Intelligibility of Word-Final Voiced and Voiceless Consonants Produced by Lebanese Arabic Speakers with Respect to Vowel Length

A thesis presented to

the faculty of

the College of Arts and Sciences of Ohio University

In partial fulfillment

of the requirements for the degree

Master of Arts

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June 2010

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This thesis titled
Intelligibility of Word-Final Voiced and Voiceless Consonants Produced by Lebanese Arabic Speakers with Respect to Vowel Length

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ABSTRACT

GHANEM, ROMY, M.A., June 2010, Linguistics

Intelligibility of Word-Final Voiced and Voiceless Consonants Produced by Lebanese Arabic Speakers with Respect to Vowel Length (121 pp.)

Director of Thesis: James Coady

Vowel duration has been proven to be the most perceptible cue to the voicing of an English word-final consonant. Very little research has been conducted on Lebanese speakers’ productions of such consonants and the influence of other languages such as Arabic and French. This study seeks to compare English word-final consonants produced intermediate and advanced Lebanese speakers of English. Thirty participants read a text which had minimal pairs embedded in it. Six judges, three linguistically trained and three non-linguistically trained, rated these productions. Analyses showed that there was no significant difference between the intermediate and the advanced students. Results also showed that there was no significant difference between the scores given by the linguistically trained judges and those given by the non-linguistically trained panel. Further analysis of the data showed that there was no correlation between the placement of the students based on an entrance test and the ratings given by the judges.

Approved: _____________________________________________________________

James M. Coady

Associate Professor Emeritus of Linguistics
ACKNOWLEDGMENTS

I would like to thank Dr. James Coady, my committee chair, for all his support and guidance. It has been an honor being your student and advisee and working with you on this project. Because of your insight and wisdom, I was able to turn a simple idea into an empirical and systematic study.

I would also like to acknowledge Dr. Greg Kessler for his guidance, constructive criticism, and suggestions. Working with you has made me a better researcher and a more knowledgeable person.

My sincere appreciation goes to Dr. Michelle Haugh O’Malley. Thank you for always having your door open for me. Your support, advice, and encouragement always came in a time when I needed them the most. It has been a privilege having you on my committee.

I would also like to thank Dr. Sami Samra and all the staff at NDU for their help with data collection. I would like to acknowledge my colleagues at the Ohio University Linguistics department for their participation in the study and their constant support throughout the last two years.

I want to express my deepest appreciation to my parents, Nina and Milad, for their love and moral support. I also thank my sisters, Josy and Christy, for their encouragement. My deepest appreciation goes to my niece, Chloey, for always being my silver lining.
To Tarek
For You Are My Rock,
And Upon that Rock
I Have Built My Life.
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CHAPTER 1: INTRODUCTION

General Background

Every phone in a language has a number of features that differ depending on its place and manner of articulation, its position, and the sounds surrounding it. Native speakers acquire such characteristics with the constant exposure to the language and when they reach adulthood, they are able to produce and perceive such subtle differences even without phonological training (see Flege, 1984). For this reason, researchers rely on native speaker intuition to assess or rate intelligibility, comprehensibility and accentedness of non-native speakers’ productions. The research area of this paper is phonology, more specifically interphonology. Interphonology lies under the broader term: interlanguage whereby an L2 learner’s native language is in some way affecting the learning process of the target language. Interphonology has been defined by Singh and Ford (1985) as the state whereby one (or more) of the following occurs: the rules of L1 phonology seem to influence those of L2, there is an overgeneralization of certain L2 phonological rules, and/or a creation of a new set of phonological rules that belong to neither L1 nor L2 occurs. In this intermediary stage, learners produce non-native like utterances by changing one or more phonetic characteristics in the target language.

Consonants in English have many characteristics that determine the manner in which they are produced. One of these characteristics is place of articulation which is the location and organs in the vocal tract that are involved in producing a sound. For instance, an alveolar sound is produced when the tongue tip or blade touches the alveolar ridge. Another characteristic is voice onset time, which is defined by Ladefoged (2006)
as “the interval between the release of a closure and the start of the voicing” (p.146).

There are two types of VOT in English: short-lag (negative VOT) and long-lag (positive VOT). The former occurs with voiced consonants whereby there is a vibration of the vocal cords before the consonant is released. The latter occurs with voiceless consonants, and the VOT usually measures the time it takes to aspirate a certain consonant. Even with languages that have a similar contrast such as English, the aspiration does not take the same amount of time across all languages. Navajo, for instance, contains some heavily aspirated consonants whose aspiration takes twice as long as those in English. In Arabic, on the other hand, aspiration is shorter (see Flege and Port, 1981) and thus, this may create some difficulties for the Lebanese speakers when producing certain word-initial consonants that would otherwise seem identical in both languages.

When it comes to word-final consonants in English, there are several characteristics that determine whether the consonant is voiced or voiceless. Some of those features are vowel duration, final consonant closure, and glottal pulsing. However the most discernible of the aforementioned features is vowel duration (see Raphael, 1972). Many linguists (Raphael, 1972; Ladefoged, 2006) have proven that vowel length varies considerably depending on the consonant which follows it. For instance, when a long vowel is followed by a voiceless consonant, its length is much shorter than when it is followed by a voiced one. Vowel length in Arabic; however, is arbitrary and does not depend on the consonant preceding or following the vowel. Thus, it has been shown through numerous studies (Flege and Port, 1981; Port, Al-Ani, & Maeda, 1980) that Arabic speakers tend to transfer the arbitrariness of vowel duration from their native
language to English or produce little vowel duration contrast before a voiced or a voiceless consonant. This results in an accent that exhibits itself with beginning and advanced Arabic speakers of English. This paper will focus on Lebanese speakers’ arbitrary use of vowel lengths and how that affects the intelligibility of the voiced and voiceless consonants that follow them.

Before discussing the purpose and significance of this study, this section will provide a brief overview of the education system and the linguistic varieties found in Lebanon. In their article on educational policies in Lebanon, Shaaban & Ghaith (1999) explore the development of multilingualism in Lebanon. Since the Ottoman Empire, Lebanon has always been a country that received special treatment from the West. Because of its religious and cultural diversity, Western countries showed interest in different cultural and religious groups. These countries used education as a means of establishing political and cultural ties with different Lebanese groups. Missionaries from France, the United States, and Russia opened schools that taught Arabic as the main language and another foreign language. By the end of World War II, there were nearly one hundred schools in Lebanon, 46 of which were teaching either French or English as a first foreign language. Even though the French educational system was adopted as the national system, certain subjects in the official exams (which are taken by each Lebanese student after completing high school) were available in three languages: Arabic, English and French.

As part of new curriculum, three main trends emerged in all Lebanese schools (both public and private). The first is that Modern Standard Arabic is the first language
taught to students (seven hours a week), which represents cultural identity and belonging. It is important to point out that MSA is considered as the first foreign language since it is not spoken natively by any Arabic speaker. The second trend is that a parallel second foreign language, which could be either English or French, is also taught with Arabic (seven hours a week), which reflects the bilingual nature of the Lebanese culture. Those two languages were both taught as soon as a child begins school (which, in Lebanon, is at the age of three). The final trend is that a third foreign language is taught by the seventh grade (only two hours a week), which was said to reflect the geographical and cultural nature of the country and its openness to European and Western cultures. Even though the above trends were common to all schools, the second foreign language was different in each school depending on the founders of that school. Most private schools were those that were established by the missionaries from the aforementioned countries and thus some of them had English as the second foreign language and French as the third foreign language. Other schools (those established by French missionaries, for instance) included French as the second foreign language and English as the third foreign language.

Consequently, the two terms English-educated and French-educated emerged to identify students who attended those two types of schools. An English-educated student would be one whose second foreign language is English and a French-educated student is one whose second foreign language is French. Shaaban & Ghaith (1999) explain that such educational systems are the reason behind the multilingual nature inherent in Lebanese culture. The new curriculum is also the reason why the Lebanese educational system has moved from bilingualism to multilingualism, with special focus on two main
languages. The participants that are included in this research come from both types of schools and thus have received different amounts of exposure to English and French. The study will later explain the effects of such differences on native speakers’ perceptions of these participants’ oral productions.

Statement of the Problem

The problem this study is trying to resolve is related to the presence of accentedness in English productions of Lebanese speakers even after achieving high levels of proficiency in the language. The fact is that even when standardized tests such as EET (English Entrance Test) place learners in the advanced category, the unawareness of certain phonetic rules of English prevents those learners from producing native-like utterances. Consequently, the aforementioned also affects the intelligibility of those utterances as perceived by native speakers of English.

There has been significant focus on the production of English consonants by Arabic speakers in terms of the lack of certain consonants in Arabic (like /p/ and /g/) or the insertion of unneeded vowels in initial positions. However, there has not been enough research on the influence of vowel length on the production of voiced and voiceless consonants. In Standard Arabic, the choice of vowel length is arbitrary and not according to certain phonetic rules as it is in English. Therefore, Lebanese speakers (beginners and advanced) do not follow the same vowel patterns in their productions as native speakers do when speaking English. Since a major degree of voiced/voiceless intelligibility depends on the vowel length in a syllable, this change in vowel patterns creates certain accentedness in Lebanese speakers’ productions. This might create a problem for learners
who are attempting to sound native-like or who need to prove their proficiency level in the language.

Also, there is little research done on the effect of vowel length patterns of advanced speakers of Lebanese Arabic. This paper will focus on demonstrating the fact that even Lebanese speakers who achieve high scores in standardized tests still face difficulties with certain areas of English phonology. That is mainly due to the fact that certain basic phonetic structures are not taught in the Lebanese language classroom, which ultimately affects the productions of the students.

Purpose of this Study

The current study has two main purposes. The first purpose is to explore the effect of vowel duration on the intelligibility of word final consonants produced by Lebanese speakers of English. There has been very little research on the vowel patterns of Lebanese speakers of English. Even though these speakers’ native language is a dialect of Arabic, the above background information has shown that the linguistic situation of these speakers is not the same as other speakers of Arabic. Therefore, this study seeks to provide insight into the phonological processes of a speaker of Arabic, English, and French. This is to determine whether the same patterns that have emerged in the productions of other speakers of Arabic can be applied to Lebanese speakers.

The second aim is to compare the productions of word-final consonants by intermediate Lebanese speakers of English to those of advanced speakers. When it comes to the research on Arabic speakers of English, very few studies have dealt with word-final consonants and whether vowel duration patterns can ever be achieved. In such
studies (Flege & Port, 1981), the main focus was on speakers who have taken English for up to five years. Very little research has been conducted on speakers with high language proficiency and the assessment of their productions. The purpose of this study is to show that without explicit phonological instruction, such phonetic features will almost never be mastered even by advanced Lebanese speakers of English. Thus, with the findings of this research, teachers of English to Lebanese speakers would perhaps know what to look for in eliminating a significant amount of an accent from the students’ speech.

Research Questions and Hypotheses

Questions

The current study addresses the following main questions:

1) Is there a significant difference between the intelligibility scores given to productions of advanced Lebanese speakers and those of intermediate speakers?

2) Is there a significant difference between the scores given by the linguistically-trained panel and the non-linguistically trained undergraduates?

3) Do the intelligibility ratings of the Lebanese participants correlate with their placements based on their EET scores?

Hypotheses

Hypothesis 1 addresses Research Question 1.

Previous research (Flege, McCutcheon & Smith, 1987) has shown that even at high proficiency levels, the skill of producing native-like vowel duration patterns is not acquired by non native speakers of English. Therefore, it is predicted that the difference between the intelligibility scores of the two groups will not be statistically significant.
Thus, advanced Lebanese speakers’ productions will not be quite “native-like” even though they have mastered a great deal of the language according to a standardized test.

H1: There is no significant difference between the intelligibility scores of intermediate learners and those of advanced learners.

Hypothesis 2 addresses Research Question 2.

The scores of the two panels can be similar and thus, the undergraduates’ scores would act as additional proof to support this study’s hypothesis. Therefore, the results from the undergraduates will simply corroborate those of the phonetically-trained colleagues. This would validate Flege’s (1984) findings which seem to indicate that any native speaker (even those who are not linguistically trained) can detect a foreign accent or mispronunciation of a phone in their native language by listening to as little as 30 ms of an utterance.

H2: There is no significant difference between the ratings given by the linguistically trained judges and those given by the non-linguistically trained judges.

Hypothesis 3 addresses Research Question 3.

Due to the absence of a speaking section in the EET, this test cannot account for the oral proficiency of the Lebanese speakers of English. Moreover, based on the results of the first research question, there will be a very low correlation between EET scores and intelligibility ratings.

H3: Standardized tests cannot account for learners’ proficiency of oral productions.
Definition of Terms

Accentedness (or foreign accented speech): defined by Munro (1999) as the “speech which differs audibly from native-speaker norms” (p.40).

Aspiration: defined by Ladefoged (2006) as “the period of voicelessness after the release of an articulation” (p.291).

AP (Advanced Participants): refers to the participants in this study who are enrolled in ENL213 and have received an EET score greater than 650.

FL (foreign language): refers to when a language is taught outside the country in which it is spoken and is thus mainly used only in a classroom setting.

Glottal Pulsing: a frequency or recurring periodic pattern of glottal pulses. Glottal pulses are produced by the vocal cords and the gap between them, creating a buzzing or humming sound. These pulses are the result of the vibration of the vocal cords and the buzzing sound that occurs because of those pulses is said to be distinct to each person. These pulses usually occur with voiced consonants or with vowels and are measured by linguists as indicators of the voicing nature of the phone.

Intelligibility: broadly defined as the ability of a speaker to convey a certain message to a hearer. In this case, it is the ability of a Lebanese speaker to clearly show the contrast between voiced and voiceless consonants.

IP (Intermediate Participant): refers to the participants in this study who are enrolled in ENL105 and have received an EET score between 500 and 550.

L1: refers to one’s native language, the first language an individual is exposed to.
L2: refers to the second language which an individual is exposed to. This exposure may occur as an individual is learning his/her first language or may occur after the first language has been established in an individual’s mind.

LTJ (Linguistically Trained Judge): refers to the native speaker judges in this study who have received formal linguistic training and are part of the Ohio University Linguistics program.

NLTJ (Non-Linguistically Trained Judge): refers to the native speaker judges in this study who have not received any formal linguistic training and whose major is non-linguistically related.

Voiced consonant: a consonant that is produced with the vibration of the vocal cords.
Voiceless consonant: a consonant that is produced without any vibration of the vocal cords.
CHAPTER 2: LITERATURE REVIEW

Introduction

Different languages across the world have a set of phonetic patterns or systems that allow a native speaker to intuitively recognize or produce a phone. Failure to phonetically produce a native-like utterance can be due to many different (and sometimes subtle) phonetic features. Some of those features include voice onset time (Flege and Eefting 1988), vowel length (Munro 1993), release bursts (Tuskada et al. 2004), and aspiration (Flege 1993). However, no matter how subtle a phonetic feature is, its alteration (no matter how small) will probably result in “accentedness” that a native speaker can detect. When it comes to English consonants, there are many characteristics that determine the production of a particular consonant. Some of those include aspiration, voice onset time, release burst, and glottal pulsing. Researchers have attempted to identify the conditions under which such characteristics act as indicators of accents.

When a non native speaker’s productions are not native-like, notions such as intelligibility, comprehensibility and accentedness come into play. Munro & Derwing (1999) explored the difference between the three concepts. The two researchers conducted an experiment in which they asked native speakers of English to listen to speech samples produced by ten proficient non-native speakers. As the judges were listening to the recordings, they were asked to do the following: transcribe the words (thereby giving the researchers an intelligibility rate), rate the comprehensibility of the utterance on a scale from 1 (extremely easy to understand) to 9 (impossible to understand), and rate the accentedness of the words on a scale from 1 (no foreign accent)
to 9 (very strong foreign accent). The experiment included two sessions (four days apart): the first session included the transcription and comprehensibility rating. Four days later, the judges were introduced to the same stimuli and asked to rate them according to their degree of accentedness. The study concluded that the three factors may be related but are also independent phenomena that can be measured on their own. The findings from this study also show that some judges give very low accentedness ratings even when they are able to transcribe the word correctly. This suggests that sometimes an accent (even when heavy) does not affect the comprehensibility of the utterance. The current study; however, is interested in the intelligibility of word final consonants in English and the effect of vowel duration on the production of such consonants.

**Interphonology and Acquisition of L2 Phonology**

In an attempt to better understand what constitutes an accent, Flege (1981) devised a collection of studies, including his own, with primary focus on age-related factors. Flege first discussed the notion of having a critical period beyond which it would be almost impossible for a learner to achieve native-like proficiency. Numerous linguists believe that after a certain age, certain neurological and phonological developments impede the achievement of native-like oral proficiency. Flege also introduced other components that are worth considering besides the aforementioned. When it comes to bilinguals, Flege stated that more important than age of learning is whether these two languages were learned at the same time. Flege maintained that if the second language was learned after the age of three, then the child will most likely code the phonological characteristics of his/her second language using his/her first. In addition, the researcher
highlighted the fact that research has shown that exposure to the language is also an important factor that influences accentedness or lack thereof. Flege also discussed the study by Flege and Port (1981) (see below) in which Saudi Arabian speakers produced certain consonants with an accent. Their utterances; however, showed no influence from any phonological properties of the Arabic language. Therefore, the most relevant conclusions in the article are the following: first, that learning one language before another usually leads learners (even a bilingual) to viewing the second language in terms of the first. Second, exposure to the language is an important component that influences accentedness. Thus, learning English as a foreign language at a very young age may not yield the same results as learning it as a second language. Finally, learners do not always apply the phonological patterns of their native language on their L2. Hence, the notion of interphonology emerges, where the productions of a non-native speaker are not quite native-like but still not consistent with those of the native language.

As it has been previously mentioned, interphonology does not always indicate a direct transfer from one’s L1 to their L2. It might sometimes be the case that certain phonological rules from L2 are overgeneralized across both languages but another possibility is for one’s phonology to be at an intermediate stage that reflects neither one’s L1 nor L2. Flege (1980) studied this phenomenon in order to create a hypothesis that explains this intermediary stage. His study focused on the characteristics of French Canadian children’s interphonology and the manner in which certain characteristics from their L1 influence their L2 productions. It is known that French VOT durations (0-30ms) are relatively shorter than those in English (60-90ms). That is due to the fact that VOT is
one of the characteristics that determine whether or not the consonant is voiced. Children whose L1 is French and who began learning English at a very early age were asked to produce words containing the consonants /p,t,k/ in both English and French. The English words were compared to those produced by native speakers of English. Two important findings came out of this experiment: the first is that the French Canadian children did not produce native-like VOT durations as did the native-speakers. The second finding is that the VOT durations that were produced in the English words were longer than those in the French words. Thus, there was no direct transfer of this phonetic characteristic from L1 to L2, but a creation of a new phonetic feature (in-between French and English) that constituted the children’s interphonology.

Similarly, Flege, McCutcheon & Smith (1987) explored the development of producing a word-final consonant in the English language. Their focus was on the perception of such productions from both native speakers’ and non-native speakers’ perspectives. The researchers included four groups of participants: American adults, American children, Chinese adults and Chinese children. All four groups were asked to produce words which contained /p/ and /b/ in word-final position. The productions were transcribed by the first author, initially, and were then given to a non-linguistically-trained native speaker. The judge was asked to write down what final consonant she heard in each word. The characteristic of interest in this study was the sustaining of voicing during closure. The findings showed that sustaining voicing in the production of /b/ is somewhat of a “skill” that native speakers develop over time, since in this experiment it was shown that American children were still unable to maintain voicing
(Flege, J., McCutcheon, M. & Smith, S., 1987, p.443). The researchers also found that both Chinese adults and children were unable to maintain voicing when producing /b/ which resulted in some difficulties for distinguishing /p/ from /b/ for the untrained native speaker. The findings of this research show that there are certain phonetic features that are acquired by native speakers over time which, if not learned, cause accentedness in the productions of adult non-native speakers even after prolonged exposure to a second language.

Major (1987) also studied the issues of acquisition of an L2 phonology and L1 interference. Similar to previous studies, Major stressed the fact that interference only occurs at the earlier stages of second language acquisition and is later replaced by what he called “developmental factors” (Major, 1987, p.207). Throughout most of the article, Major compared an L2 learner and a child L1 learner in order to better understand the former’s mental processes. Previous research has shown that the order of acquisition of certain language characteristics is the same whether a child is learning their native language or an adult is acquiring a second language. However, Major noted that in certain respects, an L2 learner has an advantage. He gave the example of a child native speaker of English and a Spanish L2 learner of that language. The researcher stated that there are three stages that a child native speaker goes through before being able to pronounce the words: puppy and Bobby. In the first stage, the two words are pronounced as: /pʌβi/ and /baβi/, in the second stage as: /pʌpi/ and /baβi/, and in the third stage as: /pʌpi/ and /babı/. A Spanish learner of English; however, would already be at the second stage of this process since intervocalic voicing would already be discarded in that language. Similarly,
a Spanish learner and a monolingual English-speaking child would go through three stages before acquiring the English vowel /ɛ/. A Portuguese learner, on the other hand, would have already acquired that vowel from their first language and would thus have no problem transferring the sound from Portuguese to English. Major also pointed out that L2 learners are sometimes at a disadvantage. Research has shown that rarely would a native speaker of English be able to say all the following consonants: /b,t,d,k,g/ but unable to produce /p/. A native speaker of Arabic; however, would face that difficulty up to a certain point because of the absence of that consonant in the native language. There are two very important conclusions drawn in this chapter. The first is that interference only occurs at the beginning stages of second language acquisition. The second conclusion is that though one’s native language might give an L2 learner an advantage in some instances, it can also act as a hindrance to acquiring certain phonetic features in the target language.

Vowel Duration across Languages

In the past few decades, linguists have been trying to characterize and classify phonetic features as being either language specific or universal. Such classifications help researchers identify which features are going to be the most problematic and which are easily transferrable among languages. One of the most important features studied is vowel length duration with respect to voiced or voiceless word final consonants. Chen (1970) was among the first linguists to study vowel length as a cue to the voicing of the word final consonant across languages. His study included four different languages: English, French, Russian and Korean. The researcher investigated whether or not vowel
length patterns are language-specific (i.e. exist only in English) or whether there is some sort of universal physio-acoustic characteristic that governs all vowel durations. In his experiment, Chen included several minimal pairs from all four languages. The words were as close to each other as the languages allowed. The researcher then measured the vowel lengths before each word final voiced and voiceless consonant. It is important to mention that Chen himself stated the technological limitations that hindered certain acoustical measurements. However, with his use of two different means of collecting data (Pitch-program and Oscillograph), he asserted that the vowel length measurements were quite accurate. From the measurements, it was clear that all the languages in this study have longer vowels before voiced consonants and shorter ones before voiceless consonants. However, the difference in vowel lengths was not the same across all languages. English, however, had the most significant difference (the ratio between a vowel before voiced consonant and one before voiceless consonants in English was 0.61, whereas Russian, French, and Korean measured 0.82, 0.87, and 0.78 respectively). From the above results, Chen made two conclusions: first, even though only four languages were studied in this experiment, previous literature and the current study have proved that vowel length patterns are a universal phonetic characteristic across all languages. Previous literature has, in fact, corroborated Chen’s (1970) claims. In his book on French phonology and morphology, Schane (1968) claims that vowels are lengthened before certain voiced consonants (continuants excluding nasals). Chen’s second conclusion was that although all languages possess that characteristic, they differ in the ratios of the vowels depending on the environment and the consonantal features of each language.
After Chen’s (1970) research; however, many other studies attempted to investigate his generalization. Port, Al-Ani & Maeda (1980) attempted to determine whether or not all languages have certain changes in their vowel lengths in order to accommodate for neighboring consonants (the vowel is shortened if the consonant is long, and lengthened if the consonant is short). It was first explained that English maintains stressed syllables at a constant length. Moreover, the length of V+C is also consistent. However, English voiceless consonants tend to be longer than voiceless ones and therefore, to maintain the length of the syllable, the English language has what is called *temporal compensation*, which is the lengthening and shortening of the preceding vowel in order to compensate for the excess or lack in length of the following consonant. Previous literature had maintained that such compensation is universal; however this study investigated that claim. The researchers explored two languages besides English: Arabic and Japanese. Words containing voiced and voiceless consonants preceded by the same vowel were uttered by native Arabic speakers. The vowel lengths were measured and correlation tests were conducted in order to determine whether the lengthening or shortening of the vowel was due to the consonant that followed it. Results showed that there was no evidence that vowel duration is due to the length of the consonant that follows it. There was little difference in vowel duration before the two stops: /t/ and /d/. Therefore, unlike English, Arabic has no vowel patterns which compensate for the following word-final consonant.

Although Chen’s (1970) study clearly proves vowel duration patterns in English, other phonetic features later emerged as indicators of the voicing characteristics of a
word final consonant in the English language. All of these cues are acquired by native speakers over time and are consistently used in the perception and production of voiced and voiceless word final consonants. Linguists have long conducted research to determine which of these cues are the most important in the production of such consonant by native speakers of English. Similarly, linguists later became interested in determining which of these features native speakers of English rely on to perceive word final consonants and to detect an accent.

The Importance of Vowel Duration as a cue to Word Final English Consonants

In 1972, Lawrence Raphael conducted a study to determine whether vowel duration can act alone as a cue to the voicing nature of a word-final consonant in English. The experiment consisted of Raphael recording several minimal pairs containing both voiced and voiceless consonants (stops, fricatives and clusters). He then altered the length of the vowel before a voiced consonant (made it significantly shorter) and voiceless one (made it longer) in order to see whether this would have an effect on native speakers’ perception of the subsequent consonant. The researcher played the series of minimal pairs to 25 undergraduate students who were then asked to choose the correct word they had just heard. The data was presented in a forced choice format and participants had to choose which word carrying the word final consonant they had just heard. Raphael concluded that most often, the hearers would confuse a word with a voiced word final consonant with that of a voiceless one due to the shortening of the vowel length. Therefore, while vowel duration is not the only characteristic in determining the voicing
nature of a word-final consonant, it certainly is enough to act as a cue to detect a
voiced/voiceless consonant.

In 1975, Raphael sought to determine the specific vowel patterns in English word-
final position, and their effect on the consonants that follow. His experiment included a
group of native speakers of English who uttered a number of sentences containing a list
of minimal pairs. After the utterances were recorded, the vowel lengths were measured in
each of the words to determine if there was a difference between the pairs. Based on the
measurements, Raphael concluded that in English, vowels are longer when followed by a
voiced consonant in word-final position than when followed by a voiceless one. In some
instances, the vowel was a little more than twice the length when preceding a voiceless
consonant (/i/ was measured to be 360 ms when preceding /v/ in thief) than a voiced one
(/i/ was measured to be 150 ms when preceding /f/ in thief). Therefore, Raphael was able
to prove that there is a significant durational difference between vowels before voiced
and voiceless word-final consonants.

Raphael, Dorman and Geffner (1980) conducted research in order to determine
the age by which a native speaker of English is able to perceive and produce this
durational difference. This study focused on the characteristics of word final voiced and
voiceless consonants in the oral productions of three- and four-year old children. The
researchers used certain elicitation techniques (such as pictures or sentences) to induce
the production of seven minimal pairs containing voiced and voiceless word-final
consonants. The most significant result of this study is that the participants were able to
produce vowel duration patterns very similar to adults (on 90% of the utterances). Other
characteristics of word-final consonant voicing (other than final consonant closure) were still not fully acquired by native speakers at such an early age. Therefore, this study concludes that one of the first cues to word final consonant voicing that is acquired by a native speaker of English (as early as three years) is the duration of the preceding vowel.

Many researchers since then have duplicated Raphael’s research in an attempt to prove or disprove the primacy of vowel length in determining the voicing nature of a word final consonant. Hogan & Rozsypal (1980) evaluated the role of vowel duration on a set of different consonants. Their research comprised a large number of consonants including stops, fricatives and clusters (which include both stops and fricatives). Only the voiced consonants; however, were tested and that is because the pilot study results showed that voiceless consonants were not affected by the change in vowel duration. Fourteen speakers of Canadian English were asked to listen to 72 words whose vowel duration was shortened before a voiced consonant. Results from the experiment showed that vowel duration alone can only account for the identification of voiced fricatives and clusters. However, according to the findings of this research, the identification of voiced stops required a combination of phonetic characteristics including vowel duration, voice bar duration, silent closure duration, and burst duration. The reason given by the researchers for the aforementioned conclusion is that a word-final fricative has fewer characteristics that determine whether or not it is voiced, and for this reason, vowel length plays a major role in determining its voicing nature.

In his introductory book on Phonetics, Ladefoged (2006) provided an overview of all the phones and phonetic characteristics in the English language. In it, Ladefoged
provides all the different phonetic characteristics that are involved in the production of an English consonant or vowel (these include place and manner of articulation, voicing, aspiration, VOT, etc). The author also mentions in the section on length the fact that in English a vowel is longer when preceding a voiced consonant and shorter when preceding a voiceless one and this is due to the fact that a voiced consonant is usually shorter than a voiceless one. Ladefoged continues by comparing other languages that share this phonetic characteristic with English and others that have different cues to voiced and voiceless consonants.

Other linguists sought to stress the fact that it is not only vowel length that affects the intelligibility of the word-final consonant. However, while most of these linguists tried to highlight the importance of other features such as release burst (see Fruin, & Peach, 1984) or spectral structures (see Nittrouer and Lowentsein, 2008), few of them could actually prove that vowel length has minimal effect on the intelligibility of the voicing of the subsequent consonant. One such study was conducted by Fruin and Peach (1984), who attempted to diminish the role of vowel length in the perception of word-final consonants. Their study explored the different characteristics that cue the voicing nature of a word-final consonant. The researchers dealt with thirty subjects in total, divided into three age groups (10 three-year olds, 10 six-year olds and 10 adults). Experiments were conducted in order to determine whether native speakers of different ages rely on different cues in order to recognize whether the final consonant in a word is voiced or voiceless. The experiments included changing certain aspects in a word (or syllable) in order to determine which feature native speakers rely mostly on when
recognizing a word-final consonant. These changes included vowel lengthening (or deletion), deletion of voicing, deletion of final consonant…etc. The results showed that only three-year olds rely solely on vowel duration to determine the voicing nature of the consonant that follows it. Six-year olds relied on the consonant itself (the voicing and release burst) to determine the nature of its voicing and the deletion of the preceding vowel had little effect on the recognition of the final consonant. Adults, on the other hand, seem to be a combination of both preceding groups. Their perception of the voicing of the final consonant is significantly affected when the preceding vowel is deleted (just like three-year olds). However, their perception is also significantly affected when the consonant itself is deleted (just like six-year olds). Therefore, although this study is attempting to prove that the perception of a word-final consonant is affected by many factors other than preceding vowel duration, it still does not deny the fact that vowel length still has a major influence on the intelligibility of a voiced or voiceless word-final consonant, especially when it comes to adults’ perceptions. Moreover, later studies (Luce & Charles-Luce, 1985; Flege, 1987; Flege and Hillenbrand, 1987) were able to highlight the inconsistency of other cues (such as release bursts and closure duration). Flege (1987) conducted a study to determine the importance of release bursts in signaling both French and English word final consonants. Several minimal pairs were altered in such a way that the release burst was inaudible. Fifteen native speakers of English and fifteen native speakers of French were asked to identify the final consonant in each word. The most important finding in this article is that the absence of the release bursts had no effect on
the English speakers’ ability to determine what consonant they heard whereas French speakers faced a lot of difficulties in identifying the consonant.

Luce and Charles-Luce (1985) were among the researchers who attempted to reexamine Raphael’s (1972) claim in order to prove the primacy and consistency of vowel duration as a cue to word final consonant voicing. The authors acknowledged the existence of literature that attempts to highlight the importance of other phonetic cues that signal voicing features in consonants (among the studies cited were Raphael, 1981; Wardrip-Fruin, 1984). Luce and Charles-Luce also pointed out the fact that there are numerous other studies that prove the importance of vowel duration. Therefore, the purpose of this study was to investigate the consistency and importance of vowel duration and closure duration with respect to sentence position, type of phonetic environment that comes after the word-final style, place of articulation of the word final consonant, and duration of the preceding vowel itself. The study consisted of two experiments. The first experiment included nine native speakers of English. The researchers chose nine minimal pairs that only differed in the voicing of the word final consonant. They then had the participants read them 144 sentences aloud (18 words in four different carrier sentences) and, as naturally as they could (so that the subjects wouldn’t place any unnecessary stress on the words being studied). The sentences were recorded and then both vowel duration and closure duration were measured for each of the sentences. A five-way analysis of variance was conducted between all the characteristics aforementioned and two others (in this case vowel duration and closure duration) in order to determine the effect of those characteristics on the reliability of these two cues. Analysis of the data showed that vowel
duration consistently identified voiced word final consonants even when the voicing nature of the consonant was modified due to sentential position. Closure duration, on the other hand, failed to cue a voiced consonant almost 50% of the time. The second experiment was a form of replication of the first, only word final consonants were replaced with fricatives and one of the high front vowels was replaced with a low front one. The participants were also replaced by four different native speakers of English. The same analyses were conducted and vowel length again remained the most consistent determiner of voicing in word final consonants. The most interesting finding in the second experiment is that closure duration failed to signal voicing 83% of the time. The researchers conclude that while a lot of studies are being conducted to undermine the importance of vowel length, their experiments were able to prove that it was the most consistent with respect to five different phonetic characteristics.

Fischer and Ohde (1990) also attempted to determine the importance of vowel duration on the perception of word final consonants. They investigated the effect of vowel duration and changes in the final first formant F1 transition on the perception of word final consonants in English. The experiments included ten adult native speakers of English. The study included two experiments: the first experiment had the participants rate what they heard on a scale from one to six: 1: the participants are sure they heard /voiceless consonant/ and 6: the participants are sure they heard /voiced consonant/. Anything between those two numbers indicated that the participants were not quite sure what they heard. The second experiment included forced choice tests where the participants had to choose either a voiced or voiceless consonant. In both experiments,
certain acoustical properties (including vowel duration) were altered in order to determine which of those properties had the most effect on the word-final consonants. The most important finding of this article is that vowel duration does play a significant role in determining the voicing nature of the following consonant. While it has greater effect for vowels with low F1 steady states, the researchers do not eliminate its role completely from vowels with high F1 states. They rather claim that vowel duration “carries more perceptual weight than F1 spectral cues for the former than the latter” (Fischer and Ohde, 1990, 1258).

Raphael himself conducted further research in an attempt to reevaluate the importance of vowel length with respect to word final consonants. In 1981, Raphael and Lehman investigated the phonetic characteristics which can independently act as cues to the voicing nature of a word-final consonant. His research focused on the two stops /k/ and /g/ (in the minimal pair /peg/ and /peck/) in their isolated form and embedded within a sentence. The study included two experiments: the first included having a native speaker produce the words (ten times each) in isolation. Then, certain modifications to the words were made (such as shortening the vowel, the closure and release deleted). The modified versions of the stimuli were then given to three linguistically-trained phoneticians (as a pilot test) and they were asked to determine whether the final phone is a consonant or a vowel and if it is the former, to transcribe its symbol. After that, two tokens of each word were chosen and administered to 10 participants: 5 linguistically trained judges and five undergraduates. The participants were asked to write either “peg” or “peck” on their answer sheet depending on what they heard. The second experiment
included having the two words in the following carrier phrases: “a______above; a______shorter” in order to ensure that both consonants are followed by a vowel and a consonant. The sentences were mixed and also administered to both groups of participants. There are two important conclusions that are drawn out in this study: the first is that every phonetic characteristic altered here acts as a cue (to some degree) to indicate the voicing of the consonant following it. The second conclusion is that the two most generally sufficient cues that signal the contrast between /k/ and /g/ are: absence of closure voicing and vowel duration. And so, once again, the importance of vowel length emerges as a necessary cue in determining whether a word final consonant is voiced or voiceless.

The Importance of Vowel Duration as the Cause of Accentedness

While the debate on the importance of vowel length in English word-final consonants was still ongoing, many other linguists sought to apply Raphael’s (1975) findings to non-native speakers’ oral productions as well. If vowel length patterns do act as strong indicators to the subsequent consonant, then a change in them must create a certain form of accentedness in the non-native speaker’s utterances.

Flege (1993) explored the degree of influence that vowel length has when he studied the production of the consonants /t/ and /d/ in word-final position. He only focused on vowel length and its influence on the intelligibility of those consonants. The study included four groups of participants (one including native speakers and three others including non-native Chinese speakers with differing proficiency levels). The researcher conducted four experiments in which he measured the vowel lengths of the utterances
produced by each of the four groups. Flege (1993) found that the higher the proficiency level of a participant, the more similar his/her vowel patterns were to that of a native speaker. The researcher also found that the vowel length patterns correlate highly with the accentedness of the productions by non-native speakers: the more different the vowel patterns, the less correct the productions of the English utterances. From the above study one can conclude that while it takes at least four features to produce an English consonant correctly, a change in only one of them can create accentedness. In this case, the change in vowel length patterns alone could make the productions seem accented to native speakers of English.

Broersma (2005) also explored word final consonants; however, his research only dealt with perception of such consonants. The two experiments in his study focused on speakers of two different languages: Dutch and English. Dutch is a language that does not allow word final voiced consonants. In other word positions (word initial or word medial); however, Dutch has similar vowel length patterns that signal the presence of a voiced or voiceless consonant that comes after it. This study includes two experiments: one which focuses on the contrast between voices and voiceless word-final consonants and another which examines the role of vowel duration in the perception of this contrast by both groups of participants. The first experiment showed that Dutch speakers are able to perceive word final voiced and voiceless consonants as accurately as English speakers. In the second experiment, the researcher changed the vowel durations in such a way that they even mismatched the other cues that determine whether the final consonant is voiced or voiceless (the researcher significantly lengthened the vowel before a voiceless
consonant and shortened it before a voiced one). The researcher concluded that even when the vowel duration mismatches other features, English speakers still rely on it to determine the voicing nature of the final consonant (even to the point of giving the wrong final consonant). Another important finding is that English speakers are more likely to be affected by vowel duration when the vowel is unnecessarily lengthened rather than shortened (this is why there was a large number of speakers who perceived /f/ as /v/ because of the lengthening of the vowel before it). That is native speakers of English are already used to vowel shortening that occurs in fast natural speech and therefore the shortening of the vowel before a voiced consonant is not perceived as an anomaly to them. However, the process of lengthening a vowel does not occur in natural speech and this is why it is most likely to affect their perception of the word-final consonant.

Flege, Munro and Skelton (1992) also conducted a study to explore the non-native productions of /t/ and /d/ in word-final position. The study included three groups of participants: one that had native speakers of English and two that had speakers of Spanish and Mandarin Chinese. The two groups of non-native speakers of English were also divided into intermediate speakers of English and advanced speakers of English. The three groups were asked to read a list of words with CVC construction that had minimal pairs including /t/ and /d/. This study focused on three characteristics of consonant production but had special emphasis on vowel length. In order to do that, the native speakers were given two versions of the utterances by the non-native speakers. The first one included the entire word while the second was edited by removing the release bursts at the end of the words. Like the aforementioned study, this paper also found that the
vowel lengths of non-native speakers’ utterances were considerably shorter before /d/ than were those of native speakers. However, the most interesting finding of this paper is that the difference between the advanced and intermediate non-native speakers of English was not that significant. The researchers concluded that less than 21% of the 40 participants had actually mastered the word-final t/d contrast in the English language. Regression analyses indicated that native speakers of English tended to rely on vowel length duration more when other cues were absent from the utterance, i.e. in the “edited” versions of the utterances. However, the fact that they relied more on such a cue in edited versions does not indicate that the judges did not rely on vowel lengths entirely in the original versions. This finding also suggests that when a language shares most cues for word final consonants (except vowel duration) with English, native speakers of English are likely to rely heavily on vowel length patterns to determine accentedness.

Flege (1981) conducted a study on word final consonants in English and Arabic as well. His study was aimed at determining whether all non-native productions are caused by interference from L1 phonology or whether there is an intermediary stage, “interphonology”. Flege began the study by stating that so far inaccurate productions in one’s L2 have been solely attributed to the notion of interference from L1 phonology. With the introduction of the term “interlanguage”, Flege believed that interphonology should also have a place under that umbrella. He then went on to explain how the modifications and changes a second language adult learner makes to his/her oral productions are very similar to those made by a child learning their first language. Thus, the productions that are made between one’s L1 and one’s mastery of L2 should not only
be viewed as the result of some interference from the L1 phonology. Flege explained that sometimes the inaccuracies in oral productions cannot be explained or do not even exist in one’s L1. Flege wanted to explore two languages that shared the same phones but differed in their manners of production. The researcher argued that English and Arabic share a lot of the consonants (except /g/ and /p/) but the manners in which they are produced both word-initially and word-finally are quite different. The voice onset timing occurs soon after the release of a stop in Arabic, while it occurs later in English. Also, Arabic does not rely on the change in the length of the vowel as a cue to the voicing characteristic of the consonant that follows it, as in English. Arabic simply relies on glottal pulsing (or voicing) to differentiate between word-final voiced and voiceless consonants. The researcher conducted an experiment that consisted of three groups of participants: one group included American speakers and two others included Saudi Arabian speakers of English. The way the two groups of non-native speakers were separated was based on their length of residency in the U.S. All the participants were asked to produce sentences carrying voiced and voiceless consonants in both word initial and word final positions. All the words had a CVC construction. The researcher then compared certain phonetic characteristics of these consonants (such as VOT, preceding vowel duration, stop closure, etc) between the native speaker group and the two non native groups. In terms of vowel duration, the researcher found that the vowel lengths produced by the Saudi Arabian speakers were not quite native-like, however, they were not representative of the speakers’ L1. This seemed to suggest that these participants are at an intermediate stage between their L1 and native-like proficiency of L2. Flege also
pointed out that the more advanced Saudi Arabian group clearly showed knowledge of vowel duration differences in English and an attempt to approximate them. Flege concluded that though his study did not show that a single non-native speaker was able to produce all consonants as native-like, it did prove that even adult learners were able to make changes to their existing phonetic characteristics, albeit at different rates, in an effort to produce L2 utterances in a native-like manner.

Flege and Port (1981) corroborate the findings of Raphael (1975) and Flege (1993). Flege and Port’s study, however, focused on four of the main features that determine whether or not a word-final consonant is voiced or voiceless: voice onset time, vowel length, closure interval, and glottal pulsing. The two researchers were also interested in determining whether the pattern in producing English consonants is the same as that of producing Arabic ones. They studied two groups: one which had native speakers of Arabic and another which included native speakers of English. Both groups uttered words from their native languages that contained minimal pairs including voiced/voiceless consonants in word-initial and word-final position. When it came to consonants in word-final position, the researchers measured the vowel lengths (along with three other features of consonants) for both groups and found that there was a considerable difference between the length of a vowel before a voiceless consonant and a voiced one in English. However, they found little difference between the lengths of vowels before a voiced or voiceless consonant in Arabic. Flege and Port (1981) took the experiment further by asking the native speakers of Arabic to produce the same words that the native speakers of English did. After measuring the vowel lengths of the new
utterances and comparing them with those of native speakers, the researchers noticed that vowel lengths produced by Saudis were 25 ms (on average) shorter than those produced by Americans. Flege and Port (1981) conducted a third experiment in the same study where they asked selected phonetically-trained native speakers to transcribe the English utterances produced by the Saudi participants. The most interesting finding in that experiment is that the judges produced twice as many mistakes when transcribing the word-final consonants as they did with word-initial ones. In terms of word-final consonants, there were two features that Saudi speakers produced different from American speakers. The first was vowel length: American speakers consistently produced longer vowels before voiced consonants and shorter vowels before voiceless consonants, which is consistent with previous literature (Raphael, 1975). The utterances produced by Saudi speakers, on the other hand, did not have significant vowel duration differences between voiced and voiceless word-final consonants. This led the authors to conclude that of the four phonetic features, vowel length might have been the most influential in the difficulty of distinguishing between the pair: *tab* and *tap*. The second feature that was produced differently by both groups is closure duration. The American speakers made the voiceless word-final consonants longer than the voiced consonants, which according to Flege and Port, is a form of compensation for the length of the vowel that precedes them. The Arabic speakers’ utterances, however, had less significant contrast between the closure duration of voiced and voiceless consonants. This shows that Arabic does not have a temporal difference between word-final voiced and voiceless consonants like
English does, which explains why there is no need for vowel duration changes before voiced or voiceless word-final consonants.

Munro (1993) has also explored the difference in vowel lengths between English and Arabic. His article explores the production of English vowels by Arabic non-native speakers and the subsequent effect it had on the intelligibility of those vowels. The study was divided into two experiments: one that compared the vowel lengths of native speakers to that of Arabic speakers and another that included native speakers’ assessment of the accentedness of the Arabic speaker’s productions. However, unlike the previous experiment, this study did not explore the effects of the vowel lengths on the intelligibility of the consonants. Twenty-three participants from all over the Arab world and two American native speakers of English were asked to read specific sets of words that include four vowels embedded in two consonants (bVt; bVd). Five native speakers were then asked to judge the utterances and rate them in terms of accentedness. Through the acoustic measurements, this study has shown that most of vowels uttered by Arabic speakers’ differ from those of native speakers in at least one feature (movement or frequency). Also, through the ratings of five native speakers, it has been shown that there was a correlation between the accentedness rating and the change in one of the features. Therefore, the more deviated a vowel is from the norm (native speaker production) the more accented it was according to the judges. The article offers insight into and encourages more research into particular vowels that portray accentedness in a more systematic manner than others.
Mack (1982) also attempted to determine the difference in vowel lengths between two languages, in this case English and French. This study focused on the oral productions of bilingual adults and whether these subjects are able to produce utterances in both languages in a native-like manner. Mack (1982) cited several studies that compared English to other languages (such as Russian, French and German) in terms of vowel length before voiced and voiceless consonants. These studies have concluded that English seems to be a unique language in the fact that it has the largest difference in vowel lengths in the aforementioned positions (the length of a vowel before a voiceless consonant is only 67% of that before a voiced one). The researcher argued, though, that these studies have limitations because the words that are compared in the two languages have different word final or word initial consonants and so the comparison is not exact.

As a result, Mack attempted to use homophones (or near-homophonous words) in English and French in order to determine, in a more precise manner, whether the significant difference between the two languages does exist. Mack also wanted to investigate the productions of these words by bilinguals (whose first language is French) in order to determine the effect of the native language on the productions in English. The participants consisted of three groups with six participants in each: two monolingual groups (one group consisted of English monolinguals and the second of French monolinguals) and a bilingual group (whose native language is French and L2 is English). The experiment consisted of asking the first two groups to produce a set of words in their native languages while the third group was asked to produce both sets of words (in English and French). Two very important results emerged from the study. The
first is that the length differences between English and French vowels before voiceless consonants are not quite significant. However, vowel lengths before voiced consonants in English are significantly longer than those in French (285.3 ms in English as opposed to 182.1 ms in French). The second important finding is that the bilingual group produced the English words in a non-native like manner (i.e. without utilizing the same vowel length patterns as an English native speaker). Although the vowel lengths were slightly longer than the French productions, Mack argued that French influence is clearly affecting the native-like production of these monosyllabic words in isolation. Mack speculated on whether formal instruction can help bilinguals surpass the influence of their native language and attend to native like proficiency in their second language.

Crowther and Mann (1992) investigated the perception and the production of word final consonants by speakers of languages that do not allow for word-final consonants. The study included three experiments: the first experiment focused on vowel duration and $F1$ offset frequency. This experiment included three groups of participants: ten American undergraduates, ten Japanese learners and 10 Chinese learners. The researchers elicited the words “pod” and “pot” by having the participants read them within a carrier phrase. The vowel durations were then measured in all the participants’ productions. Crowther and Mann found that there is some difference in the vowel length before voiced and voiceless consonants in the non native speakers’ productions. However, as previous research has shown (Flege & Port 1981; Mack, 1982), the difference is not as significant as that produced by native speakers of English. The researchers also observed that there were some differences between the Japanese and
Chinese learners, the former group had closer vowel length patterns to native speakers of English than did the latter. This possible explanation for the aforementioned was that the Japanese learners were more familiar with the phonemic quality of long and short vowels and thus, it is easier for them to apply that to the phonemic vowel patterns before word-final consonants in English. The second experiment included a set of edited and unedited words and focused mainly on the importance of release bursts and closure intervals of word final consonants. The third experiment included a forced choice test where students listened to three different sets of the same pair of words (‘pot’ and ‘pod’). One of the sets had the unedited form of the pair and the other two had altered vowel durations. The participants were the same as those of the first experiment. Results from this experiment show that Japanese learners seem to rely on vowel duration as a cue to voicing more than Chinese learners. The researchers reasserted their claim that it could be because of the presence of phonemic vowel duration in Japanese. However, Crowther and Mann compare their conclusions to those of Flege and Port (1981) who had Japanese and Arabic speakers. Vowel length in both Arabic and Japanese is phonemic. Crowther and Mann attempt to explain why Arabic speakers do not apply this characteristic to their use of English and they conclude that Arabic also allows for word final consonants. Since there are other cues that exist in determining those consonants, it is not likely for Arabic speakers to extend phonemic vowel duration to consonants in that environment. Because Japanese does not have word final consonants, it is easier for Japanese speakers to do so because they can create a whole new category of cues for word-final English consonants that does not conflict with their native language.
From the above studies, it is clear that native speakers have the ability to produce and perceive the phonetic features of their language after a certain age. Therefore, any change in those features will cause accentedness that a native speaker should supposedly detect. For this reason, researchers have attempted to rely on native speaker intuition in order to assess or rate the intelligibility, accentedness or comprehensibility of non native speakers’ oral productions. However, when it comes to ratings as such, little research has been done on what kind of scale to provide for the judges that ensures accurate scores.

Southwood & Felge (1999) investigated the optimal rating scale for language characteristics in one of their studies. The authors also highlighted the fact that there has been little research that investigates the best way for judges to rate language features such as intelligibility, comprehensibility and accentedness. An experiment was conducted in which two methods of rating were investigated: metathetic rating and interval rating. The first method consisted of giving the judges a word (called the modus whose value is equal to 100) which acted as the baseline to which other utterances were compared. If the word was twice as accented as the “modus”, then the judges would rate it as 200, if the word is as accented as the modus, then the judges would give it a score of 100. The other form of rating was a Likert scale of 1 to 7 (1 being least accented and 7 being most accented). Twenty listeners (native speakers of English) were divided into two groups and asked to judge utterances produced by 90 Italian speakers and six native English speakers. After conducting the necessary t-tests and reliability tests, the authors concluded that interval scales are more accurate than metathetic ones for rating linguistic characteristics. They also claimed that interval scales of 1 to 9 or 1 to 11 are the most reliable with respect to
number scales, as they enhance the judge’s awareness and sensitivity to what is being presented to him/her. Another important conclusion is that a judge who is aware of or listening for more phonetic cues is likely to give a lower rating for accentedness. Several researchers (Munro & Derwing, 1999) integrated one of those two scales into their experiments and acknowledged their being one of the most accurate means for rating language-related characteristics.

Conclusion

As has been shown through various types of research, the production of a single phone depends on the interaction of many phonetic features. Native speakers usually acquire all those features early on (by the age of three as Raphael (1980)) and are able to identify when the phones are produced incorrectly, even without any linguistic training. Non-native speakers, on the other hand, have to learn those features as they are learning the language. If these features are not provided through formal training, non-native speakers struggle when producing the L2 phones. Many studies have focused on consonants in word-final position with various characteristics that come into play in their production. However, several studies have also shown that the change of one of those features is enough to signal a certain form of accentedness in the native speaker’s mind. Since vowel length is one of the most discernible even to an untrained ear, several studies have attempted to demonstrate that even advanced non-native speakers are unable to produce correct vowel length patterns and that influences their voiced/voiceless contrast. However, little research has been done on such productions by Lebanese speakers of
English (who are almost always bilinguals) to see whether the aforementioned hypothesis also applies.

This present study will focus on the intelligibility of Lebanese speakers’ word-final voiced and voiceless consonants. Although Flege and Port’s (1981) study showed non-native productions in word-initial consonants as well, vowel duration is a more discernible feature than those that cue word-initial consonant voicing. Also, the study showed that even though the productions of word-initial consonants were produced with an accent, their intelligibility was better than that of word-final consonants. This study’s hypothesis is similar to that in Flege, Munro and Skelton’s (1992) study, whereby advanced learners and intermediate learners are not expected to have significant differences in their productions of the English consonants. However, this study will include a larger array of voiced/voiceless consonants and will allow the native speakers to transcribe what they think they have heard and then rate the utterance based on how intelligible it was (as opposed to the forced choice test in the aforementioned study). The current paper will only be focusing on one of the characteristics of word-final consonant production: vowel length patterns and their influence on word-final consonants. The reason why only one of the characteristics was chosen is because vowel length, as numerous studies (Raphael, 1972; Flege, 1993; Munro, 1993) have shown, is one of the most discernible characteristics whose deviation is easily identified by native speakers as accentedness. Because it is easily identifiable, the vowel lengths of the Lebanese speakers will not be acoustically measured. The study will rely on the judgments of both linguistically-trained and non-linguistically trained native speakers to rate the
intelligibility of the final consonant by using minimal pairs. It has already been proven by several studies that native speakers are able to discern correct or incorrect productions of their own language even when introduced to as little as 30 ms of an utterance (see Flege, 1984; Raphael 1980). Thus, this research will be relying on native speaker intuition to judge the non-native speakers’ utterances.
CHAPTER 3: METHODOLOGY

Subjects

This study included four groups of participants, divided into two categories: subjects (non-native speakers of English) and judges (native speakers of English). In his book on research in Applied Linguistics, Dornyei (2007) claims that when comparing or conducting research between two groups of participants, the study should include at least 15 subjects per group. Therefore, the subjects group consisted of 30 Lebanese speakers of English with intermediate and advanced proficiency levels. The choice of subjects depended on their score on the EET (English Entrance Test). The EET is a test that was designed by Notre Dame University in Lebanon and is mostly based on the TOEFL (Test of English as a Foreign Language) test (see Appendix A for a sample of the test). This test has three main sections. The first assess the learner’s language usage through error analysis and multiple choice questions. The second evaluates the student’s critical reading skills through comprehension and vocabulary questions. The third assesses the student’s writing skills through an argumentative essay. It is important to mention that none of these sections evaluates the student’s oral proficiency. Based upon the results obtained in the EET, students are either required to take some English remedial courses or allowed to take full academic classes. If a student obtains a score between 500 and 550, then they are required to take a remedial course (ENL 105) for 5 credits. This course is one of two intensive English courses (the other is ENL 110) after which a student can register for regular academic courses. If a student gets a score above 650, then they are admitted to the university as a full-time student and are required to take ENL 213 (please
refer to Appendix B for the syllabi for both courses). Therefore, the intermediate level group was comprised of Lebanese university students who were placed in ENL 105 because of their EET scores (as opposed to having passed all remedial courses and graduating into a higher class). The advanced level group included university students who were enrolled in ENL 213 also because of their scores. For both groups, the researcher chose the students who had taken the EET within six months of the experiment so that the score would remain valid.

All the participants were asked to fill out a bio-data questionnaire (please refer to Appendix C for a copy of the questionnaire) before starting, in order to get as much of a homogenous group as possible. The two groups consisted of two types of learners: the first type is the “French-educated” learners, i.e. their first foreign language is French, which they started learning at an early age (the age of 4) and English is the second foreign language which they learned much later in school (the age of 11). The other type is the “English-educated” learners, i.e. their first foreign language is English and they may or may not have taken French later on. From the name of the school they attended, the researcher was able to determine which language the subjects were first exposed to. From the data collected, around 67% of the intermediate group was French-educated whereas 80% of the advanced group was English-educated.

The second group of participants included a total of six judges, all of whom are American university students. The first panel included three non-linguistically trained undergraduate students whose fields were not related to Linguistics in any way. The second panel included three colleagues from the Ohio University Linguistics department.
This group of participants was phonologically-trained and aware of the phonetic characteristics that the study measured and evaluated.

Instruments

The main instrument of this study was a paragraph (in the form of a children’s rhyming story) based on Dr. Seuss’s “And to think that I Saw It on Mulberry Street” ((please refer to Appendix D for a copy of the paragraph). Two conditions were central to the formation of the paragraph: it had to include the minimal pairs that represent the phonetic features to be studied, and it had to be disguised in such a way as to sound like a children’s story to be read to a younger sibling. Based on the suggestions by Monroe (1993), the words focused on four vowels: /æ/, /i/, /I/, and /ɛ/. As for the consonants, the words included the following: t/d, p/b, s/z, k/g, and f/v. The minimal pairs were placed in two locations: mid-sentence and sentence-final in order to vary sentential stress and intonation. In accordance with the aforementioned literature, words are usually placed in such sentential positions in the carrier phrases (see Flege 1984). Having the paragraph in the form of a short poem helped in ensuring the fact that participants pause at the end of each verse. The judges were told that the phrases they were about to hear were taken out of context and so the song-like intonation that is imposed by the poem did not create an impediment for the listeners.

Procedure

A bio data questionnaire was first collected from the participants in order to categorize them according to their first foreign language, amount and type of exposure to English, etc. The participants were then asked to read the story three times. They were
told to read the text as naturally as possible and as if they were doing so to a younger sibling. The productions were recorded in a quiet room using a digital sound recorder. After listening to all the productions, the researcher chose the second recording to extract the minimal pairs from. The reason behind this choice was that the first time was usually when the participants were getting familiar with the text and by the third time subjects tended to speed through the text and so many words got assimilated and important phonemes were lost. Thus, the second time was the optimal for the extraction of the data.

It was decided to retrieve the phrase that carried the minimal pairs instead of having the words in isolation. The reason was that the words were sometimes incomprehensible on their own because of the speed with which they were read. Therefore, each word was extracted along with neighboring words that constituted a phrase. The researcher attempted to make most of the phrases as ambiguous as possible, i.e. both words can fit in that context. For instance, one of the phrases was “a yellow cab and”, which can easily also be “a yellow cap and”. As will be later explained, this helped the judges choose which phrase they heard instead of transcribing the minimal pairs. The phrases were retrieved from the recordings using the software Audacity. It was made sure that enough time was given before and after each phrase but still no interference occurred from the adjacent words. Each phrase was no more than 1.5 seconds long. Originally, eight minimal pairs (sixteen carrier phrases) were extracted from all thirty participants, which amounted to 480 phrases in total.

A form was created on Google Documents that contained two types of questions: the first was a forced choice question, where the judges had to choose between two
phrases that carried the target words. Only one of the phrases was the right one whereas
the other carried a word that differed only in the voicing of the word final consonant
(please refer to Appendix E for a screen shot of the form). The two words were
capitalized within the phrase because the judges were going to be asked to only rate the
word and the entire phrase. For instance, for the word raise, the carrier phrase was to
raise my and thus the judge would see these two phrases on the form: “to RAISE my”
and “to RACE my” and had to choose one which s/he heard. The second question asked
the judges to rate the intelligibility of the capitalized word on a scale of 1 to 11 (1 being
less intelligible and 11 being highly intelligible). This scale was chosen because it is
consistent with the study conducted by Southwood and Flege (1999) where this scale
proved to be consistent and accurate for rating intelligibility, comprehensibility and
accentedness. Originally, every participant was going to receive 96 (16 words X 6
judges) ratings from all the judges.

Pilot Study

A pilot study was conducted to test out the technology and data used in this
research. Eight students at Ohio University were recruited: three non-linguistically
trained students and five linguistically-trained colleagues from the linguistics department.
Only 32 phrases were presented to each judge (16 test phrases X 2). The researcher
randomly selected one phrase from each participant, while two participants (one
intermediate and one advanced) had an extra phrase to make the total number 32 items.
These two participants were not chosen for any particular reason but simply to allow for
all the phrases to be tested at least twice before the actual data collection. The sessions
took place in a quiet laboratory and the speech samples were administered by the researcher to the judges through headphones. Before the judging sessions began, the eight judges were given the following instructions: “You are going to hear speech samples of English. After each phrase, you will need to answer two questions on the form. First, choose the phrase that you think you heard. Second, rate the intelligibility of the capitalized word embedded in the phrase. You will score it on a scale of 1 to 11 (1 being less intelligible and 11 being highly intelligible). The phrases will only be played once, so please pay close attention. Because the phrases have been removed from actual discourse, please do not attempt to rely on the context to guess which word you heard. In the case that neither option matches what you heard, please choose the one that is closest to what you think you heard and enter an X for the intelligibility score”. The judges were thus given the choice to state that they heard neither of the two options provided, in which case they would not rate the phrase. For variation purposes, two of the eight judges were allowed to listen to the utterances twice. However, since the researcher was more interested in an intuitive response (relying on native speaker intuition), it was later decided to have the judges of the actual study listen to the utterances only once. Each judging session took around ten minutes for 32 phrases. Below are the descriptive statistics of the preliminary findings of the pilot:
Table 1

**Results of the Pilot Study**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>NLTJ1</td>
<td>32</td>
<td>0</td>
<td>10</td>
<td>6.09</td>
<td>2.33</td>
</tr>
<tr>
<td>NLTJ2</td>
<td>32</td>
<td>0</td>
<td>11</td>
<td>6.90</td>
<td>3.18</td>
</tr>
<tr>
<td>LTJ1</td>
<td>32</td>
<td>0</td>
<td>11</td>
<td>7.25</td>
<td>2.31</td>
</tr>
<tr>
<td>LTJ2</td>
<td>32</td>
<td>0</td>
<td>8</td>
<td>4.34</td>
<td>2.41</td>
</tr>
<tr>
<td>NLTJ3</td>
<td>32</td>
<td>0</td>
<td>10</td>
<td>7.47</td>
<td>2.08</td>
</tr>
<tr>
<td>LTJ3</td>
<td>32</td>
<td>0</td>
<td>9</td>
<td>4.81</td>
<td>2.83</td>
</tr>
<tr>
<td>LTJ4</td>
<td>32</td>
<td>0</td>
<td>11</td>
<td>4.84</td>
<td>3.15</td>
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<tr>
<td>LTJ5</td>
<td>32</td>
<td>1</td>
<td>11</td>
<td>8.22</td>
<td>2.18</td>
</tr>
</tbody>
</table>

When analyzing the ratings given, X (for completely unintelligible) was replaced by a 0 for numerical consistency. As it can be seen from the results, most of the judges gave, at least once, a score of 10 or 11 to the intelligibility of the utterances. Thus, for the actual study, it was decided to include four native speakers of English within the participant pool. All four of the speakers were from the state of Ohio and spoke a very similar dialect. The introduction of their phrases was periodic: for every twelve non-native speaker utterances, there was one native speaker phrase. The ratings given to the native speakers were not taken into consideration in the data analysis but were present to act as a reference to which the Lebanese participants’ utterances should be compared.

Another finding from the pilot was that the four phrases: “pick some”; “a pig was”; “then at the”; “add something” were reported as unintelligible over 50% of the time and were thus removed from the actual experiment. The instructions remained mostly the same except for a small addition. After short interviews with the judges after the sessions, they
reported to have chosen the wrong carrier phrase when the phrase itself made no sense (for example, “I could feat”). Therefore, the instructions of the experiment included the following note: “Focus on the capitalized word embedded in the phrase. Even if the phrase makes no sense, choose it anyway”.

Experiment

With the elimination of the four phrases and the introduction of thirty new items from native speakers, the number of items in the experiment was adjusted to 390. Of these items, 360 were from the Lebanese participants (12 phrases X 30 participants) and 30 from the American participants (two of them had eight phrases while the other two had seven). All the items were divided into three judging sessions of 130 items per session. In order to render the process less tedious, each session was divided into two parts (65 items each) with a five-minute break in between. To eliminate any memory effects, the time between the sessions was between five to seven days. All the sessions took place in a quiet laboratory and the phrases were administered through headphones. Only one of the sessions had two of the linguistically trained judges listen to the items at the same time. However, since each judge worked at a different pace, it was decided to conduct the rest of the sessions with one judge at a time. At the end of the third session, an interview was conducted with each judge and a series of questions (about the whole process, the accents recognized, the difficulties faced, etc) were asked for a better explanation of the results of the experiment. The questions asked were the following: 1) How many participants do you think you listened to? 2) How many accents were you able to detect? 3) Was there any difference between the way you rated female participants
and the way you rated male participants? 4) How would you describe your progress throughout these three sessions? 5) What was the most difficult thing in this entire process? How were you able to overcome it? 6) Was it more difficult for you to rate words when they were phrase-initial or phrase-final?

Research Questions

1) Is there a significant difference between the intelligibility scores given to productions of advanced Lebanese speakers and those of intermediate speakers?
2) Is there a significant difference between the scores given by the linguistically-trained panel and the non-linguistically trained undergraduates?
3) Do the intelligibility ratings of the Lebanese participants correlate with their placements based on their EET scores?

Data Coding and Analysis

The experiment yielded 2340 points for analysis (390 ratings by 6 judges). The judges had to choose the phrase they heard for each item; those choices were coded dichotomously (0 was given for the wrong answer) and 1 for the correct answer). The forced choice answers were not analyzed because they were not essential to the research questions and were included simply to make the judges attend to the data. The information provided by the students in the questionnaire was coded and used to better explain certain trends that emerged from the data. The answers provided by the judges in the interviews were also coded and utilized to account for general trends and outliers and to provide information for further research.
Analysis of the data was done using the Statistical Package for the Social Sciences (SPSS) 17.0 for Windows software. The analysis included five independent variables: mean score of intermediate Lebanese speakers, mean score of advanced Lebanese speakers, mean rating of linguistically trained judges, mean rating of non-linguistically trained judges, and placement of participants. To answer the first research question, an ANOVA test was conducted (M (IP) X M (AP)) in order to determine whether there is a significant difference between the ratings given to the intermediate learners and those given to the advanced learners. An ANOVA test was also conducted to answer the second question (M (LTJ) X M (NLTJ)) in order to determine whether there was a significant difference between the scores given by the linguistically trained judges and those given by the non-linguistically trained judges. A Pearson Bivariate Correlation test was conducted between the individual mean scores of each participant and their placement as a result of their EET scores.
CHAPTER 4: RESULTS

As it was previously mentioned, this study sought to explore three questions: whether or not there is a significant difference between intermediate and advanced learners of Arabic, whether there is a significant difference between the ratings of linguistically trained and non-linguistically trained judges and whether there is a correlation between the placements determined by EET scores and the ratings provided by native speaker judges. In order to answer the first two questions, the mean ratings of the participants and those of the judges were calculated and statistically compared. The third question was answered through a correlation test between the students’ placements and their mean ratings. To better understand and explain the results, a questionnaire was filled out by all thirty participants, and post-experimental interviews were conducted with all three judges. The following section will display the results obtained from all the aforementioned data collection methods.

As previously mentioned, a questionnaire was filled out by the participants before recording the text to make sure that they fit this study’s criteria and to collect data that can shed light on some of the results obtained. Below are the results of the questionnaire for both groups of participants.
Table 2

*Questionnaire Results of the Intermediate Lebanese Speakers of English*

<table>
<thead>
<tr>
<th>Participants</th>
<th>Class</th>
<th>Sex</th>
<th>FL1</th>
<th>Age (L2)</th>
<th>Languages Spoken</th>
<th>Exposure</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>ENL</td>
<td>M</td>
<td>Fr</td>
<td>14</td>
<td>Ar, Eng,</td>
<td>daily</td>
<td>movies, music</td>
</tr>
<tr>
<td></td>
<td>105</td>
<td></td>
<td></td>
<td></td>
<td>Fr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P2</td>
<td>ENL</td>
<td>M</td>
<td>Fr</td>
<td>8</td>
<td>Ar, Eng,</td>
<td>daily</td>
<td>movies, music</td>
</tr>
<tr>
<td></td>
<td>105</td>
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<td></td>
<td></td>
<td>Fr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P3</td>
<td>ENL</td>
<td>M</td>
<td>Fr</td>
<td>10</td>
<td>Ar, Eng,</td>
<td>daily</td>
<td>movies, music, friends</td>
</tr>
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<td></td>
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<td></td>
<td></td>
<td>Fr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P4</td>
<td>ENL</td>
<td>F</td>
<td>Fr</td>
<td>12</td>
<td>Ar, Eng,</td>
<td>weekly</td>
<td>movies, music</td>
</tr>
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<td>105</td>
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<td></td>
<td></td>
<td>Fr</td>
<td></td>
<td></td>
</tr>
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<td>ENL</td>
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<td>Fr</td>
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<td>Ar, Eng,</td>
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<td>movies, music</td>
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<td>F</td>
<td>Fr</td>
<td>6</td>
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<td>movies, music, friends</td>
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<td>daily</td>
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<td></td>
<td>Fr</td>
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<td>Fr</td>
<td>3</td>
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<td>movies, music, books, friends</td>
</tr>
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<td></td>
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<td></td>
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<td>M</td>
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<td>10</td>
<td>Ar, Eng,</td>
<td>weekly</td>
<td>movies, music</td>
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<td>7</td>
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<td>daily</td>
<td>movies, music</td>
</tr>
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<td>4</td>
<td>Ar, Eng</td>
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<td>music</td>
</tr>
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<td>P14</td>
<td>ENL</td>
<td>F</td>
<td>Fr</td>
<td>12</td>
<td>Ar, Eng,</td>
<td>daily</td>
<td>movies, music</td>
</tr>
<tr>
<td></td>
<td>105</td>
<td></td>
<td></td>
<td></td>
<td>Fr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P15</td>
<td>ENL</td>
<td>M</td>
<td>Fr</td>
<td>5</td>
<td>Ar, Eng,</td>
<td>daily</td>
<td>movies, music, books, friends</td>
</tr>
<tr>
<td></td>
<td>105</td>
<td></td>
<td></td>
<td></td>
<td>Fr</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Eng = English; Fr = French; Ar = Arabic

Above are the results of the questionnaire for the intermediate Lebanese speakers of English. As it can be seen, all of these students were placed in an intensive English class based on their EET scores. The participants are mostly the same age, ten of whom
are male and 5 female. This group is mostly French-educated with the exception of four participants. The average age at which these learners started learning English is 7.73.

Table 3

<table>
<thead>
<tr>
<th>Participants</th>
<th>Class</th>
<th>Age</th>
<th>Sex</th>
<th>FL1</th>
<th>Age (L2)</th>
<th>Languages Spoken</th>
<th>Exposure</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>P16</td>
<td>ENL</td>
<td>18</td>
<td>M</td>
<td>Eng</td>
<td>3</td>
<td>Ar, Eng, Fr</td>
<td>weekly</td>
<td>movies, books, music, friends</td>
</tr>
<tr>
<td>P17</td>
<td>ENL</td>
<td>18</td>
<td>M</td>
<td>Eng</td>
<td>0</td>
<td>Ar, Eng, Fr</td>
<td>daily</td>
<td>movies, music, friends</td>
</tr>
<tr>
<td>P18</td>
<td>ENL</td>
<td>18</td>
<td>M</td>
<td>Eng</td>
<td>8</td>
<td>Ar, Eng, Fr</td>
<td>daily</td>
<td>movies, music</td>
</tr>
<tr>
<td>P19</td>
<td>ENL</td>
<td>19</td>
<td>M</td>
<td>Fr</td>
<td>12</td>
<td>Ar, Eng, Fr</td>
<td>daily</td>
<td>movies, books, music, friends</td>
</tr>
<tr>
<td>P20</td>
<td>ENL</td>
<td>18</td>
<td>M</td>
<td>Fr</td>
<td>11</td>
<td>Ar, Eng, Fr</td>
<td>daily</td>
<td>movies, books, music, friends</td>
</tr>
<tr>
<td>P21</td>
<td>ENL</td>
<td>18</td>
<td>M</td>
<td>Eng</td>
<td>6</td>
<td>Ar, Eng, Fr</td>
<td>daily</td>
<td>music</td>
</tr>
<tr>
<td>P22</td>
<td>ENL</td>
<td>18</td>
<td>F</td>
<td>Eng</td>
<td>3</td>
<td>Ar, Eng, Fr</td>
<td>daily</td>
<td>movies, books, music, friends</td>
</tr>
<tr>
<td>P23</td>
<td>ENL</td>
<td>18</td>
<td>M</td>
<td>Eng</td>
<td>3</td>
<td>Ar, Eng, Fr</td>
<td>daily</td>
<td>movies, music, friends</td>
</tr>
<tr>
<td>P24</td>
<td>ENL</td>
<td>18</td>
<td>F</td>
<td>Eng</td>
<td>3</td>
<td>Ar, Eng, Fr</td>
<td>daily</td>
<td>movies, music, friends</td>
</tr>
<tr>
<td>P25</td>
<td>ENL</td>
<td>18</td>
<td>M</td>
<td>Fr</td>
<td>10</td>
<td>Ar, Eng, Fr</td>
<td>daily</td>
<td>movies, books, music</td>
</tr>
<tr>
<td>P26</td>
<td>ENL</td>
<td>18</td>
<td>F</td>
<td>Eng</td>
<td>9</td>
<td>Ar, Eng, Fr</td>
<td>daily</td>
<td>movies, books, music, friends</td>
</tr>
<tr>
<td>P27</td>
<td>ENL</td>
<td>18</td>
<td>F</td>
<td>Eng</td>
<td>0</td>
<td>Ar, Eng</td>
<td>daily</td>
<td>movies, books, music, friends</td>
</tr>
<tr>
<td>P28</td>
<td>ENL</td>
<td>18</td>
<td>F</td>
<td>Eng</td>
<td>7</td>
<td>Ar, Eng, Fr</td>
<td>daily</td>
<td>movies, music</td>
</tr>
<tr>
<td>P29</td>
<td>ENL</td>
<td>19</td>
<td>M</td>
<td>Eng</td>
<td>5</td>
<td>Ar, Eng, Fr</td>
<td>daily</td>
<td>movies, music</td>
</tr>
</tbody>
</table>

*Note.* Eng = English; Fr = French; Ar = Arabic
The above table illustrates the results of the questionnaire for the advanced Lebanese learners of English. All of these students are full-time academic students taking a required English course. They were also placed in ENL213 based on their EET scores. Similar to the intermediate students, this group is also mostly of the same age and includes ten male participants and five female participants. The students in this group are mostly English-educated (with three students who began learning English even before going to school) with the exception of three students who are French-educated. The average age at which these learners started learning English is 5.3.

Before analyzing the data collected from the experiment, an Inter-rater Reliability test was conducted in order to make sure that there were no outliers amongst the judges. Below are the results for each group of judges and for all the judges combined.

Table 4

<table>
<thead>
<tr>
<th>Inter-rater Reliability for Linguistically Trained Judges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach's Alpha Based on Standardized Items</td>
</tr>
<tr>
<td>Cronbach's Alpha</td>
</tr>
<tr>
<td>.858</td>
</tr>
<tr>
<td>.869</td>
</tr>
</tbody>
</table>


As it can be seen from the results, inter-rater reliability was quite high for all three groups (Linguistically trained, $\alpha = .86$; Non-linguistically trained, $\alpha = .86$; all judges, $\alpha = .92$).

In order to answer the first research question, the average of the ratings given by the judges for each participant. Below are the results obtained for each participant with respect to the six judges.
Table 7

Mean Ratings Given to Intermediate Participants

<table>
<thead>
<tr>
<th>Participants</th>
<th>LTJ1</th>
<th>LTJ2</th>
<th>LTJ3</th>
<th>NLTJ1</th>
<th>NLTJ2</th>
<th>NLTJ3</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>6.58</td>
<td>6.42</td>
<td>6.50</td>
<td>6.17</td>
<td>5.67</td>
<td>3.83</td>
</tr>
<tr>
<td>P2</td>
<td>7.00</td>
<td>6.92</td>
<td>6.00</td>
<td>4.00</td>
<td>5.25</td>
<td>3.33</td>
</tr>
<tr>
<td>P3</td>
<td>7.33</td>
<td>7.50</td>
<td>7.25</td>
<td>6.42</td>
<td>6.50</td>
<td>4.25</td>
</tr>
<tr>
<td>P4</td>
<td>8.67</td>
<td>8.50</td>
<td>8.25</td>
<td>6.50</td>
<td>6.75</td>
<td>5.17</td>
</tr>
<tr>
<td>P5</td>
<td>8.25</td>
<td>7.00</td>
<td>7.75</td>
<td>7.33</td>
<td>6.08</td>
<td>4.83</td>
</tr>
<tr>
<td>P6</td>
<td>8.75</td>
<td>7.08</td>
<td>7.33</td>
<td>5.83</td>
<td>5.17</td>
<td>3.58</td>
</tr>
<tr>
<td>P7</td>
<td>9.42</td>
<td>7.58</td>
<td>8.25</td>
<td>7.17</td>
<td>7.50</td>
<td>4.58</td>
</tr>
<tr>
<td>P8</td>
<td>9.08</td>
<td>7.58</td>
<td>7.92</td>
<td>6.83</td>
<td>5.58</td>
<td>4.75</td>
</tr>
<tr>
<td>P9</td>
<td>9.92</td>
<td>8.33</td>
<td>8.33</td>
<td>8.08</td>
<td>7.58</td>
<td>5.42</td>
</tr>
<tr>
<td>P10</td>
<td>9.25</td>
<td>8.00</td>
<td>7.67</td>
<td>6.58</td>
<td>8.08</td>
<td>5.00</td>
</tr>
<tr>
<td>P11</td>
<td>7.67</td>
<td>7.33</td>
<td>7.25</td>
<td>5.17</td>
<td>5.25</td>
<td>3.50</td>
</tr>
<tr>
<td>P12</td>
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<td>7.25</td>
<td>5.92</td>
<td>4.25</td>
<td>3.58</td>
</tr>
<tr>
<td>P13</td>
<td>9.00</td>
<td>7.25</td>
<td>8.08</td>
<td>7.17</td>
<td>6.25</td>
<td>4.50</td>
</tr>
<tr>
<td>P14</td>
<td>9.50</td>
<td>8.08</td>
<td>7.00</td>
<td>6.33</td>
<td>6.42</td>
<td>4.83</td>
</tr>
<tr>
<td>P15</td>
<td>8.58</td>
<td>7.75</td>
<td>7.83</td>
<td>7.08</td>
<td>6.58</td>
<td>3.92</td>
</tr>
</tbody>
</table>

*Note. LTJ = Linguistically Trained Judge; NLTJ = Non-linguistically Trained Judge*

Table 8

Mean Ratings Given to Advanced Participants

<table>
<thead>
<tr>
<th>Participants</th>
<th>LTJ1</th>
<th>LTJ2</th>
<th>LTJ3</th>
<th>NLTJ1</th>
<th>NLTJ2</th>
<th>NLTJ3</th>
</tr>
</thead>
<tbody>
<tr>
<td>P16</td>
<td>7.67</td>
<td>7.42</td>
<td>6.42</td>
<td>6.17</td>
<td>6.92</td>
<td>4.75</td>
</tr>
<tr>
<td>P17</td>
<td>6.83</td>
<td>7.25</td>
<td>6.58</td>
<td>6.83</td>
<td>5.75</td>
<td>4.42</td>
</tr>
<tr>
<td>P18</td>
<td>8.25</td>
<td>7.92</td>
<td>7.67</td>
<td>6.83</td>
<td>8.25</td>
<td>4.83</td>
</tr>
<tr>
<td>P19</td>
<td>8.50</td>
<td>7.58</td>
<td>8.58</td>
<td>6.83</td>
<td>6.42</td>
<td>5.67</td>
</tr>
<tr>
<td>P20</td>
<td>7.83</td>
<td>6.25</td>
<td>6.50</td>
<td>5.67</td>
<td>4.83</td>
<td>4.33</td>
</tr>
<tr>
<td>P21</td>
<td>7.25</td>
<td>6.75</td>
<td>5.58</td>
<td>4.25</td>
<td>4.58</td>
<td>4.17</td>
</tr>
<tr>
<td>P22</td>
<td>9.00</td>
<td>7.58</td>
<td>7.58</td>
<td>5.67</td>
<td>5.75</td>
<td>4.08</td>
</tr>
<tr>
<td>P23</td>
<td>8.33</td>
<td>6.92</td>
<td>8.33</td>
<td>6.17</td>
<td>5.67</td>
<td>5.42</td>
</tr>
<tr>
<td>P24</td>
<td>9.50</td>
<td>8.17</td>
<td>8.75</td>
<td>7.67</td>
<td>5.50</td>
<td>4.92</td>
</tr>
<tr>
<td>P25</td>
<td>8.08</td>
<td>7.75</td>
<td>8.00</td>
<td>6.08</td>
<td>5.25</td>
<td>4.00</td>
</tr>
<tr>
<td>P26</td>
<td>7.67</td>
<td>7.50</td>
<td>6.67</td>
<td>6.33</td>
<td>5.75</td>
<td>4.42</td>
</tr>
<tr>
<td>P27</td>
<td>9.42</td>
<td>8.17</td>
<td>7.33</td>
<td>6.50</td>
<td>6.42</td>
<td>4.92</td>
</tr>
<tr>
<td>P28</td>
<td>9.92</td>
<td>8.25</td>
<td>7.67</td>
<td>7.08</td>
<td>8.08</td>
<td>5.92</td>
</tr>
<tr>
<td>P29</td>
<td>7.83</td>
<td>6.58</td>
<td>7.58</td>
<td>7.75</td>
<td>6.50</td>
<td>4.33</td>
</tr>
<tr>
<td>P30</td>
<td>7.67</td>
<td>7.33</td>
<td>6.83</td>
<td>6.25</td>
<td>5.58</td>
<td>4.33</td>
</tr>
</tbody>
</table>

*Note. LTJ = Linguistically Trained Judge; NLTJ = Non-linguistically Trained Judge*
Table 9

Mean scores of Intermediate and Advanced Participants

<table>
<thead>
<tr>
<th></th>
<th>IP</th>
<th>AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTJ1</td>
<td>8.40</td>
<td>8.25</td>
</tr>
<tr>
<td>LTJ2</td>
<td>7.48</td>
<td>7.43</td>
</tr>
<tr>
<td>LTJ3</td>
<td>7.51</td>
<td>7.34</td>
</tr>
<tr>
<td>NLTJ1</td>
<td>6.44</td>
<td>6.41</td>
</tr>
<tr>
<td>NLTJ2</td>
<td>6.19</td>
<td>6.08</td>
</tr>
<tr>
<td>NLTJ3</td>
<td>4.34</td>
<td>4.70</td>
</tr>
</tbody>
</table>

Note. LTJ = Linguistically Trained Judge; NLTJ = Non-linguistically Trained Judge; IP = Intermediate Participants; AP = Advanced Participants

Table 10

Mean scores of Native Speaker Participants

<table>
<thead>
<tr>
<th></th>
<th>N1</th>
<th>N2</th>
<th>N3</th>
<th>N4</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTJ1</td>
<td>10.71</td>
<td>9.63</td>
<td>9.25</td>
<td>8.00</td>
</tr>
<tr>
<td>LTJ2</td>
<td>9.00</td>
<td>8.88</td>
<td>9.50</td>
<td>9.43</td>
</tr>
<tr>
<td>LTJ3</td>
<td>10.29</td>
<td>10.38</td>
<td>9.25</td>
<td>10.00</td>
</tr>
<tr>
<td>NLTJ1</td>
<td>9.86</td>
<td>8.88</td>
<td>8.88</td>
<td>8.29</td>
</tr>
<tr>
<td>NLTJ2</td>
<td>8.00</td>
<td>7.75</td>
<td>7.00</td>
<td>7.29</td>
</tr>
<tr>
<td>NLTJ3</td>
<td>9.71</td>
<td>8.63</td>
<td>8.75</td>
<td>8.43</td>
</tr>
<tr>
<td>Mean</td>
<td>9.595</td>
<td>9.025</td>
<td>8.771667</td>
<td>8.573333</td>
</tr>
</tbody>
</table>

Note. LTJ = Linguistically Trained Judge; NLTJ = Non-linguistically Trained Judge; IP = Intermediate Participants; AP = Advanced Participants

As can be observed from the three tables above, the third non-linguistically trained judge consistently scored lower than the other five judges. Moreover, as is seen in Table 6, the scores obtained by the intermediate Lebanese speakers and those obtained by the advanced speakers were quite close. In order to statistically prove the above claim, a one-way Analysis of Variance (ANOVA) was conducted between the scores given to the
intermediate learners and those given to the advanced learners. The one-way ANOVA, $F(0, 5) = 0$, $p<.05$, demonstrated that there was no statistical difference between the mean scores of the intermediate participants and those of the advanced participants. Table 10 displays the scores attained by native speakers of English. Although no statistical analyses were conducted on those numbers, they demonstrate that even the highest score attained by a Lebanese speaker is not close to the lowest score attained by a native speaker.

**Figure 1.** Mean scores of Intermediate and Advanced Participants

*Note. LTJ = Linguistically Trained Judge; NLTJ = Non-linguistically Trained Judge; IP = Intermediate Participants; AP = Advanced Participants*
As can be seen in the graph above, the mean ratings received by the intermediate and advanced participants are extremely close and there is no significant difference between them.

To answer the second research question, the mean ratings of both panels of judges were calculated. As it can be seen from the table below, the average ratings between the judges were not as similar as those between the participants.
Table 11

Mean ratings Given by Linguistically Trained Judges and Non-Linguistically Trained Judges

<table>
<thead>
<tr>
<th>Participants</th>
<th>LTJ</th>
<th>NLTJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>6.50</td>
<td>5.22</td>
</tr>
<tr>
<td>P2</td>
<td>6.64</td>
<td>4.19</td>
</tr>
<tr>
<td>P3</td>
<td>7.36</td>
<td>5.72</td>
</tr>
<tr>
<td>P4</td>
<td>8.47</td>
<td>6.14</td>
</tr>
<tr>
<td>P5</td>
<td>7.67</td>
<td>6.08</td>
</tr>
<tr>
<td>P6</td>
<td>7.72</td>
<td>4.86</td>
</tr>
<tr>
<td>P7</td>
<td>8.42</td>
<td>6.42</td>
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<tr>
<td>P8</td>
<td>8.19</td>
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<td>P9</td>
<td>8.86</td>
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<td>P10</td>
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<td>P11</td>
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<td>P12</td>
<td>7.03</td>
<td>4.58</td>
</tr>
<tr>
<td>P13</td>
<td>8.11</td>
<td>5.97</td>
</tr>
<tr>
<td>P14</td>
<td>8.19</td>
<td>5.86</td>
</tr>
<tr>
<td>P15</td>
<td>8.06</td>
<td>5.86</td>
</tr>
<tr>
<td>P16</td>
<td>7.17</td>
<td>5.94</td>
</tr>
<tr>
<td>P17</td>
<td>6.89</td>
<td>5.67</td>
</tr>
<tr>
<td>P18</td>
<td>7.94</td>
<td>6.64</td>
</tr>
<tr>
<td>P19</td>
<td>8.22</td>
<td>6.31</td>
</tr>
<tr>
<td>P20</td>
<td>6.86</td>
<td>4.94</td>
</tr>
<tr>
<td>P21</td>
<td>6.53</td>
<td>4.33</td>
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<tr>
<td>P22</td>
<td>8.06</td>
<td>5.17</td>
</tr>
<tr>
<td>P23</td>
<td>7.86</td>
<td>5.75</td>
</tr>
<tr>
<td>P24</td>
<td>8.81</td>
<td>6.03</td>
</tr>
<tr>
<td>P25</td>
<td>7.94</td>
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<tr>
<td>P26</td>
<td>7.28</td>
<td>5.50</td>
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<tr>
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<td>5.94</td>
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<tr>
<td>P28</td>
<td>8.61</td>
<td>7.03</td>
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<td>P29</td>
<td>7.33</td>
<td>6.19</td>
</tr>
<tr>
<td>P30</td>
<td>7.28</td>
<td>5.39</td>
</tr>
</tbody>
</table>

*Note. LTJ = Linguistically Trained Judge; NLTJ = Non-linguistically Trained Judge*
However, in order to statistically explore the differences, a one-way ANOVA was run between the linguistically trained and the non-linguistically trained judges. The one-way ANOVA, $F(3, 26) = 2.104$, $p<.05$, demonstrated that there was no statistical difference between the mean ratings of the linguistically trained panel of judges and those of the non-linguistically trained panel. As it can be seen in the graph below, even though the mean scores of the two panels are not extremely close, statistical analyses have shown that there is no significant difference between them. Upon closer inspection of the graph, one can clearly see that the pattern of rating is extremely similar between the two panels.

![Graph](image)

*Figure 2. Mean ratings of Linguistically Trained and Non-Linguistically Trained Judges*

*Note. LTJ = Linguistically Trained Judge; NLTJ = Non-linguistically Trained Judge*
Table 12

*Placement and Mean scores for Each Participant*

<table>
<thead>
<tr>
<th>Participants*</th>
<th>Placement</th>
<th>Mean scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>P9</td>
<td>0</td>
<td>7.94</td>
</tr>
<tr>
<td>P28</td>
<td>1</td>
<td><strong>7.82</strong></td>
</tr>
<tr>
<td>P10</td>
<td>0</td>
<td>7.43</td>
</tr>
<tr>
<td>P7</td>
<td>0</td>
<td>7.42</td>
</tr>
<tr>
<td>P24</td>
<td>1</td>
<td>7.42</td>
</tr>
<tr>
<td>P4</td>
<td>0</td>
<td>7.31</td>
</tr>
<tr>
<td>P18</td>
<td>1</td>
<td>7.29</td>
</tr>
<tr>
<td>P19</td>
<td>1</td>
<td>7.26</td>
</tr>
<tr>
<td>P27</td>
<td>1</td>
<td><strong>7.13</strong></td>
</tr>
<tr>
<td>P13</td>
<td>0</td>
<td>7.04</td>
</tr>
<tr>
<td>P14</td>
<td>0</td>
<td>7.03</td>
</tr>
<tr>
<td>P8</td>
<td>0</td>
<td>6.96</td>
</tr>
<tr>
<td>P15</td>
<td>0</td>
<td>6.96</td>
</tr>
<tr>
<td>P5</td>
<td>0</td>
<td>6.88</td>
</tr>
<tr>
<td>P23</td>
<td>1</td>
<td>6.81</td>
</tr>
<tr>
<td>P29</td>
<td>1</td>
<td>6.76</td>
</tr>
<tr>
<td>P22</td>
<td>1</td>
<td>6.61</td>
</tr>
<tr>
<td>P16</td>
<td>1</td>
<td>6.56</td>
</tr>
<tr>
<td>P3</td>
<td>0</td>
<td>6.54</td>
</tr>
<tr>
<td>P25</td>
<td>1</td>
<td>6.53</td>
</tr>
<tr>
<td>P26</td>
<td>1</td>
<td>6.39</td>
</tr>
<tr>
<td>P30</td>
<td>1</td>
<td>6.33</td>
</tr>
<tr>
<td>P6</td>
<td>0</td>
<td>6.29</td>
</tr>
<tr>
<td>P17</td>
<td>1</td>
<td><strong>6.28</strong></td>
</tr>
<tr>
<td>P11</td>
<td>0</td>
<td>6.03</td>
</tr>
<tr>
<td>P20</td>
<td>1</td>
<td>5.90</td>
</tr>
<tr>
<td>P1</td>
<td>0</td>
<td>5.86</td>
</tr>
<tr>
<td>P12</td>
<td>0</td>
<td>5.81</td>
</tr>
<tr>
<td>P21</td>
<td>1</td>
<td>5.43</td>
</tr>
<tr>
<td>P2</td>
<td>0</td>
<td>5.42</td>
</tr>
</tbody>
</table>

* The participants were sorted in a descending order based on their mean scores to determine whether the highest scores belonged to intermediate or advanced students.
In order to answer the third research question, a Pearson Bivariate Correlation test was run between the placement of the students and their mean ratings. The overall mean scores of each participant were calculated (see Table 8) and the placements were coded as: 1 (placed in ENL213) and 0 (placed in ENL105). The test yielded no correlation between the two variables ($r= -.020, p<.05$). Therefore, the placements of the students in different classes (intermediate or advanced), are not related to how high or low native speakers judge their oral productions. The highlighted scores are those of the three participants who claimed to have learned both English and Lebanese Arabic at the same time. It is important to mention that none of the three had the highest ratings on their oral productions. It is also important to note that the three of the five highest scores were those of intermediate students. The significance of both these findings will be discussed in the next section.

In order to better explain some of the variance in the judges’ ratings, a post-experimental interview was conducted with each of the judges. Below are the results from some of the questions asked in the interviews.
Table 13

*Qualitative Data from the Judges*

<table>
<thead>
<tr>
<th></th>
<th>Number of Participants</th>
<th>Accents Identified</th>
<th>Exposure to NNS</th>
<th>Men vs. Women</th>
<th>Development in 3 Sessions</th>
<th>Most difficult position</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTJ1</td>
<td>10 to 12</td>
<td>Am, Ar, Sp</td>
<td>high</td>
<td>W higher</td>
<td>no change</td>
<td>phrase-initial</td>
</tr>
<tr>
<td>LTJ2</td>
<td>6 to 7</td>
<td>Am, Sp, Fr</td>
<td>high</td>
<td>W higher</td>
<td>no change</td>
<td>phrase-initial</td>
</tr>
<tr>
<td>LTJ3</td>
<td>8</td>
<td>Am, Ar, Rus</td>
<td>high</td>
<td>W higher</td>
<td>more granular rating</td>
<td>phrase-final</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>process became easier</td>
<td></td>
</tr>
<tr>
<td>NLTJ1</td>
<td>20</td>
<td>Am, Ar, Afr</td>
<td>mid</td>
<td>no diff</td>
<td></td>
<td>both</td>
</tr>
<tr>
<td>NLTJ2</td>
<td>20</td>
<td>Am, Ar, Hin</td>
<td>mid</td>
<td>no diff</td>
<td>no change</td>
<td>both</td>
</tr>
<tr>
<td>NLTJ3</td>
<td>8 to 12</td>
<td>Am, non-native</td>
<td>low</td>
<td>W higher</td>
<td>rating became more</td>
<td>both</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>accurate</td>
<td>phrase-final</td>
</tr>
</tbody>
</table>

As it can be seen from the above table, the judges could not accurately predict the number of the participants (which in reality were 34); most of the numbers given are significantly lower than the actual number of subjects. Also, there is obviously some variance in the amount of exposure to non-native speakers. One of the most significant findings from the interviews is that there was no consensus amongst judges as to which position is the most difficult to rate, which seems to suggest that the judges use different techniques to rate the target words. The significance of the findings from the interview will be discussed in the following section.
CHAPTER 5: DISCUSSION

Introduction

This study has explored the differences in oral productions between intermediate and advanced Lebanese learners of English. The experiment focused on the effect of vowel duration on the intelligibility of word final consonants in English. The researcher relied on native speaker intuition and recruited both linguistically trained and non-linguistically trained panels of judges to determine the intelligibility of the utterances. As it has been shown in the literature, many other studies have explored the issue of accentedness caused by vowel duration patterns. However, even when the studies dealt with Arabic speakers, none of the articles explored Lebanese speakers’ productions of word final consonants. While Lebanese learners may share a lot of characteristics with other speakers of Arabic, many other characteristics are unique to this group (age of learning an L2, influence of French, amount of exposure to English even in an FL setting).

Differences between Intermediate and Advanced Learners

From the data collected in the questionnaire, it is clear that most of these learners started learning English at a very young age (average age of intermediate participants: 7.7; average age of advanced participants: 5.3). Clearly there are some variations within each group (for instance, one of the intermediate learners reported the age of L2 acquisition to be 14). On the other hand, most of these participants have very similar language and social backgrounds. All the participants were between the age of 18 and 19. All of them have taken the same entrance exam at the same time, thus their language
proficiency level has been evaluated according to the same standards. Clearly there are certain characteristics that separate the intermediate and advanced group. Those characteristics are the reasons why some of the students are placed in an advanced English class and others have to take English remedial courses. As one can see from the syllabi of the courses (see Appendix B), ENL213 focuses on the ability to present arguments and express opinions. There is no focus on language, and English is simply used as a tool to achieve the aforementioned objectives. Therefore, students who are enrolled in that course have to have a proficiency level high enough to allow them to express intricate concepts and ideas (in both an oral and a written manner) in a foreign language. In ENL105, on the other hand, the objectives of the course mainly revolve around the improvement of certain grammatical and structural aspects of the language. Even though there are advanced reading and writing assignments, they seem to serve the ultimate goal of improving the students’ use of the language.

Other differences came up in the questionnaire. In the advanced group, 80% of the participants started learning English before the age of ten. Therefore, 80% of the participants received at least ten years of formal instruction of English. Moreover, most of the participants in the advanced group were English-educated. Therefore, they have had more exposure to the language through subjects other than English (such as Mathematics, Biology, Chemistry, Physics, etc). Furthermore, there were clear difference between the EET scores of the advanced group and those of the intermediate group. The scores of the former group were at least 50 points more than those of the intermediate
group, which allowed them to be placed two classes higher than the intermediate students.

The Effect of the Native Language and Other Foreign Languages

Analysis of the data; however, showed that there was no significant difference between the intermediate group and the advanced group when it came to the ratings of their oral production. Since it has been statistically proven that both groups lack the necessary skills to achieve a native-like production of a word final consonant, it is important to explore the reasons behind such a phenomenon.

Flege, McCutcheon & Smith (1987) claimed that producing word final consonants is a skill that even native speakers do not possess at birth but acquire after a certain age and amount of exposure. From the results, it is clear that the advanced learners were not exposed to and do not possess the same vowel pattern skills that a native speaker of English does. The results are also consistent with the findings by Flege (1981) who concluded that when a child learns a language before another, then they would view their second language in terms of their first. For most of these participants (except for the three advanced learners who claimed to have been taught English at home), English was taught at school, thus by the age of 3 or 4. Therefore, the native language spoken at home, in this case Lebanese Arabic, has in some way affected their first or second foreign language. Also, for some of the participants, French was acquired before English and may have influenced the productions as well.

As previous studies have shown (Port, Al-Ani, & Maeda, 1980), Arabic does not have the same vowel length patterns before voiced and voiceless word final consonants
the way English does. In fact, there is little difference in vowel length before these two types of consonants. Other studies (Flege and Port, 1981) have proven that this phonetic difference between languages causes accentedness in the English productions of Arabic speakers. The fact that even advanced learners received low scores from both panels of judges proves that the Arabic language had some influence on their English productions.

Furthermore, almost 47% of the participants have French as their first foreign language. Extending Flege’s (1981) conclusions, a first foreign language also influences the second foreign language learned a few years later (just as a native language precedes and influences a second language). It is therefore important to discuss the transfer made from French to English in some of the participants’ productions. Several studies (Chen, 1970; Mack, 1992) have shown that although French vowels are longer before voiced word final consonants than before voiceless consonants, the difference between the two lengths is not as significant as those in English. Furthermore, Mack (1992) was able to show that learners who have acquired French first, do not use accurate vowel patterns in their English productions and tend to produce English words with an accent. The current study did not aim to determine which of the two languages had more of an effect on the accentedness of the English productions. However, it is important to state all the languages that might have influenced the productions of both groups of participants. In the interviews, some of the judges were able to detect a French or Romance language (in some cases, Spanish) accent. For the linguistically-trained judges who deal with non-native speakers on a daily basis, detecting the French accent proves that there were some productions that were influenced by French. Therefore, with both Arabic and French
affecting the productions of the Lebanese participants, even advanced speakers of English were unable to produce native-like vowel duration patterns before voiced and voiceless word final English consonants.

The Primary Role of Vowel Length

However, proving that there is a difference in vowel length patterns among these three languages does not necessarily entail that both panels of judges relied on this particular phonetic feature to rate the words. This study relied on native speaker intuition and did not perform any measurements pertaining to vowel lengths or any of the other features that cue voicing in word final English consonants. On the other hand, there are many reasons that this phonetic feature was almost always the only cue to the voicing nature of the word final consonant. To begin with, previous literature (Raphael, 1972; Luce & Charles-Luce, 1985; Fischer & Ohde, 1990) has shown that vowel duration is one of the most consistent and influential cues to word final English consonants. While different articles have attempted to highlight the importance of other cues, vowel duration has always remained one of the consistent phonetic features that cue the voicing of a word final consonant to both native and non-native speakers of English. Moreover, vowel duration is by far the most perceptible of all cues to word final consonants. Previous research (Chen, 1970; Raphael, 1972) has shown that a vowel before a voiced consonant is at least one and a half times longer than a vowel before a voiceless consonant. Therefore, having those two vowels at almost the same length (as opposed to one being perceptibly longer than the other) should certainly signal accentedness to a native speaker. Furthermore, from the interviews, several judges complained of the speed of the
phrases and the way the final consonant was sometimes too fast to distinguish. This is where the paragraph played a major role by creating a semi-natural setting in which the word can be produced, something which distinguishes the current study from previous research in the area. Flege and Port (1981), for instance, proved that when it comes to word final consonants there are two phonetic features that are produced differently by Arabic speakers of English: closure duration and vowel duration. Therefore, these two features would be very difficult to separate in terms of which had more influence on the perception of the word. The difference between the previous experiment and the current one is that the former used a carrier phrase which had the primary stress on the words being tested. The current study, on the other hand, had the words embedded into a pseudo-context with varying sentential stress. In this case, the speed of the phrases would only allow for the longest or most perceptible feature to be used a cue. In most cases, the word final consonant was either cut off because of its assimilation with the following sound or not quite audible because of the speed of the speaker’s speech. Therefore, other important cues mentioned by certain studies (Flege and Port 1981; Fruin and Peach, 1984) such as release bursts or closure duration would in this case be unreliable and sometimes even irrelevant. Consequently, both panels of judges relied on the arbitrariness of vowel duration transferred from both Arabic and French to rate the intelligibility of the participants’ oral productions.

From Interference to Interlanguage

Many studies (Flege, 1980; Major, 1987) have asserted that interference from the native language does not account for all errors in oral productions especially at advanced
proficiency levels. However, it is important to note that in this situation, learners are not explicitly taught the vowel patterns of English. Therefore, what begins as interference from the L1 (or first FL) is never corrected or pointed out and thus remains even when the student reaches a high proficiency level. As a result, the skill is never acquired. Flege (1981) also stressed the importance of exposure to the target language. For all of these participants, English is taught as a foreign language, which means that it is rarely spoken outside the classroom. While most participants have stated that they are exposed to the language daily, less than half of them said that they produce it with other English-speaking friends. It is also important to mention that the language they are exposed to may not necessarily be the one they use in their own productions. Although they might be exposed to English native speakers in movies and songs, there is a clear lack of interaction, the give and take of conversation.

As for the three participants who were exposed to both languages as they were growing up, their case is not that different. One should keep in mind that these participants were exposed to English spoken by a non-native speaker of the language who most probably lacks the same skill that controls vowel duration. There is no interference in this case but the language they are being exposed to is in itself accented. Results from this study are consistent with the above claim because the average means of these three participants were not significantly greater than the other participants. Moreover, one of these participants’ mean score (P17) was not even among the top 20% of the group mean scores. These results confirm Flege’s (1981) claim that the quality and duration of the
exposure to the target language play an important role in the proficiency level that a bilingual child acquires.

This first research question primarily focused on the differences between the mean scores of intermediate and advanced Lebanese speakers. The difference was proven to be quite minimal and not statistically significant. However, upon closer inspection, one could see that five out of the six judges gave slightly higher scores to the intermediate learners. Also, when viewed individually, three of the five highest scores were obtained by intermediate Lebanese speakers. Moreover, when compared to the scores obtained by native speakers, none of the Lebanese speakers came close to the lowest score achieved by participant N4 (8.57). The above finding has been explained by numerous previous studies. Major (1987) claimed that interference from one’s native language only occurs at the early stages of second language acquisition. Since most of the intermediate speakers are still at a somewhat early stage (as can be seen from the ENL105 syllabus), the influence from Arabic and French might be significant. It has been shown that Arabic does not have a significant difference in vowel duration before a voiced and voiceless word-final consonant, and French has some difference (but not as significant as English). Therefore, when these participants’ productions are heard by native speakers of English, at worst they are classified as intelligible but slightly accented. When it comes to the advanced speakers, on the other hand, the influence from the native language is not significant but they are still at an intermediary stage (interphonology). As defined by Singh and Ford (1985), interphonology is sometimes characterized by the non native speaker’s creation of new phonetic features independent of both the native and target
language. When the researcher examined the productions of the advanced speakers, it was noticed that some of them completely reversed the vowel duration rules. That is, they lengthened the vowel before a voiceless consonant and shortened it before a voiced one. This indicates that the learners are aware of some phonetic difference between these two vowels. However, due to the lack of explicit instruction, the native-like phonetic rules are not implemented but rather a different interphonological rule emerges. Since most of these participants have had over ten years of language instruction, this rule is not likely to be changed and native-like production less likely to be acquired. This further demonstrates that while the language proficiency of these two groups seems to be significantly different, their oral proficiency levels are quite similar.

Reliability of Native Speaker Intuition

As was mentioned in the previous section, inter-rater reliability was high among the panels of judges. These results served this study in two ways. First, they allow for all the data from the judges to be analyzed and none of it be discarded as outliers. Second, these results further demonstrate the validity of using native speaker intuition as an instrument to detect accentedness in speech. As was previously mentioned, there were no measurements for any of the phonetic features that cue voicing. The researcher relied on the ratings given by each judge (both linguistically trained and non-linguistically trained) to evaluate the oral productions of the participants. Therefore, having an internal consistency of .921 between all the judges illustrates that these judges rated the phrases in a consistent and systematic manner. That means that all the judges were relying on their own internal native speaker reference against which all these productions were compared.
This consistency may also indicate that all the judges (even the non-linguistically trained) were able to cluster the speakers into language groups, and rated the members of each group in a similar manner. The above claim is supported by the data collected from the interviews with the judges. As was illustrated in the results, the judges claimed to have listened to six to twenty participants. It is true that determining the number of participants was not part of the instructions and the judges might not have been paying attention to how many people they were listening to. However, all the judges were asked to rate 390 phrases and the fact that none of them said they heard more than twenty people indicates that the judges were aware that they were listening to the same subjects or subjects with very similar accents. This is further confirmed with the follow-up question that asked the judges to indicate the accents they could identify. Since none of the judges indicated more than three, this means that they were able to notice a linguistic pattern in the productions. Furthermore, one of the non-linguistically trained judges said that he thought he was listening to the same people producing the same phrases: sometimes these phrases were slowed down, other times they were sped up. Of course, this type of change in speed did not occur throughout the experiment and every participant produced each phrase only once so there were no two identical phrases. However, the fact that the judge had that perception only supports the conclusion that the judges were grouping the participants depending on the way they were producing the phrases. This also shows that the influences of French and Arabic were so similar, that to an untrained ear some of the participants sounded exactly the same. It is not possible to indicate whether these participants belonged to the same proficiency level or to different ones. On the other
hand, from the questionnaire, there is some variation as to the age of learning English and
the type of education these participants received. These social and linguistic variations
(within each group and across the two groups) seem to be minimized by the similar type
of accentedness that the judges were able to perceive.

The Importance of Having both Panels of Judges

Since two panels of judges were included, those with formal linguistic training
and those with none, this study aimed to determine whether there was a significant
difference between the ratings given by these two panels. As the results from the one-way
ANOVA demonstrated, there was no significant difference between the ratings. These
results are consistent with the findings of Raphael, Dorman & Geffner (1980) who
concluded that a native speaker of English is able to perceive and produce variations in
vowel duration by the age of three. Only few of previous studies on the importance of
vowel duration as a cue have included both types of judges (see Raphael, 1981; Flege,
McCutcheon & Smith 1987). In Flege McCutcheon & Smith (1987), the first researcher
transcribed and rated the productions himself. In Raphael’s (1981) experiment, the
researcher also included two panels of judges (five judges per panel). However, in both of
these studies, the amount of data presented to the judges was much less than the current
study and the experiments were only conducted once. In this study, the judges were
presented with a large number of phrases to rate and the data was divided into three rating
sessions. This allowed for any variations between the two panels or within the judges
themselves (change throughout time) to be exposed. It was first thought that perhaps
linguistically trained judges would be more critical of the productions they heard and
would rate much lower than the non-linguistically trained judges. There was also the possibility of non-linguistically trained judges rating much lower than the linguistically trained panel because of the lack of exposure to accentedness. Through statistical analyses, the two aforementioned hypotheses were rejected even though one of the three non-linguistically trained judges consistently rated lower than the other five (see below). These results indicate that the lack of difference between the intermediate and advanced learners is not perceived by different types of native speakers. If only the linguistically trained judges were able to detect the accentedness in the advanced learners’ speech, then perhaps the accentedness would no longer be an issue since most native speakers are not linguistically trained. However, the fact remains that both panels rated those participants in a statistically similar manner and these ratings made no distinction between the intermediate and advanced learners. This finding proves that vowel duration patterns affect the quality of the oral productions of advanced Lebanese learners and are detected by different types of native speakers of English.

The Differences between some of the Judges

As previously mentioned, the inter-rater reliability values of the two panels of judges combined was quite high and there was no significant difference between the linguistically trained and the non-linguistically trained panels. However, as the mean scores demonstrated, NLJ3 consistently rated lower than the other judges and almost always gave the lowest score to each participant. Although the data collected from this judge were not considered as outliers, it is important to discuss the reasons behind his lower ratings. When interviewed, this non-linguistically trained judge explicitly stated
that he had very little exposure to non-native speakers of English. To him, therefore, any slight change in the phonetic features of the word instantly meant a lower intelligibility score. While other judges were also objectively rating the participants according to accentedness, their exposure to non-native speakers perhaps makes them less biased to one standard way of producing the phrase and more open to an approximation of that production. It is important to mention here that the three linguistically trained judges all teach English as a second language. One of these judges (LTJ2) works at the pronunciation laboratory at the university and another (LTJ3) works helps international teaching assistants improve their English. Therefore, one can clearly see that although the judges rate consistently and there are no significant differences in their ratings, they seem to rely on different techniques and skills when doing so.

The above claim is supported by the information collected from the interviews. One of the questions asked the judges in which sentential position was the word most difficult to rate. From the answers gathered, there clearly was no consensus amongst the judges, not even within one panel. Some judges thought that it was very difficult to rate the word when it came at the beginning of the phrase since it was too sudden and not enough time was given for the judge to be prepared. Others believed that it was more difficult to rate the word when it came at the end of the phrase since enough context was given to detract their attention from the word in question. From the above answers, one can clearly see that the judges have different ways in perceiving the word, rating it, and relying on the context in which it is placed. There are other instances that show similar variations. One of the linguistically trained judges (LTJ3) stated that he was not a passive
listener to the utterances. Being a researcher himself, he was unconsciously attempting to figure out what the study was focusing on. One of the non-linguistically trained judges (NLTJ3), on the other hand, stated that his entire focus was placed on trying to minimize the effect of the context on the word. Another linguistically trained judge (LTJ2) claimed that she was trying to focus on the release bursts of the word final consonants but could not because of the speed of the phrases. It is thus quite interesting to see that although the judges come from very different backgrounds, do not have the same amount or type of exposure to non-native speakers and have different ways of undergoing this experiment, their ratings remain very similar and consistent. This is consistent with the conclusions made by Flege, McCutcheon & Smith (1987), who claim that perceptions and productions of word final consonants in English are acquired by a native speaker after a certain age. It apparently does not matter whether this speaker is in daily contact with non-native speakers, is linguistically trained, or teaches English. The skill is acquired and the identification of an accent becomes a consistent trait shared among all native speakers. The above result might also be because vowel duration patterns are the most perceptible cue among those that signal voicing in word final consonants. Therefore, it may be possible that such a cue requires the least amount of linguistic training and is the most consistent among all native speaker judges.

The Measurement of Oral Proficiency in Standardized Tests

The final issue this paper investigated was whether or not the placements of the participants correlated with the ratings given by the judges. As shown in the results, the statistical analyses revealed that there was no correlation between the two variables. This
finding comes as a logical conclusion from the last two results: there was no difference between the ratings given by the linguistically trained panel and those given by the non-linguistically trained panel and those scores demonstrated that there was no significant difference between the intermediate and advanced learners. Therefore, the criteria upon which the placements were based can obviously not be extended to the proficiency of these learners’ oral productions. There are several reasons for the above finding. First and foremost, it is important to mention that although the EET is based upon the TOEFL test, it lacks a speaking section and a listening section. The latter has only recently added that section in some of its forms (IBT and CBT) whereas the former only relies on reading comprehension, grammar, vocabulary, listening, and writing. It is also highly unlikely that such a test will include a speaking section in the near future since most of these tests are conducted in large classrooms with around twenty to thirty students in each room. It would thus be very difficult to have that many people recording their speech samples at the same time. For this reason, while the test evaluates reading, writing, and grammar, it does not account for the oral proficiency of a student. The second reason for the above results is that programs that teach English as a foreign language usually do not focus on speaking skills, the obvious reason being that there is no need for it. English is only spoken inside the classroom and comprehensibility is usually favored over intelligibility. Even when students intend to go to English-speaking countries or English-speaking universities within the country, the skills that are mostly focused on are reading and writing. That is because these two skills are usually the ones evaluated in entrance exams. Listening is another skill that is not focused on in classrooms, perhaps even less so than
speaking. However, the former skill is measured in the EET perhaps because it is easier to administer listening material to a large group of students.

However, the above reasons do not justify ignoring two important language skills in an English language classroom. This study has shown that according to native speakers of English, there is no significant difference between the oral productions of intermediate speakers and those of advanced learners. It is important to point out that research (Raphael, Dorman and Geffner 1980; Flege, McCutcheon & Smith 1987) has shown that certain phonetic features are acquired as a skill by native speakers after a certain age. However these studies have also shown that non native speakers (even those learning English as a second language) do not acquire these skills even after a long time learning the language. Therefore, it is clear that native speakers acquire those skills because of the age at which they started learning the language and the type of exposure they received (Flege, 1981). Since most of the Lebanese speakers lack both phonetic conditions, these skills have to obviously be explicitly taught in language classrooms. Although the experiment only focused on the effect of vowel duration patterns on word final consonants, it is safe to assume that there are many other phonetic features that are also produced with some accentedness even at an advanced level. This was demonstrated by Flege & Port (1981) whose study investigated Arabic speakers’ productions of consonants in word initial and word final positions. The results showed that Arabic speakers produced both types of consonants with some accentedness. Therefore, the current study has shown that standardized tests (particularly the EET) does not account for the oral proficiency level of a student. Moreover, the proficiency level that the EET
score places any given student in no way represents the actual oral proficiency level. Such tests might be accurate in terms of evaluating other language skills; however, the exclusion of speaking skills from the test is a reflection of the English language curriculum as a whole. The students obviously did not all attend one school and yet a similar pattern arises in all of their oral productions. Because speaking is almost completely ignored when teaching English as a foreign language, students’ product oral proficiency ends up misrepresenting their overall proficiency level.
CHAPTER 6: CONCLUSION

Numerous studies (Raphael, 1972; Flege, 1993; Munro, 1993) have shown that even the slight change in one phonetic feature can result in accentedness, which native speakers are able to detect, even when exposed to extremely short utterances (Flege, 1984). Vowel duration has been proven to be one the most discernible and consistent phonetic cue to the voicing nature of the word-final voiced and voiceless and consonant (Raphael, 1972; Luce & Charles-Luce, 1985). This phonetic characteristic has also been proven to be the earliest acquired by native speakers of English (Raphael, 1980). While considerable research was conducted on the production of voiced and voiceless word-final consonants by non-native speakers, there has been little focus on the intelligibility of such consonants by Lebanese speakers. This study aimed to explore the effect of vowel length on the intelligibility of word-final voiced and voiceless consonants produced by intermediate and advanced Lebanese learners of English. The experiment included 30 Lebanese speakers who were asked to produce minimal pairs containing the aforementioned consonants embedded in a children’s story. Two panels of judges, one linguistically-trained and another non-linguistically trained, were asked to rate the productions of the Lebanese speakers on a scale of 1 to 11.

The research questions addressed in this study were the following:

1) Is there a significant difference between the intelligibility scores given to productions of advanced Lebanese speakers and those of intermediate speakers?

2) Is there a significant difference between the scores given by the linguistically-trained panel and the non-linguistically trained undergraduates?
3) Do the intelligibility ratings of the Lebanese participants correlate with their placements based on their EET scores?

It was shown that vowel duration patterns were the most discernible phonetic feature that the judges relied on to evaluate the phrases. Previous studies (Flege & Port, 1981) have shown that there are mainly two phonetic features that cause accentedness in Arabic speakers’ speech: closure duration and vowel duration. The former was eliminated as a possible cue because of the speed of the phrases and the positions of the words. Therefore, of the two cues, vowel duration was the one relied mostly on in this study. From the results of the statistical analyses, it was shown that there was no significant difference between the intermediate Lebanese speakers and the advanced speakers. This finding demonstrated that even though there was some variance between the participants (such as duration and type of exposure to the language, age at which exposure began, etc), the ratings from the judges minimized (and practically eliminated) those differences. Analyses also demonstrated that the inter-rater reliability between judges, which proved the validity of using native speaker intuition as an instrument to measure accentedness and intelligibility.

There was no significant difference between the linguistically trained and the non-linguistically trained judges. Just like the participants, there were some linguistic and personal variations between the judges. However, throughout the 390 tokens that they were asked to rate, they were consistently rating in a very similar way. This suggests that vowel duration as a cue does not necessitate linguistic training and the skill required to
detect accentedness caused by this cue is acquired by all native speakers the same way (which is consistent with the findings by Flege, McCutcheon & Smith, 1987).

The final result of this study was that there was no correlation between the placements of the EET scores and the ratings of the participants. This finding came as a logical conclusion to the other two and tapped into the pedagogical aspect of this study. The paper was not attempting to simply show that certain standardized tests do not account for the oral proficiency of the students. These tests do not include a speaking section and thus cannot measure that skill. Such tests, however, do mirror the curriculum followed by most schools in Lebanon and in other countries that teach English as a foreign language. With most of these programs almost completely ignoring an important language skill, even advanced students’ productions are deemed accented and these students are rated much lower than individuals with such a proficiency level usually are.

Pedagogical Implications

Although this study has focused on certain phonological features that influence accentedness in Lebanese speakers’ speech, the results from the experiments shed light on situations encountered in a foreign language classroom. The lack in difference between the intermediate and advanced speakers of English illustrates the lack of adequate speaking skills of a Lebanese speaker of English. It was shown in this study that most of the intermediate level participants have had at least five years of instruction. However, the advanced learners who have had at least double those years and who have shown high proficiency in standardized tests also lack certain phonetic skills.
It has been discussed that foreign language classrooms in Lebanon do not focus on speaking skills because of other skills that supersede the former due to their importance and use. It is through research such as this that problematic phonetic features could be integrated into the language curricula in order to prevent accentedness at an advanced level. These features are important because they are not as obvious and as teachable as others. Word stress for instance is frequently corrected and pointed out in Lebanese English classrooms. That is because such a phonetic feature is quite discernible and in some instances, even phonemic. Therefore, when a student produces a word with the wrong stress and that causes problems in comprehension, the teacher will most likely correct the student’s phonological error. However, when a student does not produce the correct vowel length patterns in front of word final consonants, a non native teacher will most likely not notice the error. The reason is that most often teacher himself/herself would not have acquired the perceptive skill that detects such an error. However, this does not change the fact that advanced speakers’ productions still convey accentedness that is detected by most native speakers, as is shown in this study.

This study first encourages the introduction of English phonology into the language classroom. The main reason for the accentedness in the speakers’ productions is the unawareness of the phonetic rule being violated. These rules are also not recognized by non-linguistically trained native speakers. That is because they are assimilated into their speech without explicit instruction (just as a native speaker of English is not explicitly taught to aspirate word-initial consonants). Therefore, without proper exposure, a non native speaker is unaware of the phonetic properties of each phone in different
environments. The solution to that problem is explicitly introducing those phonetic rules and patterns to the students. For this reason, further research should be conducted on other perceptible phonetic features that cause accentedness and these features should be integrated into the English language curriculum. When such features are identified through research and dealt with in the classroom, the learner who comes out of this program would possess the same advanced skills in speaking as those in reading and writing.

Limitations

There are a few limitations within this research worth mentioning. The first is that this study only focused on vowel length patterns as a cue to the voicing feature of word final English consonants. Although this study was able to show that this was the main phonetic feature that signaled accentedness to the native speaker judges, other studies (Flege & Port, 1981) have shown that there are other phonetic features that cause accentedness in Arabic speakers’ English word final consonants. This study did not focus on identifying or analyzing the influence of other features which may or may not have been detected by the judges.

Another limitation is the number of participants in this study that is not representative of the whole Lebanese population. The two groups of participants were very carefully chosen in order to eliminate as many variables as possible. However, as can be seen from the questionnaire, linguistic and social diversity is intrinsic to Lebanese culture. Therefore, these two groups only represent a portion of Lebanese society, one where the two parents are both Lebanese and the learners have been exposed to non
native productions almost all the time. However, there are many different linguistic environments that a Lebanese speaker of English might grow up in (such as having a native speaker parent, going to a school with native speaker teachers, etc). Even though this study includes the type of learners that constitute the majority in Lebanon, there are other types of learners whose productions might yield a different result than the one in this research.

Suggestions for Further Research

Much research has been conducted on the phonological problems that speakers of other languages face when studying English (Flege and Eefting 1988; Tuskada et al. 2004). Most of the studies on problems faced by Arabic speakers of English (Munro, 1993) are focused on the productions of certain consonants and vowels that the Arabic language lacks. Not enough research has been conducted on the suprasegmental features that differ in these two languages. This study has only focused on the effect of vowel duration on the voicing nature of word final consonants produced by Lebanese speakers of English. There are many other suprasegmental features in Arabic that create problems when they are transferred or misapplied to English phonology. Some of these are release bursts with word final consonants, aspiration in word initial consonants, word stress patterns, etc. This paper encourages similar types of research in an effort to better understand the cause of accentedness in the English productions of advanced Arabic speakers of English.

Moreover, with the influence of other languages on Arabic speakers around the world, not enough research has been done to identify whether or not phonetic features
such as vowel duration are produced in the same manner across Arabic-speaking countries. It is true that Arabic-speaking countries share one standard form of the language. However, as it has been shown in this study, Arabic is not the only language influencing the oral productions in English. Moreover, Modern Standard Arabic is spoken non-natively by all these speakers, since it is learned at school like all other foreign languages and the only native language is the local dialect. This local dialect is most often influenced by other languages that are spoken in the country. Many Arabic-speaking countries are considered bilingual or even multilingual because of neighboring countries or certain political situations. These foreign languages are sometimes incorporated in the dialect spoken in the country (through borrowing and calquing). On the other hand, these languages are most often spoken alongside Arabic and their speakers are considered bilingual (such as French and Spanish in Morocco, French in Algeria, French and Armenian in Lebanon, etc). These languages therefore have a lot of influence on the second or foreign languages that such speakers later learn. Consequently, more research should be conducted on the difference in the accents between different Arabic-speaking countries, depending on the dialect they speak and the languages that influence that dialect. In this study, it has been shown that French has had some influence in the productions of Lebanese speakers of English. It would be interesting to explore the influences of other languages in other Arabic speakers of English.
REFERENCES


Section 1. ENGLISH ENTRANCE TEST (EET)

LANGUAGE USAGE-ERROR ANALYSIS

PART A – LANGUAGE USAGE

Directions: Questions 1 – 7 are incomplete sentences. Beneath each sentence you will see four words or phrases marked (A), (B), (C) and (D). Choose the one word or phrase that best completes the sentence.

1. At around two years of age, many children regularly produce sentences ___ five or six words.
   A- that contains
   B- will contain
   C- containing
   D- contain

2. ___ her first poem at age seven, Naomi Shura Nye has long been a quiet observer of the human condition.
   A- Although she published
   B- Being published
   C- Having published
   D- She published

3. Beyond the mountains ___
   A- is there deserted houses.
   B- are these deserted houses.
   C- are deserted,
   D- these deserted houses are

4. Firas has been gaining work experience in the hotel industry ___ he graduated in June.
   A- for
   B- since
   C- when
   D- until

5. Suzanne could ___ see the corpse that was on display in the Faculty of Medicine.
   A- barely
   B- not bear
   C- bear to
   D- not bare to
6. In 1968, Marshall McLuhan coined the term *global village*, meaning a future civilization in which the mass media would ________ or unite the world with satellites, cameras, and television sets.
   A. as either control
   B. either to control
   C. to either
   D. either control

7. ________ accused of acting impulsively, according to emotion rather than reason, they would change their behavior actions.
   A. Young people
   B. Young people are
   C. Were young people
   D. Young people were

**PART B—ERROR ANALYSIS**

Directions: In questions 8–12 each sentence has four underlined words or phrases. The four underlined parts of the sentence are marked (A), (B), (C), and (D). Identify the one underlined word or phrase that must be changed in order for the sentence to be correct.

8. While working as a critic in New York, she was a member of the Algonquin Round
   A. Table, a very influential group of literary figures.
   B. C
   D

9. Many of travelers worry about what to do with pets when vacations call them away.
   A. B C D
    from home.

10. When a bone is broken into several pieces, doctors may pin the pieces together
    A. B C
    for proper healing.
   D

11. An eighteen-watt fluorescent bulb ________ as brightly as a seventy-five-watt
    A. B C
    incandescent bulb.
   D

12. Do you know why do some Lebanese believe that love should be a basis for
    A. B C D
    Marriage?
13. In “First Frost,” Andrei Voznesensky describes a girl out in the cold, in a

A telephone booth, talking to her selfish, arrogant, and pride lover.
B C D

CRITICAL READING-VOCABULARY

PART A – CRITICAL READING

Directions: You are to choose the one best answer (A), (B), (C) and (D), to each question.

The blues is the root and foundation upon which all jazz has developed. Indeed, without the blues there would be no jazz as we know it today. Every style of jazz, even the avant-garde, has been found to have a heritage in the blues.

Work songs were structurally simple two-harmony songs that were sung by a leader and responded to by other workers. Another kind of song, the “country blues” was developed at the same time, however. The first blues songs were sung by itinerant male singers in the South and Southwest who went to bars and social gatherings singing songs full of earthy lyrics in exchange for liquor. Early blue singers drank, danced, and mingled freely with the patrons and guests, and their music was informal, unrestrained, and often improvised. The themes of these songs concerned the basic human problems of sex and love, poverty and death.

14. What might a paragraph that follows this one be about?
A- Description of the physical traits of the singers
B- General idea about the development of the blues songs
C- Stating the reasons why the themes of the songs mainly concerned the basic human problems
D- Speaking about the origin of all kinds of songs

15. According to the passage, the writer believes that:
A- Blues songs reflect real life
B- Country songs are more important than other kinds of songs
C- All singers have to sing the blues
D- Blues has more advantages than jazz

16. It can be inferred from the passage that
A- Without jazz, the blues would not exist
B- The blues grew out of jazz
C- The blues and jazz are avant-garde musical forms
D- The blues underlies all forms of jazz
17. Which of the following would be the most appropriate topic for country blues songs?
   A- The birth of a child
   B- The death of one's lover
   C- The theft of one's guitar
   D- Women

18. The main motive of the writer is to
   A- Inform the readers about the origin and the nature of the blues
   B- Persuade the readers to believe that all English songs must depend on the blues
   C- Amuse the readers
   D- Describe the singers

PART B: VOCABULARY

Directions: You are to choose the one best answer (A), (B), (C) and (D), to each question.

19. Our school principal is a strong ...
   A- disciplinarian
   B- dictator
   C- autocrat
   D- authority

20. The pharmacist warned me that the medication might cause _____ effects.
   A- second
   B- secondary
   C- side
   D- subsidiary

ESSAYS

Topic 1. Do you agree or disagree with the following statement?
Wealth is not necessarily the secret to happiness but, on the contrary, is the source of unhappiness? Use specific reasons and details to support your answer.

Topic 2. Books belong to the past. Discuss, giving your opinion.
Instructor: ---------------------------------------------------------------
Office: ---------------------- Office hour: -------------------------------
Office phone & ext.: --------------- E-mail: ---------------------------
Class room: ------------------ Class schedule: ------------------------

COURSE DESCRIPTION
This course places emphasis on building the basic English communication competence skills of reading, writing and speaking. These skills, once learnt, enable the students to build a threshold upon which they can succeed in other higher “English skills” and “content” courses offered at NDU. The methodology followed is a communicatively interactive methodology where students are prompted to interact in order to build their threshold of English competence skills. Activities, sequential feedback as well as additionally individualized academic help in the Writing Center and during the instructor’s office hours are the main monitors for this course’s success. The passing grade for this course (non-credit carrying) is “C” (C=70). Students who earn a “B” grade (B=80) or above are exempted from ENL 110 and may register directly in ENL 213.

STUDENTS LEARNING OUTCOMES
Upon successful completion of this course and as a result of the activities and study in this course, students should be able to accomplish the following:
1. To write in proper grammatical sentences with no tense or subject-verb agreement mistakes.
2. To be able to express their intended meanings in writing.
3. To identify and write correctly formatted paragraphs and essays.
4. To discuss reading passages and justify their opinions.
5. To respond to an article in a well-defined response format (summarize the article, take a stance and then justify it with valid, detailed reasons with in-text citations).

6. To be able to write a research paper according to the course’s guidelines and requirements.

7. To be able to document sources as well as to provide in-text citations according to the APA system of documentation.

8. To orally present their research paper.

TEXTBOOK/MATERIAL REQUIRED:

EVALUATION:

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- Participation &amp; preparation</td>
<td>5 %</td>
</tr>
<tr>
<td>2- Class work &amp; quizzes</td>
<td>15 %</td>
</tr>
<tr>
<td>3- Paragraph - Description (2 Drafts)</td>
<td>5% Draft 1: 3% + Draft 2: 2%</td>
</tr>
<tr>
<td>4- Essay # 1 – (2 Drafts) Narration/Exemplification</td>
<td>8% Draft 1: 5% + Draft 2: 3%</td>
</tr>
<tr>
<td>5- Essay # 2 – (2 Drafts) Process/Cause-Effect</td>
<td>10% Draft 1: 6% + Draft 2: 4%</td>
</tr>
<tr>
<td>6- Essay # 3 – (2 Drafts) Comparison-Contrast/Definition</td>
<td>10% Draft 1: 6% + Draft 2: 4%</td>
</tr>
<tr>
<td>7- Response – (2 Drafts)</td>
<td>10% Draft 1: 6% + Draft 2: 4%</td>
</tr>
<tr>
<td>8- Research Paper- 5 Steps:</td>
<td>15%</td>
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<tr>
<td>1st Step: Sources</td>
<td>1%</td>
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<td>2nd Step: Outline</td>
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<td>3rd Step: Note Cards</td>
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<td>4th Step: First Daft</td>
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<td>5th Step: Final Daft</td>
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<tr>
<td>9- Oral Presentations</td>
<td>5%</td>
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<tr>
<td>10- Portfolio</td>
<td>2%</td>
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<tr>
<td>11- Final Exam</td>
<td>15%</td>
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</table>

** The Research Paper in ENL 105 is 6 pages long (1 cover page, 1 outline page, 3 essay pages, 1 reference page).

University and Class Policies

NDU’s Attendance Policy
Students should attend all classes on time. A pattern of absences, whether excused or not, and even below the maximum number (specified below), may alter one’s grade substantially. The SAO alone authorizes absences. No absence absolves a student from the responsibility of acting upon the material presented during his/her absence. The maximum number of absences for classes that meet on MWF is six; the maximum number for classes that meet on TTH and in the summer is four (or two hours per credit course). Any student whose absences exceed the maximum limit shall automatically fail the course unless the student withdraws. *(Academic Rules and Regulations, NDU Catalog)*

**NDU’s Academic Integrity Policy**

Students are expected and encouraged to be honest and to maintain the highest standards of academic integrity in their academic work and assignments at the University. They shall refrain from any academic dishonesty or misconduct including; but not limited to:

- Plagiarism (that is, the presentation of someone else’s ideas, words or artistic, scientific, or technical work as one’s own creation. Also, paraphrasing, summarizing, as well as well as direct quotations are considered as plagiarism, if the original source is not properly cited)
- Cheating
- Assisting in cheating
- Substituting a student in the taking of an examination
- Substituting examination booklets
- Submitting the same work for more than one course and the like
- Submitting papers written by others
- Receiving or providing unauthorized help or assistance in any academic work or assignment
- Intentional violation of program and degree requirements and regulation as established by the University
- Dishonest reporting of computational, statistical, experimental, research, results, or the like

*(Academic Rules and Regulations, NDU Catalog)*

**Course Policies**

- There are no make-ups for missed tests or for the final examination. Failure to sit for a scheduled test and/or final exam will result in an F on the test/exam. A student may be excused in exceptional cases and upon the discretion of the English, Translation, and Education Department, and only if the student presents a valid documented excuse (from the SAO in case of illness) to the chairperson of the department within 72 hours of the scheduled exam date.
- While understanding that we are all busy with university, work, and family, your decision to register for this course is an indication that you have made it a high priority. Thus, extensions of assignment due dates are given only in extreme situation (death of a close family member, hospitalization, etc.) and require documentation on your part. Otherwise, due dates are fixed and non-negotiable. All assignments should be submitted on or before the assigned due date. Assignments past the due date will not be accepted for full credit. Examples of unreasonable extensions for an assignment include frequent computer malfunctions or outside work/personal responsibilities that that interfere with meeting the deadlines. If you anticipate missing a deadline on an assignment, you should send an email to your instructor before the deadline and arrange ahead of time what
course of action to take. Unexcused assignments submitted after the due date may be returned ungraded or assigned a lower evaluation. Whether an extension is allowed will be at the instructor’s discretion.

- Assignments: all work must be typewritten (unless otherwise specified) and submitted in a professional manner. The instructor reserves the right to return, for resubmission, any work that is not neat, legible, and professionally submitted.
- Mobile phones should be turned off and out of sight (i.e. not face-up on the desk but preferably inside purses, backpacks, briefcases, etc. or face down on the desk). Phones may not be answered in class under any circumstances.
- Students must attend class with the required material (i.e. original textbook, notebook, pens, etc.).
- Once in class, students are expected to remain in class for the entire period.
- English must be the only language spoken in class at all times.
- Special needs: Any student who feels s/he may need an accommodation due to a disability should contact the instructor privately to discuss those specific needs.
- The Writing Center provides assistance to all students who wish to discuss their writing with a trained consultant. The Writing Center is located in HA 114. An appointment is required.
- Office Hours: All instructors at NDU are available for office hours during the week. Please note the office hour that your instructor has dedicated to this course to make an appointment. Just dropping by may not ensure that the professor has set aside time to assist you. Office hours may be used ideally to ask for guidance on an assignment or to ask questions concerning a subject that you were not clear on during class time.
- Students must check their NDU email daily as this is the means used by the instructor to communicate. Students will receive notice via NDU email when the instructor posts announcements on the course’s Blackboard.
- The ENL 105/110 course coordinator – Dr. Rita EL-Meouchy- is ready to be of assistance to all students. Students can drop by during office hours. Office: HA 236. Ext: 2418.

**Weekly Schedule**

This is a multi-section course. The suggested text selections and dates of graded work may be altered by your instructor to suit your class’ needs and interests. Your instructor will inform you in advance of any such changes.

| Week One | Introduction to the course  
Diagnostic paragraph  
Basic Principles of Effective Writing  
Subjects/Verbs |
| --- | --- |
| Week Two | Basic Principles of Effective Writing cont’d  
Summarizing  
Four Basis of Revising Writing  
Regular/Irregular Verbs |
Week Three  Paragraph Development
Paraphrasing
Practice summarizing and paraphrasing
Fragments

Week Four  Introduction to Essay Development
Structure of the Traditional Essay
Subject-Verb Agreement
In-Class Paragraph

Week Five  The thesis statement and evidence
The Writing Process
Organization
Pronoun Agreement and Reference

Week Six  Introductions and conclusions
Revising and editing
Pattern of development – Description
Research paper topic selection
Run-On Sentences

Week Seven  Pattern of development - Narration
Research: Introduction to Documentation, Reliability of Sources,
Plagiarism,
Adjectives and Adverbs
Notecards due

Week Eight  Pattern of development - Exemplification
Research: APA reference page and research paper writing
Pronouns
Preliminary outline due
In-Class Essay 1

Week Nine  Pattern of development - Process
Research paper formatting
Modifiers

Week Ten  Pattern of development - Cause and Effect
Punctuation
In-class Essay 2

Week Eleven  Pattern of development - Comparison and Contrast
Punctuation
First draft of the research paper due
| Week Twelve       | Pattern of development - Definition  
|                  | Editing  
|                  | **In-class Essay 3**  
| Week Thirteen    | Pattern of development - Division and Classification  
|                  | ESL pointers  
|                  | *Final draft of the research paper due*  
|                  | **In-class Response**  
| Week Fourteen    | Presentations  
|                  | Spelling  
|                  | *Portfolios due*  
| Week Fifteen     | Review and catch-up  

**NOTRE DAME UNIVERSITY**  
**FACULTY OF HUMANITIES**  
**DEPARTMENT OF ENGLISH, TRANSLATION & EDUCATION**  
**SPRING 2009**  
**ENL 105**  
**AGREEMENT PACT**  

*I have read, understood, and agree to follow the syllabus for ENL 105 –COLLEGE ENGLISH –I.*

__________________________  
Name (printed)  
__________________________  
Signature  
______________  
Date  
______________  
Email:  
______________  
Phone:  

**What do you expect to gain from this course?**

**Is there anything else that you would like me to know about you?**
ENL 213 Sophomore Rhetoric  
Course Syllabus - Spring 2009

Instructor: ____________________________ Office: ________ Office Hours: ____________  
Email Address: ___________________________________________ Tel. ext.: ____________  
Course section: _____________ Time: ___________________ Classroom: ______________

Required Text  

Course Description  
ENL 213 is a course in critical thinking, reading, and writing, with special emphasis on argumentation and persuasion. The course material addresses current and recurring themes and issues. Students are expected to conduct independent research tapping into various types of resources and synthesizing the results in formally documented papers. Debates and general discussions will require students to provide facts, examples, and other types of evidence to support their claims. ENL 213 is the first English course which is calculated in students’ GPA.

Course Objectives and Learning Outcomes  
Students are expected to acquire the ability to:

- be able to convince audiences  
- give an educated opinion when discussing contemporary issues  
- use sound thinking when expressing an opinion  
- read and write critically  
- identify issues, claims, arguments, counterarguments, and types of evidence  
- create, interpret, and evaluate arguments  
- spot fallacies (errors in reasoning) in arguments  
- develop documented argumentative essays of 1200-1500 words  
- use computer/internet technology to access and retrieve necessary information in the various stages of research and writing

Methodology
• In order for students to fully master the skills of argumentation covered in this course, students will be participating in discussions in the form of textual analysis, class discussions and structured debates on current and/or recurring issues.
• Students in this course will be expected to write frequently, culminating in the writing of a final argumentative paper. A first draft of the final paper must be submitted at least one week prior to the due date.
• Students are expected to dynamically participate in all class activities. Sophomore Rhetoric, of all courses offered at university level, is amongst those which demand the most in-class participation in the form of discussions framed by the sound exchange of claims, reasons, evidence, and refutations.

Course Policies

NDU’s Attendance Policy
Students should attend all classes on time. A pattern of absences, whether authorized or not, and even below the maximum number (specified below), may alter one’s grade substantially. The SAO alone authorizes absences. No absence absolves a student from the responsibility of acting upon the material presented during his/her absence. The maximum number of absences for classes that meet on MWF is six; the maximum number for classes that meet on TTH and in the summer is four (or two hours per credit course). Any student whose absences exceed the maximum limit shall automatically fail the course unless the student withdraws.

NDU’s Academic Integrity Policy & Others
• Students are expected and encouraged to be honest and to maintain the highest standards of academic integrity in their academic work and assignments at the University.
• There are no make-ups for missed tests or for the final examination. Failure to sit for a scheduled test and/or final exam will result in an F on the test/exam. A student may be excused in exceptional cases and upon the discretion of the English, Translation, and Education Department, and only if the student presents a valid documented excuse (from the SAO in case of illness) to the chairperson of the department within 72 hours of the scheduled exam date.
• Assignments must be completed before coming to class on the due date. Failure to submit assignments on the due date will result in the assignment being graded down.
• Mobile phones should be turned off and out of sight (i.e. not face-up on the desk but preferably inside purses, backpacks, briefcases, etc. or face down on the desk).
• Students must attend class with the required material (i.e. textbook, notebook, pens, etc.).
• Once in class, students are expected to remain in class for the entire period.
• English must be the only language spoken in class at all times.
• Special needs: Any student who feels s/he may need an accommodation due to a disability should contact the instructor privately to discuss those specific needs.
• The Writing Center provides assistance to all students who wish to discuss their writing with a trained consultant. The Writing Center is located in HA 114. An appointment is required.
Grade Distribution

Essays (x2) **done in class** 10%
Quizzes (x2) 10%
Test 1 15%
Test 2 15%
Debate 10%
Argumentative paper 10%
Final Examination (common to all sections) 25%
Active Class Participation 5%

Weekly Distribution

*This is a multi-section course. The displayed items may be minimally altered by your instructor to suit your class needs and interests. Your instructor will inform you in advance of any such changes. Numbers between parentheses indicate chapters in the main textbook.*

Week 1
- Introduction to the course, class policies, and student/instructor expectations
- Introduction to Arguments (1)

Week 2
- Reading Arguments (2)
- Fallacies **(on-going throughout the semester)**, Appendix One

Week 3
- Writing Arguments (3)

Week 4
- The Core of an Argument: A Claim with Reasons (4)

Week 5
- The Logical Structure of Arguments (5)

Week 6
- Using Evidence (6)

Week 7
- The Researched Argument: Finding and Evaluating Sources (16)

Week 8
- The Researched Argument: Using, Citing, and Documenting Sources (17)

Week 9
- Moving Your Audience: Ethos, Pathos, and Kairos (7)

Week 10
- Accommodating Your Audience and Refuting/Rebutting Evidence (8)

Week 11
- Dialogic Arguments: Delayed-Thesis and Rogerian Strategies (8)

Week 12
- Visual Arguments (9)

Week 13
- The Six Types of Claims & Hybrid Arguments (10-11)
Week 14 - The Six Types of Claims (12-13)
- First draft of papers

Week 15 - The Six Types of Claims (14-15)
- Submission of papers
- Debate

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Final Examination
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APPENDIX C: QUESTIONNAIRE

Name:_____________________

Age:_________

Sex: M  F

Languages spoken: ____________________

How old were you when you first started learning English? _______

School attended: _______________

   Exposure to the English language:

   □ Once a Day

   □ Once a Week

   □ Once a Month

       Other: _________

   Type of exposure outside the classroom (check all that apply to you):

   □ Books

   □ Movies

   □ Music

   □ Friends who speak English outside the classroom

       Other: ______________

   EET score:__________
When I get out of bed everyday
Dad always says to me:
“When walking to school
Keep your cap on
And your eyes open.”
And I always reply:
“I bet I will find
Something interesting on my way.”
But all I saw on the way that day
Was a yellow cab and some little kids.
All the long way to school
And all the way back
I’ve looked and I’ve looked
Carrying my heavy bag.
But all that I’ve noticed
Except my own feet
Was a horse and a dog
That I wished I could feed.
I decided to go to the park
And try to find something there;
A leaf fell on my head
But that wasn’t good enough.
Then it started getting cold
So I had to leave soon,
I wanted to pick some flowers
Before I headed on home.
Then at the corner of our street
I saw a broken-down wagon
Being pulled by a horse
That can’t be my story; that’s only the start
I have to add something to it…
I’ll say a pig was pulling that cart!
I’ll also say that a race was organized
Between the pig and another horse!
But I thought the story had so many fibs
I won’t be able to raise my head
And meet my father’s frown
So I decided to tell the truth instead
APPENDIX E: SCREEN SHOT OF THE FORM
APPENDIX F: CONSENT FORM

Ohio University Consent Form

**Title of Research:** Intelligibility of voiced and voiceless consonants of English by Lebanese speakers

**Researchers:** Romy Ghanem

You are being asked to participate in research. For you to be able to decide whether you want to participate in this project, you should understand what the project is about, as well as the possible risks and benefits in order to make an informed decision. This process is known as informed consent. This form describes the purpose, procedures, possible benefits, and risks. It also explains how your personal information will be used and protected. Once you have read this form and your questions about the study are answered, you will be asked to sign it. This will allow your participation in this study. You should receive a copy of this document to take with you.

**Explanation of Study**

This study will collect audio recordings in order to improve Lebanese pronunciation of English in the future.

**Confidentiality and Records**

All recordings are anonymous and confidential. Raw data will only be handled by the researcher. If you have any concerns, please contact the researcher at: romyghanem@gmail.com. Additionally, while every effort will be made to keep your study-related information confidential, there may be circumstances where this information must be shared with:

* Federal agencies, for example the Office of Human Research Protections, whose responsibility is to protect human subjects in research;
* Representatives of Ohio University (OU), including the Institutional Review Board, a committee that oversees the research at OU;

**Contact Information**

If you have any questions regarding this study, please contact Romy Ghanem at romyghanem@gmail.com, tel: (330) 495-7694. Or Dr. James Coady at coady@ohio.edu; tel: (740) 593-4566

If you have any questions regarding your rights as a research participant, please contact Jo Ellen Sherow, Director of Research Compliance, Ohio University, (740)593-0664.

By signing below, you are agreeing that:

- you have read this consent form (or it has been read to you) and have been given the opportunity to ask questions
- known risks to you have been explained to your satisfaction.
- you understand Ohio University has no policy or plan to pay for any injuries you might receive as a result of participating in this research protocol
- you are 18 years of age or older
- your participation in this research is given voluntarily
- you may change your mind and stop participation at any time without penalty or loss of any benefits to which you may otherwise be entitled.

Signature_________________________________________ Date________________

Printed Name_________________________________________ Version Date: [insert 12/19/09]