(Wictionary, 2017). Albaşlar (2015, p.21) compared a diphthong and a Turkish word by giving example: ‘ay’ (moon) and eye words are similar in their pronunciation but they are transcribed as /aj/ and /ai/ respectively. While a vowel and a consonant are combined in a syllable in ‘ay’, two vowels are uttered at a time in the same syllable. It is obvious that despite of a similarity or just a slight difference between two samples, syllable structure is language specific.

Since Turkish is an orthographic language, it may mislead learners somehow and cause them to think that there are diphthongs in Turkish. Even if two vowels follow each other in Turkish, they keep their specific features like in the words: ‘saat (clock), aile (family), itaat (obedience), maalesef (unfortunately), inşaat (construction), şiir (poem) and şair (poet)’. One /a/ follows the other /a/ in ‘saat’ word but they belong to distinct syllables. This word is composed of two syllables: ‘sa-at’. There is an air flow between the syllables. It is neither a diphthong nor a long vowel. It is usual for a new Turkish learner to perceive ‘aile’ word as a /ai/ diphthong at first glance but it is not actually the case. The word is divided as ‘a-i-le’ by retaining their qualities in different syllables. Similar to the previous examples, Geylanoğlu (2017, p. 19) explained it with another word vowel plus vowel structure: ‘şa:ir’ is divided into two when it is

pronounced but it doesn't have the characteristics of /aɪ/ NAE closing diphthong. For a sound considered as diphthong, both of the vowel sounds need to be in the same syllable on the contrary to the examples above.

It seems like that there are the same sounds in quality in Turkish sounds and some of English diphthongs but it is not the case. It is just an auditory similarity. When similar sounds are analyzed, it is seen that /eɪ/, /aɪ/, /ɔɪ/ diphthongs are similar to Turkish sounds /ej/, /aj/ and /oj/ respectively. Auditory similarity between 'birey'(individual) that is a Turkish word and 'gain' may be confusing at first glance but when these two words are studied, 'birey' is transcribed as /birej/ when 'gain' is transcribed as /geɪn/. The word 'Birey' has a vowel and a consonant in its second syllable in contrast to two vowels /eɪ/ in the same syllable. It can be concluded that although there are auditory similarities between /eɪ/ diphthong and /ej/ sound, it is not the exact counterpart. Another confusing diphthong is /aɪ/, which is similar to Turkish sound /aj/. 'Saymak'(count) is a Turkish word in which /aj/ sound appears in its first syllable while 'pie' has /aɪ/ diphthong. The similarity in the utterances of them doesn't mean that they have the same qualifications. The last similar sounds are /ɔɪ/ and /oj/. 'Koymak'(put) has similar features in the first syllable with 'boy' but it is transcribed as /bɔɪ/. This similarity can't be assumed as an exact equivalent.

3.6. Metrical Phonology

Metrical phonology deals with stress, that is one of the suprasegmental features of language. Stress gives some clues for listeners in sentences. Stressed syllables are typically louder, higher pitched, and longer. (Lehiste, 1970, p. 145) Parker (2002,p.8) identified sonority sequencing qualifications as follows: In every syllable there is clearly one peak of sonority appearing in the nucleus and syllable contours exhibit one way sonority slope, rising through the nucleus. As one can infer from this, stress is visible thanks to its notable features. It is the main component of metrical phonology. Hammond (1995, p.313) defined metrical theory as follow: 'It is a branch of phonology that assumes a hierarchical structure to represent stress patterns in the minds of speaker'. Metrical phonology appeared

as a reaction to Chomsky and Halle's (1968, p.16-17) sound pattern framework in which sounds are analyzed in a linear way just by focusing on individual features like vowels in contrast to Liberman and Prince's new non-linear metrical theory. Metrical phonology considers stress together with different patterns like components and phrases of a sentence rather than just syllables, their relationship with each other as weak (w) and strong(s) thanks to metrical trees, which show stressed or weak words or syllables in phrase or sentence(Liberman and Prince, 1977, p. 249). Liberman and Prince showed the stress correlation between the words in a phrase with a metrical tree below:

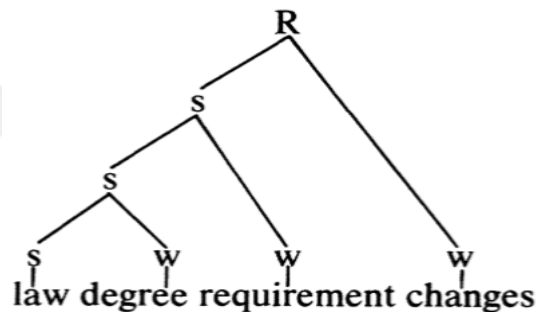


Figure 16: Lexical category of nouns by Liberman and Prince (1977, p. 257)

When the figure is examined, it is clear that the phrase is constructed with a combination of two different lexical category nouns. The first word of the phrase 'law' gets the strong stress while the other words aren't stressed in the phrase. Stress is not studied in syllable level, rather as a whole in the metrical tree.

Another metrical tree is shown in figure 17 to illustrate the stress relationship between the words in a different lexis:

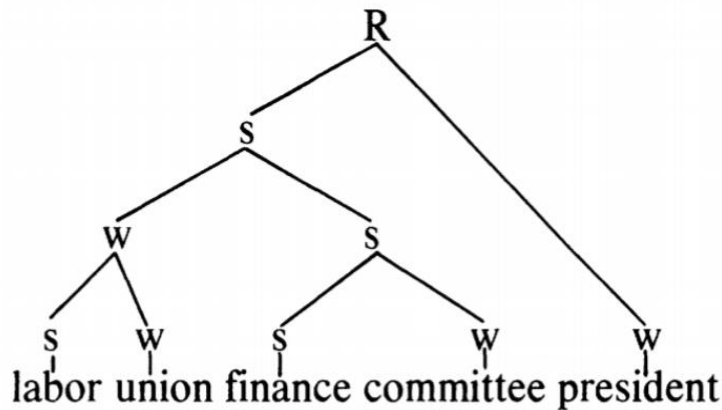


Figure 17: Noun phrase sample by Liberman and Prince (1977c, p. 257)

As seen in the metrical tree ‘labor and committee’ words get the stress while ‘union, committee and president’ are the weak ones. When evaluated as a whole, ‘labor union finance committee’ is more stressed than the ending word ‘president’.

Sounds are considered as stressed or weak according to some features like their placement in oral cavity, the movement of the tongue ,the quality of the sound and some other parameters as in figure 18.Vowels and consonants are sequenced from the most prominent ones to the least clear ones in production. The glides in other words with diphthongs are in the upper half of the reversed pyramid. It means that they are more stressed than rhotics, laterals, nasals etc.

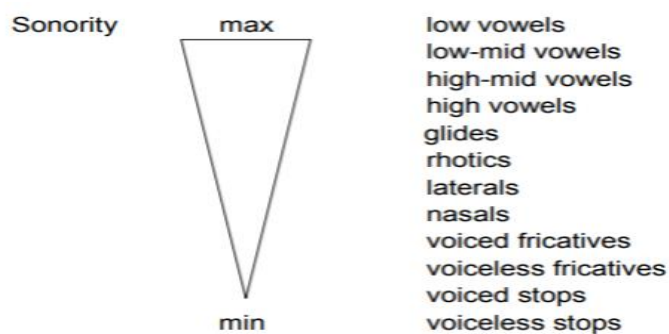


Figure 18: Sonority pyramid of vowels and consonants ‘Retrieved from https://instruct.uwo.ca/anthro/247a/6_Metrical%20Phonology.pdf’

In addition to evaluating stress in lexis and phrase levels, it is possible to study them as words and syllables. Bloomfield (1962, p, 11) said that ‘Primary stress generally comes on long vowels or diphthongs that are in the next to last syllable of a word or compound-member.’ According to figure 16, ‘labor and

finance' words have diphthong sounds. Labor is transcribed as /leɪbər/ and finance is /fəˈmæns/. Stress comes on these two words in the phrase because of their acoustic differences than the other sounds. Since their pitch and duration are higher and obvious when they are produced, they get the stress in the phrase. Jaeger and Ohala (1984, p.16) conducted a study to test the positive and negative sonority of some sounds like /r m n w y p t k b d ɡ f v θ ð s ʃ ʧ ʤ/, glides and nasals. It is seen that glides have 93% positive response in sonority at the end of the study.

The followings are diphthong samples on which stress comes. (adapted from www.collinsdictionary.com/dictionary/english). The stressed syllable is shown with /' / symbol.

away /ə'weɪ/ stress on the second syllable.

drive /d'rɑɪv/ stress on the second syllable.

around /ə'raʊnd/ stress on the second syllable.

combine /kəm'baɪn/ stress on the second syllable

homeless / 'həʊmləs/ stress on the first syllable.

announce /ə'naʊns/ stress on the second syllable.

employment / ɪm'plɔɪmənt/ stress on the second syllable.

When the examples studied, it is seen that stress generally comes on syllables with diphthongs because of their acoustic qualities in utterance.

3.7. Difficulties of Diphthongs

Diphthongs are problematic and tricky for new language learners no matter if one's mother tongue has diphthongs or not because of their complex and intricate pattern. They are language specific with their sometimes slight or sharp gliding through the other vowel.

Maniruzzaman (2007, p.4) conducted a study focusing on pronunciation difficulties and problems of Bengali speaking English Foreign Language

Learners. Even if Bengali language has eighteen diphthongs, they have difficulty in uttering diphthongs since English diphthongs are longer and more stressed when compared the ones in Bengali. Hasan (2006, p.66) explained it: 'late'/leit/ is pronounced like /let/. He said that learners give importance to the first vowel but they don't pay attention to the second vowel in diphthongs. They disregard the length and stress of the second vowel as a result diphthong turns into a monothong that is one vowel sound in a syllable.

Sumbayak (2009, p.110) studied on the articulation of English diphthongs by Indonesian learners. It is an action research that has two different types of tasks: Reading lists of words and reading a story. He studied on the accurate pronunciation of /ei/ and /ou/ diphthongs. The percentage of right pronunciation of /ei/ is higher than /ou/ with a rate of 82.5% to less than 50%.

Abdalla and Ali (2012, p.1-17) examined Sudanese EFL learners' pronunciation of diphthongs because it is a challenge for EFL learners. He studied on eight British and NAE diphthongs with 100 learners. A written instrument was used whether learners could write correct transcription of diphthongs. As a result it was clear that their production was poor therefore a reason interference of L1 (first language) was shown. He interpreted the result with contrastive analysis hypothesis: Learners may transfer some features of L1 while learning L2 (second language) after all it may cause noticeable problems in pronunciation. In addition, he proposed in discussion part that it is possible to cure the fossilized errors with a right modeling. Language teachers need to have deep phonology knowledge to support students' pronunciation. English books' functions should be suitable for the pronunciation patterns and adoptable to teach phonological patterns. Abdala and Ali added that the pronunciation could be improved as long as practiced both inside and outside the classrooms.

Demircioğlu(2013, 2987) stated the reasons why Turkish learners have difficulty in uttering the diphthong: Because diphthongs are not just sounds that are heard and articulated easily. One needs practice with tongue and mouth in the oral cavity to pronounce them exactly. Even if it is hard to articulate them, practice will provide learners with an accurate pronunciation.

Demirezen (2005, p.72) examined the /oo/ diphthong and /o:/ long vowel. He said that mispronunciation of these sounds gives harm to communicative competence of teacher trainees and their students but it is possible to remedy errors by means of exercise. He arranged different kinds of activities like corpus presentations, minimal pairs, tongue twisters, recognition exercises, reading aloud, dialogues, idioms, songs etc. to cure the fossilized diphthong /oo/. The activities have provided learners with a near native-like accent.

There is a variety of reasons mispronunciation of diphthongs. Fossilization of their correct utterances is a product but it is necessary to look at the reasons behind fossilization, in short, process. Han (2004) indicated the variables that pave the way of fossilization. The first one is the absence of corrective feedback. It is crucial to have a reflection at the end of learning process by means of words, phrases, sentences, facial expression, tone of voice and gestures. The second criterion is the quality of meaningful input. If a learner is exposed to correct and intelligible input, it is easier to produce the target diphthongs. The third item is the effect of 'learning inhibiting learning.' Neural system of a learner is used to habits of L1. It may be challenging and take time to get used to new neural associations regarding the environmental input. Another item is the lack of understanding the new stimuli. Learners cannot find out the new item and their interest into the target topic may decrease. Moreover, Han has touch on the issue of affective filters like the change in the emotional state of learners. Learners do not have to be interested in correct utterances of diphthongs. Pronunciation topic may not appeal to some learners. All these factors lead to fossilization.

Another stunning difficulty is the interference of L1 on L2. When learners of foreign language would like to write or speak in the target language, they are inclined to use their first language structures and habits. If the differences between the L1 and target language are much, then errors occur in target language thus it is the case that interference of first language on second language (Decherts & Dllis, cited from Bhela, 1999, p. 22). Dissimilarity of phonology, vocabulary and grammar structures bring about mistakes. Mistakes become errors and then repeated errors turn into fossilization.

Hişmanoğlu (2007, p.99) had a study on /oo/ diphthong vowel and /ɔ:/ long vowel since both of them are seen as similar sounds by Turkish English learners. /o/ vowel is neglected at the end of diphthong and give the stress on /ɔ:/ vowel by lengthening it but he said that it is possible to cure fossilized errors by curing them with the help of audio articulation method by Demirezen(2003,p. 57). He prepared various types of activities like the ones in Demirezen's audio articulation method.

Push back effect is another reason of difficulty since tongue needs to move back to say /oo/ and /aʊ/ diphthongs. It requires pushing of tongue in oral cavity. There is an extra need to utter both of these diphthongs unlike least effort theory.(Zipf, 1949) As far as articulatory effort in vowels is concerned, Zipf observed that long vowels have greater magnitude of complexity than short ones: “a represents everything that a: represents, plus added duration” (Zipf, 1935,p. 77). The greater the number of gestures required in production, the more complicated the sound is. He asserted that frequency of a sound is in directly proportion to its correct utterances. That is to say the scarcity of diphthongs' frequency decreases right articulation of them.

As seen in the examples and studies above, diphthongs are challenging gliding vowels not only for Turkish learners but also for learners from other nations. The reasons behind this matter are usually the same such as L1 interference, inadequate phonetic knowledge, different language origins and etc.

3.8. The relationship between perception and production

The concern of this study is to investigate the perception and the production of diphthongs. Since these two concepts are interrelated, it is necessary to make a deep study concerning the connection between perception and production. There are a number of views about whether perception precedes production or vice versa. Many studies supporting both of the views have been conducted to show the relationship. However, it is still controversial if perception surpasses production or just the opposite.

The first view is that perception leads production. This notion supports the idea that a novel production is possible with a good sense of perception. In other words; a fully perception of items paves the way of a good production. Barry (1989) conducted a study in which results are compatible with this notion. He studied on the incorrect production of English /æ/ and /e/ vowels by German English learners. At the end of the study, he found that the reason of the inaccuracy is the misperception of durational differences between the vowels. Another study was conducted by Grasseger (1991) and he reported that language learners who had well formed perceptual skills performed a right production of sounds by keeping in mind that an accurate perception is necessary before a fully production occurs.' Borden, Gerber, and Milsark (1983) studied on Koreans who learn English. They observed that learners' skills to be able to identify and discriminate sounds in L2 are earlier than production. They asserted that perception is a prerequisite of production. The sequence of learning is first perception and then production. After the learners get aware of language specific sounds, they begin to produce them respectively.

Contrary to a number of studies that support this, perception is a prerequisite of production; other studies have been conducted to challenge this idea. Some researchers follow the idea that production surpasses perception. It is claimed that production could happen even if one can't fully be aware of it. Receptive skills may provide learners with new structures and sounds. However acquisition could happen subconsciously without perceiving the new phonemes. For example; a Turkish who learns English could identify and produce the / aʊ/ diphthong after a while thanks to meaningful, comprehensible and intelligible input without realizing this language specific vowel sound. After producing the sound, he/she may notice this distinguishing vowel that doesn't appear in Turkish vowel inventory. Perception is a cognitive process in which intentional and purposeful practice take place. It is different from sensation which is a receptive activity in which brain works subconsciously. Learner doesn't pay attention to process. Some of researchers claim that in the sensation period, production may happen at times before perceiving the new items. Sheldon and Strange (1982) studied on Japanese learners' skills of perception and production of /r/ and l/

consonants and they found that participants performed better in production skills than perception on the contrary to Speech Learning Method (SLM) supported by Flege. According to this method, production takes place when an accurate perception is conditioned. Sheldon and Strange's claims are not compatible with Flege's SLM. Sheldon supports the idea that the more one is acquainted with or exposed to a new item, the less he/she is likely to perceive the new structure even if production skills improve.

Even if the direction of correlation between perception and production changes, most of studies verified that there is a strong correlation between two terms. They are integrated and related to each other. It is generally difficult to distinguish the effects of one on another.

Preferred model to rehabilitate perception and production problems in this study is based on the first notion: Perception surpasses production since recognition based repetition activities have been used to make participants more aware of diphthongs and increase their receptive abilities.

3.9. An evaluation of the chapter

An in depth study has been carried out about the topics like North American English Diphthongs, British English Diphthongs, Turkish Vowel System, a comparison of American English diphthongs and Turkish vowels, metrical phonology and difficulties of diphthongs in chapter three.

CHAPTER 4

4. METHODOLOGY

4.1. An overview of the Chapter

The essential objective of this study is to investigate the perception and production of diphthongs by Turkish English teachers. In this chapter, the setting of the research, participants, instruments, data collection procedure, the analysis of the collected data and finally an evaluation of the chapter will be carried out in detail.

4.2. Setting

The study was conducted in the schools of Ministry of Education that are located in Giresun in the second term of 2018-2019 academic years. 13 different state schools took place in the study. 4 of 13 state schools were high schools while the other 9 were secondary schools.

All of the schools in the study were teaching English from A1 level to B2 level. The schools within the scope of this study are suitable for a scientific research with their technological equipment such as smart boards, speakers, recorder, headphones and a suitable place to conduct the study. Since the study involves audio-recording sessions, a quiet and appropriate place is necessary for the practices. All of the schools have classes, laboratories and rooms provided by the school managements for these sessions.

For the four hour training between pre-test and post-test, three different schools were determined in different times. The participants were taught the same subjects and practices in the sessions. After a two-weeks break, post-test was taken by the participants in their own schools. Since post test is exactly the same as pre-test, technical equipments in the schools are necessary for the post-test sessions, too. All the schools in the scope of the research were visited for the second to time that is suitable for participants to apply the post test like the way in pre-test. After administrating post-test, a semi-structured interview was conducted with the participants to evaluate the whole process.

4. 3. Participants

This study was conducted with 30 Turkish English Language teachers who work in the state schools in Giresun/ Turkey. They all prefer to speak American English. 11 of participants were males while 19 of them were females.

Table 6

The gender of the participants

Gender	F	%
Female	19	63,3
Male	11	36.7
Total	30	100

The academic background of the participants according to the department they graduated from differs from one another: 23 of the participants graduated from English Language Teaching departments of universities, 6 of them completed a bachelor degree in English Language and Literature. Only one English teacher had a bachelor degree in Translations and Interpretations department of the university.

Table 7

The academic background of the teachers

	F	%
English Language Teaching	23	76.7
English Language and Literature	6	20.0
Translations and Interpretations	1	3.3
Total	30	100

The years of teaching experience is another reference in this study because the participants' teaching experience varies from 1 year to 21 years.

Table 8

The years of teaching experience of the teachers who participated in the study

	<i>F</i>	<i>%</i>
0-4 years experience	6	20
5-9 years experience	9	30
10-14 years experience	9	30
15-19 years experience	5	16.7
20-24 years experience	1	3.3
Total	30	100

Recording sessions were evaluated by a Professor of the English Language Instructor working in different language departments of Ufuk University as a lecturer and by a native English speaker who is a language teacher as well. Audio-recording sessions were interpreted by them according to rubrics prepared before.

Table 9

The school type of participants

	Frequency	Percent	Valid percent	Cumulative percent
Secondary School Testees	22	73.3	72.3	73.3
High School Testees	8	26.7	26.7	26.7
Total	30	100	100	100

4.4. Instruments

There are four instruments used throughout the study to inquire the participants' perception and production of the diphthongs. Instruments consist of a demographic information form, written perception test, written-auditory perception test and a production test by recording sessions.

American English diphthongs have been chosen as stimulus throughout the study while preparing the tests; as a result, English teachers who prefer American

English as a medium of instruction were picked as participants. The diphthongs investigated during the research are / eɪ /, /aɪ/, /ɔɪ/, /oʊ/, /aʊ/ closing diphthongs. The aim of this study is to reveal if Turkish English teachers can perceive diphthongs in written form and auditory form, produce or articulate them in an accurate way.

4.4.1. Written-test

Before the test instruments were applied, a demographic questionnaire was handed out to participants to get information about their gender, age, teaching experience and academic backgrounds. In addition to these items, more questions were added into the questionnaire to learn about their interest in phonology and pronunciation of diphthongs. It was implemented after the consent form to get information about background of participants. After the implementation of demographic questionnaire, a three step test composed of written, written-auditory and audio-recording production sessions with different items and words were given and applied respectively.

The written test consists of 25 multiple choice questions in which / eɪ /, /aɪ/, /ɔɪ/ ,/oʊ/, /aʊ/ diphthongs are inserted into options. The number of diphthongs in the items is equal: There are 5 questions for each of the diphthongs. While deciding on the words, their frequency level and daily usage were taken into consideration. Most of the words are used daily by English teachers in state schools so unfamiliarity with the words cannot disturb the validity or reliability of the study. In addition to frequency, course books used in Ministry of Education schools in 5th, 6th, 7th, 8th and 9th grades in 2018-2019 education years were taken into consideration while deciding on the words. They were ‘Moonlight and Upswing’. One, two and three syllable words were included in the written test. The diphthongs sometimes come on the initial, middle or final syllable of the word. The diphthongs used in this study were checked in advance in American English Corpus of coca. (<https://corpus.byu.edu/coca/>). The followings are the written test vocabulary items:

time	advice	guide	pie	might
rain	obtain	major	Spain	sailing
enjoy	toilet	destroy	boycott	choice
studio	okay	post	coincide	phone
cow	about	mountain	mouse	flower

4.4.2. Written- Auditory test

Auditory test consists of 25 multiple choice questions in which five English diphthongs are used. 5 questions were asked for each of the diphthongs. While deciding on the words, one syllable diphthong words are neglected since it may be easier to pick them after hearing the target sounds. Just ‘waste’ word is used as monosyllabic stimuli since teachers have difficulty in pronouncing it. One word stimuli may decrease the validity and the reliability of this study. A kind of inquiry of English course books in secondary school and high school level was carried out while deciding on the words in the study. The words in the auditory test are among the words that an English teacher had used and encountered before in English course books on secondary and high school level. Two, three and more syllable diphthong words were chosen from course books used in high schools in Turkey like ‘Silver Lining, Count me in’ by checking the frequency lists of (<https://www.wordfrequency.info/files/entries.pdf>) and coca. Distracters were decided on after scanning dictionary. (https://www.oxfordlearnersdictionaries.com/definition/american_english/)

Especially minimal pairs were chosen as distracters. Diphthong sound depends on the word sometimes on the first while on the second or on the last syllable.

Table 10

The place of diphthongs as stimuli in the words

place of diphthongs	<i>/aɪ/</i>	<i>/eɪ/</i>	<i>/ɔɪ/</i>	<i>/aʊ/</i>	<i>/oʊ/</i>
Initial	identical fighter guidance	Waste	boiler joiner noisy	founder outer rounded	-
Medial	-	Vocation unable participation	-	-	-
Final	Exercise reply	Break	spoil avoid	ground clown	Globe evoke slow promote approach

4.4.3. Production test (Recording sessions)

The last test is a productive test in which 40 diphthong words are listed. As in the auditory test, one word syllable words aren't in the scope of the test since it may very easy for the participants to find the diphthong in the syllable. It would have decreased the validity of the research. Two, three or more syllable words are included into the research. Another parameter while deciding on the words is frequency of the words. The word frequency was taken into consideration while preparing the word list since it is said that high-frequency words are processed more accurately than low-frequency words. (Brybaert, 2017, p.2) Word frequency range for the productive test is decided on at least 10000 or more according to corpus of contemporary American English hence unfamiliarity with the words couldn't interfere with the sessions. Some of the words were retrieved from state schools' syllabus and functions of English books in secondary school and high school level like 'cloud, mountain, surprise, window, enjoy, education, tomorrow, joining, flower, thousand, exercise, yesterday'. Teachers are

acquainted with these words in English books. The followings are the production test vocabulary items:

surprise	remain	psychological	destroy
however	telephone	mountain	education
ideal	approach	financial	face-book
private	disappointed	window	enjoy
appointment	tomorrow	participation	delay
joining	boyfriend	flower	climb
doubt	promote	thousand	arrive
immigration	owner	studio	avoid
power	exercise	yesterday	follow
employment	cloud	surrounded	payment

4.5. Training with Audio Articulation Method

Audio articulation method (AAM) was designed by Demirezen (2010) to remedy the fossilized errors and find new ways of rehabilitate the errors by a variety of exercises and activities. Selinker (1977, p.229) made a description of fossilization as follows: It is a kind of mechanism that underlies the main linguistic material that learners will be inclined to go on their first language habits by disregarding the age and limit of instruction that he/ she gets in the target language. Because of the lack of pronunciation in teaching methods, it has been welcomed and used by different linguists to cure pronunciation mistakes. It is a special technique which is used to cure phonological defects.

Hişmanoğlu (2004, 2007) conducted a study by using AAM for 14 weeks to cure the problematic sounds for Turkish learners. He used this teaching design to rehabilitate /oo/ and /o: / sounds' pronunciation. As the method requires, a variety of activities and exercises were implemented starting with a general

information and arranging a corpus of words about 50-100 phonemes, minimal pairs, tongue twisters, idioms, proverbs, mechanical drills, listening activities, songs in chunks or meaningful contexts to cure the errors. To reinforce the subject, repetition is essential in all types of activities. Lastly, assignments are handed out to practice the subject and empower the target function. At the end of the study, it was obvious that the new method worked and the level of participants' perception of these sounds increased. Self awareness of this skill improved.

Based on these studies, it could be inferred that it is possible to cure errors by AAM. The procedure in this research is appropriate for audio articulation method so during the training session, this teaching design has been adopted.

4.6. Data Collection Procedure

In this study, pre-test and post-test, which are experimental testing designs were used to collect data from the participants. Pre-test and post-test designs are commonly used in behavioral research, especially with the aim of comparing groups or measuring data collected from experimental treatments. (Dimitrov and Rumrill, 2003, p.159)

The procedure and stages will be shown in table 11 step by step then it will be explained in detail under the table.

Table 11

The procedure of collecting data

STAGES	INSTRUMENTS	HOW TO APPLY
STAGE 1.1.	Consent form and demographic information form	Hand out them
STAGE 1.2.	Written test	25–questions written multiple choice test
STAGE 1.3.	Written-Auditory test	25–questions auditory multiple choice test
STAGE 1.4.	Production test	Audio recording of 40 words as a list
STAGE 1.5.	Assessment- evaluation of the inputs	SPSS 23(Statistical Package for the Social Sciences)
STAGE 1.6.	A practice and teaching for 4 hours	Slides, exercise, realias, dialogues, passages, songs, idioms etc.
STAGE 1.7.	2 weeks break to prevent interference	-
STAGE 2.1.(Post-test)	The same written test	25–questions written multiple choice test
STAGE 2.2.	The same auditory test	25–questions auditory multiple choice test
STAGE 2.3.	The same production test	Audio recording of 40 words as a list
STAGE 2.4.	An overall assessment and evaluation of the inputs	SPSS 23 and professionals who evaluate the recordings
STAGE 2.5.	The interpretations of interviews	Semi-structured interviews

It is a triangular- action testing design that consists 3 different testing instruments. It is a two- stages design: Pre-test and post-test. They have subtitles like written test, written-auditory test and production test.

Before handing out the tests, participants were given a consent form that informs participants about the nature and the purpose of the study. It indicates that

they can withdraw the study at any time without giving a reason. They are signing it voluntarily to take part in the research. The procedure was explained in detail and all the questions were answered. After the consent form, a demographic information form was handed to have an idea about some personal questions that are necessary to know about the educational background of the testees, their ages, their interest in phonology etc. The written test was applied as a first step. The test consists of 25 multiple choice questions in which there are 5 options and in only one of the options, a diphthong appears. It takes between 15-20 minutes to complete the written test. As a second step, a beforehand prepared 25 questions multiple choice test questions were handed out. For each question, they were asked to listen to the options and pick the correct one among the others. The number of the diphthongs was scattered equally: For each diphthong, 5 questions were prepared. It takes about 20 minutes to complete the auditory test. Finally a production test was handout out and the participants were asked to read aloud 40 items one by one, clearly and loudly in their natural pace. They were informed that they will be recorded during reading session. Pre-test results were evaluated and processed. After completing the pre-test, 4 hours teaching sessions were conducted in different times. Pre-test was the first stage of the study; according to the results of the tests, teaching sessions were arranged by taking into consideration of the most problematic diphthong sounds. The exercises and the activities in teaching were shaped according to the results of pre-test. The sessions were about general information about diphthongs, phonetic information about vowel sounds, giving a corpus of words containing diphthongs, minimal pairs, tongue twisters related to diphthongs, idioms, different exercises, dialogues, passages, songs etc. Audio- articulation method was adopted while teaching because the procedure in audio-articulation method gets along with this study. A two weeks break was taken to prevent participants' acquaintance with the stimulus used in the teaching session.

The second step was the application of the pre-test instruments as a post-test without changing any of the items; that is, the pre-test instruments were applied one more time as a post-test to compare the results and the differences between the test results. Exactly the same procedure in the pre-test was adopted

during post-test: Written test, written-auditory test and production test respectively. After completing post-test, all the test results and input were evaluated and assessed in SPSS that is statistics program dealing with numerical and quantitative items. Recordings collected from production test were evaluated by a language professor and a native speaker. The input was processed. The research questions were answered according to the results of the statistics.

4.7. Data Analysis

The first instrument of the study is a demographic information form in which personal features and qualifications are indicated like age, gender, experience, academic background of the participants and some personal questions about English language teaching field. The data in the demographic information form was processed with SPSS 23 descriptive statistics in tables.

The collected data from the written, auditory tests and recording sessions was investigated through SPSS 23 (Statistical Package for the Social Sciences) version. After the pre-test was conducted, all the data was examined with descriptive statistics. The results were generated on tables with their mean values and percent values. The recording sessions were evaluated by a professor who is an expert in English language and a native speaker of NAE.

The-post test was investigated through similar method. The input driven from the tests and recording sessions were processed with SPSS 23 version. Similar tables were generated to see the difficulty level of the diphthongs and to make a comparison between pre-test and post-test results. The tables revealed which diphthongs are more difficult for teachers than the other sounds.

4.8. The evaluation of the chapter

This chapter has given brief information about the setting/place of the study. The other subtitle is the participants of the study: Age, academic background, the years of teaching experience and their interest in phonology etc. Instruments are another subtitle of the study. The test and questionnaires used in

the study were explained clearly. Data collection procedure and process of the input were explained. With an evaluation of this part, chapter 4 was rounded up.



CHAPTER 5

RESULTS and DISCUSSION

5.1. An overview of the Chapter

This chapter will focus on the results of collected data with the help of written, written -auditory and production test instruments in pre and post test. The collected data is a quantitative one which consists of numerical results and percentages. The research questions that guide this study will be answered in tables and the interpretations will take place to illustrate and explain the tables. As a result, the findings will be analyzed regarding the background of this study.

5. 2. Is written perception, written -auditory perception or production of diphthongs problematic for Turkish English teachers?

Since there are three instruments to collect data, each pre-test will be considered separately. Before conducting the tests, success level scores(cut points) for each of the tests had been adopted to evaluate the findings. This scoring table has been inspired by Ministry of Education (MoNE) scoring system at schools in secondary, high school level and it is valid for written and auditory test. Cut point has been stated as 85-100 range. If the participants get more than 85 according to test scores, it can be said that they are successful at the end of the tests.

Table 12

Success level scores for written and auditory tests

Numerical	Letter grade	100-point system (%)	Description
5	A	(85-100)	Excellent
4	B	(70-84)	Good
3	C	(55-69)	Fair
2	D	(45-54)	Satisfactory
1	E	(25-44)	Unsatisfactory
0	F	(0-24)	Poor

(Retrieved from Education system Turkey, 2010, p.12)

In this section just pre-test findings will be interpreted to see which diphthongs are more challenging than the others for non-native English teachers thanks to the data collected from the tests.

Table 13

Written pre-test scores

		/aɪ/	/ɔɪ/	/aʊ/	/eɪ/	/oʊ/	Total
N	Valid	30	30	30	30	30	30
	Missing	0	0	0	0	0	0
Mean (5)		4.50	4,30	3.36	3.23	1.80	3.438
Std. Error of Mean		.218	.180	.200	.269	.211	
Std. Deviation		1.196	.987	.,098	1.478	1.156	
Percentage	(100)	90	86	67.2	64.6	36	68.76

According to the written test results, the total success score mean of the participants is 3,438 in 5 and it corresponds to 68,76 %. When this numerical score is interpreted according to MONE assessment scale, it is fair since the result is between 55-69 ranges. The teachers, who have taken the written tests aren't successful in perceiving the written forms of diphthongs in multiple choice tests. Even if /aɪ / and /ɔɪ/ diphthong scores are more than 85 cut point (they are excellent according to MONE), /aʊ/, /eɪ /, /oʊ/ have proved to be challenging since their mean percentage is less than 85%. There are a number of reasons of this result and the failure in written test: One of them is the input. The participants were just exposed to written input different from the auditory test. The participants may not be so familiar with the phonological transcriptions of the diphthongs and uneasy with the written forms of sounds between brackets in International Phonetic Alphabet (IPA). They have difficulty in reading transcriptions in brackets even if the phonology classes taken in undergraduate degree. Another cause of this score is the orthographic reasons since Turkish is an orthographic language but English is not an orthographic one. Consonants and vowels in written form have a correspondence in sound system. Turkish learners tend to find equivalents for the sounds in written forms even if it isn't a valid

method between Turkish and English languages. Polivanov(1931) asserted that consonants and vowels of a second language are considered through the first language sound system. As a result, challenges in the production of second language sounds occur. Edwards and Zampini (2008, p.72) added that language specific sounds that just appear in foreign language different from mother tongue prove to be easier for learners since they are more obvious and different from the other sounds. However this study has proved the opposite of this thesis. Because of the similar sounds like /aɪ/ and /ɔɪ/ in Turkish sound inventory (auditory similarities), they got the highest score than the others. The similarity has lead to the high score of these two sounds but /oo/ is the lowest-point diphthong due to the dissimilarity between two languages. On the contrary to Edwards and Zampini's assumption, written test shows that the similarity provides learners with notifications of the diphthongs easily.

Table 14

Written-auditory pre-test scores

		/aʊ/	/ɔɪ/	/eɪ/	/aɪ/	/oo/	Total
N	Valid	30	30	30	30	30	30
	Missing	0	0	0	0	0	0
Mean(5)		4.50	4.36	4.10	3.66	2.60	3.84
Std. Error of Mean		.149	.194	.168	.255	.247	
Std. Deviation		.820	1.066	.922	1.397	1.354	
Percentage	(100)	90	87.2	82	73.2	52	76.88

The total success result of the written-auditory test is 76, 88%. When this score is evaluated regarding the MONE assessment scale it has proved to be good although it is less than cut point 85. Written-auditory test scores are higher than in the written test because auditory input has been given in addition to written visual input so the scores may increase because of two different inputs they were exposed to different from the written test. It is hard to distinguish the sequence of stimuli in sensory processing since brain is a complex structure system in which learning takes place in different ways but a number of researches have been

conducted about the effect of learning types in the process and it was found that adults can more accurately perceive auditory stimuli rather than visual patterns. (Collier, Logan, 2000). They indicated the importance of hearing in learning. ‘Especially, for any task that requires the perception, learning, or memory of events where their order or timing is important, people do best when they can rely on auditory skills.’ (Conway, Pisoni & Kronenberger, 2009, p. 276) Conway and Christiansen (2005) conducted a study to prove the auditory superiority effect of learning. Three groups were exposed to auditory, visual, or tactile sequential patterns and it was found that the score of auditory learning was much greater than tactile or visual learning with 75% score. Since both visual and auditory inputs appear in this test, total success score is not excellent but good. It could be increased with training.

Table 15

Production pre-test scores

	/ɔɪ/	/eɪ/	/aɪ/	/oo/	/aʊ/	Total
N	30	30	30	30	30	30
	0	0	0	0	0	0
Mean (8)	7.93	7.93	7.76	5.4	4.16	6.636
Std. Deviation	.25	.253	.505	1.428	1.416	-
Percentage (%)	99.75	99.125	97	67.5	52	83.075

Production test scores are surprisingly higher when compared to other types like written and auditory tests. English teachers haven’t had any difficulty in producing the vocabulary in which /ɔɪ/ diphthong appears. The highest scored diphthong is /ɔɪ/ with an almost correct production of 99, 75%. The result obtained shows that the grading of it is excellent according to MoNE score table. In articulation of /ɔɪ/ sound, teachers produced native-like outputs since Turkish has a similar not the same phonemic repertoire for this specific double sound. They didn’t have any hesitation or dilemma while uttering /ɔɪ/ diphthong. It is very easy for them to articulate it in vocabulary items. The second easiest diphthong for English teachers according to recordings is /eɪ/ with a percentage of 99,125. It is a very high score. The raters stated that ‘it was very easy and clear to

hear the pronunciation of /eɪ/ diphthong in vocabulary items. The utterances are near-native like and clear. It was very easy to observe them in the stimulus.’ The 3rd diphthong is /aɪ/ with a %97 rate. Since the results are evaluated as successful or not according to the criterion of MONE assessment scale, it is regarded as excellent. In contrast to /ɔɪ/, /eɪ/ and /aɪ/, the success rates of /oʊ/ and /aʊ/ are less than the others; 67,5% and 52% respectively. The participants have difficulty in uttering both of the diphthongs accurately. /oʊ/ diphthong is regarded as fair while /aʊ/ is regarded as satisfactory according to descriptions of MONE. It can be concluded that /oʊ/ and /aʊ/ sounds are challenging for non-native teachers and it is necessary to attend training course in which these diphthongs are focused and exercised regularly. The points are not enough to say that English teachers in Turkey are good at producing all American English diphthongs accurately. They need to practice to improve pre-test scores.

Vocabulary items, which have been produced 100% correctly as follows according to production pre-test results: Surprise, remain, psychological, destroy, education, financial, face-book, disappointed, appointment, delay, joining, boyfriend, thousand, arrive, immigration, avoid, exercise, employment and payment. When the stimulus is studied, it is seen that no word with /oʊ/ diphthong appears among the items. There is not any vocabulary item of /oʊ/ that has been pronounced 100% correctly by each of the participants. Just one vocabulary with /aʊ/ diphthong appears fully pronounced by each of the teachers. 5 vocabulary items, in which /aɪ/ diphthong has appeared, have been uttered 100% correctly by 30 participants. 6 /eɪ/ and 7 /ɔɪ/ diphthong vocabulary items have been pronounced accurately by each of the English teachers in the study. The high score reasons of /ɔɪ/ diphthong is more than one. When the orthography is inspected, it is formed in two ways: with ‘oy’ vowel and consonant or ‘oi’ consonants as in the samples ‘boyfriend and disappointed’. They can easily get aware of the match with Turkish spelling conventions. There is an obvious intercommunication between symbol and the sounds. It makes their pronunciation easier since the orthography gives a clue about the pronunciation of these items.

5.3. Research Question 2: Which diphthongs are problematic for Turkish English teachers?

Since three different test items have been applied in this study, each test will be assessed separately. The result of the tests and difficulty level sequence may differ from each other because of the functions of tests. The results will be evaluated according to the MONE scale as in the written test.

Table 16

Written pre-test scores

		/aɪ/	/ɔɪ/	/aʊ/	/eɪ/	/oʊ/	Total
N	Valid	30	30	30	30	30	30
	Missing	0	0	0	0	0	0
Mean (5)		4.50	4.30	3.36	3.23	1.80	3.438
Percentage(100)		90	86	67.2	64.6	36	68.76

When the results are analyzed, the sequence of diphthongs from the hardest one to the easiest ones is /oʊ/, /eɪ/, /aʊ/, /ɔɪ/ and /aɪ/. /oʊ/ proves to be the most difficult one for non-native English teachers in Turkey in written perception test with 36%. /oʊ/ is formed with two different vowels: /o/ is a mid-back rounded vowel and /ʊ/ is a close-central rounded vowel. The movement of the tongue in oral cavity is slight, going up and not so obvious when compared to other diphthongs. In addition /oʊ/ diphthong doesn't appear in Turkish. The lack of diphthongs is another cause of difficulty. Since the first vowel is generally more stressed than the second part, participants may not be aware of the second part. They sometimes disregard the second vowel by omitting it or making it slightly or hardly audible. When the participants were asked to read the options after the test completed, it was seen that the participants just focused on the first vowel /o/ by ignoring /ʊ/.

In the second row /oʊ/ is followed with /eɪ/ diphthong. It is formed with the combination of /e/ and /ɪ/ vowels. /e/ is a mid-front unrounded vowel and /ɪ/ is a high-front unrounded vowels. As happens in /oʊ/ diphthong, tongue moves from

bottom to up with a slight movement in oral cavity to form /eɪ/ diphthong. Transition is not so clear since both of the vowel sounds have similar features like roundness and frontless. Since these two vowels are not totally different from each other, learners may have difficulty in distinguishing this slight transition. Although English /eɪ/ has common acoustic similarity in Turkish, participants' success score is 64,6 according to assessment chart in written test. It is fair but it can't be considered as successful since the cut point is 85%. Also it has been observed in the study that /eɪ/ is misunderstood with /aɪ/ diphthong because of orthographic features. /aɪ/ has proved to be the easiest one in written vocabulary items.

/aʊ/ is the third most difficult sound for the participants as a result of the written pre-test. It got 67, 2% score among 5 different diphthongs but it is fair not good or excellent. When /aʊ/ diphthong is constructed, the first vowel of the diphthong is more clear and obvious when compared to the second vowel /ʊ/. (McMahon, 2002). /a/ is a low-central unrounded vowel while /ʊ/ is a close-central rounded vowel. Their characteristic features are different from each other. It is easier to comprehend the transition from /a/ through /ʊ/ vowel. It is easier to realize the difference between two vowels. Another cause of difficulty is the lack of /a/ and /ʊ/ vowels together and side by side in the same syllable in Turkish sound inventory. It is totally a different sound type for Turkish learners.

The fourth most difficult diphthong is /ɔɪ/ with 86%. It is excellent according to MONE. The participants in the research are good at discriminating /ɔɪ/ diphthong in written form. This diphthong is easy to perceive for participants. It has similar acoustic features with Turkish sound /oj/ even if phonetic transcription is dissimilar. 'Boy' and Turkish verb 'koy' (put) are the examples for the similarity. While word boy is transcribed as /bɔɪ/ 'koy-' is uttered as /koj/. This vocal similarity could be shown as a reason of easiness and success of this sound.

The easiest diphthong according to the results of written perception of diphthongs has proved to be /aɪ/ with 90 % success rate. Similar to /ɔɪ/, /aɪ/ has vocal resemblance with Turkish sounds like in this example: 'balayı'(honeymoon)

is transcribed as /balaj/. /aj/ has acoustic similarity with /ai/ even if they are not pronounced exactly the same. This resemblance provides participants with the correct perception of /ai/ diphthong. They are familiar with this sound. The vocal knowledge in Turkish is transferred to English. Odlin (1989, p. 3) makes a description of transfer as follows: It is the influence resulting from similarities and differences between the target language and any other language that has been already acquired. Positive transfer of language has happened in /ai/ item since it has the highest percentage among the diphthongs.

Table 17

Written post-test scores

		/ɔɪ/	/aɪ/	/eɪ/	/aʊ/	/oʊ/	Total
N	Valid	30	30	30	30	30	30
	Missing	0	0	0	0	0	0
Mean(5)		4.833	4.766	4.433	4.233	2.733	4.199
Percent(%)		96.66	95.32	88.66	84.66	54.6	83.98

After four hours training with the participants, all the scores for each diphthong group have increased in different rates. The success sequence from the lowest one to the highest one has changed a little bit when compared to pre-test results: It is as follows: /oʊ/, /aʊ/, /eɪ /, /aɪ/ and /ɔɪ/. The most difficult one for them still is the /oʊ/ sound which is unique and distinct for English teachers in this study. /oʊ/ is the lowest answered diphthong in written test with 54, 6%. It is satisfactory according to MoNE scale but it is very less than the other diphthongs' scores. On the other hand the most well perceived diphthong is /ɔɪ/ with 96, 66%. Since they get accustomed to sounds after a while, it is easier to detect /ɔɪ/ in written vocabulary items because orthographic reasons play an important role in /ɔɪ/ sound. When /ɔɪ/ sound is formed, it generally happens in two ways in written form: The first way is 'o' vowel and 'y' consonants appear in the words side by side like 'toy, boy, enjoy, annoy' etc. or the second option is that 'o' and 'i' vowels appear in the words 'point, voice, appointment, etc. Orthography gives

clues and hints about the sound. When test takers see these clues in the words, they can easily pick up the right option in the multiple choice test.

Even if the pre-test result for /oʊ/ diphthong was improved from 36% to 54, 6% in post-test, the score doesn't still suffice. However the other diphthongs' scores (/aʊ/, /eɪ /, /aɪ/, /ɔɪ/) are more than cut point 85 while only /aʊ/ is 84, 66. It is an acceptable result. In conclusion except from /oʊ/ diphthong, English teachers are good at perceiving American English diphthongs in written vocabulary items.

Table 18

Written-auditory pre-test scores

		/aʊ/	/ɔɪ/	/eɪ/	/aɪ/	/oʊ/	Total
N	Valid	30	30	30	30	30	30
	Missing	0	0	0	0	0	0
Mean (5)		4.50	4.36	4.10	3.66	2.6	3.84
Percentage	(100)	90	87.2	82	73.2	52	76.88

The results of the written-auditory pre-test show that /oʊ/ diphthong is less scored than the others like it happens in the written test. No matter what the test type is, it is difficult to perceive /oʊ/ diphthong for non-native English teachers.(Albağlar, 2015,p. 86). The sequence of diphthongs from the lowest one to the easiest one is as follows: /oʊ/, /aɪ/, /eɪ/, /ɔɪ/, /aʊ/. /oʊ/ is the hardest one with 52% success rate. It is satisfactory according to MONE assessment scale. (Retrieved from Education system Turkey, 2010, p.12) /aɪ/ gets 73, 2% and it is good while /eɪ/ gets 82% and it is interpreted as good, too. /ɔɪ/ and /ou/ scores are higher than cut point 85%; 87, 2 and 90 respectively. The participants are excellent in these two diphthongs even if it is just the result of pre-test before they were undergone any training about diphthongs. The cause of high scores is the two types of input to which the test takers were exposed to: Visual and auditory stimulus. They have taken this test with a hard copy of the test items and auditory input simultaneously. It has been observed that /eɪ/ and /aɪ/ diphthongs are

confused because of acoustic similarities. /a/ and /e/ are both front and unrounded vowels. While constructing both of them tongue has a rising movement through the front part of the mouth in the oral cavity as seen in the figures.

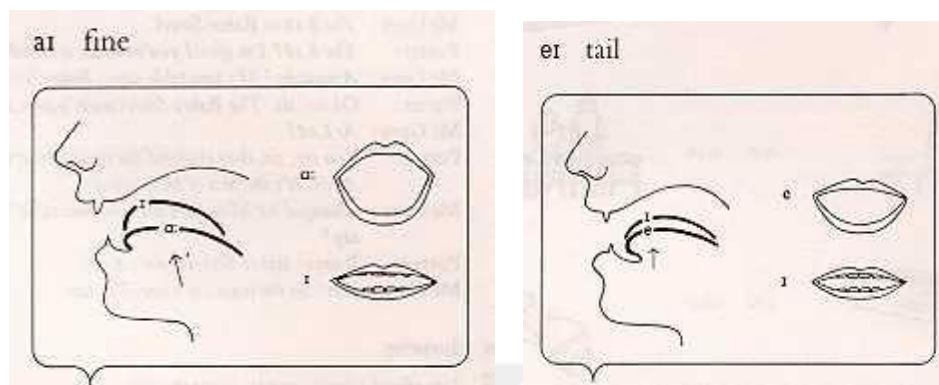


Figure 19-20: The place of articulation of /eɪ/ and /aɪ/ diphthongs in oral cavity (Retrieved from https://www.um.es/docencia/fonetica_inglesa/diphthongs.htm)

/au/ is the best answered diphthong in written-auditory test even if dissimilarity between English and Turkish vowel system. But it has been observed that /aʊ/ is easy to hear and perceive in auditory tests since /a/ and /ʊ/ are totally different vowels regarding the backness, roundness and centrality. The transition from /a/ through /ʊ/ is very clear and obvious. Despite the lack of /aʊ/ diphthong in Turkish vowel system, participants got 90% success in the perception of this sound. Turkish learners have difficulty in forming the sounds in which push back effect appears but even it hasn't prevented the success in /aʊ/ diphthong.

Table 19

Written-auditory post-test scores

		/aʊ/	/eɪ/	/ɔɪ/	/aɪ/	/oʊ/	Total
N	Valid	30	30	30	30	30	30
	Missing	0	0	0	0	0	0
Mean(5)		4.933	4.866	4.766	4.733	4.033	4.666
Percentage (100)		98.6	97.2	95.2	94.6	80.6	93.24

After four hours training course with 30 non-native English teachers, success scores for each diphthong has increased observably. However /oʊ/ is still the lowest scored diphthong by the participants according to written-auditory test results. It is followed with /aɪ/, /ɔɪ/, /eɪ/ and /aʊ/ diphthongs respectively. While just /oʊ/ is under the cut point 85, the other ones are more than 85% and they are regarded as excellent according to MoNE assessment scale. When compared the pre-test and post-test results, /oʊ/ has been raised from 52% to 80,6% with a 28,6 points increase after the course. /aɪ/ is the second least scored diphthong but 73, 2% pre-test score has turned into 94, 6% in the post-test. It is followed with /ɔɪ/ sound from 87, 2% to 95, 2% with 8 points rise. /eɪ/ diphthong score has been increased from 82% to 97, 2%. It is almost excellent. The highest scored sound is /aʊ/ which has climbed up from 90% to 98, 6% in the post-test. Finally referring to the test results it is clear that not all but just /oʊ/ diphthong is hard to hear and perceive in spite of both visual and auditory stimulus. Even if two different types of input are given, it doesn't change the rank of /oʊ/ sound in the sequence as the lowest scored diphthong according to multiple choice test results. Nevertheless, the increase in the post-test scores shows the efficiency of the training course. Çorakçı and Demirezen(2019, p. 11) said that /oʊ/ diphthong is totally different from the other diphthongs because tongue has a slight upward movement in oral cavity. It is a difficult to recognize this slight glide from /o/ through /ʊ/ vowel. Since both of them are rounded vowels, it is hard to notice the glide. In addition /oʊ/ diphthong doesn't appear in Turkish. The lack of diphthongs is another cause of difficulty.

Table 20

Production pre-test scores

		/ɔɪ/	/eɪ/	/aɪ/	/oʊ/	/aʊ/	Total
N	Valid	30	30	30	30	30	30
	Missing	0	0	0	0	0	0
Mean (8)		7.93	7.93	7.76	5.4	4.16	6.636
Percentage (%)		99.75	99.125	97	67.5	52	83.075

Different from written and auditory receptive test results, the most challenging diphthong in production pre-test is /aʊ/ with 52% rate. There are a lot of reasons. When constructing a word in which /aʊ/ diphthong combines with 'w' consonant, an incorrect pronunciation of /aʊ/ occurs. It could be regarded as the mismatching of 'w' consonant in some vocabulary items. They have been generally regarded as /v/ in some words; as a result mispronunciation occurs in the words in which 'w' consonant appears in orthography. 'However' stimuli has been mispronounced by 27 participants because of orthographic reasons while just 3 English teachers read it accurately in pre-test before they were exposed to any kind of training. 'Doubt' is the second hardest item. 24 participants mispronounced it. It has been observed that it is generally pronounced as /dabt/ by omitting the /ʊ/ vowel. Just 9 participants pronounced 'power' word correctly. 'w' has spoiled the correct articulation since it is regarded as /v/ sound. 'Flower' was one of the other tricky stimulus. 19 of English teachers(63,3 %) mispronounced it. It is followed with 'mountain' input with 18 correct utterances because 'ou' vowels are together, side by side in written form. It facilitates the right utterance as an orthographic feature. 'Cloud' is another vocabulary item that has been pronounced accurately by 19 teachers. Only one participant mispronounced 'surrounded' word since orthographic properties have helped teachers. 100% correctly articulated item is 'thousand' since it appears in English course books, auditory inputs and the other written or audio visual materials very frequently. Each of the non-native English teachers uttered this vocabulary as authentic and original. Ercan (2018) conducted a study with 30 high school students to observe some of the problematic sounds for Turkish English learners. He used 'cow, found and shower' words as production test items. He found that 76, 6 % of the participants couldn't pronounce the words with /aʊ/ diphthong correctly. In addition, /aɪ/, /eɪ/ and /ɔɪ/ diphthong scores are higher than cut point 85. They are evaluated as excellent according to assessment chart. However /oʊ/ diphthong needs to be practiced and studied on more. The score of /aʊ/ is fair and also /aʊ/ is very lower than the cut point score.

Table 21***Production post-test scores***

		<i>/aɪ/</i>	<i>/eɪ/</i>	<i>/ɔɪ/</i>	<i>/oo/</i>	<i>/aʊ/</i>	Total
N	Valid	30	30	30	30	30	30
	Missing	0	0	0	0	0	0
Mean (8)		8	8	8	6.9	6.3	7.44
Percentage(%)		100	100	100	86.25	78.75	93

Post- test scores are higher than pre-test. The least scored diphthong hasn't changed in post-test. It is /aʊ/ with 78, 75% rate. It is the only sound that is under the cut point but it is good. The other diphthong scores are higher than 85 % cut point. Three diphthong vocabulary items have been pronounced 100% accurately by each participant in post-test. They are /aɪ/, /eɪ/ and /ɔɪ/. It proves the efficiency of the training that focused on a variety of activities and repetition techniques.

5.4. Research Question 3: What are the overall correct written perception, auditory perception and production of diphthongs?

The overall correct written perception, auditory perception and production of diphthongs will be evaluated according to the post-test results in table 22.

Table 22***The comparison of overall correct scores of each test***

%	<i>/eɪ/</i>	<i>/aɪ/</i>	<i>/ɔɪ/</i>	<i>/oo/</i>	<i>/aʊ/</i>	Total
Written test	88.66	95.32	96.66	54.6	84.66	83.98
Production test	100	100	100	86.25	78.75	93
Written- auditory test	97.2	94.6	95.2	80.6	98.6	93.24

Participants are successful in auditory, production and written tests respectively. The highest overall correct scored test is written-auditory with 93, 24%. The score was predictable since two different input as written and auditory were given to testees. It increased the number of correct answers and provided them with a variety of input different from written and production test. While they saw the options in written form, they listened to the recordings and then decided on the right option. The second most succeeded test is production test with 93% score. It is excellent and an enough score. It shows that testees are good at articulating American English diphthongs after practice. It is possible to improve pronunciation skills with practice and revision. When the awareness increases, the production skills increase simultaneously. Thanks to practice, they became more aware of these specific sounds and paid attention on the right utterances of diphthongs. Even if they are regarded as tricky sounds, it is possible to treat the mispronunciations with practice. The least overall scored test is written. It has been inferred that the participants are not familiar with the phonetic transcriptions of diphthongs. The unfamiliarity confused the minds and it sometimes became disturbing to match the phonetically transcribed sounds with the vocabulary. Especially /ei/ and /ai/ diphthongs were confused with each other in written test. It has decreased the success scores in pre-test. After the practice, they tried better and became familiar with transcriptions. They were given assignment in which they were asked to write vocabulary in phonetic transcriptions. They got used to write phonetic spelling.

5.5. Research Question 4: Is there a meaningful difference between pre-test and post-test results?

Since three different tests have been applied to see the perception and production of diphthongs by participants each test will be evaluated separately as written, written-auditory and production items. In this section, numerical data will be administered thanks to paired sample statistics and test tables of SPSS packet program.

Table 23 and 24

The correlation of written pre-test and post-test results

		Mean(25)	N	Std. Deviaiton	Std. Error Mean
Pair 1	Pre-test	17.2	30	3.273	.597
	Post-test	21	30	2.463	.449

When the written pre-test and post test results are evaluated, the mean scores are different from each other. Of 25 question items of written questionnaire, pre-test score is 17, 2 in 25 while post test mean score is 21. It means that both of tests are significantly and statistically different from each other. The standard deviation of the pre-test is higher than in post-test with 3,273 values. It means that the scores of the participants in pre-test aren't so close to each other; Both high and low values that aren't so close to each other appear in the 1st test, but in post-test standard deviation value is 2,463; It means the participants' post-test scores are closer to each other than pre-test. The reliability of the post-test is higher than pre-test.

Paired Samples Test

	Paired Differences					t	Df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Pre-test and post test	-3.8	4.163	0.76	-5.354	-2.245	4.99	29	.000

The mean difference between pre-test and post-test is -3, 8. It shows the value between the test results which is 21 in post-test and 17, 2 in pre-rest. Standard deviation is 4,163 and it gives the standard deviation of different scores of all 30 participants in the sample. Standard error mean is 0, 76. The significance value is less than 0, 05 but it is not totally equal to 0. It is a small number that is less than

0, 05. It can be concluded that there is a significant difference between the pre-test and post results of written test. The null hypothesis is rejected because the null hypothesis says that there is not a meaningful difference between the two scores. Enough evidence has been suggested according to the table that there is significantly and statistically difference between the tests.

Table 25 and 26

The correlation of written-auditory pre-test and post-test results

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-test(25)	19.233	30	4.304	.785
	Post-test(25)	23.333	30	2.106	.384

When auditory-written test scores are examined, it is easy to detect the numerical differences between pre-test and post test scores. While pre-test mean value is 19,233, post test is 23,333. The score has increased after pre-test. Standard deviation of the pre-test is higher than post test; It means that the samples of the 1st test are different from each other. The 2nd test is more reliable than pre-test since the scores of the participants are closer to each other and more homogenous.

Paired Samples Test									
		Paired Differences					T	Df	Sig.
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				(2-tailed)
					Lower	Upper			
Pair 1	Pre-test and post test	-4.1	4.809	0.878	-5.895	-2.304	-4.67	29	.000

The difference between pre-test and post-test scores is -4,1 points since the score 19,233 in pre-test turned into 23,333. It is obvious that the score has increased after the training course. Significance value is close to 0. Similar to written test results, the null hypothesis is neglected since the significance value is less than 0,05. It means that there is a meaningful and statistical difference between written-auditory pre-test and post-test values. It has proved the efficiency of audio articulation model that was the basis of training after pre-test.

Table 27 and 28

The correlation of production pre-test and post-test results

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-test(40)	33,2	30	2,578	,470
	Post-test(40)	37,23	30	2,329	,425

30 testees attended the recording sessions in pre and post-tests. There is not a missing participant. 40 vocabulary items take place in production test as input. The total score of pre-test is 33, 2 in 40. 33, 2 score turned into 37, 23. It increased 4, 03 points after practice. Standard deviation of both tests is close to each other. The reliability of both tests is close.

Paired Samples Test

		Paired Differences				t	Df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pre-test									
Pair 1	and post test	-4.03	2.834	0.517	-5.091	-2.974	-7.79	29	.000

A paired-samples t-test was conducted to compare pre and post-test success scores. There is a significant and meaningful difference between the scores since p value is less than 0, 05 as seen in the chart so it can be concluded that practice provided English teachers with a better pronunciation and articulation of items in which any diphthong appears.

5.6. Research Question 5: In which of the test type do participants get the highest score?

Table 29

The comparison of written, written-auditory and production test scores

Test type	Mean(25,25,40)	Percentage(%)
Written-auditory	23,31	93,24
Production	37,2	93
Written	20,995	83,98

The highest scored test is written-auditory test since two different inputs take place in the test. While some participants are visual learners, the others may be auditory or both. This test facilitated the testees' decision making and they found the right option thanks to visual and auditory inputs easily.

5.7. Research Question 6: Do the participants need treatment teaching?

The success criterion was decided at the beginning of the study before the tests were implemented. The cut point and success ranges were chosen by adopting a score chart of MONE. The test scores showed that there is not a remedial teaching after post-test since the scores are high enough to say that the participants have improved in their perception and production of diphthongs. Just written-test score is 83, 98%. Even if it is less than 85 cut point, it is very close to this point so there is not a need for an extra teaching. Once again this study proved that it is possible to improve perception and pronunciation abilities with training in limited time by intensive teaching and interactive activities.

5.8. Research Question 7: Is there a meaningful correlation between the participants' production skills and their school types?

Teachers from two different school types took part in the study: Secondary school and high school teachers who are still working on these schools. The number of English teachers who are working in secondary schools is 22 while 8 high school teachers participated in the study. Although the number of both groups is not close to each other, it is necessary to observe whether there is a meaningful difference between the groups' success rates so independent sample t-test was conducted to see the relationship between them.

Table 30-31

The correlation between school type and participants' scores

	School Type	N	Mean(40)	Std. Deviation	Std. Error Mean
Pre-test	Secondary	22	33.318	2.901	.618
	High	8	32.875	1.457	.515
Post-test	Secondary	22	37.227	2.369	.505
	High	8	37.25	2.375	.839

The correlation of school types and success scores were evaluated separately as pre-test and post-test. Mean score of English teachers who work in secondary schools is 33,318 while it is 32,875 for high school teachers. The scores are very close to each other. Standard deviation is higher than high school type in secondary school group since the number of teachers in that group is more than the second group. Post-test results are closer to each other. They are 37,227 and 37,25 for secondary school and high school teachers respectively. Standard deviation is nearly the same. A meaningful difference has not been observed between secondary school and high school teachers.

	Levene's Test for Equality of Variances		t-test for Equality of Means			95% Confidence Interval of the differences			
	F	Sig.	t	df	Sig.(2-tailed)	Mean Differences	Std. Error Differences	Lower	Upper
Pre-test									
Equal variances assumed	2.624	.116	.41	28	.685	.443	1.080	1.769	2.655
Equal variances not assumed			.55	24.6	.587	.443	.805	1.216	2.102
Post- test									
Equal variances assumed	.040	.843	-	28	.982	.022	.978	-2.027	1.982
Equal variances not assumed			-	12.4	.982	.022	.980	2.149	2.104

This is a test that determines and reveals whether two groups have about the same or different amounts of variability between the scores. The sig. value in pre-test is 0,116 and 0,843 in post-test. These values are both less than 0, 05, which shows the variability in two groups is about the same. Another value that is necessary to take into consideration is sig. (2-tailed) value. It tells whether two groups' means are statistically different or not. Sig. (2-tailed) value is 0,685 in pre-test and 0,982 in post-test. It means that there is not a significant, statistical and meaningful difference between success scores of secondary and high school teachers.

5.9. The comparison of pre-test and post test scores in written, auditory and production tests

Table 32

Pre-test and post test results of 3 different tests

	Pre-test %	Post-test %
Written	68.76	83.98
Production	83.075	93
Auditory	76.93	93.24

One can easily infer from the table 32 that non-native English teachers are not good at discriminating diphthongs in written forms. While pre-test score is 68, 76%, post test is 83, 98%. The reasons of this result depend on a variety of reasons like the phonological knowledge of participants, individual differences, pedagogical experience, interference of L1 on foreign language, orthographic reasons and misunderstanding of instructions Lack of diphthongs in English is the main cause of this misunderstanding. Turkish learners feel the need to see two vowel sounds in written form. However, it is not the case at times. While it is generally possible to see two different vowel side by side for /aʊ/ diphthong as in the examples ‘round, found, thousand, it is not possible for the other diphthongs. The second best scored test is auditory test with 76, 88% pre-test and 93, 24% post-test score. It is higher than written test percentage since two different inputs as written and auditory were given to participants. Production test score is the best scored test type on the contrary to notion of ‘perception is the prerequisite of production’. This hypothesis is not valid for diphthongs since production scores are higher than both written and auditory perception tests. Even if non-native English teachers are not aware of diphthongs in written or auditory forms, they can produce and articulate them better than perception.

5.10. The evaluation of semi-structured interview notes

After the whole process was done, a non-formal interview was conducted with the participants. They were asked to evaluate the whole process from the beginning to the end with a few words. The process depends on the participants' intentions and interests. It is relative; it may change according to the choice and educational goal of participants. Some of the collected qualitative information is as follows:

- 'I am not interested in phonology and pronunciation activities so I don't focus on the right pronunciation of diphthongs. I don't allocate a specific time for pronunciation activities. The primary concern of language is to be able communicate. It is impossible to be near-native like without being to exposed to English in daily life.'
- 'Before I participated in the study, I even wasn't aware of diphthongs even if I had phonology classes in undergraduate. I didn't know 'What does diphthong mean?'. However, after the pre-test was implemented, I went home and googled both American English diphthongs and British ones, the differences and the similarities between them. In addition, I watched videos about the right articulation of diphthongs. The training course provided me with deep awareness and interest into diphthongs. I have begun to pay attention to right pronunciation of them.'
- 'Even if I had believed that I am good at pronunciation before this study, I realized that I wasn't qualified enough in perception and production of diphthongs. I was interested in these sounds and began to look it up in dictionary for the right pronunciation of words if I have a hesitation or dilemma.'
- One of the teachers, who is an English Language and Literature graduate, said that 'In undergraduate level I had phonology class and my lecturer was so careful about the correct and proper pronunciation of the words. He warned us about the incorrect utterances. I am used to check my dictionary since I got phonology class. Thanks to my lecturer, I learned phonetic transcriptions of words when I was at university.'

- Another participant asserted that ‘It has been 21 years since I graduated from university. I don’t remember diphthongs. English teachers in Turkey don’t have the chance of improving their professional skills after graduation. It is necessary to plan in-service education courses to follow the new ongoing trends in language teaching. The lack of trainings hinders the progress of foreign language. It is crucial to stop this regression with in-service education.’
- One of the participants indicated that ‘I confess that I got more aware of diphthongs after the study but I am not sure that whether it will be a long-running awareness because I have some fossilized errors. It could take time to correct these errors. When compared to before, I am more careful about the right utterances.’
- One of them asserted that ‘I enjoyed the process but when I started, I was afraid of making mistakes and I wasn’t tend to answer the questions during training but after a while I was more comfortable and I wasn’t unwilling in read-aloud recording sessions in post-test when compared to pre-test. Pre-test was like walking in a district I haven’t been before. I had questions and suspicion in my mind but in post-test all this discomfort disappeared.’
- Another participant indicated that ‘After the training, I have focused on the right articulation of language specific consonants and vowels. I have begun to have pronunciation activities in English class of all level. I noticed the importance of authentic and meaningful input in the class. The number of the repetition activities was increased. Students were asked to concentrate on correct utterances and productions. I corrected the repeated mistakes. I have inserted a new section in English class.’

5.11. An evaluation of the Chapter

In chapter 5, collected data from written, written-auditory and production tests have been evaluated by using SPSS package program. The correlation between the tests was administrated. The lowest, the highest scored test types and the most challenging diphthongs by non-native English teachers were commented

on. The correlation between pre-test and post-test for various test types was referred. Lastly the chapter was wrapped up with the evaluation section.



CHAPTER 6

CONCLUSION

6.1. An evaluation of the chapter

This is the final part of the study. It is the summary of all sections. These topics will be discussed respectively: Implications and suggestions for the study, implications and suggestions for future studies, pedagogical implications, the limitations of the study and an evaluation of the chapter.

6.2. The Summary of the Study

Pronunciation has always been a hot topic for non-native English learners even if the primary function of language is to communicate. A proper communication is possible with the right articulation of language specific consonants, vowels and distinctive sounds. Yousif and Ameen (2018, p. 17) asserted that pronunciation is the main vehicle for communication that learners need to highly consider if an efficient communication is the main concern. The thing what makes a communication intelligible is the accurate perception and pronunciation of language specific sounds since perception and production affect one another reciprocally. When compared to consonants, vowels are more challenging to distinguish because they change in the speech rhythm. (McCully, 2009). They are tricky to recognize and select. The goal of this study is to observe to what level American English diphthongs are perceived and produced in vocabulary items by non-native English teachers working schools of MoNE in Turkey. The correlations between written, written-auditory and production tests have been administrated. Quantitative and qualitative research methods were applied to collect data from the participants with 3 different tests and a demographic information form. These research questions have guided the study:

Research Question 1: Is written perception, auditory perception or production of diphthongs problematic for Turkish English teachers?

Research Question 2: Which diphthongs are problematic for Turkish English teachers?

Research Question 3: What is the overall correct written perception, auditory perception or production of diphthongs?

Research Question 4: Is there a meaningful difference between pre-test and post-test results?

Research Question 5: In which of the test type do participants get the highest percentage?

Research Question 6: Do the participants need treatment teaching?

Research Question 7: Is there a meaningful correlation between the participants' production skills and their school types?

The participants of the study consist of 30 English teachers that work in secondary schools and high schools in Giresun. They were eager to take part in this study. The study was conducted and completed in the spring term of 2018-2019 academic years in 4 weeks. Three different instruments, which had been approved and validated by 3 different instructors, were used to collect data in addition to background information form. The two tests out of three were multiple choice tests but the production questionnaire consisted of 40 vocabulary items that were read aloud, recorded and assessed by one by. While deciding on the vocabulary, an American English corpus 'coca' and English course books from variety of levels were preferred to make teachers more acquainted with the stimulus. The most frequently used words were chosen.

The collected data from the participants were analyzed with a statistic package program 'SPSS 23' version. Numerical data was saved after pre and post-test and then processed by using various emerged themes at the end of the analysis like frequency, paired samples statistics and tests etc. Qualitative data was administrated with informal interviews.

The 1st implemented test was the written test. After it was evaluated, it was seen that 68, 76% success scored climbed up to 83, 98%. This proves the efficiency of the training between tests. While the score was lower in pre-test, it was higher in the post-test. The total score of the 1st test is fair, while it is good considering the MONE scale. There is a meaningful and significant difference between the tests. The most challenging diphthong in both of the tests has proved to be /ɔʊ/ while the easiest one is /aɪ/ as a result of the written test items. The reason for the difficulty of /ɔʊ/ diphthong is the lack of this specific sound in Turkish vowel system and the tongue push back effect.

The 2nd implemented test was the written-auditory test. This test had two types of input: Visual and auditory. It provided teachers with a better understanding of the diphthongs since they had the chance of both seeing and hearing the input simultaneously. The total success of the participants in written-auditory pre-test is 76, 88. On the other hand, it turned into 93, 24% after training course. It is claimed as good and excellent respectively according to assessment scale. There is a significant difference between the tests. Similar to written test scores, /ɔʊ/ diphthong is again the least-scored one with 52% in the 1st and 80, 6% in the 2nd test. The easiest one in perception is /aʊ/ since it is easy to hear the glide from /a/ into /ʊ/ vowel in auditory input. The transition is clear and visible to hear. Since the gliding is very audible and perceptible, it is easy to find the right option. When compared to written and production test, auditory test gets the highest score since two different stimuli appear as written and aural as input.

Production test, in which audio recording sessions were implemented, was different from written and auditory perception tests in many ways. The anxiety levels of teachers were higher since they were recorded while reading the vocabulary lists. They generally had the fear of making a pronunciation mistake. They were not as relaxed as in the perception tests. However, production test scores were not very low as predicted. 83,075% pre-test scored turned into 936% in the post-test. /aɪ/, /eɪ/ and /oɪ/ diphthongs were fully produced 100% in post-test. However the most challenging diphthong was /aʊ/(78,75) because of the selected stimulus' combination with 'w' consonant. It has been observed that the insertion of 'w' consonant into vocabulary items confuse the minds and it is uttered as 'v' sounds as in the stimulus like 'flower and power.' 'w' spoils the accurate pronunciation and they have been articulated as /flovır/ and /pavır/. The mismatching causes the incorrect and a near mother tongue discourse. Orthography hinders the correct pronunciation. However, it has been almost pronounced correctly in the words like surrounded and mountain. Two vowels in the same syllable give participants a clue about that it is necessary to produce two vowels if 'o' and 'u' vowels appear together. Another reason of difficulty is the lack of this specific and tricky sound in Turkish sound repertory. Similar to written and auditory test results, /ɔʊ/(86,25) is the second hardest diphthong to

produce for non-native English teachers. No matter what the test type is whether it is receptive or productive, it is hard to pronounce this peculiar sound for Turkish learners. On the other hand, it was very easy to produce /aɪ/, /eɪ/ and /oɪ/ diphthongs since Turkish sound inventory has similar but not totally the same sounds like in the following examples: /koymak/ (put), /saymak/ (count) and /bey/ (mister). It is very easy to infer from the examples that similar diphthong sounds are formed with a vowel plus /y/ consonant unlike two different vowels in diphthongs.

Orthographic reasons hinder learners from pronouncing diphthongs accurately. /ɔʊ/ diphthong is a sample for this error. Participants would like to see two vowels in the same syllable side by side. The reason of failure in /ɔʊ/ diphthong is learners' previous habits in L1 and their intent to see two vowels in written form.

The interference of L1 on foreign language is clear in the test results. While learning a new language, learners construct target language thanks to L1 structures. They tend to construct L1 structures. They are inclined to L1 habits. Non-native English teachers can pronounce similar diphthongs sounds correctly, while they can't produce totally different from L1. Dissimilarity between L1 and target language cause interlanguage and lastly, fossilization. Mistakes turn into errors, errors turn into fossilizations. Even English teachers who still work on secondary and high school of MONE aren't aware of the mispronounced diphthongs because it is usual to ignore errors since there is not enough feedback and meaningful input. They notice the errors when they are informed about the errors. Instead of articulating both vowels in diphthongs, language teachers generally do not stress on the second vowel. Participants tend to stress the first vowel and omit the second part since it causes a neurological fatigue to pronounce another vowel after the first vowel. As a result it causes non-native like communication and an interaction far from an intelligible one.

Even if it is hard to rehabilitate fossilization in speech, it is possible to cure them with repetition activities. Audio articulation method played an important role while curing them. When one emphasize on correct pronunciation, he/she can

improve her pronunciation skills. The importance of an accurate and meaningful input is undeniable.

Diphthongs are considered as long vowels because of their length and it is said that it is more difficult to articulate vowels than consonants. That is; one needs to struggle much more to produce vowels when compared to consonants. However least effort theory says that it is the expenditure of the least amount of effort to accomplish a task. While producing diphthongs, it is a must to utter the second vowel even if it is less stressed and less audible than the first vowel. Turkish English teachers preferred producing the first vowel sometimes making it longer and stressed especially in the items that /ɔʊ/ diphthong appears. They tend to getting /ɔ/ vowel longer and visible. They have a lazy tongue and they are not motivated and willing enough to produce the 2nd vowel sound.

The difference between three test types is also worth to review. Testees were exposed to three different tests in which different vocabulary items were used as stimulus. The sequence of test scores are as follows from the highest one to the lowest respectively: Total written –auditory test score is 93, 24%, production test is 93% and written test is 83, 98. Auditory and production results are higher than cut point 85% and written is very close to cut point with a 83,98%. The best scored test is written-auditory test since two different kinds of input take place in the test. The written-visual and auditory input provided testees with a variety of chance while they were deciding on the options. They had the chance of finding the correct matching with the acoustic equivalents. The second best scored one was the production test in which 40 words were read and recorded. The score is very close to auditory test results. When compared to written test, production test result is higher. It can be concluded that ‘perception precedes production’ hypothesis has been destroyed since production test is higher than written perception test. Even if they weren’t qualified enough to distinguish written phonetic transcriptions, they have the competence of pronouncing accurate utterances.

Another concern of this study is to observe the correlation between participants’ school type and their success level in the applied tests because it is

an interesting relationship whether high school teachers are better than secondary school teachers in producing diphthongs. Since high school teachers are concerned with more advanced topics and subjects, one may think that high school teachers are better than secondary school ones. At the end of the statistics it is seen that there is not a meaningful correlation between the school type and their production of diphthongs.

At the end of the study it was clear that Unlike Brie're assumption, the results of this study are compatible with Flege and Port's assumption: **How different acoustic features first language and foreign language are, it is harder to learners to grasp the novel sounds.** (Flege, Schirru and KacKay, 2003, p. 469). While Turkish learners are good at recognizing and producing of /aɪ/, /eɪ/, /ɔɪ/ diphthongs which have auditory similarities with Turkish syllables, /ou/and /aʊ/ diphthongs are challenging for Turkish learners and their scores are less than /aɪ/, /eɪ/, /ɔɪ/ diphthongs.

Semi-structured interview notes at the end of the study have guided the efficiency of the study. The comments to the question 'Could you evaluate the whole process from the beginning to the end with a few words?' were indicated. It is inferred that there is a need for in-service phonology classes after graduation because non-native English teachers in Turkey couldn't have the chance of improving their English since English isn't spoken as a second language in Turkey. They are not exposed to authentic language.

6.3. Implications and Suggestions for Future Studies

This study was conducted with non-native English teachers who still work in secondary and high schools of MONE. The results of the study are just concerned with them but the scope would be extended to primary school and university levels. For further studies, instructors at universities and primary school teachers would be included into the study so that the results would be generalized for all education levels. However, some handicaps may occur if the scope is extended since it would be hard to administer the study. The pros and cons need to be taken into consideration for further studies.

The number of the participants is 30 and the quantity is enough for a scientific study but the rise in the number of participants would increase the validity and the reliability of the study evenly so it is possible to expand the number of teachers who participate in the study for further ones. It is necessary to keep in mind that if the number of instruments had been much, it would have been hard to handle the whole process since there is a need for a silent place for individual recording sessions and time constrain would appear with the increasing number.

Three different instruments were used to collect data: Written, written-auditory and production tests respectively. The tests could be diversified more. A formal interview in which recording sessions take place or a satisfaction survey would be attached at the end of the study to evaluate the whole process, affective factors to lead new ideas for further studies of diphthongs.

Collected data was evaluated with two judges, one of whom is an American English native speaker in addition an English language teacher while the other one is a professor of English language teaching. The results were all dependent on the observations of them. They rated the items as correct and incorrect. The number of the judges could be more to increase the reliability. No other evaluation technique was used for vocal formants except for recorder and headphones. It is possible to use technical equipments to calculate the pauses and stress in diphthongs in recordings for further researches. It was tough to assess and evaluate recording sessions since the articulations of diphthongs were not video recorded. Just auditory input helped evaluators to consider correct pronunciation of diphthongs. For the next studies, recording sessions would be accompanied with video recording to make it easier to observe the articulation of specific sounds.

Correlation between age and diphthongs' perception and production hasn't been interpreted in this study yet. However it would be possible to observe whether there is a meaningful relationship between the ages of participants and their perception and production of diphthongs. The ages were grouped and the success levels of groups in three different tests would be discussed in next studies.

Another variable is the gender of the participants. The relationship between gender and diphthongs' perception and production would be studied. Whether a significant difference between males and females occur or not in three tests separately could be observed and analyzed in further studies.

The educational backgrounds of 30 participants differ from each other. They are three different categories: 23 English language teacher graduates, 6 English language and literature graduates and just one English translation graduate have attended the study. The correlation between these categories would be observed in future researches: 'Which department graduates are more successful in perception and production of diphthongs?'. This is another subject to be studied.

Considering the variables and correlations, an in-depth study could be conducted about diphthongs.

6.4. Pedagogical Implications

Pronunciation has been a controversial topic for foreign language learners because of various reasons like unfamiliarity with the new language sound system, orthographic reasons, language specific vowels and consonants, being reluctant to speak, the lack of perceptual skills, uninterested in speaking and etc.

It has been defined in different ways: Pronunciation is the ability of constructing a sound system that doesn't interfere with communication both from the speakers' and listeners' views (Paulston & Burder, 1976). It could be defined as follows, too: Pronunciation is the competence of producing audible and meaningful sounds that belong to a significant language.

A near native like pronunciation is the primary goal but it is not for the sake of it. The basic aim is to have a comprehensive and effective communication. Morley (1991) indicated that learners need to have functional intelligibility, functional communicability, oral comprehensibility, self-confidence, the speech monitoring abilities, and speech modification strategies. Intelligible pronunciation is possible with the correct and fully perception of sounds, an authentic and

meaningful input, awareness of the target sounds and progressive practice. Without these components, it is not likely to have an intelligible and understandable pronunciation. Most of adult foreign language learners are able to communicate in target language but some variables like their accent, word choice, grammatical semantic preferences differentiate them from native speakers. (Lightbown & Spada, 1999, p. 60) However, pronunciation is not the preliminary skill that learners consider. The other skills like grammar knowledge and writing skills surpass speaking skills in Turkey because of curriculum functions. The order of importance of four skills in state schools both in secondary schools and high schools is generally reading, writing, listening and speaking. Speaking skill is at the end of the list. Listening and speaking skills are ignored since they are regarded as unnecessary and time consuming. Another reason is the difficulty of organizing creative speaking activities which activate learners' speaking and pronunciation abilities. Bekleyen (2007) stated that speaking skills were ignored during high school education, and language teaching was based on reading activities. Since listening and speaking skills are not evaluated or measured in some tests, instructors do not pay attention to pronunciation skills. Moreover, teachers should be prepared in advance to design the phase of speaking activities. It is a necessity to preliminary preparation to handle the speaking activity process. Another excuse is that the class size may not be appropriate to conduct speaking activities since classes are sometimes crowded. On the other hand, the strict academic curriculum burdens English language teachers with heavy responsibilities. It becomes hard to compensate with curriculum functions for different levels.

Even if a language teacher has taken phonology or linguistics class in undergraduate, he/ she may be reluctant to teach pronunciation skills. It is an individual choice since it doesn't appear among the functions in English course books of MONE. The lack of pronunciation section in course books is one of the reasons of misperception of diphthongs. An English teacher knows a subject what he/she teaches regularly. This new section would provide students and teachers with the correct articulations of specific sounds. Not only diphthongs, but also the other specific consonants and vowel sounds like \int , θ , υ , Λ , ə , ɪ , η , ɛ , ð , æ and etc.

could be inserted into the new pronunciation section. By this means, it is possible to both draw students' and learners' attention on correct perception and production of English sounds. The integration of pronunciation section would raise awareness about accurate articulation of diphthongs and the other sounds. For example as a result of this study, the most difficult diphthong for English teachers is /oʊ/. While giving an explanation, the reasons for difficulty should be indicated well like the peculiarity of /oʊ/ sound in Turkish sound inventory, similarity between two gliding vowels and its complexity of perception when it is at the end of vocabulary as an ending syllable. 'How to teach pronunciation skills?' is another question. The procedure needs to be fully understood. The prerequisite of correct pronunciation of diphthongs and other sounds is a comprehensible, authentic input, progressive listening, being exposed to an intelligible language, repetition activities and phonetic transcriptions for advanced levels.

After graduating, a language teacher doesn't have the chance of improving professional skills if he/ she do not struggle personally. It is possible to have a progressive development by organizing in-service training course which is about professional development fields like pronunciation, speaking, listening, writing, reading, classroom management, web.2 tools, integrating technology into language class and etc led by MONE so that it is possible to keep up with new trends in language teaching and learning. In addition, at the end of the study, it was seen that training course improved teachers' perception and production skills. It is an evidence of efficiency of training. It is possible to improve oral comprehension skills by means of course based on repetition in which different kinds of activities take place like a corpus of target sounds, listening activities, minimal pairs, idioms of target sounds, chants, songs etc.

There are other ways of improving perception and pronunciation skills for English language teachers. A just or already graduate teacher would go on academic reading by following journals. Academic reading provides teachers with awareness of new trends and professional skills. Another way is to subscribe YouTube channels which are related to pronunciation skills. They supply enough self-consciousness to learners to articulate distinctive sounds accurately. The easiest

solution is to look it up American English dictionaries immediately when a teacher is hesitant about a vocabulary. It is not enough to just once check pronunciation of new word. It is better to write phonetic transcription more than once to internalize the new stimuli.

6.5. Limitations of the Study

The aim of this study is to reveal non-native English teachers' perception and production of diphthongs. Even though research questions have been answered and made inferences within the scope of the study, it has some limitations to be considered in detail.

The sample size of the study is a critical variable that indicates to what extent the results could be generalized and transferred. This study has been conducted with 30 Turkish English teachers from three different educational settings. The participants who have taken part in the study working in schools and institutions of Ministry of Education in secondary and high school level therefore it is not possible to generalize the results for all English teachers while it is probable to get a general idea of Turkish English teachers perception and production of diphthongs at Ministry of Education (MONE) level. The number of the participants increases the validity and the reliability of the study. However; 30 participants are enough for a scientific study.

In the design of this study, 30 TETs were undergone completely the same tests as a pre and post-test ; as a result the participants may be acquainted with the questions after pre-test and they can easily answer the questions after a while. After all, pre-test and post-test designs are efficient research design if its drawbacks and limitations are comprehended well. Two weeks break after 4 hours training course about diphthongs was taken to hinder the participants' acquaintance with the questions. The idea of a diphthong absolutely appears in production test vocabulary items facilitates the participants' estimation. They are on the alert to pronounce the word with diphthong.

Another handicap is finding teachers who would like to take part in the study voluntarily because it is not just one phase study it consists of two stages as 1st and the 2nd test. Since three different tests were used to collect data, it was time consuming and a bit tiring to complete all the tests. After informing the participants about the process from the beginning to the end, they were asked ‘ if they are willing to take part in the study.’ Some of them didn’t want to participate since the last instrument was a read-aloud test in which recording sessions were implemented to observe the correct pronunciations of diphthong items. Some of them were reluctant to go in for the recording since they were hesitant that their pronunciation skills would be judged by a colleague. However, they were informed in detail about the difficulty of diphthongs. Most of English teachers have challenge in uttering diphthongs. It is usual to make mistakes. They were tried to be relieved about the process. The ones who were eager to participate in were included in the study.

Another limitation is the time constrain. 30 teachers who took part in the study were from different schools and they were in charge of at least 20 English courses in their schools so it was a bit hard to arrange an exact time which is both appropriate for the participants and the researcher to conduct the tests and training course. Timing was done at the beginning of the study. They were asked to be in accord with the beforehand prepared timeframe of the whole process. Few sessions were changed and conducted another time different from the first time framework.

One of the limitations is finding a suitable place for the training in which it is necessary to have a computer, speaker or a smart board to implement audio articulation model teaching. Most of the sessions were conducted in classes of schools which are available for the study. It is sometimes tough to find a silent and an available class.

Furthermore, it was appropriate to use pre-test and post-test design to measure the degree of change at the end of treatments. However, teachers in the study weren’t grouped. The lack of control group would be a drawback since it prevents the comparison of treated ones and untreated ones. All of the participants

were undergone treatments between the tests because it would be unethical to isolate the untreated ones. By this means, each of the teachers benefited from the intervention.

One another handicap is the diphthong vocabulary items which have been used as stimulus. They were not adopted from a previous study. They were all based on the researcher's observations from the dictionaries, English course books and other written materials by considering frequency. It was up to the researcher's preference.

The numbers of the vocabulary items in written, written-auditory and production tests are 25, 25 and 40 respectively. For the first two tests, 5 items appear for each of the diphthong but there are 8 items for each diphthong in production test. The number of the stimulus used in the study was based on only the intention and observations of the researcher. The number of the items would be more or less. However it was decided like that since it would have been more time consuming and boring if it had consisted of more items or it would be less generalizable or validated.

The evaluation of the recording sessions was made by two different independent evaluators: One of them is a native speaker of American English and teacher as well and another one is a professor of English language teaching. The results were drawn from their observations according to rubrics prepared before. The auditory stimulus was evaluated with the help of headphones. No other electronic evaluation technique was used to assess the data.

6.6. An evaluation of the Chapter

This is the last chapter of the study. The primary topics discussed in this chapter are as follows: An overview of the chapter, the summary of the study, implications and suggestions for the study, implications and suggestions for future studies, pedagogical implications and the limitations of the study.

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APPENDICES

1. APPENDIX 1

Consent form



PARTICIPANT CONSENT FORM

I (.....) agree to participate in Neslihan Çorakçı's research study which takes place in Ufuk University/ English Language Department in Ankara. The nature and the purpose of the study have been explained to me in writing and orally. I am participating voluntarily. I understand that I can withdraw the project at any time. I give permission for my readings to be recorded. I understand that my personal information will be kept secret. I accept that collected data will be used in this dissertation and any subsequent publications later on.

I agree to attend the research voluntarily.

Name of the participant:

Date:

Signature:

2. APPENDIX 2

Demographic information form DEMOGRAPHIC QUESTIONNAIRE

Dear English teachers,

This questionnaire is the first practice step of a master thesis in English Language Teaching Department in Ufuk University/ Ankara. It is composed of 8 questions which aim to learn more about the participants' background. Your personal information will be kept secret. You don't need to indicate your real name. You can write a nickname and surname that will be used in the post-test later on. Please contact me for any questions.

Researcher: Neslihan Çorakçı

Phone number: 0553-404-1805

Name/ Surname:

Please try to answer the following questions.

1-What is your gender?

a. female b male

2- How old are you?

3- Which department did you graduate from?

a.English Language Teaching b.Applied Linguistics c.English Language and Literature

4-How long have you been teaching English?

5-Where are you working as an English teacher now?

a. primary school b.secondary school c.high school d. university

6-Are you interested in phonology/ phonetics?

a.yes b. no

7-Do you focus on the correct pronunciation of diphthongs and teach them in your classes?

a.yes b.no

3. APPENDIX 3

Written test

Choose the right answer for each of the multiple choice items below and circle it.

In which of the words is there an [aɪ] sound?

1. a) time b) tail c) train d) take e) table
2. a) guilty b) guide c) guitar d) Britain e) entertain
3. a) midway b) male c) might d) medical e) million
4. a) adverse b) advance c) adventure d) advice e) advantage
5. a) piece b) pierce d) piercing d) placement e) pie

In which of the words is there an [eɪ] sound?

6. a) time b) mouse c) relief d) repair e) rain
7. a) theft b) obtain c) where d) borrow e) wine
8. a) friend b) telegraph c) major d) advice e) neither
9. a) either b) stair c) stare d) Spain e) surgeon
10. a) sailing b) share c) shelf d) scare e) seal

In which of the words is there an [ɔɪ] sound?

11. a) toilet b) token c) tortoise d) tourist e) toast
12. a) chocolate b) choice b) choose d) chop d) chronic
13. a) design b) detach c) destroy d) dominate e) doll
14. a) boutique b) bowling c) bowel d) boycott e) boat
15. a) enough b) enclose c) enroll d) ensure e) enjoy

In which of the words is there an [oʊ] sound?

16. a) storage b) studio c) stomach d) stupid e) suicide
17. a) occupy b) oven c) out d) occupation e) okay
18. a) poor b) post c) pour d) point e) pound
19. a) comfortable b) comedy c) compliment d) coincide e) coin
20. a) torch b) top c) Thursday d) toothache e) phone

In which of the words is there an [aʊ] sound?

21. a) flower b) florist c) float d) floor e) flora
22. a) abolish b) about c) above d) abroad e) afraid
23. a) moustache b) month c) mountain d) monster e) Monday
24. a) cover b) country c) couple d) cow e) contact
25. a) mice b) modern c) model d) motion e) mouse

APPENDIX 4

Auditory test

You are going to take an auditory test, in which diphthong vocabulary items are inserted in each of the multiple choice questions. Please pick the right option after hearing the items.

EXAMPLE:

Hear each of the items and pick the right option according to the input.

In which of the following words is there an /eɪ/ sound?

- a)time
- b)mouse
- c)relief
- d)repair
- e)rain

1. In which of the following words is there an /eɪ/ sound?

- a)volcanic
- b)vocabulary
- c)volleyball
- d)vocation
- e)voiceless

2. In which of the following words is there an /aɪ/ sound?

- a)mathematical
- b)practical
- c)identical

- d)magical
- e)dramatically

3. In which of the following words is there an /ɔɪ/ sound?

- a)boiler
- b)bomber
- c)buyer
- d)border
- e)borrow

4. In which of the following words is there an /oʊ/ sound?

- a)glue
- b)gloomy
- c)glove
- d)glorious
- e)globe

5. In which of the following words is there an /ɔɪ/ sound?

- a)spoken
- b)spoil
- c)spoon
- d)sporty
- e)spotlight

6. In which of the following words is there an /aʊ/ sound?

- a)forty
- b)forward
- c) formulate
- d)former
- e)founder

7. In which of the following words is there an /oʊ/ sound?

- a)evoke
- b)elastic
- c) evolve
- d)election
- e)electrical

8. In which of the following words is there an /aɪ/ sound?

- a)example
- b)exercise
- c)excuse
- d)explanation
- e)exam

9. In which of the following words is there an /oʊ/ sound?

- a)prove
- b)somehow
- c)slow
- d)however
- e)housewife

10. In which of the following words is there an /aʊ/ sound?

- a)old-fashioned
- b)outer
- c)opener
- d)operation
- e)opposite

11. In which of the following words is there an /eɪ/ sound?

- a)water
- b)watcher
- c)waste
- d)wardrobe
- e)warrior

12. In which of the following words is there an /ɔɪ/ sound?

- a)jolly
- b)jobless
- c)journey
- d)journal
- e)joiner

13. In which of the following words is there an /aɪ/ sound?

- a)narrator
- b)later
- c)monitor
- d)fighter
- e)grater

14. In which of the following words is there an /oʊ/ sound?

- a) promote
- b) promise
- c) prominent
- d) prolong
- e) project

15. In which of the following words is there an /eɪ/ sound?

- a) entitle
- b) unable
- c) inactive
- d) inaccurate
- e) unacceptable

16. In which of the following words is there an /eɪ/ sound?

- a) branch
- b) brand
- c) break
- d) bread
- e) breath

17. In which of the following words is there an /aʊ/ sound?

- a) grocery
- b) green
- c) grow
- d) group
- e) ground

18. In which of the following words is there an /ɔɪ/ sound?

- a) advocate
- b) devote
- c) avoid
- d) remote
- e) awake

19. In which of the following words is there an /aɪ/ sound?

- a) air-play
- b) reply
- c) delay
- d) really
- e) overlay

20. In which of the following words is there an /aʊ/ sound?

- a) rounded
- b) routine
- c) rotation
- d) roller
- e) robbery

21. In which of the following words is there an /eɪ/ sound?

- a) particular
- b) participation
- c) part-time
- d) party
- e) partner

22. In which of the following words is there an /oʊ/ sound?

- a) application
- b) approximately
- c) approach
- d) stomach
- e) headache

23. In which of the following words is there an /aʊ/ sound?

- a) clock
- b) clone
- c) closed
- d) clown
- e) clothe

24. In which of the following words is there an /ɔɪ/ sound?

- a) noisy
- b) bossy
- c) greasy
- d) easy

e) busy

25. In which of the following words is there an /aɪ/ sound?

- a) attendance
- b) guidance
- c) accordance
- d) redundancy
- e) abundance

5. APPENDIX 5

PRODUCTION TEST

This is a read-aloud test. Please read the words below clearly in their natural flow one by one. While you are reading the words in the list, they will be recorded simultaneously.

- surprise
- remain
- psychological
- destroy
- however
- telephone
- mountain
- education
- ideal
- approach
- financial
- face-book
- private
- disappointed
- window
- enjoy
- appointment
- tomorrow
- participation
- delay
- joining
- boyfriend
- flower
- climb
- doubt
- promote
- thousand
- arrive
- immigration
- owner
- studio
- avoid
- power
- exercise
- yesterday
- follow
- employment
- cloud
- surrounded
- payment

6.APPENDIX 6

Power point slide sample used in the training

What is a diphthong?

The description of diphthongs has been done by many linguists. All meet at the same point in a way.

Dardjowidjojo (2009, p. 33) made a description: Diphthong is a combination of two vowels which is considered as the same syllable.

Laszlo (2014, p.13) said that diphthongs are the sounds while uttering the organs of speech glide from one vowel position to another within one syllable.

Fromkin, V., et al (1984, p. 693) stated that tongue glides from one position to another to form diphthongs. It means that to form a diphthong, tongue isn't stable but dynamic.

How many diphthongs are there in American English?

There are 5 diphthongs.

- /eɪ/ ,
- /aɪ/ ,
- /ɔɪ/ ,
- /oʊ/ ,
- /aʊ/

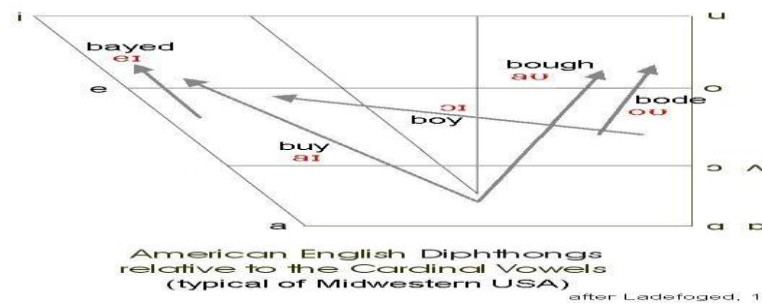
Watch the video of American English diphthongs and mime the speaker.

Rachels
English
.com

Diphthongs

International Phonetic Alphabet
Symbols

The place of vowels in the oral cavity



Compare the minimal pairs of diphthongs

bowl /boʊl/ ----- ball /bɔ:l/	Noisy /nɔɪzi/-----normal
home /hoʊm/----- hall /hɔ:l/	/nɔ:rməl/
Kite /kaɪt/-----car /kɑr/	Spoil /spɔɪl/-----sporty
Fighter/faitər/-----farmer	/spɔ:rti/
/fa:rmər/	Brown /braʊn/-----brother
Taste /teɪst/-----test /test/	/brʌðər/
Waste /weɪst/-----west /west/	How /haʊ/-----hover /hʌvər/

A sample corpus of diphthongs

Boat	surrounded	
creative	creation	april
pineapple	phone	fake
potato	kite	brown
owner	noisy	tower
spoil	bowl	payment
loyal	spoil	rice
arrive	train	rate
combine	fighter	straight
toy	go	south

homeless

hope

mountain

taste

fly

coin

waste

high

house

paste

our

location

dynamic

horrify

how

focus

(Retrieved from <https://dictionary.cambridge.org/dictionary/english/going>)

Tongue Twister

/oo/

home

going home

going home slowly

/aʊ/

our

our brown

our brown house

/aɪ/

fly

fly the kite

fly the kite high

/eɪ/

take

take the safe

take the safe lake

/ɔɪ/

spoiled

spoiled boy

spoiled boy's toy

Read the idioms and find diphthongs



Find the diphthongs in red written words in the sentences

- There were lots of **flowers** in the garden.
- The **participation** fee for the contest was expensive.
- The jungle in Equator was in **fire** last week.
- The lecturer gave the presentation with a **pointer**.
- The officer **smoke** every day.
- Could you speak **loudly**, please?
- The child makes me **annoyed**.
- Lion is a **wild** animal.
- The detective saw a **strange** thing.
- I am studying on my project **now**.
- I **hope** that they will win the match.
- Dogs like eating **bones**.
- Tom **majored** in business.

Underline the diphthongs in the sentences

/eɪ/

- James hates people taking his name in vain. Eight grave grey apes were eating grapes without haste.
- Flavour of the grapes made the apes say : "Hey! We're glad we came to taste these grapes today.'
- The main game that apes play is that of chasing their neighbours and shaking their heads.
- In spite of his age, he has neither aches nor pains.
- Retrieved from "<http://www.inpi.edu.ar/wp-content/uploads/2016/06/Diphthongs.pdf>"

/aɪ/

- Time flies but I don't.
- Why the time flies neither mice nor men know.
- Why doesn't ice fly and time melt?
- Pour some time into my wine and I'll live to the nine hundred and ninety-nine before I die.

/ɔɪ/

- It's a joy to watch the boy playing with his toys. That noisy boy has a voice that's most annoying. His only way of enjoying himself is to make a noise. What sort of a noise would a noisy, annoyed oyster make? The oily voice of the lawyer spoilt our enjoyment of the play. We must leave the choice to the fall of a coin.

/aʊ/

- John Brown's been to town. Now, in town he found an owl, a towel, and a trowel.
- Towser's a sound dog, a bouncing hound who covers the ground by leaps and bounds.
- I haven't found out how much Brown paid for that owl, but the amount was doubtless large.
- Brown, stop Towser! Towser's growling and tearing my trousers, Towser, you clown, get down! Go and tear your master's trousers,

/oʊ/

- Don't you know, Rover's got no bone? What, no bone for Rover? Rover won't stay at home unless Rover's got a bone. Joe, go to Jones the butcher's and get á bone lest poor Rover groan and leave home. Phone? No, don't phone - go. If you go they'll show you bones galore, for they've oceans of bones below where it's cold.

Listen to the sentences and decide on the diphthongs



Listen to the song , fill in the blanks then find the diphthongs in the words

Hello / [Adele](#) 🎧

....., it's me
I was wondering if after all these years
you'd like to meet
To goeverything
They say that is supposed to heal
ya
But I ain't done much healing
Hello, can you hear me?
I'm in California dreamingwho we
used to be
When we were younger and free
I've forgotten it felt before the
world fell at our feet
There's such a difference between us
And a million

Hello from the other
I must've called a times
To tell you I'm sorry
For everything that I've done
But when I call you never
Seem to be
Hello from the outside
At least I can say that I've tried
To tell you I'm sorry
For breaking your heart
But it don't matter, it clearly
Doesn't tear you apart anymore
Hello,are you?
It's so...

Assignment

(Write phonetic transcription of the words below.)

now
cow
brow
found
mouse
house
round
soil
joist
Coil
void
coin
voice
loin
Spoil
potato.
tomato
only
tomorrow

delight
bicycle
deny
surprise
advertise
decline
blind
signed
late
same
name
race
frame
make
came
snake
grape

7. APPENDIX 7

ÖZGEÇMİŞ

Kişisel Bilgiler

Adı Soyadı : Neslihan ÇORAKÇI
Doğum Yeri ve Tarihi : Giresun / 29.10.1987


Eğitim Durumu

Lisans Öğrenimi : 19 Mayıs Üniversitesi
İngiliz Dili Eğitimi
Yüksek Lisans Öğrenimi : Ufuk Üniversitesi/
İngiliz Dili Eğitimi
Bildiği Yabancı Diller : İngilizce
Bilimsel Faaliyetleri : 2019 Kıbrıs Globelt
Konferans(bildiri)
Trabzon ELT
Konferansı(bildiri)

İş Deneyimi

Çalıştığı Kurumlar : Kocapınar Mevlana Ortaokulu
Yağmurca Ortaokulu
Amerikan Kültür Dil Okulları
15 Temmuz Şehitler İHOO.

8. APPENDIX 8
ETİK KURUL İZNI


T.C.
GİRESUN VALİLİĞİ
İl Millî Eğitim Müdürlüğü

Sayı : 29409993-605.01-E.10394590
Konu : Araştırma İzni
(Neslihan ÇORAKÇI)

27.05.2019

VALİLİK MAKAMINA

İlgi : a) MEB Yenilik ve Eğitim Teknolojileri Genel Müdürlüğünün 2017/25 nolu Genelgesi.
b) Neslihan ÇORAKÇI'nın 25.05.2019 tarih ve 10274706 DYS kayıtlı dilekçesi.

Ufuk Üniversitesinin Sosyal Bilimler Enstitüsü Yüksek Lisans Öğrencisi Neslihan ÇORAKÇI "The written, auditory perception and production of diphthongs by non-native English teachers in Turkey" konulu araştırma ve anket yapmak istemektedir. Çalışma; Giresun İl Millî Eğitim Müdürlüğüne bağlı okullardaki İngilizce öğretmenleriyle gerçekleştirilecektir. İlgili (b) yazı ile eklerinin (a) Genelge kapsamında incelenmesi sonucu oluşturulan "Araştırma Değerlendirme Komisyonu Raporu" ekte sunulmuştur.

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Makamlarınızca da uygun görüldüğü takdirde, olurlarınıza arz ederim.

Ergin AYBAR
Müdür a.
Müdür Yardımcısı

OLUR
27.05.2019

Ertuğrul TOSUNOĞLU
Vali a.
İl Millî Eğitim Müdürü

Güvenli Elektronik İmza
Aslı ile Aynıdır
28.05.2019
Kesban AKDOĞAN
Şef

	NESLİHAN ÇORAKÇI	 <p>T. C. UFUK UNIVERSITY GRADUATE SCHOOL OF SOCIAL SCIENCES DEPARTMENT OF ENGLISH LANGUAGE TEACHING</p> <p>THE WRITTEN, AUDITORY PERCEPTION AND PRODUCTION OF NORTH AMERICAN ENGLISH DIPHTHONGS BY NON-NATIVE ENGLISH TEACHERS IN TURKEY</p> <p>MASTER'S THESIS NESLİHAN ÇORAKÇI</p> <p>TEZ DANIŞMANI MEHMET DEMİREZEN</p> <p>ANKARA (2019)</p>
	ENGLISH LANGUAGE TEACHING	
	ANKARA (2019)	



