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AN EXAMINATION OF THE ACCURACY AND INTELLIGIBILITY OF  
CONSONANT PRODUCTION BY ENGLISH LANGUAGE LEARNERS

By

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## ABSTRACT OF THE DISSERTATION

An Examination of the Accuracy and Intelligibility of Consonant Production by English Language Learners

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English language learners (ELLs) may find that their accents can obscure communication in English. As a result of this potential communication barrier, pronunciation classes are often offered by different community resources to promote improved English pronunciation. While the existing literature regarding ELL pronunciation instruction has investigated the effects of instruction using either a quantitative analysis of production accuracy or a qualitative assessment of ELLs' intelligibility, the present study advances the field by employing a mixed-methods approach to investigate the effects of instruction on both production accuracy and intelligibility of ELLs.

Twenty-eight ELLs were recruited from two different oral communication courses at a community college. Their speech samples were collected at three different instructional intervals: prior to instruction, upon course completion, and six weeks after course completion. These speech samples were analyzed for production accuracy of word-initial and word-final consonants across the instructional intervals and between the two

instructional cohorts, one that focused on explicit pronunciation instruction and the other on fluency-building communicative instruction.

The quantitative analyses revealed that the production accuracy of the two cohorts improved from the pre-instructional to the initial post-instructional interval; however, their accuracy destabilized at the delayed post-instructional interval. Another finding was uncovered; the participants' intelligibility as evaluated by native and non-native English speaking raters steadily improved from the pre-instructional interval to the delayed post-instructional interval. The qualitative results revealed that six participant case studies exhibited differences in their metalinguistic awareness from pre- to post-instructional intervals which appeared to be influenced by the instructional cohort in which they were enrolled. The study also discusses how English exposure both in and outside of the classroom conditioned participants' intelligibility and confidence in English.

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### Statement of the Problem

Second language acquisition research has demonstrated that many adult ELLs take pronunciation and oral communication courses in an effort to improve their intelligibility in English (Derwing, 2003; Osburne, 2003; Perlmutter, 1989; among others). While the research has shown that pronunciation instruction can improve L2 accuracy and intelligibility (Chang, 2006; Couper, 2003, 2006; Elliott, 1995; Gilmore, 2011; Hahn, 2002), previous researchers have seldom documented the ways in which different phonological variables may condition improvement in L2 intelligibility (Couper, 2003, 2006; Gilmore, 2011; Macdonald, Yule & Powers, 1994). That is to say, researchers have not explained the changes in production of phonemes, stress patterns, or intonational patterns as a result of pronunciation interventions.

## Chapter I. Introduction

### 1.1. Background

A concern that is paramount to oral communication is mutual comprehensibility and intelligibility between speakers. When communicating in our native language(s) (L1) with other native speakers of that language, we often take for granted that we can be easily mutually understood. However, when we communicate with a non-native speaker, we might observe that communication may be more complex. During such communication, we may occasionally hear words or phrases that are *incomprehensible*; utterances that we cannot understand. We may have to ask the non-native speaker to repeat or explain an utterance to us. This miscommunication can be based on mistakes and errors at the phonological, grammatical, semantic, or pragmatic levels.

At the phonological level, we may perceive segmental (phones) and prosodic (rhythm) differences in the speech of others. For example, an English language learner (ELL) may pronounce the word 'seat' [sit] in lieu of 'sit' [sit]. Often these differences we perceive in pronunciation are a result of phonological differences or transfer from first to second languages. In the speech of language learners there are frequently a number of segmental and prosodic differences that may co-occur in one utterance. When words and phrases are produced with a number of different modifications (i.e., segmental and prosodic), the utterances may become difficult to understand. In some cases, a second language speaker may even be incomprehensible.

ELL pronunciation is not always received positively (Derwing, 2003). For instance, people tend to judge others who speak similarly to themselves favorably

whereas those who speak differently might be regarded with less sympathy (Anisfeld, Bogo, & Lambert, 1962). Thus, for language learners, increased *intelligibility*, or appropriate oral production, when using their second language is important to their economic and social well-being (Derwing, 2003). Furthermore, regarding ELLs, the increased use of English as an international language may mean that they need to be intelligible to not only native speakers of English (NES), but to other non-native speakers of English (NNS) as well (Jenkins, 2002). Therefore, the importance of intelligible English is a growing need for international communication in today's globalized societies.

## 1.2. Focus of the Dissertation

My motivation for the present study arose from concerns related to ELL intelligibility and whether instruction could influence adult ELLs' intelligibility in a positive manner. As such, this study was designed to investigate how two oral communication courses influenced the pronunciation of ELL participants. More specifically, changes to the ELL participants' production of word-initial and word-final consonants and intelligibility were analyzed prior to and after instruction.

While many factors of phonology have been found to influence ELLs' intelligibility, consonants have been selected as the focus of the present study due to several unique phonological characteristics of English. For example, English syllabic structure permits a variety of strings of adjacent consonants (i.e., **streets**) whereas these consonant cluster sequences are not permitted in many world languages (e.g., Mandarin, Korean, and Japanese). Additionally, the consonant constituents in English consonant

clusters are more varied than in several other world languages. For example, both Arabic and Spanish permit consonant clusters; however, Spanish and Arabic consonant clusters are more restricted than those of English (Cressey, 1978; Kiparsky, 2003). Therefore, English consonant cluster sequences may cause pronunciation difficulty for ELLs. A further concern, the consonant's position in a word can influence production accuracy. In other words, a Japanese speaker may find /f/ word-initially in 'fee' easy to pronounce whereas word-final /f/ in 'beef' may be challenging to produce appropriately. Finally, consonants have been cited as more important to intelligibility than vowels (Catford, 1987; Ladefoged, 2005). Hence, the present study explored how ELL participants who spoke different L1s produced word-initial (e.g., **s**low) and word-final consonants (e.g., **t**s) rather than medial consonants (e.g., **w**inter). The rationale behind the choice of these two word positions is that the word-initial and final positions of English words permit a variety of adjacent consonant sequences whereas the word-initial and final consonants permitted by the participants' L1s in this study are more restricted.

In order to assess changes to the participants' oral production over the instructional intervals, this study employed both a quantitative and a qualitative analysis of the data. First, the participants' word-initial and word-final consonant production accuracy was statistically analyzed over three distinct instructional intervals: before instruction, at course completion, and six weeks after completion of the course (i.e., T1, T2, and T3). Second, the intelligibility of the participants was assessed by native English speaking (NES) and non-native English speaking (NNS) raters and by the participants themselves at each of the three instructional intervals. By employing mixed-methods, the study advanced the field by documenting the influence that pronunciation instruction had

on both the participants' production of word-initial and word-final consonants and on their English intelligibility.

Based on my aforementioned research interests, I formulated four research questions to guide the present study.

1. What internal linguistic variables:

- the position of a target consonant within a word,
- the number of adjacent consonants within a word,
- the environment preceding a target consonant,
- the environment proceeding a target consonant,
- the sonority sequencing principle (SSP),
- and the grammatical affixes (morphemes) added to a word

conditioned the production accuracy of each instructional cohort over the instructional intervals (i.e., pre- and post-instructional)?

2. How did the external sociolinguistic variables:

- formality of the speech elicitation protocol,
- native language,
- age of arrival in the United States,
- length of residency in the United States,
- English proficiency,
- level of educational attainment,
- and socioeconomic status

condition the pronunciation accuracy of the participants?



3. How did the participants' self-reporting of their English intelligibility change over the instructional intervals? How did the participants' intelligibility as assessed by NES and NNS raters change over the instructional intervals?
4. How did the classroom activities and the participants' English exposure outside of the classroom contribute to changes in the participants' intelligibility over the instructional intervals?

The dissertation is presented as follows in the following chapters. Chapter Two reviews the literature relating to second language phonology and pronunciation instruction. Chapter Three discusses the methodology employed in the present study. Next, the quantitative results and qualitative results are discussed in Chapters Four and Five. Following that, the findings are summarized in Chapter Six. A discussion of how the findings of the present study are situated within the existing research is presented in Chapter Seven.

## Chapter II: Review of the Literature

This review of literature explores the empirical research that informs second language learner (L2) pronunciation and pronunciation instruction. In the first section, the challenges that English syllabic structure presents to ELLs are detailed. Then studies that investigated ELLs' pronunciation of English consonants are discussed. Additionally, the literature related to social variables which have been found to influence L2 learner pronunciation follows. Next, studies related to how pronunciation instruction conditioned L2 learner pronunciation are reviewed. The chapter concludes with the principle of intelligibility which guides the present study.

### 2.1. The Difficulty of English Syllable Structure

The present study investigated ELLs' pronunciation of word-initial and word-final consonants and how two targeted oral communication courses influenced the intelligibility of these segments. Consonants were the focus of the present study as they may be more important to intelligibility than vowels (Catford, 1987; Ladefoged, 2005). First, Catford (1987) suggested that ELLs encountered difficulty acquiring English onset and coda consonants due to L1 transfer. That is, due to the preference for a universal consonant-vowel (CV) syllable in world languages, the acquisition of English coda consonants may challenge ELLs. Second, researchers have found that as sequences of adjacent consonant clusters became longer, the number of modifications that ELLs made to consonants increased (Anderson, 1983). For example, the single word-initial consonant [r] in 'ring' would incur fewer modifications than the three-consonant sequence of [spr]

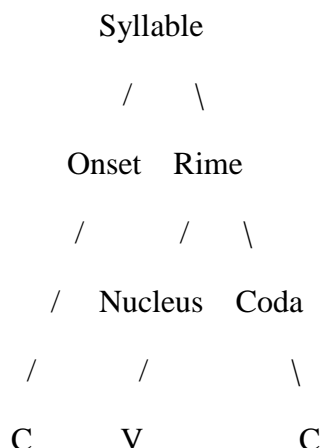
in ‘**spring**’. Such modifications or repairs to consonant sequences may hamper intelligibility. In addition, Catford posited that “A reasonably correct pronunciation of consonants is probably more important for intelligible and acceptable English than a correct pronunciation of vowels” (p. 92). Finally, Jenkins (2002) found that among ELLs, accurate segmental production was imperative to intelligibility. That is, NES often use context to assist in the comprehension of mispronounced words. However, NNS and ELLs often lack the ability to use context because they are not as fluent in English as NES. Therefore, ELLs and NNS rely heavily on correct segmental pronunciation for interspeaker intelligibility. The production of word-initial and word-final consonants is further discussed in the following section.

In order to understand the challenges second language learners face in learning a new phonology and syllable structure, the syllable’s features need to be defined. A syllable can be thought of as a grouping of phonemes or segments. Syllable structures, like individual phonemes, vary across languages. The most common syllable is a consonant-vowel or CV syllable (e.g., sofa). All languages have this structure; it is considered a universal syllable (Clements & Keyser, 1983). Some languages are made entirely of CV structures, such as Senufo, a language spoken in Mali. Languages may have additional structures: single vowel syllables (V) and/or consonant- vowel-consonant (CVC) typologies can exist alongside the CV syllable type. The rarest syllable type is vowel-consonant (VC); it is found only in languages which permit the other three syllable structures. Namely, English is a language that permits all four syllable types.

A syllable consists of an onset, the initial consonant in **CVC**, and the rime, the vowel and final consonant in **CVC**. The rime contains a nucleus, generally a vowel at the

most sonorous point, and a coda consonant if permitted by the language. The CVC typology is shown in Figure 2.1.

Figure 2.1. Basic syllable structure



In addition to the basic syllable structure which is shown with one consonant in the onset and one consonant in the coda, consonant clusters or branching can occur in some languages. An onset is said to *branch* when it contains more than one consonant, as in the onset consonant cluster in the word ‘**blue**’. The coda, containing two consonants, branches word-finally in ‘**end**’. Languages have rules about branching within the syllable; some languages do not allow it (e.g., Japanese and Korean) while other languages permit branching consonants in the onset and/or coda (e.g., Arabic, Spanish, and English). Additionally, the consonant’s position within the cluster is important as well; there are rules constraining the position that a consonant may occupy in a cluster. For instance, in native English words the cluster /br/ is permissible in the onset of ‘**broom**’. However, this sequence is not permitted word-finally in a coda. Similarly, /pt/ is permissible in English codas, ‘**kept**’, but it is not allowed in the onset. Hence, English has phonological rules governing permissible onset and coda consonant cluster

sequences. These consonant cluster sequences are often rare combinations of consonants that are not permissible in the L1s of many English learners. As a result, these consonant sequences may present a challenge for ELLs.

Another aspect of syllabic structure is the arrangement of segments' sonority within a syllable. Sonority refers to a segment's relative loudness in relation to other segments. For instance, the vowel /o/ is more sonorous than the obstruent /f/. The sonority sequencing principle (SSP), proposed by Selkirk (1984), is a theory which described the universal arrangements of vowels and consonants within a syllable. According to the SSP the nucleus (vowel) of the syllable is the most sonorous segment permitted within a syllable. In a syllable following SSP arrangement, sonority grows in the onset toward the nucleus and falls in the coda (e.g., **fate**). In this illustration /f, t/ in 'fate' are non-sonorous whereas the vowel is highly sonorous.

A further consideration of sonority is the arrangement of consonants into onset and coda clusters. Clusters following the SSP maintain a consistent rise and fall in sonority with the peak loudness at the nucleus. Differences in segmental sonority can be illustrated by employing a phonological ranking system proposed by Clements (1988) (Table 2.1).

Table 2.1. The ranking of segments by phonological sonority

Segmental Categorization	Examples	Sonority Ranking
Obstruents	/p, b, t, d, g, f, s, z/	1
Nasals	/m, n/	2
Liquids	/l, r/	3
Vowels/Vocoids	/w, o, i, e, a/	4

According to Clements' ranking, obstruent consonants (i.e., /b, s/) have the least amount of sonority followed by nasal consonants (i.e., /n, m/). Next, liquid consonants (i.e., /r, l/) are more sonorous than nasals, and vowels are the most sonorous segments. In employing Clement's sonority ranking, one can observe that as a syllable steadily increases its sonority in the onset and steadily decreases in the coda; the numerical ranking of the segments within the syllable should follow suit as well. For example, in 'bland', one can observe differences in the sonority ranking of the consonant constituents of the onset and coda clusters. The vowel /æ/ is the most sonorous with a ranking of four. Then consonants closest to the vowel, /l, n/, are fairly sonorous with sonority rankings of three and two, respectively. Finally, the segments at the syllable edges, /b, d/, are non-sonorous and have sonority rankings of one. Therefore, the sonority ranking of the segments in the syllable 'bland' would be: one, three, four, two, one. Because this syllable maintains a consistent rise and fall in sonority, it follows the SSP.

Clement's (1988) sonority ranking can be further refined by subdividing some of his broad sonority categories. For example, Cho and King (2003) proposed dividing Clement's obstruent category to more closely examine the influence of the SSP on consonant clusters. The following table, Table 2.2, shows the sonority refinements proposed by Cho and King.

Table 2.2. The refined sonority hierarchy

Clement's Categorization	Cho and King's Categorization	Examples
Obstruents	Stops	/p, b, t, d, g/
	Fricatives	/f, v, s, z/
Nasals	Nasals	/m, n/
Liquids	/l/	/l/
	/r/	/r/
Vowels/Vocoids	High Vowel	/i, u/
	Low Vowel	/a/

In employing sonority distinctions between the stops and fricatives, we can continue to examine how the SSP might influence ELL production. While most English consonant clusters tend to follow the SSP, there are exceptions. For instance, English word-initial 's' clusters often violate the SSP (e.g., **spool**, **school**, **stool**). That is, the fricative /s/ is more sonorous than the following stop in these clusters (i.e., /p, k, t/). These 's' clusters have challenged ELLs (Carlisle, 1991). Furthermore, English word-final clusters may also have consonant sequences which violate the SSP. The addition of the English morpheme -s may cause a rise in sonority of the final consonant of a coda (i.e., **cups**, **cubs**). This coda sonority variation can also be found in tautomorphemic words containing word-final clusters (i.e., **glimpse**, **fix**). This unusual sonority sequencing for onset and coda sequences which violate the SSP may pose a challenge for ELLs to produce. An additional consideration related to sonority is the difference between voiced and voiceless obstruents. That is, a voiced obstruent /f/ is more sonorous than a voiceless obstruent /v/. Hence, a voiceless obstruent has a greater sonority distance from the vowel than a voiced consonant does. It may also be hypothesized that the differences in sonority for voiced and voiceless consonants may also influence production. In essence, the

sonority sequencing of segments within an English word may influence the production of ELLs.

English consonant clusters present a challenge for those ELLs whose L1s do not consist of similar syllabic structures. For instance, the syllabic structure of the L1s of the participants of this study is simpler than that of English (Cressey, 1978; Kim & Jung; 1998). Thus, these L1 differences in structure may influence modifications by the ELL participants. For example, Spanish permits some word-initial consonant clusters. That is, the /b, l/ in **blanco** ‘white’ is a permissible word-initial consonant cluster. A word-final coda in Spanish is normally restricted to a single consonant (i.e., /n, r, l, s/); some dialects will also permit /d, θ/. However, word-final consonant clusters are rarely permitted in Spanish<sup>1</sup>. Based on the structure of the Spanish syllable, it may be surmised that native Spanish speakers may encounter difficulty producing English word-final clusters. Furthermore, Spanish speakers may be challenged by English clusters which do not follow the SSP.

An additional example, Korean, presents a more restricted syllable than Spanish does. Consonant clusters are not permitted in Korean. Word-initially, a single consonant is permitted in the Korean onset.<sup>2</sup> The Korean coda is more restricted than the onset. Of the 19 Korean consonants only seven, /m, n, ŋ, p, t, k, l/, are permissible in the native Korean coda. Due to this limited coda, one may anticipate that a number of repairs occur

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<sup>1</sup> Lleo (2003) maintains that in Spanish ‘torax’ (thorax) a word-final cluster is permitted. However, in speech, it is usually reduced to [toras]

<sup>2</sup> There is some debate as to whether a single consonant or a consonant and glide may comprise the Korean onset. Sohn (1987) contended that the glide could be incorporated into the onset in some instances and into the vowel in others. However, Cho (2015) asserted that the glide (i.e., G) in the Korean syllable is an individual node within the syllable (i.e., CGVC) (p. 25).



in English words produced by native Korean speakers. Additionally, consonant clusters, which do not occur in native Korean words, may challenge Korean ELLs.

## 2.2. Linguistic Variables That Have Been Found to Influence ELL Pronunciation

Second language researchers (Anderson, 1983; Cardoso, 2008; Chan, 2007; Deterding, Wong, & Kirkpatrick, 2008; Dickerson, 1975; Hancin-Bhatt & Bhatt, 1997; Hansen, 2004; Kim, 2001; Sato, 1984; Tarone, 1980, among others) have found that several phonological variables may condition production accuracy:

- the position of a consonant within a word,
- the number of adjacent consonants,
- the preceding and proceeding environment of a consonant,
- the sonority sequencing (SSP),
- and the grammatical affixes added to a word.

Often these variables have been found to influence repair strategies because of the differences between L1 and L2. For instance, according to Catford (1987), when a learner encountered a novel sequence of phonemes in L2, the chances of incurring errors or phonological repairs to features increased. In this section, I discuss how these phonological variables: the consonant's position within a word, the role of adjacent consonants, the preceding and proceeding environments of the target consonant, and the sonority sequencing principle influenced ELLs' production.

Second language researchers have documented that the position of a consonant(s) within the word influenced production accuracy (Anderson, 1983; Hancin-Bhatt & Bhatt,

1997; Kim & Jung, 1998; Sato, 1984, Stockman & Pluut, 1992). The position of the consonant refers to whether consonants occur in the onset (e.g., **sh**oe), medially (e.g., au**t**o), or in the coda (e.g., u**p**). Most studies have investigated the position of the consonant in the onset and/or coda positions. For example, the aforementioned researchers have found that onset clusters (e.g., **p**lease) were produced more accurately than coda clusters (e.g., res**t**). In addition, Anderson (1983), Hancin-Bhatt and Bhatt (1997), Kim and Jung (1998), and Sato (1984) also have found that several segments in English incurred repairs more frequently than other segments. These modifications to target consonants have consisted of three broad categories: substitution, deletion, and epenthesis. That is, one segment replaced another in a substitution repair. Thus, ‘math’ would be produced as ‘mass’. For epenthetic repairs, a vowel was added. Therefore, ‘peach’ would be pronounced ‘peachi’. Finally a segment was deleted in a deletion repair. In this instance, ‘when’, ‘went’, and ‘wet’ would be produced ‘we\_’. Accordingly, the following two studies detail differences in ELL’s production of English onsets and codas.

A study by Kim and Jung (1998) examined the production of English consonant clusters by ten native Korean speakers of English. The study had three main objectives: to examine repair strategies employed by the Korean speaking participants, to examine the influence of the consonants’ position within the word on production accuracy, and to identify challenging segments for Korean speaking ELLs. The study revealed that production was more accurate for word-initial onset clusters than for word-final coda clusters. For onset clusters, the participants employed substitution as a repair. However, two strategies were used to repair final consonant clusters: substitution and reduction. In

particular, voicing substitution was frequently employed for final voiced obstruents (e.g., /b, v, g/). For example, ‘calves’ was pronounced as [kalvs]. Therefore, voiced obstruents were presumed to be the most difficult segments for the participants to produce. In addition, cluster reduction was used as well. For instance, participants either added an epenthetic vowel to a cluster (e.g., ‘gloves’ was pronounced as [glovəz]) or deleted one of the consonants in a cluster (e.g., ‘coughs’ was pronounced [kɔs]).

A similar finding was reported by Sato (1984) who analyzed repair strategies that participants employed to modify English word-initial and word-final consonant clusters. Two children, native Vietnamese ELLs, were studied over the course of ten months. Sato’s findings reported that the participants were more accurate in onset consonant production than in coda consonant production. In repairing the onset consonants, the participants employed consonant ‘substitution’ and ‘cluster reduction’ as frequent modifications. For instance, Sato defined ‘cluster reduction’ as an epenthetic vowel insert (e.g., ‘skate’ [ɛskeit]) or deletion of a consonant (e.g., ‘last’ [læt]). For the coda cluster modifications, both participants frequently employed cluster reduction. In particular, Sato revealed that in some cases the entire coda cluster was deleted. Sato suggested that the greater number of errors in coda cluster production was a result of L1 phonological transfer.

Interestingly, the aforementioned findings related to a consonant’s word position and production accuracy have been found to influence NES as well. For instance, Greenberg (1999) analyzed pronunciation variation in spontaneous American English discourse. His findings revealed that onset consonants tended to be preserved while coda consonants were often deleted. A similar finding was reported by Raymond, Dautricourt,

and Hume (2006). The researchers conducted a study of word-medial /t, d/ production by NES (e.g., *di**d**n't*). It was found that in instances where the /t, d/ consonant was a syllable onset (e.g., *into*), the phoneme tended to be preserved. However, a medial /t, d/ coda was deleted more frequently (e.g., *a**d**mit*). Therefore, there appears to be a universal preference to maintain onset consonants while coda consonants are more subject to repair strategies, in particular, to deletion.

From the studies of Kim and Jung (1998) and Sato (1984) we note some emerging patterns. First, onset clusters were produced more accurately than coda clusters. This finding may result from a universal preference for onset consonants. Second, the participants in both studies employed different repair strategies based on the position of a consonant within the word. While these studies investigated the production accuracy of ELLs, few studies have investigated the intelligibility of ELLs. Following Levis (2005), *intelligibility* refers to the perceived understanding or comprehensibility of an ELL by other speakers of the TL.

Second language research has also demonstrated that complex sequences of English consonants can trigger modifications by ELLs in oral production (e.g., Cardoso, 2008). For instance, most world languages consist of CV sequences. That is, a sequence such as 'sushi' /suʃi/ from Japanese is common among world languages because it consists of exclusively CV sequences. However, English permits several adjacent consonant sequences or 'clusters' as found in the word 'strengths' where three consonants can be found word-initially and three are permitted word-finally. As a result, many ELLs of different L1s struggle to pronounce these strings of consonants in English. Research has reported that as the number of consonants in a cluster increased, so did the

number of repairs that ELLs employed in order to produce the word (Anderson, 1983; Deterding, Wong, & Kirkpatrick, 2008; Hancin-Bhatt, 2000; Hansen, 2004; Setter, 2008).

In one such study involving the number of adjacent consonant sequences, Hancin-Bhatt (2000) investigated the production of English coda singletons and consonant clusters produced by adult native Thai speakers in a quasi-experimental study. The study reported that the production of single consonants was more accurate than the production for two consonant clusters. Thus, a correlation was found; the production errors increased with the additional coda consonant in a cluster. Furthermore, Hancin-Bhatt documented that the repair strategies differed based on the number of adjacent consonants. For example, singleton consonants were often repaired with substitution. In particular, English consonants which were not permitted in L1 codas were often repaired in English words. With regard to repairing consonant clusters, the participants frequently employed substitution and deletion.

The correlation found in Hancin-Bhatt's study was echoed by other researchers: Anderson, 1983; Deterding et al., 2008; Kim, 2001; and Setter, 2008. That is, these studies revealed that a correlation existed between the numbers of adjacent consonants and the production accuracy of ELLs. They also reported that the number of adjacent consonants influenced the repair strategies employed by the participants.

As noted earlier, the existing research has not investigated whether repairs to sequences of consonants conditioned the intelligibility of the participants. That is, some of the modifications to consonant sequences may be intelligible whereas others may obscure intelligibility. For example, native English speakers often delete word-final

coronal stops (i.e., /t, d/) when they occur word-finally in a consonant cluster (Cohen, 2009). Many NES produce ‘first’ as ‘firs’ in rapid speech. Therefore, if an ELL deletes a final coronal stop in a word-final consonant cluster, as in ‘first’, the utterance may be intelligible. However, if the ELL deletes a final coronal stop from ‘seed’ or ‘seat’, [si] remains. The meaning could be obscured in this instance. In the case of a single word-final consonant, the coronal stop distinguishes the difference between two words. In this instance an interlocutor might not be able to deduce the meaning from context alone<sup>3</sup>.

Another phonological variable, the environment of a target consonant can present a challenge to language learners. *Environment* refers to the position within an utterance in which a segment occurs. That is to say, words rarely occur in isolation, they are part of a larger phonological phrase or grouping (Hyman, 1978; Ladd, 1996). For example, in the English phrase “We **shop**” a CV.CVC sequence is created between the word boundaries. In instances where the boundaries between words create universal CV syllables, production accuracy may be high. Conversely, in contexts where several adjacent consonants occur between word boundaries (i.e., “The children **shop**”), errors may be more frequent. Furthermore, languages have phonological processes that might be triggered when specific adjacent consonants occur at a word boundary; this is termed *sandhi*. For instance, the English word ‘Batman’ contains an illegal Korean sequence of [tm]. This word is often repaired by Korean ELLs as ‘banman’ (Park, 2006). Because these sequences cannot occur in the L1 of the English learner, ELLs often employ repair

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<sup>3</sup> NES frequently do not release word-final stops. That is, the word-final singletons /t, d/ are phonetically very similar. As a result, NES often use vowel length as a cue to distinguish ‘seat’ and ‘seed’ (Kluender, Diehl, & Wright, 1988). Furthermore, Chen (1970) revealed that the distinctions in vowel length for vowels preceding voiced and voiceless consonants made by NES tended to be greater than speakers of several other world languages. Thus, in instances where an ELL makes little distinction in vowel length between word-final /t/ and /d/, the speaker may be misunderstood by a NES.

strategies to make these sequences easier to produce (e.g., Carlisle, 1991; Chan, 2007; Dickerson, 1975; Hancin-Bhatt, 2000; Hansen, 2004; Kim, 2001; Kwon, 2007; Park, 2006).

In a study that investigated the environment which preceded English 's' clusters (e.g., **spin**), Carlisle (1991) examined whether the preceding word would influence the repair strategies employed by native Spanish speakers. Five adult Colombian ELLs participated in the study. The tokens under investigation were words containing the consonant clusters: /sk/, /st/, and /sp/. The data were elicited by reading a sentence list, and the results revealed that the ELLs' production accuracy was influenced by the immediate environment of the 's' cluster. It was found that when a vowel preceded the 's' cluster, accuracy was high. Thus, 'very stubborn' was produced correctly. However, when a consonant preceded the cluster, epenthetic repairs were more frequent. For example, an epenthetic schwa /ə/ would have been inserted in 'book scared'. In this instance, 'scared' would have been produced as 'book escared'. Further, the study also revealed that the preceding vowels helped to break up the consonant cluster for the participants.

The study of Carlisle (1991) was limited in that it exclusively examined the word-initial environment of the word. The existing research has not compared the possible differences in the influence of both word-initial and the word-final environments in one comprehensive study. For instance, one environment may have more of an influence or may trigger a larger number of repairs than the other environment. Therefore, in order to address this gap in the research, a research question was formulated in the present study

to address whether the environment preceding and proceeding a target consonant conditioned the production accuracy of each instructional cohort.

Three researchers (Bayley, 1996; Hansen, 2004; Kim, 2001) have examined English consonant cluster sequences which follow the SSP and those that violate the SSP. As described in 2.1, most consonant clusters follow the SSP in world languages. That is, the more sonorous segments of a cluster occur adjacent to the vowel in both onsets and codas (e.g., **plan**, **land**, respectively). A cluster becomes less sonorous at the edges of the syllable. For example, Kim (2001) investigated how accurately native Korean ELLs produced consonant clusters of varying sonority distance. Four specific onsets were examined: voiceless stop/sonorant (e.g., **plea**), voiceless fricative/sonorant (e.g., **flag**), voiced stop/sonorant (e.g., **bring**), and voiceless fricative/voiceless stop (e.g., **spot**). The specific clusters under investigation consisted of a range of sonority distances. First, voiceless stop/sonorant clusters had the most sonority distance followed by voiceless fricative/sonorant clusters. Next, voiced stop/sonorant clusters had a smaller sonority distance while voiceless fricative/voiceless stop clusters had the smallest sonority distance of the four classifications. Kim's findings reported that that voiceless fricative/voiceless obstruent clusters were produced with the greatest amount of accuracy (e.g., **skin**). In addition, voiceless stop/sonorants clusters, having the greatest sonority distance (e.g., **prop**), were produced more accurately than those clusters with voiceless fricative/sonorants (e.g., **slow**). Kim also reported that voiced stop/sonorants clusters, having the smallest sonority distance (e.g., **great**), were produced with the least amount of accuracy. Kim concluded that the sonority distance of the constituents of the word-initial consonant clusters were a factor that influenced production accuracy. That is, the



greater the sonority distance between the two constituents of a cluster, the greater the production accuracy.

In another study which investigated clusters of varying sonorities, Hansen (2004) demonstrated differences in participants' production accuracy based on the SSP. With regard to the past tense –ed morpheme, participants produced heteromorphemic words (e.g., played) slightly more accurately than tautomorphemic words (e.g., hood). Hansen concluded that the -ed past tense marker was salient to the participants. As a result, production of heteromorphemic words with the -ed inflection was more accurate than tautomorphemic words without the inflection.

Kim (2001) and Hansen (2004) revealed that the SSP may influence production accuracy. While the SSP may have some influence, there are other variables such as sandhi (i.e., phonological processes which may occur at word boundaries) as previously described in this section and homorganic constraints which may restrict certain sequences within a word (i.e., 'dr' is a permissible English onset cluster whereas 'dl' is not). Few studies have investigated how the SSP influenced production accuracy of ELLs. Therefore, the present study included the SSP as a phonological variable which might influence production accuracy in a research question. Further, Hansen's study revealed that the addition of a grammatical affix (i.e., past tense marker) might condition the production accuracy of participants as well. Thus, informed by Kim and Hansen, the current study investigated the whether the SSP and the number of grammatical affixes in a word conditioned the production accuracy of each instructional cohort.

In sum, researchers have posited several important findings: A consonant's position within a word influenced production accuracy. Nonetheless, the influence that production accuracy might have on intelligibility was not studied. Similarly, other studies have found that the number of adjacent consonants influenced production accuracy. Again, the influence on intelligibility was not investigated. Studies have also reported that the linguistic environment conditioned ELL production accuracy of word-initial consonant clusters. However, the existing studies have not compared the word-initial and the word-final environments in one comprehensive study. Further, studies have documented the relationship between SSP and production accuracy. To my knowledge, there is a dearth in research in this area. Finally, research that looks into grammatical affixes of a word and the accuracy with which these morphemes are produced remains under investigated as well. Thus, the present study was designed to analyze how the participants' production accuracy of different phonological variables related to their intelligibility prior to and after instruction.

### 2.3. Social Variables' Influence on Pronunciation

This section addresses the different social variables which have been found to influence the pronunciation of a second language learner:

- formality of the speech act,
- native language,
- age of arrival,
- length of residency in the target culture,

- level of English proficiency,
- level of education,
- and socioeconomic status.

Several researchers of second language phonology (Abrahamsson, 2003; Baker, 2010; Beebe, 1980; Dickerson, 1975; Flege, Munro, & MacKay, 1995; Jibril, 1986; Labov, 1966; Tarone, 1980, among others) have posited that social variables can influence L2 learner production accuracy. This current study is informed by the work of Labov (1966) who determined that speech formality can influence pronunciation. In addition, Tarone (1980) and Flege et al. (1995) revealed that native language and years of English contact can also condition pronunciation. Moreover, Jibril (1986) found that the level of education influenced target-like production while Silva (2005) found that social standing affected pronunciation. Finally, Baker (2010) also showed that one's age of arrival in a target culture influenced pronunciation. In the latter study, this variable has been under investigated in relation to second language production. As a result, the age of arrival of participants was included in the present study to continue to advance the field. Because the aforementioned variables have been ported as conditioning second language production, they were included in the present study.

I begin with a discussion of the formality of the speech environment and then proceed to discuss other social variables. The formality of one's speech has been found to influence pronunciation. Research has revealed that formal speech acts or during careful speech elicitation, people tended to use forms closer to a dialectal standard whereas in casual speech acts people used vernacular forms more frequently (Beebe, 1980; Cardoso, 2008; Chan, 2007; Dickerson, 1975; Gathbonton, 1978; Labov, 1966; Nguyen, 2008).

The influential work of Labov (1966) has motivated much of the research regarding how speech styles influence pronunciation. For instance, Cardoso (2008) examined word-final consonant repairs by native Brazilian Portuguese (BP) ELLs. The researcher collected casual speech samples from a picture-naming task. Then he feigned misunderstanding the participants' utterances and asked for clarification in order to elicit careful production. Thus, this clarification elicited the more formal speech act. Cardoso's results revealed that the participants repaired consonants with epenthesis and onset sharing in varying frequencies. That is, for epenthesis, a vowel was inserted in a word, such as [ʃi. pi] for 'ship'. 'Onset sharing' referred to a process by which the participant created a new syllable with just the word-final consonant. For example, 'ship' was produced as [ʃi. p]. Cardoso described epenthesis as the default repair for BP whereas onset sharing was a more advanced repair and closer to the targeted standard. It was found that the participants predominantly used epenthesis in the casual environment while the formal environment yielded onset sharing repairs. Cardoso concluded that the BP speakers' produced target words closer to the standard in more formal speech environments.

Informed by Cardoso's results and the existing literature, the present study incorporated three different speech elicitation techniques of varying formality. Most of the studies by second language phonologists lacked speech samples of casual conversations of the participants. For instance, reading lists and story summaries are typical speech elicitation techniques which have typically been employed by L2 phonologists. Informal speaking samples are important to the analysis of ELL intelligibility as well. However, Schachter (1974) reminded us that in observing only

naturally generated speech, the researcher may not see L2 learners' complete abilities due to avoidance strategies which can be employed in free speech. Hence, in order to address these concerns in the existing literature, a research question was formulated for the present study to investigate whether the formality of three speech elicitation protocols conditioned the production accuracy of the participants.

Another variable that has been found to influence or condition pronunciation accuracy is the native language of the learner (L1). That is, ELLs speaking the same L1 often make similar pronunciation errors when speaking English. As a result, we often hear a specific 'accent' of language learners from a specific L1. For example, French ELLs are often characterized as using 'ze' instead of 'the'. In the research on second language phonology, several studies revealed that L2 errors may vary based on L1 phonological constraints (Anderson, 1983; Anderson-Hsieh, Johnson & Kohler, 1992; Hancin-Bhatt & Bhatt, 1997; Tarone, 1980).

In one such study on L1 variation, Tarone (1980) examined the production of English syllables by adult native speakers of Brazilian Portuguese, Korean, and Cantonese. The study investigated the repairs that ELLs made to word-initial (onset), medial, and word-final (coda) consonants. The participants' speech was elicited in a picture narration task. These data were coded for the consonant's position within a word (i.e., onset, medial, and final consonant) and for repair strategies (i.e., deletion and epenthesis). Tarone reported that the consonant repair strategies differed among the L1 groups. For instance, the Brazilian Portuguese speakers epenthesized more than deleted. However, the reverse was found for Cantonese and Korean speakers; they deleted more than epenthesized. Based on these repair variations between the Portuguese speakers and

East Asians, Tarone concluded that L1 phonological restrictions influenced some of the repair strategies employed by her participants. Furthermore, she proposed that language learners simplified complex L2 syllables in preference of a universal CV syllable.

Based on the research of Tarone (1980), Anderson (1983), Anderson-Hsieh, Johnson, and Kohler (1992), and Hancin-Bhatt and Bhatt (1997), the L1 of the participant appeared to influence the types of errors and the frequency of errors that an ELL made. In other words, L1 transfer conditioned how an ELL repaired certain English sequences. Thus, while L1 is a social or a demographic variable of a participant, the existing research has demonstrated that L1 exerted an internal phonological influence on L2 production as well.

The existing studies, which have investigated the influence of L1 on pronunciation accuracy, have been quasi-experimental studies in nature. These researchers have documented the repair strategies employed by ELLs of different L1s. The present study was informed by this literature and included native speakers of several L1s: Spanish, Korean, Japanese, Arabic, Mandarin, Tamil, and Marathi in which to examine differences in the production accuracy. Thus, the L1 of the participant, was included as an external social variable which may condition the production accuracy of the participants.

Another external variable that has been found to condition pronunciation accuracy is the age of arrival of a learner. The effects of one's age of the arrival in the target culture on L2 production were examined in studies by Baker (2010), Flege et al. (1995), and Patkowski (1990). For example, Patkowski (1990) examined English production of

67 ELLs who immigrated to the United States. The participants arrived in America between the ages of five and fifty. The data were collected through individual interviews with the participants. Then the participants' speech samples from the interview were rated for accentedness by two experienced native English speaking ESL teachers. The results showed that those ELLs who arrived before age 15 frequently received native and near-native accent scores from the NES raters. However, the accentedness ratings for adult arrivals were more varied with fewer learners achieving in the near-native range. Thus, Patkowski noted differences in the accentedness of participants who began L2 acquisition as young children and those that began after adolescence.

In a study of adult English learners, Baker investigated consonant production by native Korean ELLs. She found a correlation between participants' age of arrival and their pronunciation accuracy. That is, the participants who arrived in America during their early twenties were better able to approximate native English stop production than those participants who arrived later in life. This finding held despite the participants' length of residency in the country. Thus, Baker concluded that the age of arrival in the US influenced adult L2 pronunciation.

Another social variable, the number of years that a learner has used the target language (TL) or been immersed in the target culture has been shown to be an influence on pronunciation accuracy (Abrahamsson, 2003; Cardoso, 2008; Flege et al., 1995; Kim & Silva, 2003; Major, 1987). Due to the prevalence of English as a world language, learners of English (e.g., children) today often are exposed to English as a foreign language. In many countries around the world, students study English in school and consume media in English which is readily available via the Internet (Kachru, 2006).

Therefore, immigrants are arriving in America today with a greater command of English than immigrants of a few generations ago.

In a seminal study on the influence of length of residence in a target culture on production accuracy, Abrahamsson (2003) examined the differences in repair strategies of Swedish words produced by native Chinese speakers. He conducted a longitudinal study of three adult native Chinese speakers over the course of two years in ten data collection sessions. His instrumentation included interviews, storytelling, and/or picture descriptions. Abrahamsson's results showed that the participants' production was more accurate as the participants gained experience in the target culture. Furthermore, he reported that the deletion repairs of final consonant(s) decreased over time while epenthetic modifications increased over time. That is, epenthetic repairs tended to be more intelligible because L2 learners maintained all the consonants in a word. Following the research of Baker (2008) and Abrahamsson (2003), the present study also included a question with the purpose of determining if age of arrival and length of exposure to English (i.e., residency in the United States) exerted an influence on production accuracy of the participants.

The highest level of formal schooling or educational attainment of an individual has been shown to influence production starting from the work of Labov (1966). Labov found that participants who had more formal schooling produced segments closer to a standard dialect than participants who had limited schooling. The latter tended to use a vernacular more frequently. Furthermore, as previously stated, English is presently taught as a foreign language in many countries (Kachru, 2006). This exposure to English as a



foreign language allows immigrants to the United States to arrive in America with higher levels of English proficiency than in past generations.

In a study involving Nigerian ELLs, Jibril (1986) investigated the influence of one's educational attainment on pronunciation accuracy in a TL. His participants consisted of adult English learners from Nigeria whose L1s were: Yoruba, Igbo, and Hausa. There were eight key English segments under investigation in Jibril's study: 'th' consonants, /θ, ð/, and six vowels<sup>4</sup>. In addition, the appropriate vowel length was also under investigation. Jibril listened to taped recordings to document the production accuracy of each of the targeted segments. Jibril's findings suggested that there was a correlation between educational attainment and production accuracy. For instance, Jibril's participants with vocational and baccalaureate degrees produced segments which were less accurate than participants who held advanced degrees. It is also worth noting that Jibril's participants who completed graduate degrees may have had more exposure to native speakers of Received Pronunciation English and as such had more opportunities to use English at the graduate level. As a result, this possible additional English exposure for the participants holding graduate degrees may have influenced their pronunciation in a positive manner. However, this potential additional exposure may have confounded this variable as well. Thus, informed by Jibril's study, the level of educational attainment was formulated into a research question in the present study: Did the level of educational attainment condition the production accuracy of the participants?

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<sup>4</sup> Jibril investigated the appropriate production of the British Received Pronunciation dialect in his study.

Research has demonstrated that socioeconomic status (SES) influenced production in one's native language. Labov (1966), Trudgill (1974), and Silva (2005) found that people from a higher SES tended to use pronunciation closer to a dialectal standard. For instance, Silva found that participants who had low social standing produced non-standard forms more frequently than middle and upper class participants. It is worth noting here that the influence of SES may be confounded. That is, those participants who had higher social standing may have opportunities to interact with a more diverse social network than those participants of lower social standing. The additional opportunities to engage in conversations with speakers of diverse dialects may force an individual to use a standard with greater frequency.

Two aspects of Silva's study informed the present study. First, few recent studies have included SES as a variable in pronunciation and dialectal variation. Furthermore, to my knowledge, the inclusion of SES as a social variable in the production of second language learners has not been conducted. Therefore, this study also examined how a participant's SES may affect his/her production accuracy.

#### 2.4. Research on the Effectiveness of Pronunciation Instruction

This section details the literature related to how pronunciation instruction can influence TL production (Chang, 2006; Couper, 2003, 2006; Derwing, Munro, & Wiebe 1997, 1998; Elliott, 1995; Gilmore, 2011; Hahn, 2002; Macdonald, Yule, & Powers, 1994, among others). For instance, Couper (2006) found that participants who received explicit pronunciation training demonstrated more accurate production than a control

group who did not receive the training. In addition, Chang (2006) described that participants increased their L2 metalinguistic awareness as a result of pronunciation instruction. In the existing research which has compared the before and after effects of pronunciation instruction, one of two types of assessments have typically been employed to evaluate the effectiveness: (a) rating the participants' L2 intelligibility/accent; (b) analyzing the participants' L2 production accuracy. In this section, I discuss studies which employed ratings of L2 learners' intelligibility followed by studies which employed analyses of production accuracy.

In a seminal study by Derwing, Munro, and Wiebe (1998), the effects of three different teaching treatments were compared on 48 adult ELLs of intermediate proficiency. The goal of the study was to determine whether instructional interventions had an effect on the intelligibility and comprehensibility of ELLs' speech. The participants, who spoke several different L1s, were recruited from a college ESL program, and they were randomly assigned to one of three treatment groups: a segmental intervention, a prosodic intervention, or no intervention. All participants completed pre- and post-test recordings which consisted of two speaking tasks: reading a sentence list, and narrating a picture story. The study also included NES raters who evaluated the participants' accent, comprehensibility, and intelligibility using a nine-point rating scale ranging from very different from native production to near-native production.

The results revealed positive changes for the two groups who received the pronunciation interventions. Derwing et al. (1998) reported that while both intervention groups yielded some improvement in their post-instructional production, the prosodic intervention appeared to improve the participants' overall accent,

comprehensibility, and intelligibility more than the segmental intervention as attested by the NES ratings. Further, the control group did not demonstrate significant changes between pre-and post-instructional intervals. The study design and findings of Derwing et al. (1998) informed the present study in the comparison of two methods of oral communication instruction. Therefore, a research question was formulated to compare the production accuracy of two cohorts of oral communication courses in the present study: What internal phonological variables conditioned the production accuracy of each cohort over the instructional intervals?

In another study regarding accentedness, Macdonald, Yule, and Powers (1994) investigated the gains yielded from several types of instructional interventions related to ELL pronunciation. The study employed three interventions that reflected different pedagogical techniques used in the L2 classroom. Macdonald et al. recruited 23 adult native Mandarin ELLs who had high intermediate to low advanced levels of English proficiency and randomly assigned the participants to one of four interventions: a vocabulary drill led by an instructor, self-study<sup>5</sup> in a language lab, an ‘interactive modification’ with a NES peer, and no intervention. The participants were asked to create and record a mini-lecture which included 21 targeted words and phrases for a speech elicitation activity. The speech samples of the participants were recorded prior to the intervention, upon completion of the intervention, and two days after completion of the intervention. Then NES raters judged whether there was improvement in production

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<sup>5</sup> Participants in the ‘self-study’ were given a cassette tape of the target words and phrases recorded by a native English speaker. The participants had the opportunity to listen to the tape and repeat the target words and phrases in an effort to improve pronunciation.

between the pre- and post-instructional intervals. The study did not report gains in the participants' intelligibility among the four instructional cohorts.

There are two concerns regarding this study. First, the interventions were very brief. For instance, the drills and interactive modification lasted 10 minutes, and the self-study lasted 30 minutes. The participants probably did not receive an adequate amount of instructional time in order to demonstrate differences in pronunciation between pre- and post-tests. Second, as Macdonald et al. (1994) described, the study was a small-scale study. Therefore, it was difficult to reach statistical significance with such a small sample.

In a study of ELLs with fossilized pronunciation, Derwing, Munro, and Wiebe (1997) compared accents, comprehensibility, and intelligibility of ELLs before and after a targeted pronunciation course. The researchers contended that previous pronunciation studies had not explored whether significant improvement could occur for advanced learners with fossilized errors. As a result, Derwing et al. (1997) recruited advanced ELLs to investigate whether pronunciation instruction could improve their intelligibility. Thirteen adult ELL immigrants of various L1s who had resided in Canada for over 10 years participated in the study. The participants completed pre- and post-instructional interview sessions to record their production using three protocols: an interview, reading lists of sentence (which included true/false statements), and a picture narration task. The study revealed that the participants were significantly more intelligible on the post-test than they were on the pre-test. However, the participants' production of false statements

lacked significant differences in comprehensibility between pre- and post-tests<sup>6</sup>.

Producing false statements during speech elicitation may have required extra cognitive processing due to the nature of the inaccurate or illogical statement. Therefore, the participants' attention may have been deflected from their pronunciation resulting in fewer gains for this task.

The three aforementioned studies (i.e., Derwing et al., 1997; 1998; Macdonald et al., 1994) informed the present study in employing NES raters as a method of assessment to measure the intelligibility of the ELL participants. Thus, a research question for the present study was formulated which included raters' evaluations of ELLs' intelligibility: Did the participants' intelligibility as evaluated by NES and NNS raters change over the instructional intervals?

In addition to documenting changes to ELLs' intelligibility, several researchers have also examined changes to ELLs' production accuracy as a result of instruction. For instance, Couper (2003, 2006) investigated the effects of 'consciousness-raising' interventions on ELLs' segmental pronunciation. The concept of consciousness-raising was based on research by Smith (1981) who contended that learner awareness was important to the L2 acquisition process. The consciousness-raising activities included explicit instruction on how ELLs' pronunciation may be perceived by NES. Couper designed learning activities to assist ELLs in developing their awareness of errors and self-monitoring their pronunciation.

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<sup>6</sup> An example of a false statement was, "You can buy beer at church."

In the first study, Couper (2003) evaluated the effectiveness of the aforementioned consciousness-raising learning activities on adult ELLs' pronunciation. Two hours per week in an existing 16-week ESL course were devoted to the intervention. Fifteen adult ELLs of high-intermediate to advanced English proficiency were recruited from the class to participate. The participants completed pre- and post-tests which involved two speaking tasks: reading a list of five sentences and extemporaneous speaking. The participants' utterances were evaluated for accuracy by the researcher based on segmental errors, resyllabification (i.e., linking words), and word stress. The results of the study revealed that participants' speech was more accurate upon completion of the intervention. Thus, based on the reduction in errors on the post-test, Couper concluded that the consciousness-raising activities were an effective instructional intervention.

In a second study by Couper (2006), the effectiveness of a consciousness-raising pronunciation curriculum was investigated in a quasi-experimental study of 71 adult high-intermediate ELLs. That is, the participants were enrolled in an ESL course in which one instructional cohort received the targeted consciousness-raising intervention while the other cohort had no intervention. Couper (2006) analyzed the frequency of his participants' repair strategies in their oral production (i.e., deletion and epenthetic repairs) and found significant differences between the cohorts' repairs made to English words at the post-test interval. While both cohorts exhibited increased production accuracy at the post-test intervals, the control group was not as accurate as the treatment group on the post-test. Thus, based on the differences between the treatment and control groups on the post-test, Couper asserted that the consciousness-raising intervention was successful.

Gilmore (2011) conducted a study to determine the influence of authentic learning activities in the acquisition of English communicative competency. He employed a quasi-experiment in which two cohorts received different instructional interventions. In one cohort authentic materials (e.g., film clips, music) were employed in learning activities, and the other cohort instructional activities from a textbook were used. Sixty-two adult native Japanese speaking ELLs were recruited to participate in the study from four intact classes at a Japanese university. Gilmore reported that both cohorts exhibited slight production improvements at the post-instructional interval. It is interesting to note that Gilmore's finding of improvement for both cohorts contrasted the findings of Couper (2006) who found that the experimental group exhibited greater improvement than the control group.

In another study that involved Spanish consonant production, Elliott (1995) investigated the effects of a supplemental pronunciation intervention on intermediate Spanish learners' production. According to Elliott, the intermediate level of L2 university courses often lacked pronunciation instruction, so he designed an explicit pronunciation intervention for Spanish segments in an intermediate Spanish course. The purpose of the study was to determine if the intervention would lead to more accurate production of Spanish segments and to assist researchers in gaining a better understanding of how L2 phonology was acquired by adult learners. Elliott used four protocols to collect the data: mimicking a segment at word level, mimicking a segment at sentence level, reading a text, and describing a picture. Elliott's findings revealed that the intervention was successful. On the pre-test, the experimental and control groups had similar scores. That is, significant differences were not found. However, the pronunciation scores of the



experimental group at the end of the semester were significantly improved from those of the control. Thus, Elliott concluded that the instructional activities proved to be effective.

With regard to the relational aspect of this current dissertation study, Elliott's study was a departure from previous studies on English pronunciation instruction: He reported the specific segmental errors the participants made before and after pronunciation instruction. Informed by Elliott's study, the present study examined the effect that several linguistic variables (i.e., the position of a target consonant within a word, the number of adjacent consonants within a word, the environment preceding and proceeding a target consonant, the SSP, and the grammatical affixes added to a word) had on the production accuracy of each instructional cohort over the instructional intervals.

In another study, Hahn (2002) examined the long-term effects of pronunciation instruction on ELLs' production of nine primary stress patterns in English. Hahn (2002) recruited 36 adult English learners who had previously completed a University of Illinois ESL pronunciation course during the years 1990 to 2000. The participants' speech samples were elicited in three recording sessions: a pre-test, an initial post-test, and a delayed post-test. Hahn's study revealed that there was persistence of learning in the participants' primary stress patterns over time. The study demonstrated that the participants' production of stress patterns at the delayed post-test interval was more accurate than it was at the pre-instructional interval. Thus, the learning was maintained after instruction had concluded. Hahn's study informed the present study in providing an analysis of participants' production accuracy at three distinct instructional intervals. Therefore, a research question was developed for the present study regarding how the internal phonological variables conditioned each cohort's production accuracy over three

instructional intervals (i.e., at the beginning of instruction (T1), upon course completion (T2), and six weeks after course completion (T3)).

In another study, Chang (2006) examined participants' awareness of their phonological development and English proficiency during an eight-week pronunciation course using a mixed- methods approach. A qualitative inquiry documented the participants' self-reported metalinguistic awareness and their reactions to an explicit teaching curriculum employed in a pronunciation course. Additionally, the participants' pronunciation was quantitatively analyzed for changes between the pre-and post-instructional intervals. Eight adult native Mandarin speaking ELLs were selected from a privately taught pronunciation course. The participants were classified by the Canadian LINC system<sup>7</sup> as intermediate level or higher. The participants completed weekly interviews with the researcher during which they were asked about their reactions to the curriculum. In addition, for the quantitative analysis, speech samples of the participants narrating a picture story were gathered at three instructional intervals: a pre-test, an initial post-test, and a delayed post-test. Chang found that the majority of participants believed that they gained a better understanding of English pronunciation due to the learning activities employed in the course. However, the participants' exhibited little change in their pronunciation over the three instructional intervals prior to and after instruction. The importance of Chang's study points to ways in which learners see their improvement and increase their metalinguistic awareness in L2. Following Chang, a research question was formulated: How did the classroom activities and exposure to English outside of the

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<sup>7</sup> All non-native English speaking newcomers to Canada complete a LINC test for English proficiency.

classroom contribute to changes in the participants' metalinguistic awareness and intelligibility across the instructional intervals?

In brief, the present study was informed by the aforementioned studies of pronunciation instruction and its effects on participants' intelligibility and self-perceptions. Namely, Elliott (1995) and Hahn (2002) informed the present study in examining the differences in production accuracy between pre-instructional and post-instructional intervals. Further, the qualitative method employed in Chang's (2006) study in which the participants' perceptions of their intelligibility and English exposure was investigated has also informed the present study.

## 2.5. Theoretical Framework: The Principle of Intelligibility

While the aforementioned literature review described the sociolinguistic lens employed in the present study and the variables that have been examined with regard to L2 pronunciation accuracy and L2 instruction, the principle of intelligibility also informed this study. Levis (2005) defined intelligibility as the degree to which a particular utterance is understood by a listener based on the modifications which are made to the utterance. It can be tested through a written transcription of an utterance and scored for accuracy to verify how much of an utterance was correctly heard. Intelligibility can also be tested by providing a summary of what was communicated. Furthermore, it could be tested with interactive dialogue between an L2 learner and an interlocutor.

Intelligibility as a pronunciation goal is rather recent to the field of second language acquisition (SLA). During the audiolingual era of language teaching, the goal of

L2 pronunciation was near-native production. For example, it was thought that language learners should emulate a native accent in their L2. However, during the last few decades, it has become increasingly apparent that loss of an accent in adult L2 learners is generally not attainable (Derwing & Munro, 2005; Flege et al., 1995; Lenneberg, 1967; Patkowski, 1990). These researchers contended that the elimination of a foreign accent is not a reasonable goal particularly for adult L2 learners.

Levis (2005) described the current framework guiding pronunciation teaching as the ‘intelligibility principle’. Namely, instructional methods should focus on the phonological features which are most salient to intelligible pronunciation in the TL. He argued that the goal of a L2 learner was to be understood by the people with whom s/he spoke rather than to sound like a native speaker of the TL. He asserted that the pronunciation goal of near-native L2 production was outdated. Despite the emphasis on intelligibility among language education researchers and instructors, Levis observed that the desire to lose a foreign accent was still a commonly held belief among L2 learners. He further remarked that the popularity of pronunciation classes and media which serve to reduce accents were evidence that many people desire to speak without an accent in their TL. As a result, Levis concluded that language teachers must present intelligibility rather than *nativeness* as a reasonable goal for L2 pronunciation.

Likewise, Acton (1984) described a pronunciation course through which advanced L2 learners improved fossilized pronunciation errors. He suggested that the course be titled ‘intelligibility’ rather than ‘pronunciation’. Similar to Levis (2005), Acton asserted that learners needed to understand how their pronunciation errors or repairs could interfere with effective L2 communication. As a result, once L2 learners

gained an awareness of the phonological features which could hamper intelligibility, they could then focus on the production of these key features. That is, L2 learners could self-monitor their utterances for a few key phonological aspects when they spoke. Thus, Acton stressed the importance of monitoring speech to listen for salient phonological features in order to produce intelligible speech in L2.

The work of Weinberger (1987, 1994) focused on the intelligibility of repair strategies employed by ELLs. Weinberger used the term ‘recoverability principle’ to refer to the retention of all the underlying (original) segments in a target word. For example, an epenthetic vowel repair in ‘seed’ [sidə] resulted in less confusion than a deletion repair of [si]. The latter repair could result in confusion with other words which begin with [si] such as: seat, seep, seek, seize. Therefore, Weinberger claimed an epenthetic repair which maintained the original underlying segments was more intelligible than deletion. In brief, Weinberger asserted that the types of repair strategies which were used by L2 learners could affect the intelligibility of the overall utterance.

Finally, Fayer and Krasinski (1987) contended that intelligibility was ‘hearer-based’; the interlocutor judged whether an utterance was intelligible or not. For instance, one listener might find an ELL intelligible whereas another learner might fail to understand the ELL’s utterance. They further argued that aspects of an L2 learner’s utterance had both linguistic and non-linguistic components which affected the overall intelligibility. Thus, other issues which influenced intelligibility were: grammar, register, hesitations, and the content of the message. In sum, Fayer and Krasinski described a number of factors which could impede communication between a L2 learner and a listener. Informed by Fayer and Krasinski, the present study included both NES and NNS

raters to assess the intelligibility of ELL participants. The perceptions of NNS raters' have been under-investigated in the existing literature on L2 pronunciation instruction. To address this gap in the existing research, the following research question was formulated: Did the participants' intelligibility evaluated by NES and NNS raters change over the instructional intervals?

The principle of intelligibility presents a more realistic goal for the adult language learner than near-nativeness. It was selected to guide this present study because the expectations for L2 learner output are more attainable. In following this principle, second language learners monitor their speech for a few key phonological features which may impede intelligibility rather than monitor their speech for nativeness. It also allows L2 learners to feel comfortable producing non-native speech. Furthermore, guided by intelligibility, the pronunciation instructor can focus on a few features which might be salient to ELLs' intelligibility rather than to attempt to cover all segments or all intonational patterns equally. This theoretical framework was thus employed in this study because pronunciation education researchers and instructors are seeking to improve rather than perfect production. Following the work of Derwing et al. (1997; 1998) in which improved intelligibility is regarded as the terminal goal, I analyze the production accuracy of the ELL participants in terms of their approximating accuracy rather than achieving native production. Thus, the present study differs from previous research because the participants' production accuracy of word-initial and word-final consonants was analyzed quantitatively while their intelligibility was gauged by NES and NNS raters both prior to and upon completion on an oral communication course.

## 2.6. Research Questions

To bridge the gap in research related to sociolinguistic issues of ELL pronunciation and intelligibility, to address the need to advance the field, and to expand on findings conducted by researchers (as per the review of literature) the following four research questions guided the present study:

### 1. What internal linguistic variables:

- the position of a target consonant within a word,
- the number of adjacent consonants within a word,
- the environment preceding a target consonant,
- the environment proceeding a target consonant,
- the sonority sequencing principle (SSP),
- and the grammatical affixes (morphemes) added to a word

conditioned the production accuracy of each instructional cohort over the instructional intervals (i.e., pre- and post-instructional)?

### 2. How did the external sociolinguistic variables:

- formality of the speech elicitation protocol,
- native language,
- age of arrival in the United States,
- length of residency in the United States,
- English proficiency,
- level of educational attainment,
- and socioeconomic status

condition the pronunciation accuracy of the participants?

3. How did the participants' self-reporting of their English intelligibility change over the instructional intervals? How did the participants' intelligibility as assessed by NES and NNS raters change over the instructional intervals?
4. How did the classroom activities and the participants' English exposure outside of the classroom contribute to changes in the participants' intelligibility over the instructional intervals?

The following chapter details the methodology that was used in the present study.

It was largely informed by the scholarship described in the review of literature.



### Chapter III. Methodology

In this chapter I present the methodology of the study. First, the pilot study which informed this dissertation is described. I then follow this section with the study design. After that, the study setting, the participants, the instrumentation, and the data collection procedures are detailed. The chapter concludes with a description of the coding of both the quantitative and the qualitative analyses.

#### 3.1. Pilot Study which Informed the Dissertation

In order to inform the dissertation a pilot study was conducted which investigated the production of word-final English consonants by six native Korean speaking adult ELLs. The study investigated how two phonological variables influenced the production accuracy of the participants: the number of adjacent word-final consonants and the environment which preceded and proceeded the word-final consonants. In addition, a social variable, the participants' English proficiency level, was examined to determine whether it had an effect on the participants' production accuracy. Each of the participants completed three speech elicitation protocols: reading a sentence list<sup>8</sup>, retelling a film clip, and responding to personal interview questions.

The findings yielded by the study demonstrated three tendencies. First, the number of word-final adjacent consonants (e.g., *lit*, *list*, *lists*) influenced production accuracy. That is, as the number of word-final consonants increased, the repairs

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<sup>8</sup> The sentence list included all possible word-final singleton consonants and a variety of two and three consonant clusters (Appendix A).

employed by the participants also increased. Second, the findings showed that the linguistic environment influenced production accuracy. For instance, vowel environments eased production while consonant environments yielded lower accuracy. Finally, the English proficiency level of the participant was found to influence production accuracy. Namely, beginners exhibited the lowest production accuracy while intermediate and advanced learners demonstrated more accurate production.

The pilot study served as a foundation for the design of this current study. Informed by the findings obtained from the pilot and the aforementioned studies in the literature review, I have expanded the linguistic and social variables and included participants of various L1s in order to ascertain if the findings were generalizable to other L2 learners of English.

### 3.2. Study Design

The present study is a cohort study in which a mixed-methods design was employed. The quantitative design of this study investigated the effects of several linguistic and social variables and their relationship to the production accuracy of word-initial and word-final consonants produced by two cohorts of ELL participants who were enrolled in oral communication courses: American English and Let's Speak (henceforth AE and LS). The qualitative method explored how the participants' English intelligibility emerged over time. By employing both a quantitative and a qualitative approach, I was able to use the differences in the production accuracy found in the quantitative data to inform the qualitative data relating to the participants' intelligibility and vice versa.

Hence, I triangulated the data by employing both a quantitative and qualitative approach to analyzing changes to the participants' production and intelligibility.

Drawing from quantitative methods, the production accuracy of two instructional cohorts of ELL participants were compared at the beginning of instruction and after completing an oral communication course at three instructional intervals (i.e., T1, T2, and T3). The study investigated how linguistic variables influenced the participants' production of word-initial and word-final consonants before and after instruction in one of two oral communication courses and later, determined whether the tendencies were socially stratified. To this end, a cohort design was deemed appropriate to compare the similarities and differences in each cohort's production across the instructional intervals. Furthermore, in order to advance the field, the study incorporated a longitudinal aspect to measure the persistence of instruction over an eleven-week span of time. For instance, the pronunciation accuracy of the participants in each cohort was compared at the second week of instruction (T1), at the seventh (final) week of instruction (T2), and six weeks after the completion of instruction as well (T3). This design permitted me to examine whether the effects of instruction for each cohort persisted at the delayed post-test interval (T3).

The quantitative data were collected with three speech elicitation protocols of varying formality. These speech protocols included: reading a list of sentences, summarizing a film clip, and responding to personal interview questions. The reading of a sentence list allowed the participants to focus on form and production of segments as they read the sentences. The semi-informal protocol, the film clip retell, served to deflect attention from pronunciation. Namely, the participants summarized a film clip. Finally,

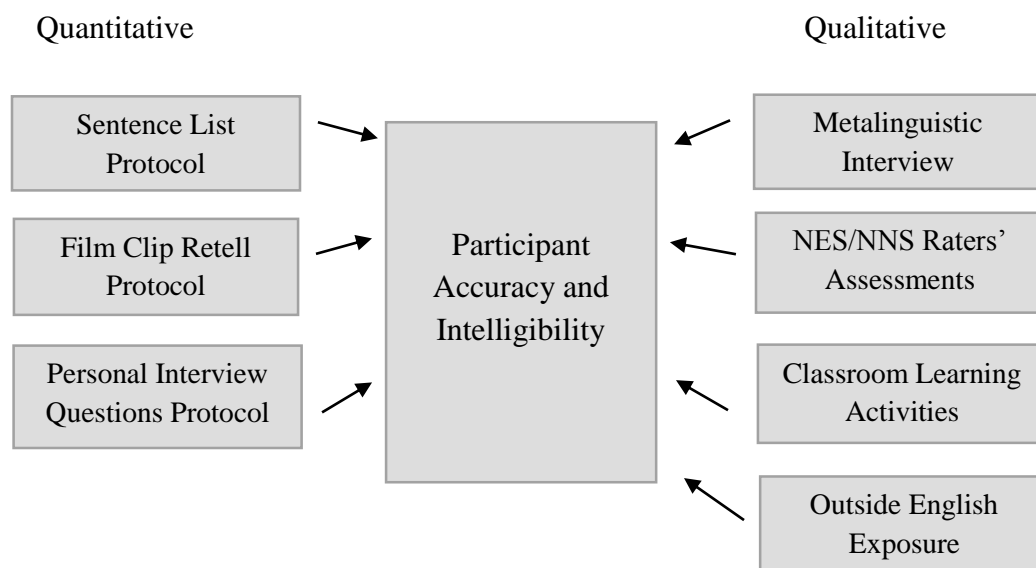
the informal protocol, the personal interview questions, elicited spontaneous speech that was related to the participants' personal experiences. Moreover, it also deflected the participants' focus on pronunciation.

The study also incorporated a qualitative approach. Three protocols were analyzed using qualitative methods with the purpose of documenting changes in the participants' intelligibility and how English exposure might have influenced changes to the participants' intelligibility. The first qualitative protocol consisted of a metalinguistic interview which had the purpose of capturing how the participants self-reported their intelligibility and whether these attitudes changed over the three instructional intervals. In addition, the participants were asked about their exposure to English outside of the classroom in order to determine the relationship between accuracy improvement and outside exposure to English beyond the classroom.

A second qualitative protocol also captured participants' intelligibility; NES and NNS raters evaluated the participants' intelligibility. For this protocol, the raters' listened to speech samples of the ELL participants and assessed how easily they could comprehend the ELLs' utterances. This inclusion of linguistically-untrained raters attempted to capture how an English learner may be understood by an average listener albeit an American English speaker or a non-native speaker of English. Therefore, this protocol examined ELL comprehensibility by the general public rather than a language expert. These NES and NNS ratings of the ELL participants' intelligibility increased the validity and reliability of the study in that the data regarding the participants' intelligibility was triangulated between three sources: the participants, the NES raters, and the NNS raters.

The third protocol that contributed to the qualitative analysis consisted of classroom observations that I conducted. These classroom observations followed ethnographic methods employed by sociolinguists (Hymes, 1972). That is, in the study I observed the students' engagement in classroom activities, participated in classroom activities, and recorded observational field notes. The purpose of this examination was to analyze the different learning interventions which were employed in each classroom and to capture how the participants were engaged in the learning activities. Furthermore, it served to increase the validity of the participants' self-reported classroom engagement by providing the observations of a researcher. Thus, through this design I triangulated between the participants' self-reports of their learning and my classroom observations.

Figure 3.1. Design of the study illustrating quantitative and qualitative approaches



### 3.3. The Study Setting and the ESL Program

The study took place at a community college, Atlantic College<sup>9</sup>, located in a large metropolitan area in a Mid-Atlantic State. Due to the sizable immigrant population of the area, Atlantic College offered an extensive ESL program containing core courses and specialized electives. The ESL program consisted of eight levels: Beginner 1, Beginner 2, Intermediate 1, Intermediate 2, Advanced 1, Advanced 2, Conversation and Writing 1, and Conversation and Writing 2. These leveled-core ESL courses targeted building four language skills: literacy, grammar, vocabulary, and oral proficiency in English. In addition, electives were offered to those students who wanted intensive instruction in the areas of: composition, grammar, and oral communication. The electives focused on a particular English skill and provided more intensive instruction than that which was offered in the core ESL classes. In particular, the college offered four options for oral communication instruction to students of differing English proficiency levels. The oral communication courses targeted either pronunciation or conversational skills.

Atlantic College was selected for the study based on the aforementioned specialized oral communication courses which were offered every session to the ELL population. Most colleges in this area did not offer such a variety of oral communication electives. Therefore, Atlantic College's curricula provided a rich source from which to compare different types of learning activities targeting English oral communication skills. Furthermore, the large number of immigrants hailing from diverse countries also provided an abundant sampling of ELL participants from which to draw.

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<sup>9</sup> The name of the college used in this study is a pseudonym.

### 3.3.1. The ESL program's English proficiency placement test

It is important to note that I did not place students in their respective levels. Atlantic College had a process in place that I utilized. Initially, non-native English speaking students were assessed through a placement test which targeted the four modalities of communication: reading, writing, listening, and speaking. The Accuplacer test consisted of a digital component which tested reading and listening skills. Furthermore, an essay-writing test, designed by the college faculty, was administered to all incoming ELLs. Finally, the speaking ability of each student was evaluated during an oral interview with one of two testing specialists<sup>10</sup>. During the oral interview, the specialists judged the appropriate placement based on the student's English skills and their personal goals. In addition to the intake placement, an ESL instructor could make a recommendation for a student to move up or down a level at the completion of an ESL course. To this end and because I was interested in examining the outcomes of two pre-established yet different cohorts, it was imperative to follow the placement criteria employed by the institution in order to enable comparisons.

### 3.3.2. The two oral communication courses investigated in the study

To investigate the production accuracy and repair strategies of ELL participants, two oral communication courses were examined in the study. One course, *American English*<sup>11</sup> was an introductory pronunciation course which focused on improving

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<sup>10</sup> The oral interview questions were created by the college faculty; the Oral Proficiency Interview (OPI) was not employed to assess oral proficiency of the students.

<sup>11</sup> The names of the courses used in this study are pseudonyms.

pronunciation and building the speaking confidence of the learner. Explicit instruction on the production of English segments was stressed in the course. Both perception and production of English segments were discussed and drilled in different learning activities. The course was designed so that 50% of the activities involved explicit input, drills, and consciousness-raising activities. These drilled activities included minimal pair production (e.g., ‘ship’ and ‘chip’). In addition, reading a dialogue and structured conversations which focused on targeted segments were employed for production practice. Through feedback given by the instructor, the students became more aware of production difficulty they might encounter. The second half of the class involved more authentic speaking opportunities. For instance, targeted segments were presented in songs, poems, readings, and structured interview questions which provided targeted phonemes used in context.

The second course, *Let's Speak* targeted building English communicative competency and helped to acculturate ELLs to American English speaking situations. The course assisted students in building their English speaking confidence so that they could participate more fully in American communities. Furthermore, pronunciation was incorporated into the curriculum to improve intelligibility. The course was a practicum or workshop in which students had an opportunity to practice different dialogues and speaking situations in role-plays. Each lesson had a specific speaking theme such as: leisure activities, going to a restaurant, and making small talk in English. The course also included pronunciation of English segments. That is, vowels and consonants were covered as well. About an eighth of the coursework involved pronunciation teaching



while the remainder of the course focused on conversational fluency and vocabulary building related to the thematic speaking focus.

### 3.4. The ELL Participants

The participants in the study were recruited from a convenience sampling of two pre-existing oral communication classes at the college during fall semester 2013: a pronunciation course (i.e., AE) and a conversation course (i.e., LS). This sampling method followed Couper (2006), Derwing et al. (1998), Elliott (1995) and Gilmore (2011). The college provided two 7.5- week sessions of each oral communication course during of the fall semester. For instance, one session, Fall I, began in September 2013; the second session, Fall II, began at the end of October 2013. Thus, the participants in the study were recruited from both Fall I and Fall II AE and LS classes.

The participants were recruited from the AE and LS classrooms during the second week of the 7.5-week courses. The second week of class was deemed most appropriate for recruitment because the enrollment stabilized during this week. To select the students, the instructor first introduced me to the class, and I invited the students to participate.

There were several criteria which the participants had to meet in order to participate in the study. The participants had to be enrolled in either AE or LS course during fall semester 2013 and had to be English learners. That is, a student speaking an English dialect as a first language would not be permitted to participate. Furthermore, the participant had to be at least 18 years of age and also needed to be willing to participate in the interviews at T1, T2, *and* T3. This initial agreement during the screening process

was an attempt to control for attrition. Of the 30 students who initially volunteered to participate, 28 students met the study criteria and were selected for participation in the study.

The 28 participants were categorized according to their cohort. The AE pronunciation cohort consisted of a total of 11 participants. There were six participants from the Fall I session and five participants from the Fall II session in this cohort. In addition, 17 students from the LS conversation class participated in the study. There were three students recruited from the Fall I session, and 14 students who volunteered from the Fall II session.

The participants' demographic information was collected during the screening process of their T1 interview (Appendix B). This questionnaire inquired as to the native language, English proficiency level, length of residency in the United States, age, the highest level of educational attainment, and household income of each participant. The demographic information of the participants is detailed in Table 3.1.

Table 3.1. The participants' demographic information

Participant Number	L1	Proficiency	Years in US	Age	Educational Attainment	SES
1	Japanese	Advanced	.25	30s	University+	\$50,000 +
2	Korean	Advanced	.25	50s+	University+	\$50,000 +
3	Spanish	Intermediate	.50	30s	University+	\$49, 900 -
4	Spanish	Advanced	.75	30s	University+	\$50,000 +
5	Arabic	Advanced	4.0	40s	University+	\$50,000 +
6	Korean	Advanced	.50	40s	University+	\$50,000 +
7	Spanish	Intermediate	14.0	40s	University+	\$49, 900 -
8	Japanese	Advanced	1.0	30s	University+	\$50,000 +
9	Japanese	Intermediate	2.0	40s	University+	\$50,000 +
10	Korean	Intermediate	.50	20s	High School	\$49, 900 -
11	Korean	Beginner	1.5	20s	High School	\$49, 900 -
12	Spanish	Intermediate	1.0	30s	University+	\$49, 900 -
13	Spanish	Intermediate	28.0	50s+	High School	\$49, 900 -
14	Spanish	Intermediate	15.0	50s+	High School	\$49, 900 -
15	Spanish	Beginner	24.0	50s+	University+	\$50,000 +
16	Spanish	Beginner	.50	30s	University+	\$49, 900 -
17	Spanish	Beginner	11.0	40s	High School	\$49, 900 -
18	Spanish	Beginner	.50	20s	University+	\$50,000 +
19	Spanish	Beginner	1.5	20s	High School	\$49, 900 -
20	Spanish	Intermediate	3.0	30s	High School	\$49, 900 -
21	Spanish	Intermediate	30.0	50s+	High School	\$49, 900 -
22	Tamil	Intermediate	1.0	20s	University+	\$50,000 +
23	Marathi	Intermediate	1.0	20s	University+	\$50,000 +
24	Marathi	Intermediate	.50	20s	University+	\$50,000 +
25	Mandarin	Advanced	30.0	50s+	University+	\$50,000 +
26	Korean	Advanced	4.0	30s	University+	\$50,000 +
27	Korean	Advanced	10.0	50s+	University+	\$50,000 +
28	Mandarin	Intermediate	1.5	30s	University+	\$50,000 +

Table 3.1 demonstrates that the participants were a diverse group of learners. For example, the largest L1 group consisted of native Spanish speakers who comprised 13 of the 28 participants; these participants originated from the Caribbean and South America. It is important to note that while several L1s were represented in the study, the Japanese, Arabic, Mandarin, Marathi, and Tamil L1 groups were very small. In addition, the participants' English proficiency levels varied. The majority were intermediate ELLs

while the beginners and advanced learners consisted of a little over a half of the participants. These proficiency levels were determined by the Atlantic College testing specialists prior to enrollment in ESL courses. Furthermore, most participants had recently arrived in the United States. Namely, 16 of the 28 participants had resided in the United States for two or fewer years. In addition, regarding the ages of the participants, half of the participants were in their 20s and 30, and a little less than half were in their 40s and 50s. Moreover, the data also show that the majority of the participants in the study had a university degree. That is, while 8 participants had completed high school, 20 participants had a baccalaureate degree or higher. Finally, Table 3.1 illustrates that the household income of the participants was divided either below or above \$50,000. Twelve of 28 participants had annual household incomes of less than \$49,900. The remaining 16 participants lived in households where more than \$50,000 was earned annually.

### 3.5. Data Collection Instrumentation

This section describes the instrumentation which was employed to collect data. As mentioned earlier, four protocols were employed to analyze the intelligibility of the participants:

- three speaking protocols (i.e., reading of a sentence list, narration of a film clip, and personal interview questions),
- a participant metalinguistic awareness interview,
- a NES and NNS rater answer sheet,
- and a classroom observation protocol.

### 3.5.1. Quantitative speech elicitation protocols: Sentence list, film clip retell, and personal interview questions

Following the research of Bebee (1980), Cardoso (2008), and Hahn (2002) the data collected for the quantitative production accuracy analysis were elicited through three speech elicitation protocols: a sentence list, a film clip retell, and personal interview questions. These speech protocols provided three distinct speech environments: formal, semi-informal, and informal. The first interview occurred during the second week of the 7.5-week course (T1), the second interview was conducted during week seven, upon completion of the course (T2). A third interview occurred five to six weeks after course completion (T3).

#### *3.5.1.1. Formal speech elicitation protocol: Sentence list.*

The first speech elicitation protocol, the sentence list, provided a formal speaking environment for the participants (Appendix C). The aim of including the sentence list was to create a formal speech environment which permitted participants to focus on the production of the word rather than on meaning. Furthermore, it provided a variety of consonant combinations in the onset and coda environments for analysis. For instance, the sentence list ensured that all possible English consonant combinations were included in both the onset and the coda positions of the participants' speech samples.

#### *3.5.1.2. Semi-informal speech elicitation protocol: Film clip retell.*

The second speech elicitation protocol, a silent film clip retell, *Knick Knack*, provided a semi-informal speaking style. The purpose of this semi-informal environment

was to allow the participants to select their own words while summarizing an impersonal topic. During the film retell elicitation I showed each participant a three minute film clip, *Knick Knack*, by Disney Pixar from YouTube (Lasseter, 1989). After viewing the clip twice, each participant was asked to summarize the film in his/her own words. Thus, this task provided a less-structured speech environment than the reading list.

### *3.5.1.3. Informal speech elicitation protocol: Personal experience interview*

The third protocol consisted of an informal speech environment, the personal experience interview questions (Appendix D). The goal of this protocol was to elicit semi-spontaneous speech samples based on the participants' personal experiences which could typically occur in daily interactions with an acquaintance. Thus, this protocol permitted me to analyze the speech production of each participant in an informal speech activity. During the data collection, I asked the participants to answer four questions about their personal interests, leisure activities, and families. This informal task allowed participants access to words that related to their personal experiences. The interview best demonstrated participants' comfort speaking in English as they were able to elaborate on the topics as they desired. Moreover, it provided some insight as to the range of each participant's vocabulary and English fluency. However, it is important to note that while this protocol consisted of common conversational questions, the interview speech act differed from casual conversation in which both interlocutors exchange information. Further, I did not have a 'peer' relationship with the participants; the participants knew

that I was an ESL instructor. As such, this researcher/participant relationship may have conditioned some of the participant responses<sup>12</sup>.

### 3.5.2. Qualitative instrumentation

This section describes the three qualitative protocols which were employed to collect data: the participant metalinguistic interview, the NES and NNS raters' answer sheet, and the classroom observation protocol. In addition to the aforementioned quantitative-related protocols, I conducted informal interviews with the purpose of documenting the participants' difficulties, challenges, and concerns relating to pronunciation.

#### *3.5.2.1. Participants' metalinguistic-awareness interview protocol.*

Informed by Chang (2006) and Couper (2003), the metalinguistic interviews were conducted to initially screen the participants by gathering demographic information and to inquire about the participants' metalinguistic awareness of their English intelligibility (Appendices B and E). These metalinguistic interviews were conducted as a part of the participants' individual interview sessions (i.e., T1, T2, and T3). The participants responded orally to questions consisting of yes/no and open-ended questions. The questionnaire permitted me to examine key patterns in the participants' metalinguistic awareness of their English intelligibility and whether their metalinguistic awareness

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<sup>12</sup> Labov (1972) described the 'Observer's Paradox' in which a researcher attempts to collect participants' natural speech patterns. However, participants of a study are aware that their speech is under investigation and may change their speech patterns from their unobserved patterns.

changed over time. Furthermore, it allowed me to examine the frequency with which the participants' used English in their homes, communities, and at work.

*3.5.2.2. NES and NNS raters' protocols: NES Questionnaire, NNS Questionnaire, Rater Answer Sheet*

The study included a rating task in which NES and NNS assessed the ELL participants' intelligibility at T1, T2, and T3. Informed by the work of Derwing et al., (1998) and Fayer and Krasinski (1987), these raters listened to speech samples of the ELL participants and assessed their intelligibility. Thus, a rater pool of NES and NNS raters were recruited through a snowball sample. For example, I asked five graduate students who did not have language or linguistic training to participate as raters. These students were then asked to find another graduate student who might be interested in participating (who also did not have language or linguistics as a specialization).

Three protocols (i.e., NES Questionnaire, NNS Questionnaire, and Rater Answer Sheet) were developed for the NES and NNS rating session of the ELL participants. A questionnaire was designed for the NES raters regarding their L2 knowledge to capture the language background of the potential rater (Appendix F)<sup>13</sup>. A NNS questionnaire was designed to capture the L1 and L2 language backgrounds of these potential raters (Appendix G). In addition, a rater answer sheet was developed for the NES and NNS raters to record the intelligibility ratings of the ELL participants (Appendix H) following Derwing et al. (1998). On the answer sheet a Likert scale ranging from difficult to

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<sup>13</sup> Both the NES and NNS questionnaires were designed by me for the specific purpose of gathering information related to the raters' language learning experience.



understand (1) to near-native speaking ability (5) was employed to assess the ELL participants. Therefore, 3 would be 'average' ELL intelligibility. The raters were asked to listen to a speech clip of an ELL participant. Then they recorded a rating or intelligibility score in the appropriate space on the protocol. Each rater completed their evaluations for the T1, T2, and T3 intervals.

### *3.5.2.3. Oral communication classroom observation protocol.*

A protocol was developed to record classroom observations following Chang (2006). Classroom observations were conducted in order to compare the learning activities in which the students were engaged in each of the oral communication courses. Since one course focused on corrective pronunciation (i.e., AE) and the other targeted building conversation skills (i.e., LS), I was able to take field notes in order to compare the learning activities employed in each course. My field notes documented the types of activities in which students participated, the length of time spent on the activity, and the people who were involved in the activity. In order to systematically document the routine classroom activities and record field notes, an observational protocol was adapted from Spada and Froehlich (1995) (Appendix I). The protocol was designed to document and code for the instructional content which was taught and how the students were engaged in the learning activities in the classroom.

### 3.6. Data Collection Procedures

This section explains the procedures which were used to collect data in three processes. The ELL participants' individual interview sessions, the listening session for the NES and NNS raters, and my classroom observations are discussed.

#### 3.6.1. Individual ELL participant interview sessions

During the individual interview sessions, each participant met with me to record the three speech elicitation tasks and to respond to the metalinguistic awareness questionnaire. These interview sessions occurred over an eleven week period (i.e., T1, T2, and T3). Each interview session lasted 15 through 45 minutes depending on the amount of detail each participant shared. The interviews were digitally recorded on an Olympus WS-510M digital voice recorder with a sampling rate of 40 Hz and 19 bit quantization level. While the presence of the recorder might have caused some hesitation on the part of the student, it is frequently used in both contemporary empirical qualitative and quantitative studies. It permitted me to collect the full interview verbatim. Furthermore, the digital recording was necessary in order to analyze speech samples using Praat phonetic software<sup>14</sup>.

The individual interview sessions began with the metalinguistic awareness questionnaire (Appendix E). I provided each participant with a copy of the interview

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<sup>14</sup> Praat was employed in the transcription of participants' speech. In employing this software, small excerpts of speech were represented in waveform and spectrograph images. Through these two images one can observe the articulation employed in consonant production (e.g., a stop /p/ or a fricative /f/).

questions; I asked the questions orally. Then the participant had an opportunity to respond to the questions.

Next, speech samples were elicited using the three speech elicitation protocols: the sentence list, the film clip retell, and personal interview questions. For the sentence list protocol, I provided each participant with a written copy of the list consisting of 95 sentences (Appendix C). Then I read the words for the participant to ensure that the participant understood how to pronounce the words. Next, the participant was invited to repeat the words, ask for clarification, and mark his/her copy of the sentence list to assist in pronunciation in a practice interval. During data collection the participant was asked to read the list in sets of 10 sentences. After reading each set, the participant was invited to relax for a minute if he/she chose. This pattern was followed until all 95 sentences were read.

For the second speech elicitation protocol, the film clip retell, the participant watched the film, *Knick Knack*, twice on YouTube using my cellphone. Once the film was finished, I asked the participant to describe what happened in the story for data collection. During data collection each participant described the film clip in his/her own words.

With regard to the third procedure, the interview questions, each participant was given a written copy of the four interview questions (Appendix D). During data collection I asked each participant the four questions, and the participants had an opportunity to respond orally.

### 3.6.2. NES and NNS raters' listening session

In preparation for the listening session, I created clips of the ELL participants' film retell elicitations. First, using Praat phonetic software, I spliced 20-second clips from every participant's film retell file at each the instructional intervals (i.e., T1, T2, and T3). Accordingly, during each of these spliced clips a portion of the *Knick Knack* film was described. The film retell protocol was selected for the listening session because it was a uniform speaking activity in which the ELLs described the plot of the *Knick Knack*. That is, once the NES and NNS raters had an opportunity to view the film, they would be able to comprehend a summary of the plot. In the three instances where a participant refused to participate in the film retell task, I spliced a 20-second response to a personal interview question instead. For example, a participant described a cultural difference he/she encountered in America. Once the retells had been spliced, I created a random playlist of the participants' speech clips for each of the instructional intervals: T1, T2, and T3.

During the listening session the raters were asked to convene in a university classroom to listen to the ELL participants' speaking clips from T1, T2, and T3 and score the intelligibility of the ELLs. Based on the busy schedules of the raters, it was most efficient to complete the listening session in a one-time session. Therefore, the listening session occurred one month after the final T3 data were collected. The entire listening session lasted approximately two hours.

First, the raters watched *Knick Knack* from YouTube on my laptop, so they could understand the film plot summaries given by the ELL participants. Then, each rater was given three rater answer sheets (Appendix H). They were introduced to the five-point Likert scale rating system. That is, the raters were instructed to rate each ELL

participant's speech sample from one (difficult to understand) to five (near-native English) using the Likert scale on their response sheet. Then, two practice samples of ELL speech were played for the raters during a training period. In the first training sample, an ELL with a near-native accent spoke with hesitation and inaccurate grammar. In the second training sample, a fluent ELL with a strong accent spoke. The raters were reminded to focus how intelligible they found each speech sample to be when they were assessing the ELL participants.

During the evaluation process the raters assessed the ELL participants' speech clips using their rating answer sheets. First, I played the 28 T1 samples from the T1 playlist for the raters. The raters recorded a score for each of the 28 samples. After the twenty-eighth clip, I collected the T1 answer sheets from the raters. Next, the 23 T2 clips were played for the raters. Once the raters had recorded a score for the 23 samples, I collected the T2 answer sheets. Finally, the T3 recordings consisted of 13 ELL participant samples. Thus, the raters recorded a T3 score for each of the 13 participants and submitted the T3 answer sheet to me. At the conclusion of the listening session, the raters had a chance to debrief and discuss the participants' speech samples.

### 3.6.3. Oral communication course classroom observations

I conducted four classroom observations of the pronunciation (AE) and conversation (LS) classrooms during the Fall I session at Atlantic College. These observations were conducted during the second, third, fifth, and sixth weeks of the course. During these observations I documented the students' engagement in the learning

activities, the groupings of students, and the social interactions that occurred in each oral communication classroom using an observational protocol (Appendix I). I drew from ethnographic methods to function as a participant-observer in the classrooms. That is, not only did I observe and record field notes, but I participated in some of the class discussions and student activities in each of the classes. I did not have permission to digitally record the classroom proceedings. Thus, the field notes were based on my observations.

In addition to the classroom observations, I gathered classroom artifacts from the pronunciation classrooms. These artifacts consisted of the tools the instructors employed to assist in the learning process including the textbook, handouts, diagrams, writing on whiteboards, and other realia. Furthermore, in instances where the instructor used technology such as videos or CDs, I documented the pertinent targeted words, vocabulary, or instructional focus.

In the final stages of data collection, I engaged in informal conversations with the participants as time permitted. Frequently, the students lingered after class in the hallways and student lounge area to continue conversations which began in class. Engaging in informal conversations assisted me in capturing the students' backgrounds, metalinguistic awareness, and garner the participants' attitudes toward the English learning process.

### 3.7. Data Analysis Procedures

The coding and analysis procedures of the quantitative and qualitative data are presented in this section.

#### 3.7.1. Coding procedure for the quantitative speech elicitation protocols

The participants' production accuracy of word-initial and word-final consonants were coded and analyzed quantitatively following the work of Hancin-Bhatt and Bhatt (1997) and Hansen (2004). The quantitative analysis of the participants' speech samples addressed research questions one and two:

1. How did the internal linguistic variables condition the cohorts' production accuracy over the instructional intervals?
2. Which external sociolinguistic variables conditioned the participants' pronunciation accuracy?

These questions addressed whether there were differences in accuracy between the cohorts and over time (i.e., T1, T2, and T3). I transcribed the data from each of the three speech elicitation protocols on a Microsoft Word document. During the transcription process, I recorded each word from each speech elicitation protocol on the document. Praat phonetic software was also employed in the transcription of word-initial and word-final consonants. By employing this software, small excerpts of the participants' speech were represented in waveform and spectrograph images. Once the data were transcribed, they were coded for the following internal and external variables.

### 3.7.1.1. Coding procedure of the internal linguistic variables

This section describes the coding of six internal linguistic variables: the repair strategies employed by the participants, the position of a consonant within a word, the number of adjacent consonants, the preceding and proceeding environments, the sonority sequencing principle (SSP), and the grammatical affixes added to a word. For instance, Table 3.2 illustrates the coding of the repair strategies employed by the participants.

Table 3.2. Internal variable 1: The repair strategies employed by participants

Repair Strategy	Description
Appropriate	The target word was produced appropriately <sup>15</sup>
Deletion	A consonant was omitted; ‘grab’ became [græ]
Epenthesis	A vowel was added to the consonant or cluster, ‘fish’ became [fɪfɪ]
Substitution	The manner of articulation changed; ‘grapes’ became [greifs]
	The place of articulation changed; ‘graze’ became [greiv]
	The voicing changed; ‘cab’ was pronounced [cæp]

The data in the study were also coded for the target consonant’s position within a word.

Table 3.3. Internal variable 2: The position of a consonant within a word

Position in Word	Description
Onset	Consonant(s) occurred word-initially (e.g., low)
Coda	Consonant(s) occurred word-finally (e.g., owl)

I coded the data according to the number of adjacent consonant sequences which occurred in the word-initial onset or the word-final coda positions.

<sup>15</sup> Reduction of word-final consonants and consonant clusters by native American English (NAE) speakers was taken into consideration in the coding of phonetic modifications. Among NAE speakers, word-final coronals (i.e., /t, d/) are frequently deleted in word-final consonant clusters. For instance, ‘and’ is typically reduced to /ən/ by NAE speakers. If an ELL participant produced a reduction such as /ən/, it was coded as ‘appropriate’ production.



Table 3.4. Internal variable 3: The number of adjacent onset and coda consonants

Number of Consonants	Example
One	<b>‘man’</b>
Two	<b>‘pleased’</b>
Three	<b>‘sprints’</b>

The data were also coded for the environment preceding and proceeding the target consonant.

Table 3.5. Internal variable 4: The preceding and proceeding environments of a consonant

Consonant Environment	Description
Vowel	A vowel preceded or proceeded the target segment (e.g., <b>‘say now’</b> , <b>‘man is’</b> )
Voiced Obstruent	A voiced stop, fricative, or affricate, /d, v, z/, preceded or proceeded a target phoneme (e.g., <b>‘give now’</b> , <b>‘man dancing’</b> )
Voiceless Obstruent	A voiceless stop, fricative, or affricate, /p, f, s/, was associated with the preceding or proceeding environment (e.g., <b>‘fish now’</b> , <b>‘man fall’</b> )
Sonorant	A liquid or nasal, /r, l, n/, preceded or proceeded a target consonant (e.g., <b>‘drill now’</b> , <b>‘man like’</b> )

In addition, in order to investigate the influence of the SSP, the study coded for those consonant sequences which followed the SSP and those which violated the SSP.

Table 3.6. Internal variable 5: The sonority sequencing principle (SSP)

Sonority Sequencing	Example
Follows SSP	<b>‘blink’</b>
Violates SSP	<b>‘steps’</b>

Finally, the data were coded for the grammatical affixes which were added to each word.

Table 3.7. Internal variable 6: The grammatical affixes added to a word

Grammatical Affixes	Description
TM: Tautomorphemic	Consisting of one morpheme (e.g., <b>pig</b> )
HM: Heteromorphemic	Consisting of two morphemes (e.g., <b>pigs</b> , <b>passed</b> , and <b>passes</b> )

### 3.7.1.2. Coding procedure of external social variables

External variables were also included in the coding process. The participants' data collected in the three speech elicitation protocols were coded for nine external variables: instructional cohort, instructional interval, formality of the speech act, native language, age of arrival, length of residence in the United States, English proficiency level, highest level of educational attainment, and SES following the work of Abrahamsson (2003), Birdsong and Molis (2001), Cardoso (2008), Jibril (1986), and Silva (2005).

First, the data were coded for the instructional cohort in which the participants were enrolled.

Table 3.8. External variable 1: The instructional cohort

Cohort	Description
AE	American English pronunciation course
LS	Let's Speak conversation course

In addition, the comparison of participants' accuracy over time was paramount to the study in order to examine if there were changes in accuracy resulting for instructional interventions. Accordingly, the data were coded for the three different instructional intervals.

Table 3.9. External variable 2: The instructional interval

Instructional Interval	Description
Pretest (T1)	Occurred during the second week of the 7.5 week course
Immediate Posttest (T2)	Occurred at week seven of the 7.5 week of the course
Delayed Posttest (T3)	Occurred five or six weeks after course completion

The data were collected in three speech elicitation protocols of varying formality.

The data were coded based on the type of protocol.

Table 3.10. External variable 3: The formality of the speech elicitation protocol

Protocol	Definition
Sentence List	The participants read a list of 95 sentences
Film Retell	The participants summarized the film <i>Knick Knack</i>
Personal Interview	The participants answered personal interview questions

Informed by the research of Tarone (1980) and Anderson (1983) which revealed that the L1 influenced phonological repairs and accuracy. The data were also coded for the native language of each participant.

Table 3.11. External variable 4: The native language of the participant

Language
Spanish
Korean
Japanese
Arabic (Gulf)
Mandarin (Chinese)
Tamil
Marathi

Another variable, the age of arrival of a participant was coded in this study. The coding was informed by Johnson and Newport (1998) and Birdsong and Molis (2001); however, in my study the data were coded by decade of arrival to eliminate empty statistical cells.

Table 3.12. External variable 5: The age of arrival of the participant according to decade of arrival

Decade of arrival	Definition
20-29	Participants arrived in the US between ages 20-29
30-39	Participants arrived in the US between ages 30-39
40+	Participants arrived in the US after age 39

The study included the length of residence in the United States as a variable under investigation. The goal of including this variable was to determine if the years of English exposure in the United States conditioned participants' production accuracy. This variable was divided following Flege (1988) who reported that ELLs having one year of residence and five years of residence in the target culture demonstrated no differences in their production. Thus, Flege's groups were the basis for the following categories.

Table 3.13. External variable 6: The number of years of US residence of the participant

Years of US Residence	Definition
0-2	Two or fewer years of residency in the US
3-5	Three to five years of residency in the US
6+	Six or more years of residency in the US

The data were coded for English proficiency level in order to determine if there was a correlation between proficiency and production accuracy.

Table 3.14. External variable 7: The English proficiency level of the participant

Proficiency Level	Definition
Beginner	Students who were placed Beginner 1 and Beginner 2
Intermediate	Students who were placed Intermediate 1 and Intermediate 2
Advanced	Students who were placed Advanced 1 and Advanced 2

Another independent variable, the educational attainment of the participant, was examined. Following Labov (1966) and Jibril (1986) the data were coded for levels of education at the secondary and tertiary level. However, to maintain a more accurate statistical description, the data were amalgamated into two categories in the study.

Table 3.15. External variable 8: The highest level of education obtained by the participant

Education Level	Definition
High School	The participant had some high school education
Baccalaureate Degree+	The participant had completed a university degree

Finally, the household incomes of the participants were classified into two categories following Silva (2005). However, the categories were reduced from three to two in order to more accurately depict the findings in my study.

Table 3.16. External variable 9: The household income of the participant

Level of Affluence	Definition
Lower SES	Households earning less than \$49,900 a year
Higher SES	Households earning more than \$50,000 a year

In brief, Table 3.17 illustrates the codes for the internal linguistic and external social variables in the study.

Table 3.17. Summary of the coding for the internal and external variables

Internal Variables						
Repair Strategies	Affix	Consonant Position in Word	Number of Consonants	Preceding/ Proceeding Environment	Sonority Sequencing	
Appropriate Deletion Epenthesis Substitution	TM HM	Onset Coda	One Two Three	Vowel Voiceless Obs. Voiced Obs. Sonorant	Follows Violates	
External Variables						
Speaking Protocol	L1	Age of Arrival	Years of Residence	English Proficiency	Education Level	SES
Sentence List Film Retell Interview	Kor. Span. Ja. Ar. Mand. Tam. Mar.	20-29 30-39 40+	0-2 3-5 6+	Beg Int Adv	High School University	Low High

### 3.7.2. Analysis procedure of the quantitative speech elicitation protocol

Once the quantitative data were coded, non-parametric Pearson Chi-square tests were computed using Statistical Package for Social Sciences 21.0 (SPSS) to analyze the independent variables for accuracy and repair strategies. The data were statistically analyzed by cohort and instructional interval in order to examine the accuracy patterns. Namely, Chi-square crosstabs were conducted to compare the interaction of the dependent repair variable with each of the independent internal and external variables for each cohort at each instructional interval. This analysis permitted a fine grain

examination of the tendencies of each cohort at each instructional interval. Significance for the statistical analysis was assumed  $p \leq .05$ . The results of these statistical analyses were compared for production accuracy and repair strategies between the two cohorts and between each of the instructional intervals.

The quantitative analysis generated patterns and possible predictors of production accuracy or causality relating to the internal and external variables. However, the quantitative data did not demonstrate an influence on accuracy in all situations or 100%. The goal of the quantitative analysis was to describe the general tendencies of phonological and social variables under investigation.

### 3.7.3. The qualitative data coding and analysis procedures

The coding and analysis of the qualitative data are presented as follows. First the qualitative frameworks which guided the study are discussed; this section is followed by the issues of objectivity and my identity. Then the coding of data is described. Finally, the section concludes with the analysis of the qualitative data.

#### 3.7.3.1. *Qualitative research frameworks.*

The qualitative approach of the study drew in part from ethnographic methods and was informed by sociolinguistic methodology. Ethnographic research typically involves the observation of a group and participants (Creswell, 2007; Marshall & Rossman, 2006). The goal of ethnographic research is to describe and interpret the beliefs, behaviors, and interactions of the group. Frequently, ethnographers immerse themselves in the group

culture as participant-observers. Ethnographic data collection often consists of interviews and observations which transpire over several months. Informed by this approach, I conducted four classroom observations of two courses: AE and LS over a five-week period drawing from ethnographic methods. During these observations I observed the classes, participated in class discussions, and worked with individual students in paired activities. In addition, I conducted student interviews and conversed with the participants of the study over an eleven-week study interval. As described at the conclusion of the literature review, the principle of intelligibility also informed the study. An emphasis on the improvement of comprehensible output rather than native output is a recent focus of contemporary pronunciation research. In employing this framework, the study emphasized the improvements in appropriate production and intelligibility of the participants.

#### *3.7.3.2. Study objectivity.*

An additional concern for the qualitative researcher is objectivity informed by Lincoln and Guba (1985). People bring certain cultural conditioning, experiences, and biases with them which may influence their interpretations of the behavior of participants and of events. I sought to maintain impartiality and attempted to gather data in as unbiased a manner as possible. To this end, I had no previous connection personally or professionally to the faculty, the students, or the college where my study was conducted. This distance from the institution permitted me to enter the classrooms and interview the participants without a preconceived notion of the values or beliefs of the institution, instructors, and participants.



Furthermore, informed by Creswell (2007), the qualitative data have been triangulated to maintain validity. The participants' intelligibility was evaluated by the participants themselves and by NES and NNS raters. The participants also self-reported the classroom activities which they felt improved their intelligibility while I documented their engagement during my classroom observations. By triangulating these protocols, I gave equal weight to the data collected, and these multiple sources served as a means to validate the findings.

### *3.7.3.3 Researcher identity.*

My identity as a researcher was shaped by the fact that I am an experienced language teacher and have studied language education. I am a native speaker of American English. However, I began studying French in seventh grade and majored in French as an undergraduate. Accordingly, I spent a year studying in France during which I found that interacting with native speakers of French helped me to improve and refine my speaking skills. Furthermore, I have a background in phonology and linguistics. This background has given me insight into some of the smaller phonetic differences between languages which might lead to the perception of an accent or miscommunication between interlocutors. Therefore, I believe that some phonetic instruction for adult language learners could help them improve TL intelligibility. Finally, I have been an ESL instructor for 12 years. I have experience analyzing patterns of classroom behavior and student interaction. Thus, the novel research site and participants involved in the study permitted me to maintain an objective lens while collecting and analyzing the data.

### 3.7.3.4. *Coding procedure of the qualitative data.*

The data collected in the participants' metalinguistic interview, the NES and NNS ratings, and my classroom observations were analyzed qualitatively to address research questions three and four:

3. How did the participants' English intelligibility emerge over the instructional intervals?
4. How did the classroom activities and exposure to English outside of the classroom contribute to the participants' intelligibility over the instructional intervals?

The coding and analysis for most of the data was inductive and completed with Dedoose following Creswell (2007). Dedoose is a cloud-based program designed for qualitative and mixed-methods studies. During the first part of the analysis, I transcribed the metalinguistic awareness interviews (Appendix E) and the informal student conversations on Word documents. These data addressed research question three which inquired how the participants' metalinguistic behavior emerged related to their intelligibility over the instructional intervals. Table 3.18 illustrates the different codes developed from the participants' concerns regarding their metalinguistic awareness and English intelligibility.

Table 3.18. Coding categories: The participants' self-reported metalinguistic awareness and English intelligibility

Code	Definition
Participants' Proficiency Goals	A reason for enrolling in the oral communication course related to speaking or comprehending English (e.g., seeking employment in America)
Participants' Emotions	Feelings related to using English (e.g., loneliness)
Participants' Preferred Learning Activities	Classroom activities through which the ELL participants improved their English oral skills (e.g., corrective teacher feedback)
Participants' Pronunciation Difficulties	Errors the participants noted in their English pronunciation or speaking ability
Changes to Pronunciation	How pronunciation/intelligibility changed over the instructional intervals.
Effectiveness of Instruction	The effectiveness of the oral communication course as reported by the participant

In addition, the NES and NNS raters' evaluations of the ELL participants were coded qualitatively following Fayer and Krasinski (1987). These data also addressed the third research question which inquired how the intelligibility of the participants changed over the three instructional intervals. Table 3.19 demonstrates the coding according to the raters' English language status.

Table 3.19. Coding categories: Raters' English language status

Code	English Language Status
NES	Native speaker of English
NNS	Non-native speaker of English

A final analysis consisted of my classroom observations. These observations were transcribed for each cohort and coded for themes which might condition the learning process. These data addressed the fourth research question related to whether there was a correlation between the time spent on learning activities and production accuracy. The

codes followed an observational protocol from Spada and Frohlich (1995) see Appendix I. Table 3.20 is illustrative of the coding for the classroom observation protocol.

Table 3.20. Coding categories: Classroom observational protocol

Code	Definition
Cohort Observed	AE pronunciation class or LS conversation class
Daily Class Topic	The learning objective for the day in each class (e.g., /r/ and /l/ pronunciation; shopping at a mall)
Learning Activities	Activities in which the students were engaged (e.g., word drills; group discussion)
Modality	The oral communication mode which was employed in an activity (i.e., speaking or listening)
Grouping of Students	The groupings of students engaged in an activity (e.g., whole class or student pairs)
Artifacts	The method with which the students engaged in an activity. (e.g., textbook or CD)
Student Engagement	The level of class participation of the participant. (e.g., active participation; sleeping)

Finally, the participants' exposure to English outside of the classroom was examined. These data were gathered from the participants' metalinguistic awareness interviews (Appendix E). The variable, outside exposure to English, addressed research question four which inquired whether out-of-the-classroom activities correlated with changes in the participants' production over the instructional intervals. Questions relating to the participants' exposure to English were asked at every instructional interval. This English exposure related to an active use of English in three different environments (i.e., home, community, and workplace) following Flege et al. (1995). Furthermore, informed by Couper (2006), the participants were asked about their passive exposure to English, whether they watched movies/television or listened to music in English. Table 3.21 demonstrates the codes for the data related to the participants' English exposure.

Table 3.21. Coding categories: The participants' exposure to English

Code	Definition
Work	The participant's use of English at work
Home	The participant's use of English at home and with family
Community	The participant's use of English in the community
Movies/TV	Frequency that the participant watched movies/television in English
Music	Frequency that the participant listened to music in English

In conclusion, the patterns which emerged from the qualitative protocols are coded and summarized in Table 3.22.

Table 3.22. Summary of the coding for the qualitative data

Qualitative Data			
Metalinguistic Interviews	Rater Protocol	Classroom Observation	English Exposure
Proficiency Goals Emotions Pronunciation Difficulties Changes to Pronunciation Preferred Class Activities Effectiveness of Instruction	NES NNS	Cohort Observed Daily Class Topic Learning Activities Modality Grouping of Students Artifacts Student Engagement	Work Home Community Movies/TV Music

#### 3.7.4. Analysis of the qualitative data

The analysis of the metalinguistic interviews and informal student conversations provided data regarding the participants' attitudes towards their English intelligibility and foreign accents and how they might have changed over the instructional intervals. At each instructional interval, the participants were asked about their concerns regarding

their English pronunciation and perception. The participants' responses were entered in Dedoose to look for patterns. The data analyses revealed themes related to the participants' proficiency goals, intelligibility, and confidence using English.

The second qualitative protocol, the NES and NNS raters' response sheets, were analyzed using an Excel spreadsheet. First, the intelligibility ratings for each participant were coded based the rater's language status as a NES or a NNS on an Excel spreadsheet. Once the ratings had been coded, aggregate ratings were calculated for each participant. That is, the three NES ratings were averaged together to arrive at an aggregate NES score for each participant. Next, the five NNS ratings were averaged for an NNS score for each participant. Furthermore, the NES and NNS ratings were compared with the participants' self-reporting of their intelligibility to triangulate the data.

The influence of the classroom activities on the participants' production was collected from two protocols: the participants' metalinguistic interviews and my classroom observations. The transcriptions of the participants' responses from their interviews and my observational field notes were coded on Dedoose. Patterns which arose from both the interview and my field notes were compared in order to triangulate the data and validate the results of how the classroom activities may have influenced the participants' production and intelligibility.

A final analysis investigated the participants' outside exposure to English; these data were collected during the participants' metalinguistic interviews. This analysis addressed whether the frequency of English exposure outside of the classroom: at home, at work, and in the community conditioned production. These codes were tallied on

Dedoose. These results were then compared with the participants' classroom experiences to triangulate the data.

In brief, this chapter described the design, the data collection, and the analysis procedures of the current study. In the following two chapters, the results of the study are presented. That is, in Chapter IV, the findings of the quantitative analysis are presented. Chapter V follows with an examination of the qualitative results.

#### Chapter IV. Quantitative Results: Production Accuracy of the Participants

This chapter explores the quantitative results relating to the accuracy of word-initial and word-final English consonants produced by the participants. As described in the methodology in the previous chapter, I elicited and recorded the participants' speech during individual interviews using three different speech elicitation protocols: reading a sentence list, retelling a film clip, and responding to personal interview questions. The data under examination (i.e., word-initial and word-final consonants) from the each of the speech elicitation tasks were analyzed for production accuracy and the type of repair strategy used by the participants. Then, statistical analyses of the data were conducted to address the following questions:

1. How did the internal phonological variables condition the production accuracy of word-initial and word-final consonants over the instructional intervals (i.e. prior to instruction (T1), upon completion of instruction (T2), and at a six-week post-test (T3))?
2. How did the external social variables condition the participants' production accuracy?

In order to address the two research questions, the results relating to the first research question are presented. Following that, the results addressing the second research are discussed.



#### 4.1. The Examination of Production Accuracy Related to Internal Phonological Variables

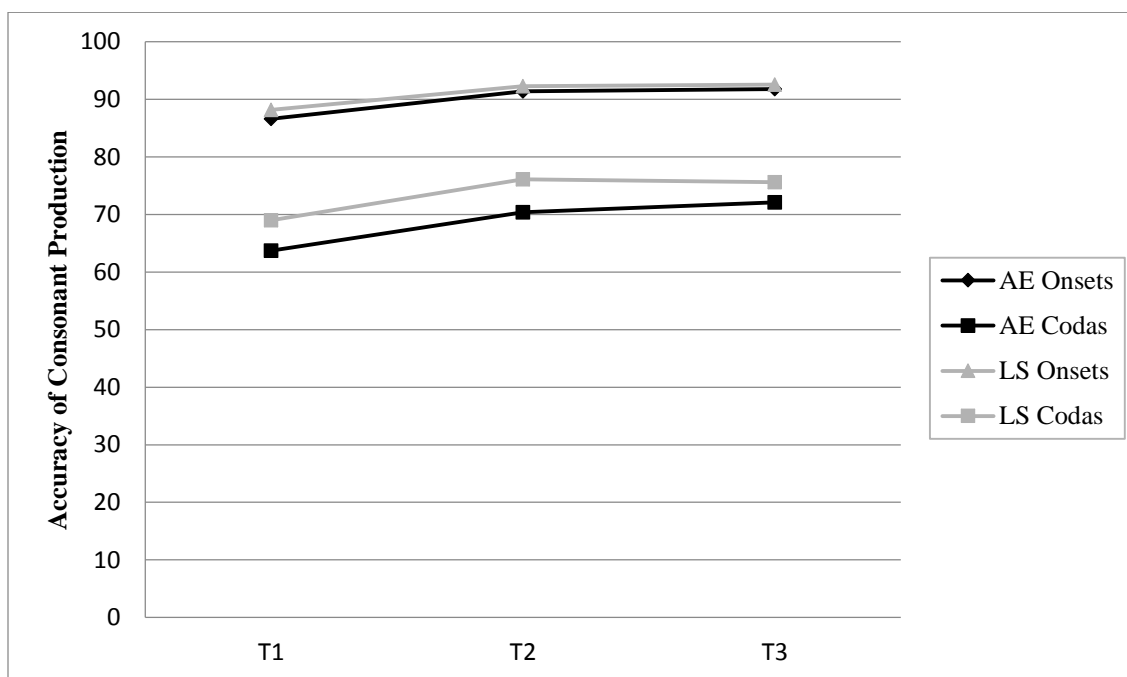
In this section I discuss the findings for how the participants' production was influenced by six internal phonological variables:

- the position of a target consonant within a word,
- the number of adjacent consonants within a word,
- the environment preceding a target consonant,
- the environment proceeding a target consonant,
- the sonority sequencing principle (SSP),
- and the grammatical affixes added to a word.

The internal phonological data were analyzed in Chi-square pairwise comparisons of two variables. Namely, the independent variable, one of the six aforementioned variables, was compared with the dependent variable, the repairs to word-initial and word-final consonants. The following six graphs illustrate the distribution of the production accuracy of the AE pronunciation and LS conversation cohorts at the three instructional intervals for all three of the speech elicitation tasks (i.e., sentence list, film retell, and interview questions).

The first internal variable, the consonant's position within a word, was found to condition production accuracy. The following graph, Graph 4.1, illustrates the production accuracy of word-initial onsets and word-final codas at each instructional interval for each cohort.

Graph 4.1. The production accuracy of onsets and codas at each instructional interval by each cohort for all speech elicitation protocols

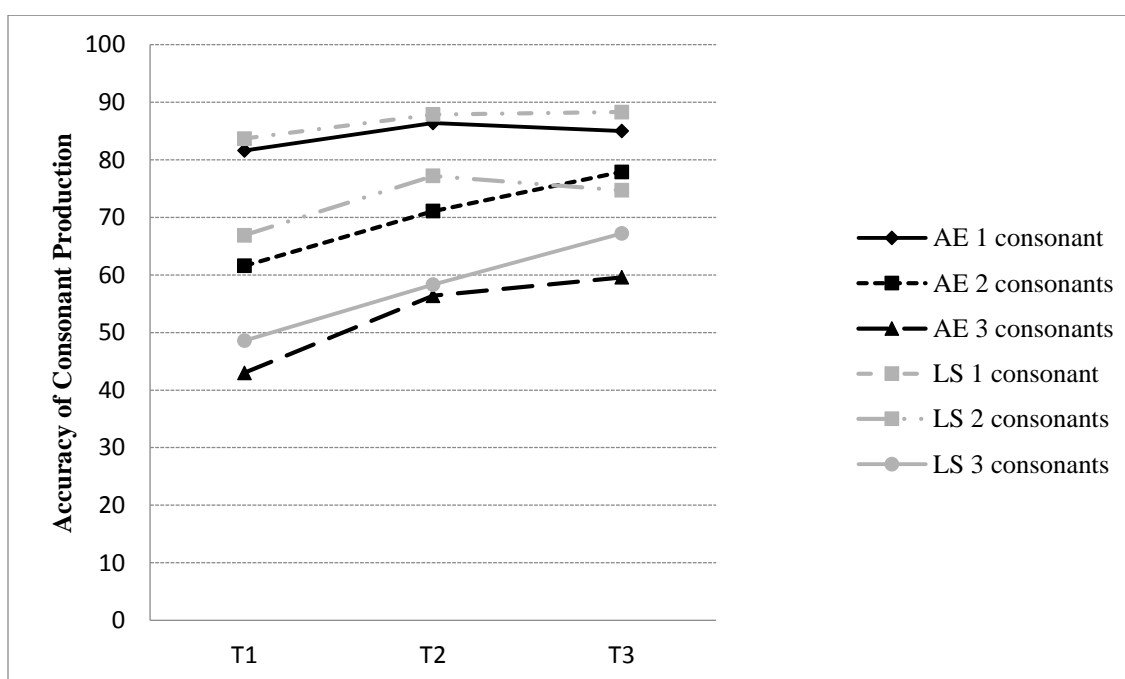


In Graph 4.1 there are three major tendencies. First, the production of onset consonants was more accurate than the production of coda consonants for both cohorts at each of the three instructional intervals (i.e., T1, T2, and T3). This pattern suggests that coda production was more challenging than onset production. Additionally, this pattern may be indicative of a universal preference for word-initial consonants. Second, the participants in each cohort exhibited similar increases in production accuracy for onsets and codas between T1 and T2. Finally, we can also see that the production accuracy at T3 flattens, and the cohorts demonstrated little change in the quality of their production at this interval. That is, we find slight increases in production accuracy at T3 for the AE pronunciation cohort's codas and the LS conversation cohort's onsets. However, the LS cohort's coda accuracy slightly decreased at T3. In brief, the graph demonstrates

improvement in the production of onset and coda consonants from T1 to T2. However, at T3 we observe slight inconsistencies related to production accuracy.

The second variable, the number of adjacent consonants, was also found to influence production accuracy. For example, Graph 4.2 illustrates the production according to the number of adjacent onset and coda consonants for each cohort at each instructional interval for all speech elicitation protocols.

Graph 4.2. The production accuracy according to the number of adjacent consonants at each instructional interval by each cohort for all speech elicitation protocols



Graph 4.2 exemplifies some interesting patterns. The graph shows that a singleton consonant was produced with the highest accuracy, followed by a double consonant cluster. However, a triple consonant cluster was produced with the least amount of accuracy. This tendency was exhibited at T1, T2, and T3 by both cohorts. We may hypothesize that a preference for a universal, simple syllable (i.e., CV) influenced

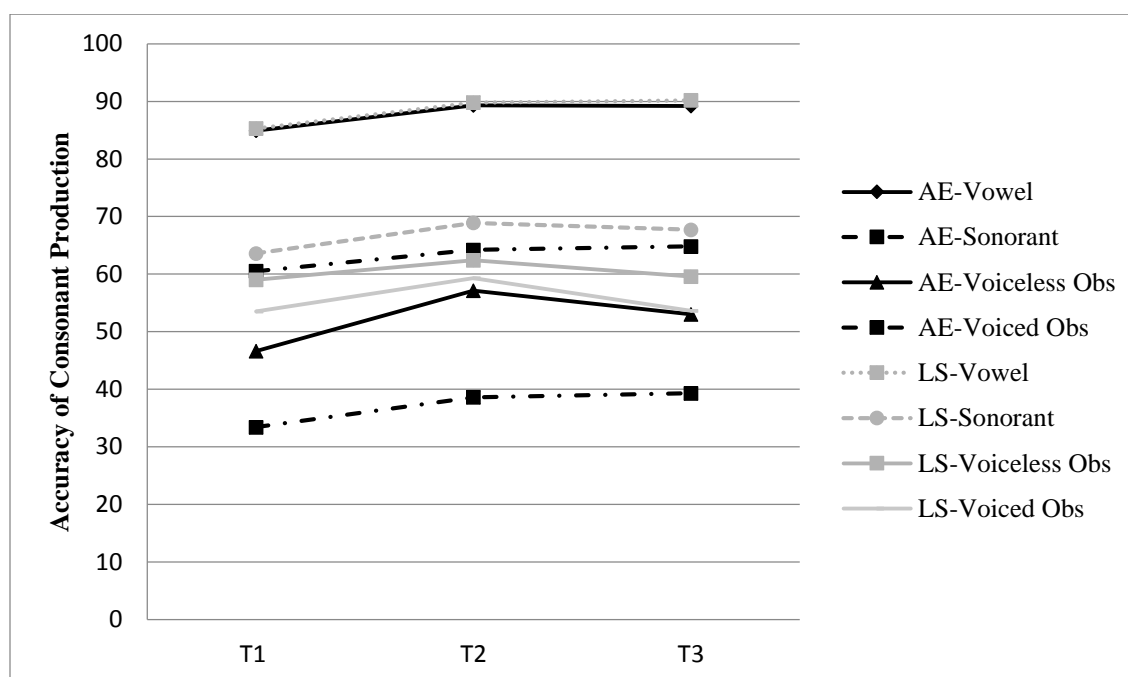
the lower production accuracy associated with two and three consonant clusters. In addition, there was a similar improvement trend from T1 to T2 for both the AE pronunciation and the LS conversation cohorts. This T2 increase may have resulted from classroom learning interventions or other English exposure which will be discussed in the following chapter. However, the T3 interval illustrates less consistency regarding the quality of accuracy as there were both increases and decreases in production accuracy at the T3 interval for each cohort. Thus, it can be suggested with caution that the inconsistencies which emerged in T3 may be mediated by concerns related to attrition, class attendance, or from inconsistent use of English at home or in the community.

The next variable, how the preceding environment (phoneme) conditioned the accuracy of a target phoneme is examined. Since connected speech was elicited in the study, the target consonants may have been conditioned by phonological processes from preceding words. These preceding environments include:

- ‘vowel’, a vowel preceded the target segment (e.g., ‘my street’);
- ‘voiceless obstruent’, a voiceless stop, fricative, or affricate /p, f, s/ occurred adjacent to the target consonant (e.g., ‘**Fifth** Street’);
- ‘voiced obstruent’, a voiced stop, fricative, or affricate /d, v, z/ preceded the target consonant (e.g., ‘**Bridge** Street’);
- ‘sonorant’, a liquid or nasal /r, l, n/ preceded a target consonant (e.g., ‘**Main** Street’).

The following graph, 4.3, illustrates the accuracy for the environment preceding the target consonant(s) for each cohort for all instructional intervals and for all speech elicitation protocols.

Graph 4.3. The production accuracy according to the environment preceding a consonant for each cohort for all instructional intervals and for all speech elicitation protocols



In Graph 4.3 we can observe three patterns. First, the environments in which a target consonant(s) was preceded by a vowel consistently yielded the highest accuracy at all three instructional intervals. Further, the obstruents were produced with the least amount of accuracy for both cohorts. This pattern may have resulted from language universals. That is, a preceding vowel environment created a more universal CV syllable sequence whereas a preceding consonant environment created strings of adjacent consonants. Second, both cohorts had similar increases in accuracy between T1 and T2 for most of the preceding environments. The one exception was the accuracy related to the voiceless obstruent environment. Namely, the AE cohort demonstrated a more marked accuracy increase at T2 than the LS cohort did. This result was surprising given the similar increases that we observed for both cohorts for the previous variables. It can be suggested that instructional differences between the cohorts may have influenced this

pattern. Finally, there is destabilization at T3; the graph demonstrates that the accuracy for each cohort tended to flatten or decrease. This tendency may exemplify the difficulty in maintaining accurate production in consonantal environments. It may also be an effect of attrition of English use at the T3 interval since this interval was documented five to six weeks after class had finished.

To recapitulate, we have observed a consistent increase in accuracy from T1 to T2 for both cohorts for the majority of the preceding environments. Conversely, T3 exhibits some inconsistencies with regard to the quality of accuracy. In addition, it appears that the production accuracy is associated with language universals and a preference for a simple CV syllable structure.

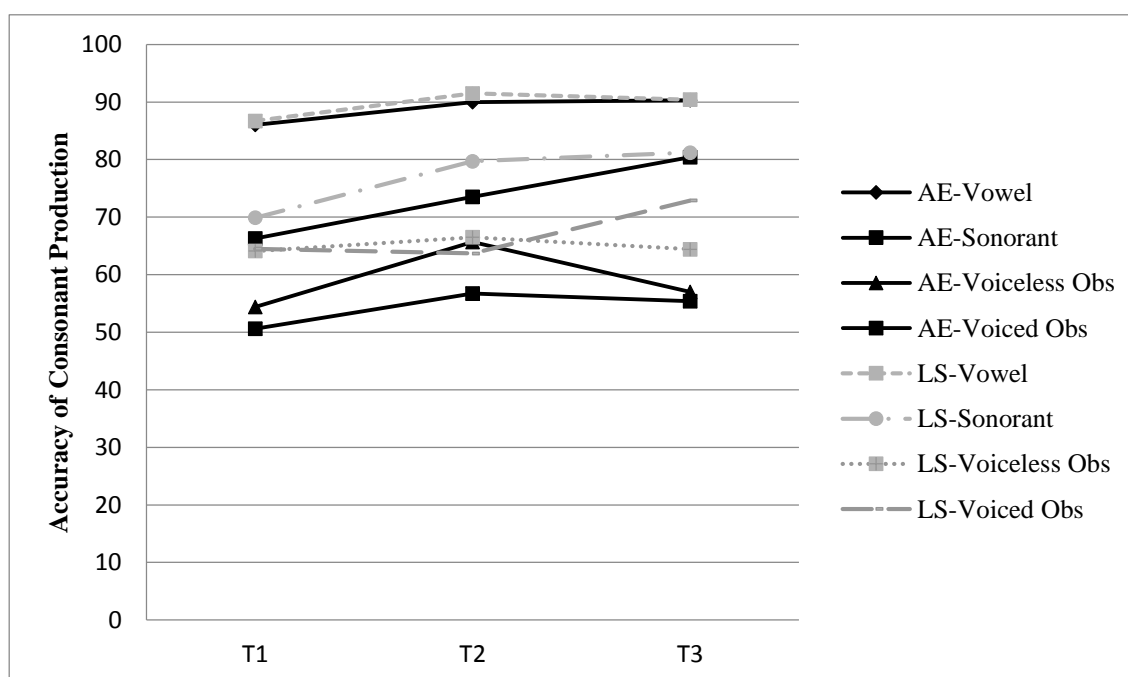
Similar to the previous variable regarding how the preceding environment conditioned a consonant, the environment proceeding a target consonant was also found to influence production accuracy. For instance, word-final consonants in the coda of ‘looks’ may be repaired because of the phoneme which proceeds this targeted cluster. In a case where a vowel proceeds the target consonants, in ‘looks at’, production may be eased for an English learner. However, when consonants proceed the target consonants in ‘looks trustworthy’, the phrase may be more difficult to produce due to adjacent consonant strings. Further, L1 phonological processes between word boundaries, sandhi, may have also influenced production. In this section, four proceeding environments are discussed:

- ‘vowel’, a vowel proceeded the target segment (e.g., ‘look at’);

- ‘voiceless obstruent’, a voiceless stop, fricative, or affricate /p, f, s/ followed the target consonant (e.g., ‘look **h**appy’);
- ‘voiced obstruent’, a voiced stop, fricative, or affricate /d, v, z/ preceded the target consonant (e.g., ‘look **d**own’);
- ‘sonorant’, a liquid or nasal /r, l, n/ followed adjacent to a target consonant (e.g., ‘look **l**ike’).

Graph 4.4 demonstrates the accuracy of the environment preceding target consonants for each cohort at each instructional intervals for all speech elicitation protocols.

Graph 4.4. The accuracy of production for the environment preceding a consonant for each cohort at each instructional interval for all speech elicitation protocols



Graph 4.4 shows three tendencies regarding accuracy of production. First, the environments in which a vowel preceded a target consonant(s) were associated with the

highest accuracy at each instructional interval. Conversely, the obstruent environments were correlated with low accuracy. These tendencies suggest that the obstruent environments were more challenging for the participants to produce accurately. Recall that the cohorts exhibited a similar pattern for the preceding environment in Graph 4.3. Again, we may hypothesize that language universals and a preference for simple syllables influenced these patterns in production for both cohorts. Second, the cohorts' production accuracy for the vowel and sonorant environments increased similarly between T1 and T2. However, regarding the obstruent environments, we can observe differences in production accuracy for the cohorts from T1 to T2. For instance, the AE cohort increased accuracy associated with the voiceless and voiced environments at T2, yet the LS cohort's voiceless and voiced obstruent lines flattened from T1 to T2. These rather surprising inconsistencies in the obstruent environments may have resulted from differences in instruction. That is, the AE instructor provided explicit articulation instruction and correction whereas the LS instructor did not. Third, both cohorts demonstrated some inconsistencies for at T3; there were increases and decreases in accuracy at the T3 interval. These patterns may have resulted from participant attrition between the T2 and T3 interval, from differences in the participants' amounts of English exposure, or from other social-psychological variables which are discussed more thoroughly in Chapter Seven. In general, both cohorts exhibited similar increases in production accuracy from T1 to T2, and we still continue to see accuracy inconsistencies at the T3 interval for the internal phonological variables.

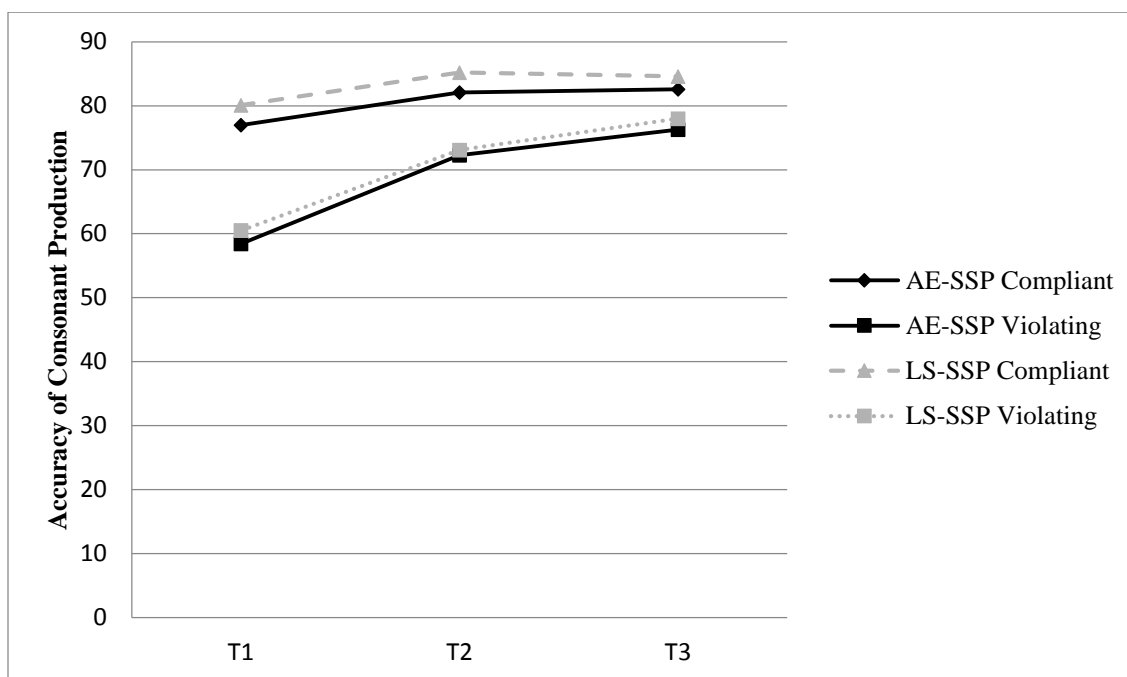
The fifth phonological variable examined in this study addressed the influence of sonority sequencing on production accuracy. That is, a syllable typically increases in



sonority initially in the onset. For example, given the initial consonant cluster /pl/ in ‘**p**lease’ the /p/ is non-sonorous while /l/ is more sonorous; this cluster complies with the SSP. In order to comply with the SSP, the consonant which is adjacent to the vowel should be the most sonorous of a consonant cluster. However, with ‘**s**pot’ the fricative /s/ is more sonorous than the stop /p/. Because the phonemes in the latter example move from sonorous /s/ to non-sonorous /p/, the onset consonant cluster is said to violate the SSP. Similarly, sonority should decrease in the coda. The consonant adjacent to a vowel in a coda cluster should be more sonorous than the other consonants of the cluster. For example, in ‘j**ump**’ the /mp/ cluster complies with the SSP because /m/ is more sonorous than /p/. On the other hand, ‘ch**ips**’ would violate the SSP since /p/ is less sonorous than /s/.

With this in mind, in this section the tokens were coded for complying with the SSP or violating the SSP. Graph 4.5 demonstrates the accuracy of production according to sonority sequencing for each cohort across all instructional intervals.

Graph 4.5. The accuracy of production according to sonority sequencing for each cohort for each speech protocol

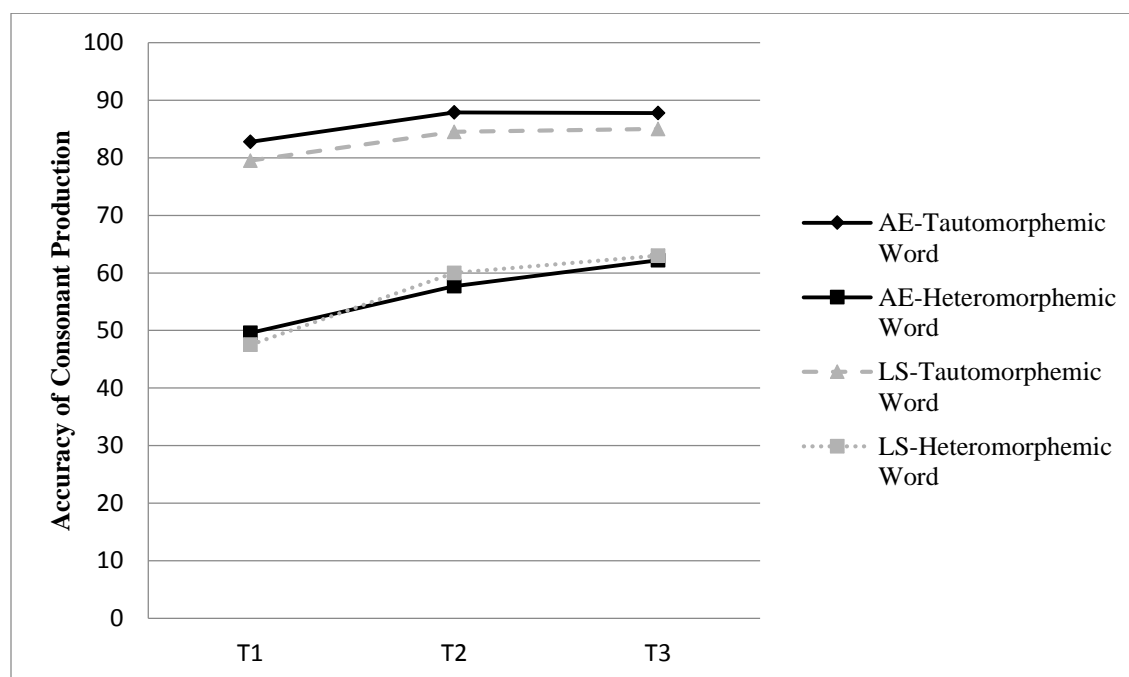


In Graph 4.5 there are some interesting patterns. It can be observed that both cohorts exhibited increased production between the T1 and T2 intervals for both SSP compliant and SSP violating sequences. The graph also exemplifies some instability at the T3 interval. Namely, at T3 the SSP compliant sequences flattened whereas the SSP violating sequences increased. Due to this instability at T3, we can suggest that the participants might not have had the same consistent English exposure at the T3 interval that they had at T2.

The last of the internal variables examined in this study addressed the influence of grammatical affixes (i.e., morphemes) which are added to words. Recall that the cohorts' production accuracy for both *heteromorphemic* words (e.g., 'cats') and *tautomorphemic* words (e.g., 'cat') were compared at each of the instructional intervals. Graph 4.6

illustrates the accuracy of production of tautomorphemic and heteromorphemic words at each instructional interval for all participants for all speech elicitation protocols.

Graph 4.6. The overall accuracy of tautomorphemic and heteromorphemic words at each instructional interval for all participants for all speech elicitation protocols



Graph 4.6 illustrates several patterns worth discussing. Overall the tautomorphemic words were produced with greater accuracy than heteromorphemic words. This tendency suggests that heteromorphemic words represented a challenge to ELLs. Furthermore, there was an improvement in production accuracy between T1 and T2 for both tautomorphemic and heteromorphemic words. However, again, this accuracy became less apparent at the T3 interval. In other words, the tautomorphemic word production decreased slightly in accuracy at T3. Thus, as we have observed in the previous graphs, we can also note some instability in the cohorts' production accuracy at T3 regarding the grammatical affixes added to a word.

In conclusion, this section has addressed whether the internal variables conditioned production accuracy for each cohort and whether there were differences in accuracy between the instructional intervals. The following findings were yielded by the analysis:

1. The position of a consonant within a word influenced production accuracy for both cohorts; onset consonants were produced more accurately than coda consonants across all instructional intervals.
2. The number of adjacent consonants influenced accuracy in a similar manner for both cohorts; singleton onset and coda consonants were produced more accurately than consonant clusters for all instructional intervals.
3. For the preceding and proceeding environments, vowel environments were produced with higher accuracy than obstruent environments for both cohorts across all instructional intervals. In addition, the AE pronunciation cohort exhibited a greater increase in production for the preceding and proceeding obstruent environments than the LS conversation cohort did.
4. The sequences which comply with the SSP were produced more accurately than those sequences which violate the SSP for both cohorts across all instructional intervals.
5. Tautomorphic words, words without grammatical affixes, were produced more accurately than words having grammatical affixes.
6. The production accuracy of both cohorts appeared to be conditioned by a preference to maintain a universal CV syllable structure.

7. There was improvement in accuracy for almost all variables between T1 and T2 intervals for both cohorts. However, there was destabilization with regard to accuracy at the T3 interval for each of the variables.

#### 4.2. The Examination of Production Accuracy Related to External Social Variables

In this section the results for research question two are presented: How did the seven external social variables manifest with regard to the participants' production accuracy:

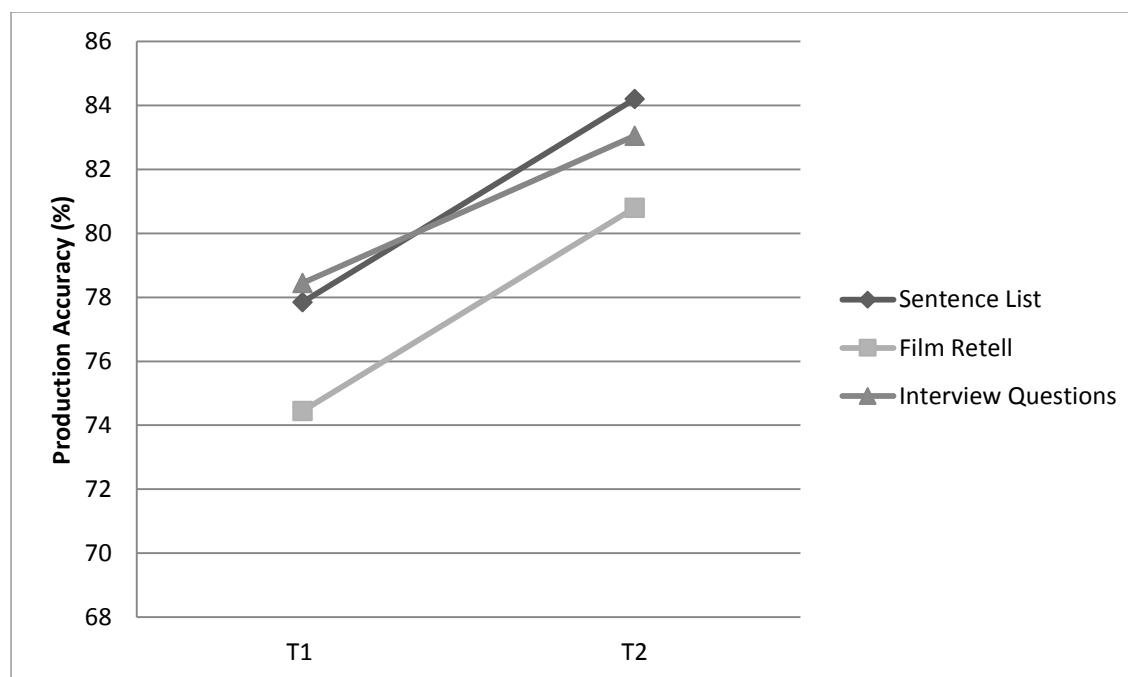
- formality of the speech elicitation protocol,
- native language,
- age of arrival in the United States,
- length of residency in the United States,
- English proficiency,
- level of education,
- and socioeconomic status.

To respond to this research question, the differences in production accuracy between the T1 and T2 intervals for each of the seven social variables were compared. Since the T3 interval showed destabilizing effects that may have been mediated by attrition or other extraneous factors, the external variable results focus exclusively on the differences in the participants' accuracy between the T1 and T2 intervals. The findings in this section are presented in graphs which illustrate how the independent social variable influenced the production accuracy for all participants at T1 and T2.

The first variable, the formality of the speech elicitation protocol is addressed. The data were collected in three speech protocols. In the most formal protocol, the participants read a sentence list containing 95 targeted words in a carrier sentence. Next, in a semi-informal speaking activity, the participants summarized a short film clip. In the final informal protocol, I asked the participants personal questions, such as, “What activities do you enjoy?” The data were coded for the three speech elicitation protocols: the sentence list, the film retell, and the personal interview questions.

Graph 4.7 shows the accuracy distribution according to the formality of the speech elicitation protocol for all participants at T1 and T2.

Graph 4.7. The pronunciation accuracy according to the formality of the speech elicitation protocol for all participants at T1 and T2

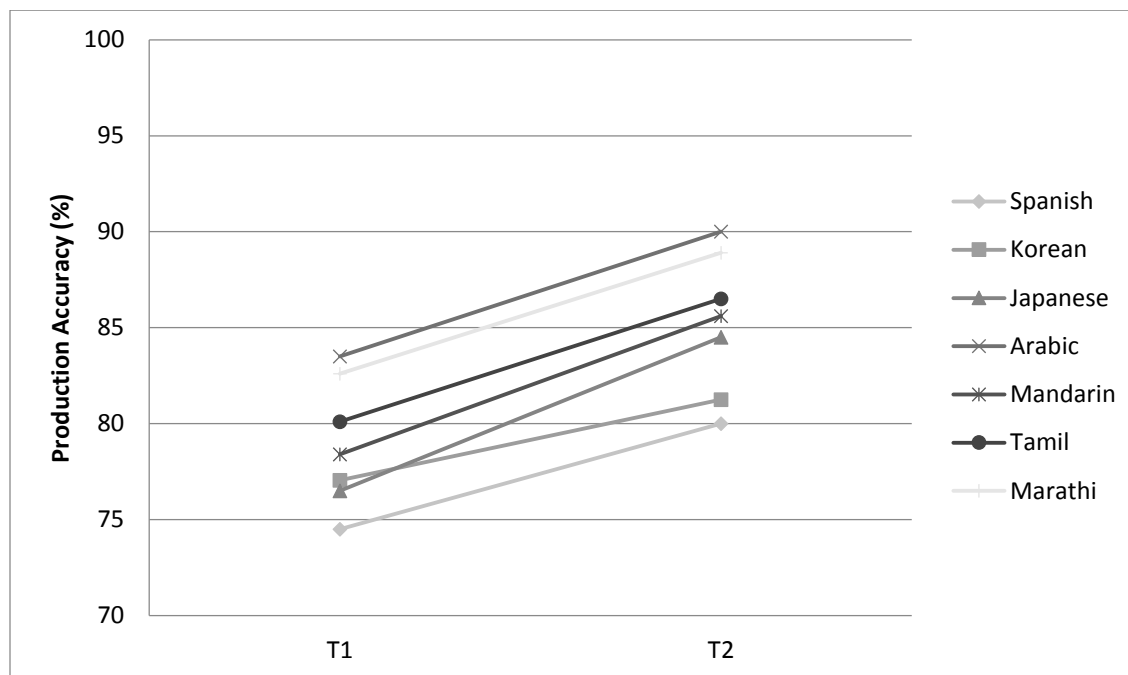


Graph 4.7 illustrates two interesting patterns for the production accuracy associated with the speech elicitation protocols for all participants from T1 to T2. For instance, at T1

it can be observed that accuracy was lower for all three protocols than those reflected at T2. Furthermore, of the three protocols, the sentence list and interview questions were associated with higher accuracy. The participants were able to focus on production while reading the sentence list. Additionally, the familiarity with the personal topics may have conditioned the higher accuracy for the interview protocol. However, for the film retell protocol, the participants were asked to summarize a film clip, an impersonal speaking task. Furthermore, the participants had to recall the film clip, construct meaningful utterances, and focus on production simultaneously leading to a more cognitively demanding task than the other two. As a result, this concentrated focus on both recollection and meaning may have contributed to a greater number of pronunciation repairs for the film retell and thus, less accuracy.

The next social variable discussed in this study was the native language of the participant. There were 13 native speakers of Spanish, six native Korean speakers, three native Japanese speakers, one speaker of Arabic, two native speakers of Mandarin Chinese, one native speaker of Tamil, and two native speakers of Marathi who participated in the study. Graph 4.8 illustrates the production accuracy according to the native language of the participant at T1 and T2 for all speech elicitation protocols.

Graph 4. 8. The pronunciation accuracy according to the native language of the participant at T1 and T2 for all speech elicitation protocols



From this graph two observations can be made regarding production accuracy according to the first language of the participant. First, there is an increase in production accuracy from T1 to T2 among all the participants in the study regardless of their L1. The native Arabic speaker demonstrated the highest production accuracy. Following that were the Marathi and Tamil speakers. The native Mandarin speakers were slightly less accurate. Second, the Japanese and Koreans had lower production accuracy. Also noticeable is the fact that, the native Spanish speakers were the least accurate in production.

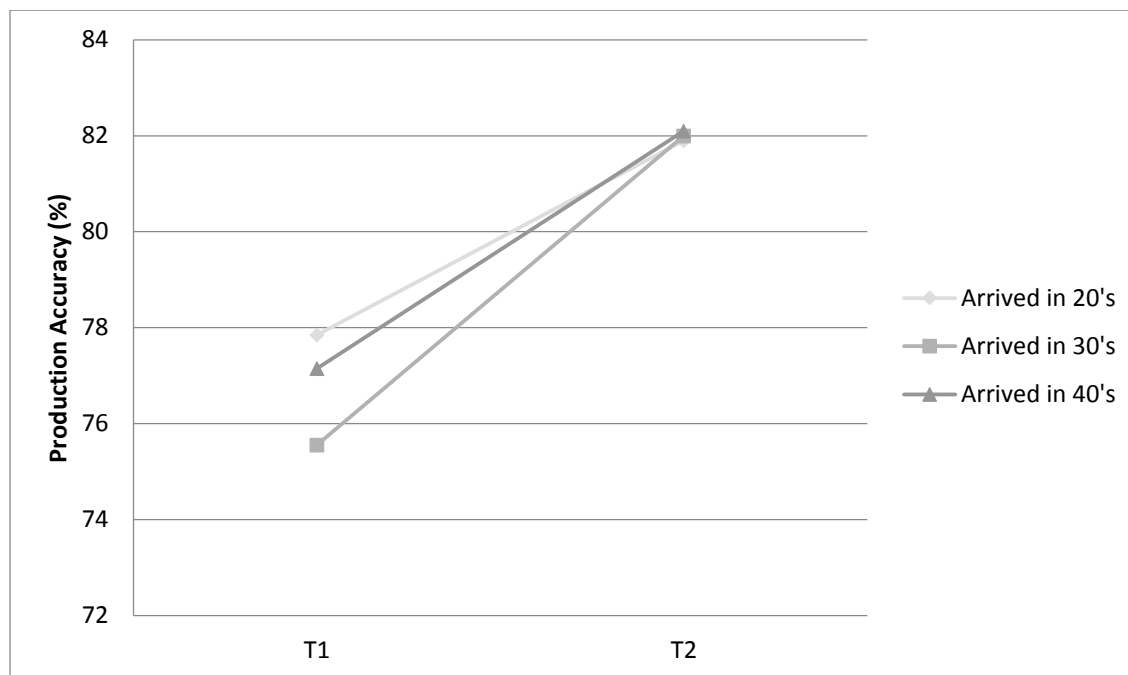
There are four variables which may have influenced the results of the participants' production accuracy related to their L1. First, we can suggest that the lower accuracy associated with the native Spanish and the native Korean speakers may have resulted from the inclusion of beginner participants in these two groups. Most of the participants



in this study were placed as intermediate or advanced English proficiency. However, there were beginning native Spanish speakers and beginning native Korean speakers who participated in the study as well. Second, L1 phonological transfer may have influenced the production accuracy. That is, those participants whose L1s exclusively permit simple syllables (i.e., CVC) may have employed a greater number of repair strategies than the participants whose L1s permit consonant clusters. Third, the speakers of Tamil and Marathi were born and raised in India. These participants may have had more English exposure in their home country than the other participants as English is one of several official languages in India. Finally, in the cases of the Tamil and Arabic groups, the L1 group was represented by one participant. Some of the findings for these speakers may be representative of the idiolect of the participant rather than a tendency of speakers of their particular L1.

The age of arrival of the participant was another social variable which was analyzed in the present study. The age of arrival for this study was considered the age at which the participants immigrated or arrived in the target culture. Graph 4.9 demonstrates the production accuracy according to the age of arrival of the participants at T1 and T2 for all speech elicitation protocols.

Graph 4.9. The accuracy of production according to age of arrival of the participant at T1 and T2 for all speech elicitation protocols

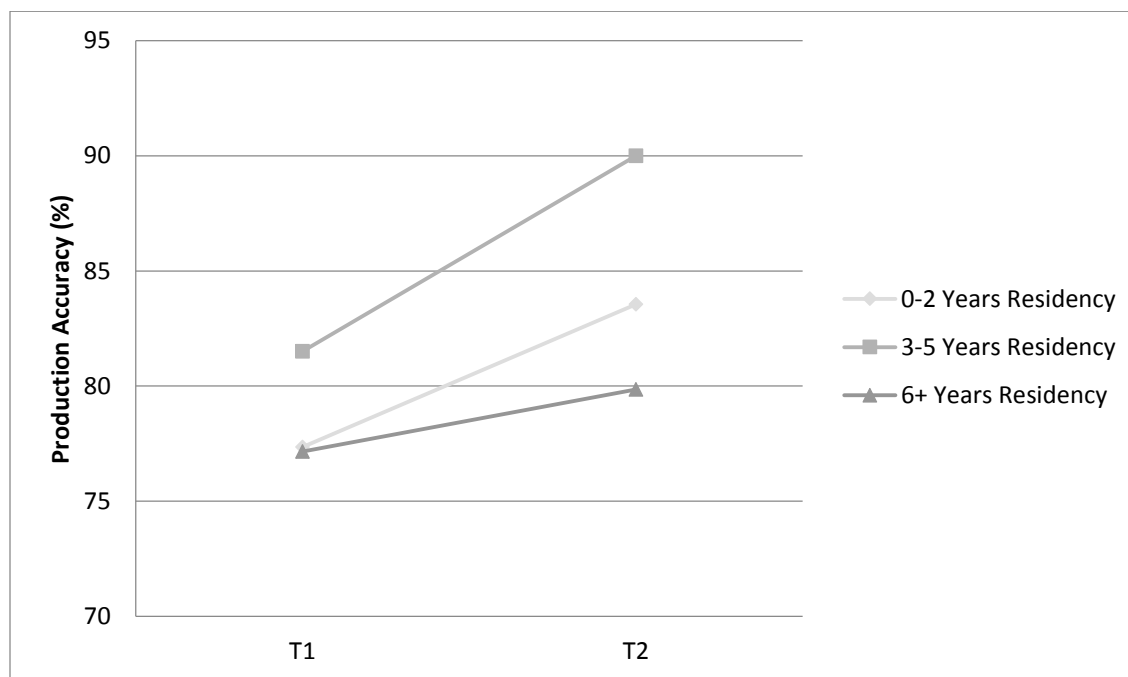


In Graph 4.9 we can note two patterns. First, there is improvement in accuracy among all age groups from T1 to T2. The most marked increase in production is attested in those who arrived in their 30s. Thus, it could be suggested that some sort of intervention or English exposure may have been more effective for the participants who arrived in their 30s than for the other two age categories. That is, it appears that other variables influenced or conflated to influence the T2 production accuracy results related to this variable.

The length of residence in the United States (US) of a participant was another variable which was analyzed for its influence on production accuracy. Accordingly, the variable was coded for three categories regarding the length of each participant's residence in the US: zero to two years residence, three to five years residence, and six or more years of residence in the target culture. Graph 4.10 illustrates the production

accuracy according to the length of residence in the US for all participants at T1 and T2 for all speech elicitation protocols.

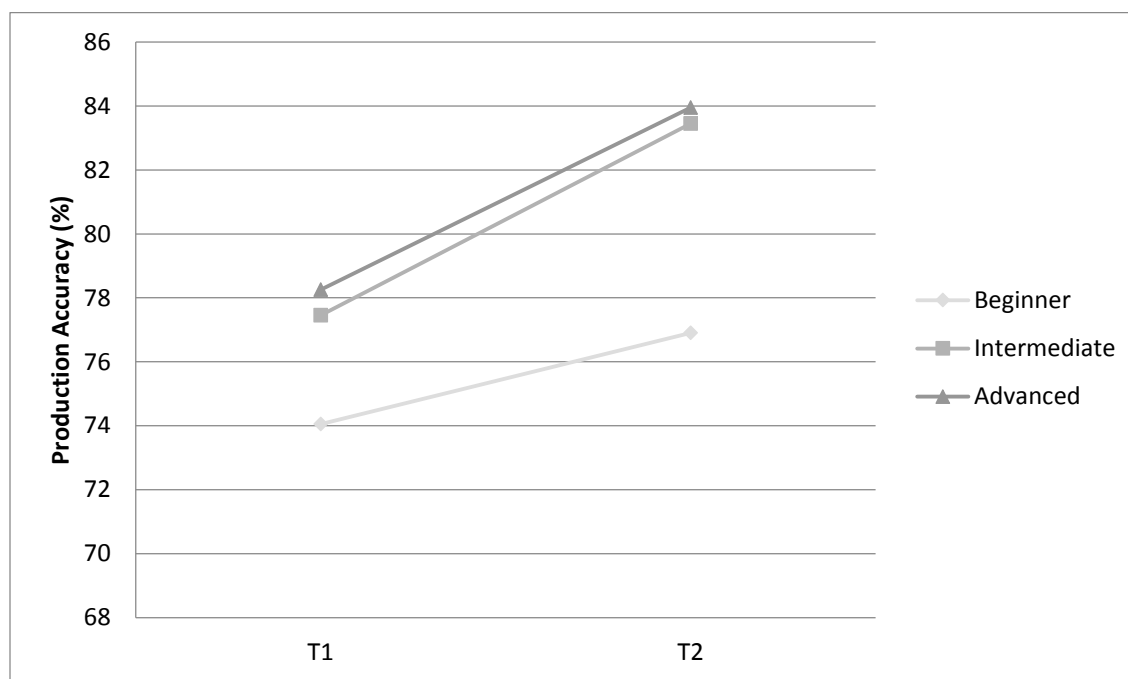
Graph 4.10. The production accuracy according to the length of residency in the US of the participant at T1 and T2 for all speech elicitation protocols



Graph 4.10 exemplifies improvement between T1 and T2 regardless of the participants' years of residency in the US. For instance, the learners who had been living in the US between 3-5 years exhibited the most improvement. This is a surprising finding since those participants living in the US for more than 6 years had a longer length of immersion in the target culture. One may predict that participants with longer exposure to a target culture would exhibit a more marked improvement. However, this variable does not take into account how frequently the participants spoke their L1, the years of English exposure prior to arrival in the US, and concerns related to *fossilized* speech patterns or habitual errors which they may have been in contact with or arrived with from their previous linguistic environment. These concerns are further detailed in Chapter Seven.

The next social variable addresses the production accuracy of the participants according to their English proficiency levels obtained from Atlantic College. This variable, similar to the previous variable, examined the participant's English proficiency level based on the college's placement and its correlation with production accuracy. Graph 4.11 demonstrates the accuracy of production according to the English proficiency levels for all participants at T1 and T2 for all speech elicitation protocols.

Graph 4.11. The accuracy of production according to the participant's English proficiency level at T1 and T2 for all speech elicitation protocols

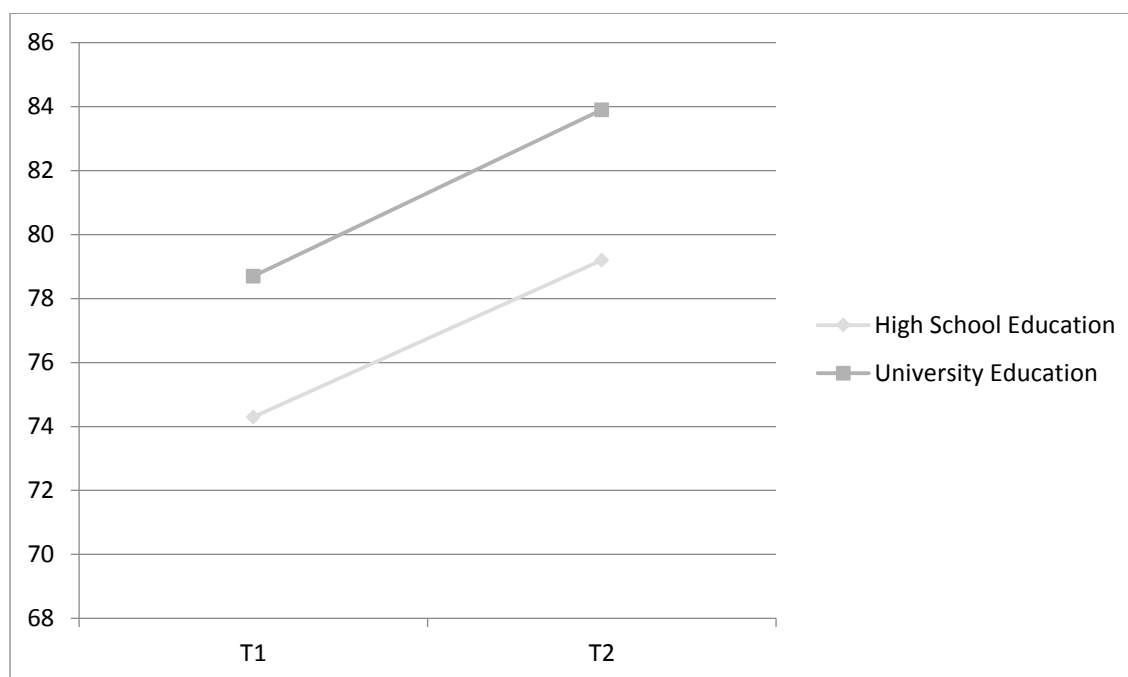


Graph 4.11 shows two patterns. First, consistent with the previous findings of this study, we find that production accuracy for all three proficiency groups improved from T1 to T2. Second, we can observe that the intermediate and advanced participants exhibited the highest increase in production accuracy between T1 and T2 whereas the beginners demonstrated the least increase. Thus, we may suggest that the beginners were

probably more sheltered in their L1s and had less exposure to English. As such, their improvement may have been mediated only by their classroom experiences.

The following social variable investigated was the highest level of education of the participants and its influence on production accuracy. Graph 4.12 demonstrates the accuracy patterns according to the highest level of education of the participant at T1 and T2 for all speech elicitation protocols.

Graph 4.12. The production accuracy according to highest level of education of each participant at T1 and T2 for all speech elicitation protocols



As seen in this graph, there were improvements in production accuracy for all participants from T1 to T2. We can see from the data that the university-educated participants exhibited higher accuracy than high school-educated participants. It appears that the differences in accuracy for the two groups might result from the years of formal schooling in their respective countries. That is, those participants who attended

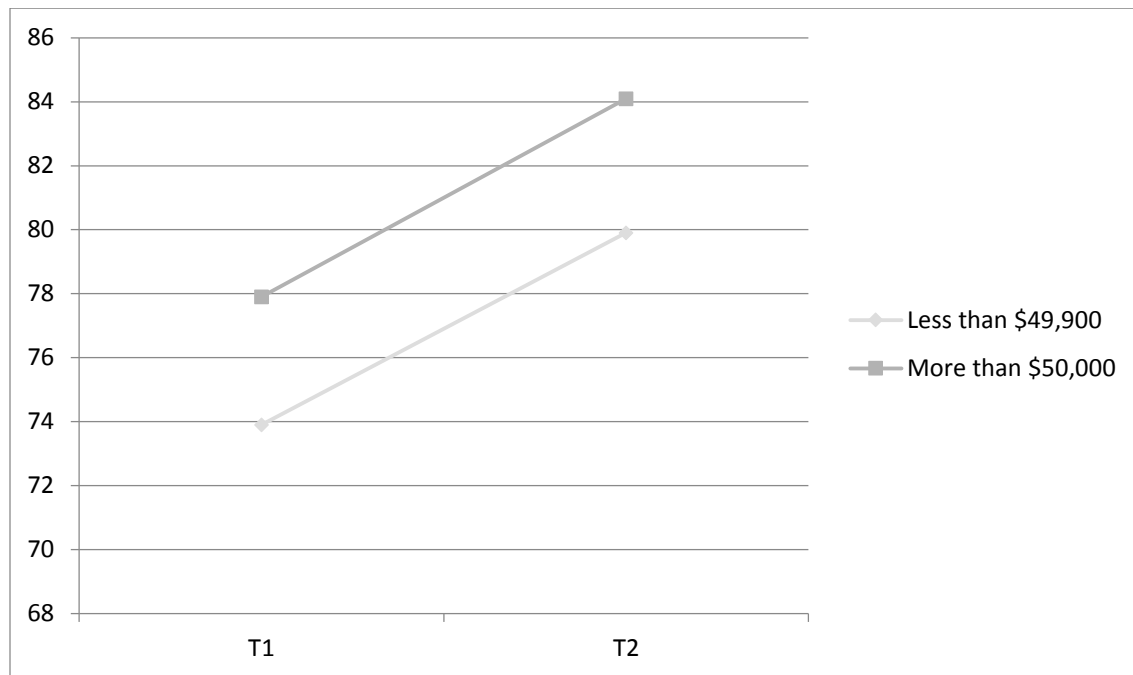
universities might have had more opportunities to take English courses at the tertiary level than the participants who completed their formal education in high school. In addition, the exposure to English and people with whom the participants typically communicated in both their home countries and the US could also influence these differences in production accuracy.

The final social variable investigated in this study was the influence of SES on the participants' production accuracy. The participants were asked their yearly household income during their initial T1 interview. For this independent variable, SES, the data have been categorized into two groups: less affluent, those households which earned less than \$49,900, and more affluent, those households which earned more than \$50,000. While there are other extraneous variables which may conflate to influence one's SES such as community of residence and type of English exposure (i.e., NES or NNS speakers, frequency of exposure), for the purposes of this study, the SES of the participants is defined between two yearly household income categories<sup>16</sup>. Graph 4.13 exemplifies the production accuracy according to SES for all participants at T1 and T2 for all speech elicitation protocols.

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<sup>16</sup> The household incomes of the participants were classified into two categories following Labov (1966) and Silva (2005). However, the categories were reduced from three to two in order to more accurately depict the findings in my study.

Graph 4.13. The production accuracy according to SES of the participant at T1 and T2 for all speech elicitation protocols



In Graph 4.13 we can observe increases in production accuracy from T1 to T2 for both SES groups. In addition, the participants who had household incomes which exceeded \$50,000 exhibited higher production accuracy. These findings are consistent with the hypothesis which suggests that the participants with a higher SES may have had more exposure to NES in their home countries, at their workplaces in the US, and in their neighborhoods and communities. That is to say, those participants who were more affluent in this study may have resided in communities where NES lived as well and therefore, had opportunities to speak English with NES interlocutors. However, the less affluent participants may have resided in communities where their L1 and fossilized non-native English were frequently spoken. Hence, these differences in English exposure may have influenced the participants' production for this variable.

In conclusion, this section addressed how the external variables conditioned production and whether there were changes in accuracy between T1 and T2. The main findings are summarized:

1. The formality of the speech elicitation protocol yielded higher accuracy for the reading list and interview protocols whereas the film clip retell was associated with lower accuracy.
2. The native language of the participant was correlated with differences in production accuracy.
3. The age of arrival was associated with higher accuracy for those participants who arrived in the US in their 20s.
4. The length of residency in the US yielded higher production accuracy for those participants who had resided in the US for three to five years.
5. The English proficiency level was correlated with higher production accuracy for intermediate and advanced learners.
6. The level of education reflected higher production accuracy for those participants who had attended a university.
7. Also, the SES was correlated with higher production accuracy among the more affluent participants.



## Chapter V. Qualitative Results

This chapter is devoted to the qualitative results regarding the emergence of the participants' intelligibility over the instructional intervals and how their exposure to English may have conditioned their intelligibility. As previously described in the research design, the data were collected using three protocols: a participant metalinguistic interview, NES and NNS raters' assessments of the participants' intelligibility, and my classroom observations of the AE pronunciation and LS conversation courses. The data were analyzed for patterns and themes to address the following questions:

3. How did the participants' intelligibility, evaluated by themselves and NES and NNS raters, change over the instructional intervals (i.e., pre-instructional (T1), initial post-instructional (T2), and delayed post-instructional (T3))?
4. How did the participants' English exposure in the form of classroom learning activities and outside of the classroom contribute to changes in the participants' pronunciation and intelligibility over the instructional intervals?

To address these research questions, the chapter is organized in four sections. First, the results that addressed the third research question, the participants' self-reported changes to their metalinguistic awareness and intelligibility at each instructional interval are presented. Following that section, the NES and NNS raters' assessments of the participants' intelligibility at each instructional interval are detailed. Next, the findings for research question four, how classroom learning activities contributed to the participants' production accuracy are described; in addition, the effect that English exposure outside of the classroom had on intelligibility is discussed.

### 5.1. The Participants' Self-Reports of Changes to Their English Intelligibility

In this section, research question three, how the participants' English intelligibility emerged over the three instructional intervals is discussed. In order to respond to this question the participants' self-reported transformations to their English intelligibility across the instructional intervals are reported. The reporting of these results are divided into two sections:

- three case studies in which the participants self-reported transformations in their English speaking and comprehension over time,
- three case studies in which the participants did *not* perceive growth in their English intelligibility over the three instructional intervals.

Thus, the results in this section are presented through in-depth examinations of six participant case studies to describe the variability in each specific case. The selection of six participants for the detailed case examinations was based on several criteria. The participants had completed metalinguistic awareness interviews with me at all three instructional intervals and represented the linguistic and social diversity of the population.

#### 5.1.1. The participants' self-reported progress to their English intelligibility across the instructional intervals

In this section excerpts from the metalinguistic interviews of the three participant cases who self-reported that transformations had occurred to their English oral proficiency are examined. First, Marco was a native Spanish speaker enrolled in the AE

pronunciation course. He completed high school in his home country; however, he reported having little exposure to English prior to his arrival in the US. At the time of data collection, Marco was in his 40s and had resided in the US for 14 years with his wife and school-aged children. Marco was employed outside of the home; his household income was considered less affluent - less than \$49,900 a year. He was placed at the intermediate proficiency level by the specialists at the college placement center.

The second case, Kyoko was an intermediate native Japanese speaker enrolled in the AE pronunciation course. She was in her 30s and had resided in the US for a year at the time of data collection with her husband and two elementary-aged children. She earned a university degree in music and studied English for 10 years in her home country. Furthermore, she did not work outside the home in the US. Her family was considered more affluent. That is, her household income exceeded \$50,000 a year.

The last case, Flor was an intermediate native Spanish speaker enrolled in the LS conversation course. Similar to Marco, she had graduated from high school and did not have exposure to English in her home country. Flor had been living in the United States for 28 years at the time of data collection and did not have a job. She was in her 50s and had adult children living outside of her home. Her siblings and parents also resided in the metropolitan area. Flor's household was categorized in the less affluent category.

During the T1 metalinguistic interviews these three participants were asked the following questions (Appendix E).

- What are your goals for learning English?
- Do you feel that Americans can understand you when you speak English?

- Can you understand Americans when they speak to you?
- What areas of English pronunciation do you find difficult?
- Are there situations where you do not like to use English?

In each of the following excerpts, Marco, Kyoko, and Flor described their goals for oral communication in English and their ability to communicate in English at T1. The participants' complete responses to these five questions are amalgamated into one excerpt.

Marco: *My English, I want to speak more clearly. Sometimes Americans don't understand me, so then I repeat and explain. Yeah, mostly I understand Americans.*

In this T1 excerpt Marco demonstrated some concerns related to his English intelligibility. He reported that he would like to increase his intelligibility at T1. Furthermore, Marco felt that English speaking interlocutors on occasion did not comprehend him. However, he was usually able to comprehend native English speaking interlocutors. Therefore, based on Marco's excerpt, he encountered occasional instances of unintelligibility in English.

Kyoko: *First goal - attend school conferences without my husband. I want to talk my children's teachers. Now my daughter translates. My grammar is so-so, but I can't speak English. 'R' and 'l' is very difficult to say. I can understand sometimes Shoprite<sup>17</sup> people speak to me. I feel nervous.*

From the excerpt, Kyoko had concerns related to her oral communication skills at T1. For example, Kyoko relied on her husband or her daughter to interpret at her children's school. In addition, Kyoko noted that she did not always understand English speakers at the supermarket. Thus, it appears that Kyoko was dependent on bilingual

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<sup>17</sup> A local supermarket chain.

family members in order to communicate in some social settings. She described /r/ and /l/ as challenging phonemes to produce perhaps hampering her intelligibility. She also noted that she occasionally experienced emotional discomfort when speaking English. In essence, at T1 Kyoko seemed to be isolated in US society. Namely, she needed assistance to participate in social situations in English especially at her children's school. Kyoko's concerns related to her English intelligibility exemplified a need to improve both her English speaking and comprehension in order to participate more fully and independently in the community.

*Flor: I want better life in US. I don't like speak English. American understand me sometimes. Pronunciation is not difficult. I understand Americans.*

At T1 Flor's excerpt points to a few concerns regarding her English intelligibility. Flor appeared to be constrained by her English oral proficiency. For example, she reported that English speaking interlocutors found her unintelligible on occasion. Therefore, Flor might not be able to participate as independently or as comfortably in her community as she would like because of her English intelligibility. Despite her intelligibility concerns, she did not note any specific pronunciation difficulty at T1. Also, Flor appeared to be able to comprehend English speaking interlocutors at the T1 interval. Hence, it appears that Flor like Kyoko, may have felt isolated in US society due to occasional miscommunication or difficulty speaking with English-speaking interlocutors.

In short, at the T1 interval, Marco, Kyoko, and Flor noted concerns relating to their English oral proficiency and cited a desire to improve their intelligibility. However, their cases differed slightly. Marco appeared to be reasonably comfortable using English despite occasional miscommunication with interlocutors. That is, he did not report

concerns of emotional discomfort or specific domains in which he felt isolated. In contrast, Kyoko and Flor were not able participate as easily in society as they desired. Namely, Kyoko reported discomfort using English while Flor noted that she did not like to speak English. At T1 these three participants appeared to realize the importance of improving their English oral communication skills in order to participate more easily and fully in society; however, their histories illustrated variability among the cases.

At T2 these same three participants were asked whether they were better able to communicate in English after completing their oral communication course. During the metalinguistic interview the participants were asked questions regarding their English intelligibility similar to the previous T1 interview (Appendix E).

- Do you feel your pronunciation has changed from your participation in the course?
- Do you feel you can better understand Americans now?
- What areas of English pronunciation do you find difficult?

Each of the participants described some positive changes related to their English oral communication skills at T2. Their complete responses to the aforementioned questions are presented in each excerpt.

*Marco: My speaking changed. The sounds is more clear now. The 'j' and 'y' is difficult for me. And I learned new words. Yeah, I can understand Americans more.*

In this excerpt, Marco noted improvement in his oral communication skills. He reported an increased ability to produce words accurately. In particular, he became aware that the English /j/ and /dʒ/ phonemes might hamper his English intelligibility. This observation exemplifies an increase in his metalinguistic awareness at the T2 interval as

he did not note difficulties with phonemes at T1. Marco also revealed that his understanding of English speaking interlocutors had improved at the T2 interval. Thus, Marco felt both his English speaking and listening skills improved during the T1 to T2 interval. These transformations to his oral proficiency may be suggestive of the influence of classroom activities or Marco's exposure to English outside of the classroom.

*Kyoko: Maybe pronunciation changed but I can't listen to me. I think 'r', 'l', 'th' is difficult. I understand Americans if they speak slowly. I understand my children ESL teacher at conference now. I do not understand ESL teacher last year. When my husband is on business trips, I am sometimes lonely. I cannot do things here myself, so I need his help.*

In this T2 excerpt, Kyoko described mixed findings related to her oral communication skills. For example, Kyoko expressed uncertainty as to whether her pronunciation changed at T2. As such, she explained the difficulty of rating her own pronunciation. Kyoko's focus on creating appropriate meaning and syntactical structures while speaking may be the reason for her uncertainty regarding changes to her English intelligibility. In addition, Kyoko's metalinguistic awareness of challenging phonemes was heightened at this interval in that she cited 'th' (i.e., /ð, θ/) as being difficult to produce. Therefore, she may have been alerted to production difficulty or unintelligibility in her pronunciation between the T1 to T2 instructional intervals. Kyoko also noted that her ability to understand English speaking interlocutors had improved. She provided a brief anecdote on how she noted a difference in her comprehension of her children's ESL teacher. Finally, Kyoko continued to feel isolated in US society; she relied on her husband to translate. In sum, from Kyoko's excerpt, we see that her metalinguistic awareness and English comprehension had improved at the T2 interval; however, despite these transformations, she continued to feel isolated in the US.

Flor: *Speaking is better, a little. Listening is much better for me. Now when I go somewhere for the public office I think they understand what I talking about. I don't need translator. Last week I go, I go to the office, the public office. I talk with the one lady, and she speak English. I speak nothing Spanish. We talking for maybe a hour because I having problem. And the lady understand me everything.*

Flor's excerpt demonstrates improvement in her English oral communication skills. From this excerpt it can be noted that Flor's English is marked with fossilized English. Her anecdote is suggestive of how she had reached intelligible English at T2, and she was able to interact in the community without an interpreter. Thus, Flor may have been conservative in her self-reporting of the changes to her English intelligibility at T2 because she communicated effectively in English for an hour. Additionally, it seems that Flor had a transformation in her participation in society at this interval. That is, she appeared isolated at T1; however, at T2 she was able to participate in a conversation at a public office without translation. She also noted that it was easier to understand English speaking interlocutors at T2. This revelation was interesting because Flor did not cite difficulty comprehending English speakers at T1. Therefore, she might not have been aware of comprehension issues at T1; she appears to have gained some awareness of her comprehension at the T2 interval. Based on Flor's excerpt at T2, we can see that she had some transformations to her oral communication skills, metalinguistic awareness, and her participation in US society.

To recapitulate, at T2 it was observed that the three participants exhibited heightened metalinguistic awareness. That is, Marco and Kyoko who were enrolled in the AE pronunciation course noted challenging English phonemes which could hamper their intelligibility, yet neither discussed these challenges at T1. Furthermore, at T2 Flor, a LS participant, reported that her comprehension of English speakers had improved; however,



she did not report difficulty in her English comprehension at T1. Therefore, it can be posited that these metalinguistic changes may have resulted from lessons and classroom activities which were specific to each of the two oral communication courses.

The three participants also self-reported transformations to their oral proficiency at T2. First, Marco was the most self-assured of the three in describing his improvement. Second, Flor was hesitant to note improvement to her intelligibility, yet she shared an anecdote which illustrated improvement to her comprehension and intelligibility. Therefore, she indirectly reported a transformation to her oral proficiency and confirmed that she was also better able to participate in the community at T2. Third, Kyoko described an anecdote which demonstrated an improvement in her comprehension. However, Kyoko remained isolated in society because she continued to need translation assistance in order to participate in mainstream society.

At T3, the participants were asked whether they had observed changes in their oral communication skills during the metalinguistic interview. These questions were yes/no and open-ended (Appendix E).

- What is different about your speaking now?
- Do you feel you can better understand Americans now?
- What areas of English pronunciation do you find difficult?

In the following excerpts the participants' responses to all three questions regarding changes to their oral communication skills at the T3 interval are presented.

Marco: *Speaking improve for me. People understand me. I understand Americans. It takes a long time; it's very difficult. Especially because we are not children anymore, we are adults. People have to try to understand when we speak – what we say. But is good*

*when Americans go to another country, then they understand how difficult it is for us when we speak (S3, T3, 11/25/13).*

In this excerpt Marco reported that his oral communication skills had improved at the T3 interval. That is, Marco noted improvement in his intelligibility when speaking to NES interlocutors and in his ability to comprehend NES interlocutors as well. He also acknowledged the difficulty of acquiring a L2 as an adult and that successful communication is the responsibility of both parties in a conversation. We can suggest that Marco not only improved his oral communication skills from T1 to T3; he also increased his metalinguistic awareness and gained insight into effective communication while issuing a response that looked critically at how Americans should empathize with ELLs. Furthermore, Marco's self-reported increase in his intelligibility substantiated the quantitative increases in production accuracy that we observed in Chapter Four.

*Kyoko: It is easy to understand for listening. I improve listening. Speaking is difficult, I changed a little. It is important I use English, I want to use and speak my friends. A lot of using is best. We studied in Japan for six years and more, but I don't use, so we don't improve. Important things is communicate. My husband help me sometimes.*

In this excerpt Kyoko reported some improvement in her oral proficiency. First, Kyoko seemed more certain of her ability to comprehend English speakers at T3 than she was at T2. Additionally, she may have noted slight improvement related to her speaking ability and intelligibility; however, she might be demonstrating caution and modesty in self-reporting improvement<sup>18</sup>. She also added that interaction was a necessary part of the language acquisition process in order to improve her speaking ability. Kyoko then illustrated her point by recounting her English experience in Japan during which her

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<sup>18</sup> Personality and cultural behavior fall outside the scope of the study. However, these variables might influence how the participants responded to the questions. For example, Japanese tend to favor self-deprecating rather than self-assertive behavior (Runswick, 1993).

speaking ability did not improve because of a lack of oral practice. At T3 Kyoko also continued to feel isolated in society since she needed her husband to translate for her, yet she appeared to understand the importance of continuing to practice interacting with others in English in order to improve her language skills. Finally, Kyoko's self-reported slight improvement in her production corroborates the increases in accuracy reported in the quantitative results.

*Flor: Speaking and listening is better now, I try you know. I talk to the people at the public office.*

At T3 Flor described changes in her oral communication skills. While she may have expressed some ambivalence before at T2, she now appeared more certain of an improvement in her intelligibility. That is, she reported with more confidence that both speaking and listening were better at the T3 interval. Furthermore, she revealed that she had been using English in the community (i.e., the public office). This transformation in her use of English in the community suggests that she might have felt less isolated in society. Hence, we can surmise that through Flor's efforts to use English, she noted transformations in her English speaking and comprehension skills at the T3 interval. As observed for both Marco and Kyoko, this self-reported improvement in production echoes the quantitative findings.

In sum, the participants demonstrated two transformations across the instructional intervals. First, all three participants reported improvements to their oral proficiency. In particular, Kyoko and Flor were more certain of improvement to their intelligibility at T3. Second, the participants reported increased metalinguistic awareness which appeared to be influenced by their instructional cohort.

It was also noted that there was variability between the cases relating to their participation in society. We observed that Marco did not note specific patterns or difficulties using English other than occasional misunderstandings. Flor reported using English in the community at T2 and T3; she seemed to be less isolated at these post-instructional intervals. Finally, Kyoko realized the importance of practicing speaking, but she still appeared to be isolated in her home culture. That is to say, because she relied on her husband for translation, she did not report participating independently in society at any of the instructional intervals.

Finally, in this section we observed that the participants' self-reported changes to their intelligibility substantiated the increase in production accuracy revealed in the quantitative results. In the quantitative results, both the AE cohort and the LS cohort exhibited increased production accuracy from T1 to T2 while the accuracy at T3 destabilized. Similarly, the participants self-reported there was improvement in their intelligibility from the pre-instructional (i.e., T1) to the post-instructional intervals (i.e., T2 and T3).

#### 5.1.2. The participants' self-reported absence of perceived growth in English communication skills across the instructional intervals

In this section we examine the cases of three participants who did not perceive changes in their English speaking and listening skills over the three instructional intervals. The first case, Chizu, was an advanced native Japanese speaker who was in her 30s. She had resided in the US for four months with her husband at the time of data

collection. She had a Master's Degree in Chemistry and was eager to find a job in her field in the US. Chizu had studied English for 10 years in her home country; however, she felt her lack of English oral proficiency barred her from work in America. As such, she enrolled in the AE pronunciation course upon the recommendation of the testing specialists at the college. Her family was more considered more affluent since her household income exceeded \$50,000 a year.

Second, Hyuna, an advanced native Korean speaker, was enrolled in the LS conversation course. Hyuna had a master's degree in Japanese and had studied English for 10 years in her home country. She previously taught Korean to Korean and Korean-American children in the US, but she was not teaching during the data collection period. Hyuna was in her 50s and had resided in the US for 10 years. At the time of data collection she lived with her husband and her mother. She also had an adult son who lived outside of her home. Her household income categorized as more affluent in this study.

Finally, Zainab was a native speaker of Arabic enrolled in the LS conversation course. She had resided in the US for four years with her husband and four children. She earned a doctoral degree and studied English for six years in her home country; however, she was not employed in the US. Zainab was in her 40s and her family was more affluent. She was placed at the advanced level of English proficiency by the college testing specialists.

During the T1 metalinguistic interview the participants were asked the same questions regarding their English oral communication skills as mentioned in the previous section (Appendix E). These questions were:

- What are your goals for learning English?
- Do you feel that Americans can understand you when you speak English?
- Can you understand Americans when they speak to you?
- What areas of English pronunciation do you find difficult?
- Are there situations where you do not like to use English?

In the following excerpts the three participants described their metalinguistic awareness at T1. Furthermore, they described their goals regarding their ability to communicate orally in English. Each participant's complete responses to all five questions are presented in the following excerpts.

Chizu: *I want fluent, accurate speaking in English. I want to work in America, but I do not think American understand my English. I must improve my speaking. Sound 'r' and 'l' are most difficult for me. Sometimes I understand Americans. Depends.*

In this excerpt Chizu expressed concerns with her English oral communication skills. For instance, she reported an awareness of her intelligibility and attributed her English speaking concerns to a lack of production accuracy with the phonemes /r, l/. As a result, she felt that she could not find a job in the US. Therefore, she might have felt isolated in US society. In addition, she perceived that she did not always comprehend English speakers. From this excerpt we can see that Chizu's goal was to improve her English oral proficiency in order to participate more fully in US society.

Hyuna: *Speak more clearly in English. I want to take classes in university. I have problem with English sound. I don't think my English is good. I lived here for 10 years.*

*My husband and son normally translate for me if I'm not comfortable. Most of time I understand American.*

Hyuna's concern with her English oral communication skills was her intelligibility and production accuracy. In the excerpt Hyuna explained that she had resided in the United States for many years and had a goal of enrolling in university courses. However, she considered her English to be inferior to her expectations. In particular, she cited that her production accuracy hampered her intelligibility. Furthermore, Hyuna was dependent on her family to translate in some instances. Therefore, we can assume that may she have felt isolated in her home culture; she was not able to fully participate in US society as she would have liked. Finally, it can be seen that Hyuna was able to understand Americans. Based on Hyuna's excerpt, her goal was to improve her English pronunciation in order to use English more freely and independently in society.

*Zainab: I'd like to speak more fluently. My problem is I don't use English enough. I've been here four years. One year I did very little English, I forgot a lot in that year. I can understand Americans better than they understand me. But I don't understand idiom, this is more important than English sounds. I don't think there is a problem with sounds.*

Zainab had some concerns with her English oral skills. From the excerpt we can extrapolate that Zainab did not feel that her English was always intelligible to English speakers. She associated her unintelligibility with a lack of practice and a lack of familiarity with English expressions rather than with her pronunciation. Despite her occasional intelligibility issues, she reported that she was able to comprehend English speakers. Finally, she did not note concerns relating to emotional discomfort or feeling isolated in the US.

From these excerpts it can be surmised that Chizu, Hyuna, and Zainab wished to improve their speaking/pronunciation at the T1 interval. However, the participants' cases varied in their participation in society. Similar to Marco's case, Zainab did not report concerns related to her participation in society. However, Chizu and Hyuna revealed that they lacked the independence which they desired in the US. Namely, there were domains in which they could not participate due to their intelligibility issues. Furthermore, Hyuna's family members translated for her which isolated her participation in society. Thus, it can be noted that the participants' cases exemplified diversity in their histories at T1.

At T2 the participants were asked similar questions in their metalinguistic interview (Appendix E).

- Do you feel your pronunciation has changed from your participation in the course?
- Do you feel you can better understand Americans now?
- What areas of English pronunciation do you find difficult?

In the following three excerpts the participants responded to all three questions regarding how their English speaking remained largely unchanged at the T2 instructional interval.

*Chizu: English pronunciation is difficult for me because Japanese end all vowels. Vowels are simple sound. My speaking is not good. Problems for me are r, l sound. I practice these sound. Maybe pronunciation changed, but I don't think so. Sometimes I cannot understand Americans, so I do not think I can get job in America.*

*Hyuna: I don't think I changed much in this course. It is hard to change my poor habit pronunciation. My problem is when I speak English fast. But when I speak slowly, people can understand. I don't like to speak slowly because I can speak fast in Korean. I don't*



*like to slow down. Most Americans do not understand us. I think I can understand Americans.*

*Zainab: Changed maybe a little. I don't notice difference. People will correct me. People are more friendly at the East, there are people with patience. If I make mistake they will repeat word, and that is helpful. They are used to foreigners here. They try to understand me and help me learn. My problem is I don't understand vocabulary of Americans. I need to practice more.*

In the excerpts at T2 Chizu, Hyuna, and Zainab did not perceive change in their oral communication skills. These three participants reported that they encountered instances in which their English was not intelligible to interlocutors. Since these three participants were placed at the advanced level, they might not have demonstrated as marked an improvement at the T2 interval as the three intermediate participants discussed in the previous section. That is, the intermediate participants had more potential for improvement because they were not as proficient as the advanced participants. Moreover, these advanced participants may have had high expectations such as near-native speaking ability as their desired goal, and thereby felt that they did not achieve this goal. In particular, Chizu and Hyuna felt that their English intelligibility was inferior or fell below their expectations at the T2 interval. For instance, Chizu and Hyuna maintained that they were not able to participate in society as independently as they desired. Conversely, in Zainab's excerpt, she described some instances of using intelligible English with interlocutors in the community. Namely, she was aware that she made errors, but she also noted that her interlocutors understood her and corrected her. She appeared to be comfortable with her intelligibility at the T2 interval. Moreover, Zainab did not report

examples of feeling isolated in society at the T2 interval. Therefore, we can observe that while the three participants did not report progress at the T2 interval, there was variability between the three cases.

Interestingly, these excerpts also illustrated an increase in the metalinguistic awareness of the participants at the T2 intervals. For example, Chizu who was enrolled in the AE pronunciation course explained concerns regarding the differences in English and Japanese syllable structure. Also, Hyuna and Zainab, both of whom were enrolled in Let's Speak, reported a greater awareness of their intelligibility at T2. A similar pattern emerged among the three intermediate participants in the previous section as well. Therefore, these findings appear to substantiate that the lessons and classroom activities employed in each oral communication course influenced the increases in the metalinguistic awareness of these six participants.

At T3 the participants were asked similar questions (Appendix E).

- What is different about your speaking now?
- Do you feel you can better understand Americans now?
- What areas of English pronunciation do you find difficult?

At this interval the three advanced participants did not express any noticeable changes related to their oral communication skills. The following three excerpts characterize their 'no change' status or no improvement in pronunciation at T3.

Chizu: *I don't think my English changed. My English is poor. I think that working in US is good to practice English. My friend recommends me to work in Japanese restaurant to practice my English skills. I did not decide, but I want to work to practice my English.*

Hyuna: *I can't speak English. I can't get job here because of my poor English. I can only get job in my community not in regular community. My goal this year is practice English then I want to be volunteer. I need help learning, I don't want to ask my husband.*

Zainab: *Maybe I didn't change. I am always surprised people do not understand 'p' or 'b' when I speak. I think it doesn't make a difference to understand<sup>19</sup>. I don't think it's that difficult to understand Arabic speakers. I will volunteer in January to use English more. Yes, sometimes it is difficult to understand American.*

In these T3 excerpts the participants did not feel that their English intelligibility nor their comprehension changed. However, despite their self-reported lack of improvement, Chizu, Hyuna, and Zainab increased their metalinguistic awareness over the instructional intervals. We saw that Chizu, a participant who was enrolled in the AE course noted phonological concerns related to accurate segmental production whereas Hyuna and Zainab, who were enrolled in LS, discussed concerns related to their general intelligibility. It should also be noted that Zainab appeared to be aware that /p, b/ might be difficult segments for Arabic speakers; however, she did not associate these phonemes as influencing her English intelligibility.

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<sup>19</sup> This particular statement is of interest to the discussion of metalinguistic awareness. In my fourth and final observation of LS, I noted an instance in which Zainab discussed 'people' /bibəl/ with her discussion group. Her classmate, a native Polish speaker, misunderstood this utterance as 'Bible'. Thus, despite this miscommunication, Zainab did not associate her production of /p, b/ as hampering her intelligibility with her classmates.

In addition, there was variation in the participants' integration in US society at the T3 interval. Both Chizu and Zainab described plans of getting a job which precluded that their English was intelligible. In particular, this was a transformation for Chizu who felt her lack of oral proficiency barred her from employment at T1 and T2. By contrast, Hyuna also indicated that she would like a volunteer job, but she would have to improve her English and gain some independence from having her family translate for her in order to do so.

These findings self-reported by Chizu, Hyuna, and Zainab substantiated the quantitative results. That is to say, while we noted increases in production accuracy from the T1 to the T2 and T3 intervals, the participants' did not exhibit 100% accurate production at any interval. Therefore, the advanced participants may represent participants who did not improve in their production accuracy between pre- and post-instructional intervals. Their self-evaluations may also be influenced by personal goals, social-psychological concerns, or cultural conditioning which may hinder their reporting of improved intelligibility at the T2 and T3 intervals.

In sum, the participants' self-reported metalinguistic awareness emerged over the instructional intervals as follows.

1. The self-reporting was mediated by the participants' perspective about 'change'.

Several participants reported change and determined areas of improvement while other participants reported no change yet increased their metalinguistic awareness.

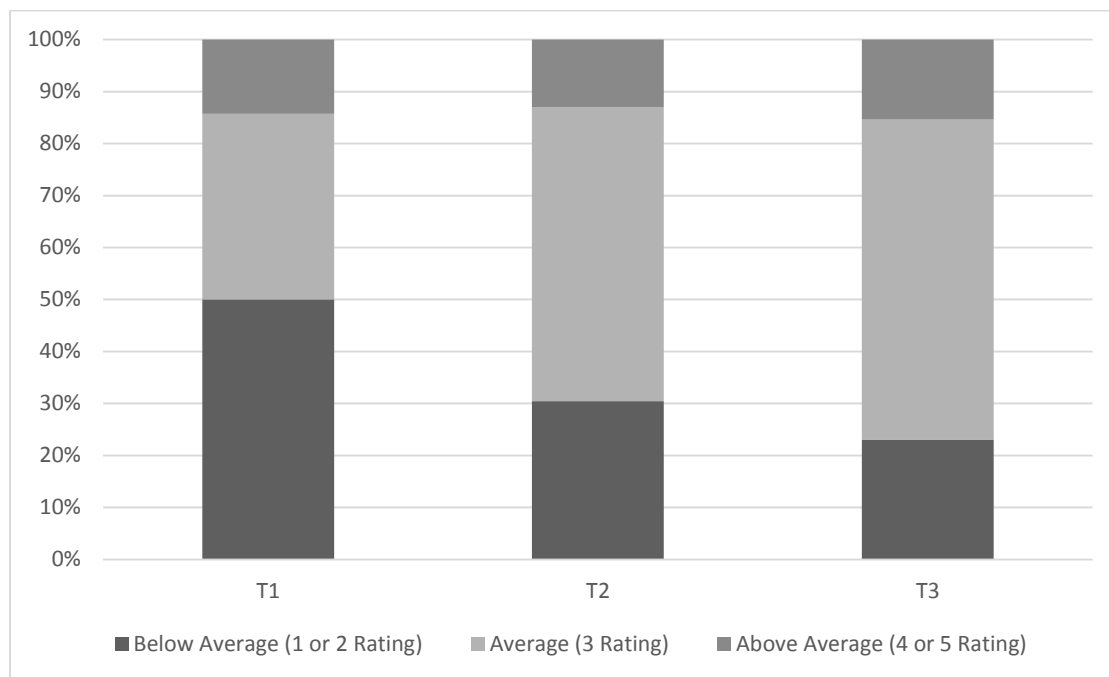
2. Regarding the advanced participants (i.e., Chizu, Hyuna, and Zainab) who represented both AE and LS cohorts, there may have been social-psychological variables and personal goals which influenced their self-perception of their language ability.
3. The participant cases demonstrated increases in their metalinguistic awareness which were associated with their instructional cohorts.
4. The participants' participation in society and their attitudes toward using English varied.
5. The participants' self-reporting of their intelligibility echoed the quantitative results. There was some improvement in accuracy and intelligibility from pre-to post-instructional intervals. However, not every participant exhibited 100% accuracy or intelligibility at the post-instructional intervals.

## 5.2. The NES and NNS Raters' Assessments of the Participants' English Intelligibility across the Instructional Interval

This section addresses research question three which inquired if the ELL participants' intelligibility changed across the three instructional intervals. In addition to the participants' self-ratings of their intelligibility detailed in the previous section, NES and NNS raters also evaluated the participants' intelligibility. In the following two graphs the NES ratings are illustrated followed by those of the NNS. For instance, Graph 5.1

demonstrates the NES ratings of intelligibility for the ELL participants at each of the instructional intervals.

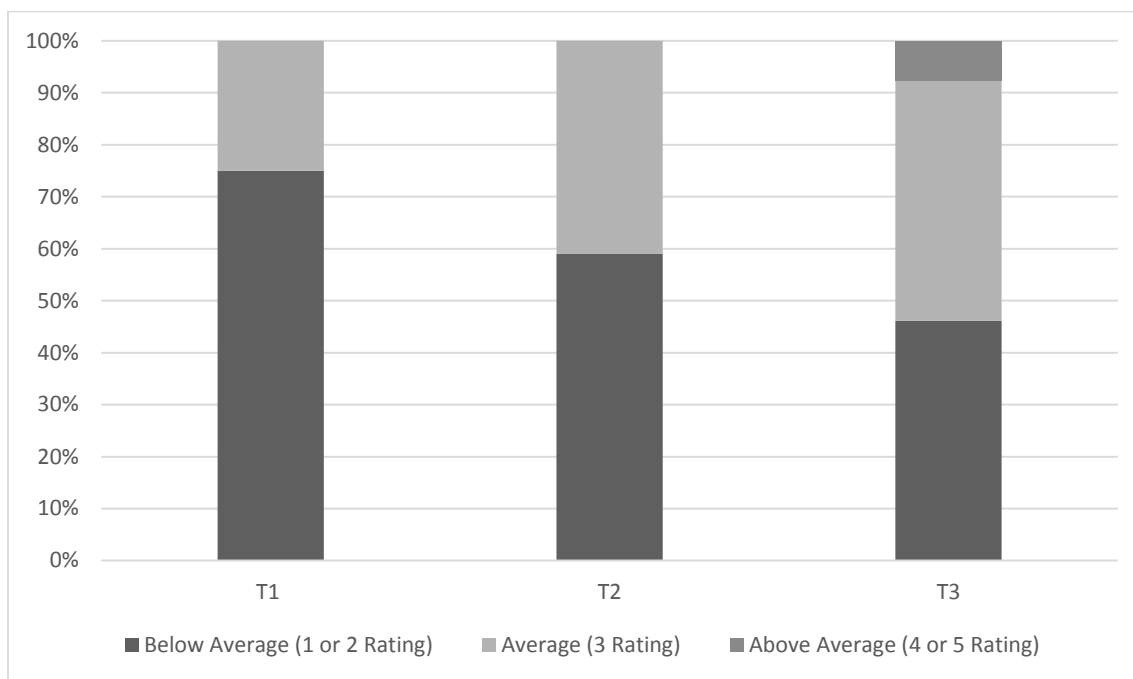
Graph 5.1. The NES ratings of the ELL participants' intelligibility at T1, T2, and T3



Graph 5.1 illustrates the ELLs' intelligibility assessed by the NES raters at T1, T2, and T3. At T1 the NES raters evaluated 50% of the participants with average or above average intelligibility whereas 50% were assessed with below average intelligibility. At the T2 interval the NES raters assessed 70% of the participants with average or above average intelligibility. In addition, at the T3 interval, about 77% of the participants were rated having average or above average intelligibility. Therefore, it appears that the NES raters perceived some positive changes in the English intelligibility of the ELL participants over the instructional intervals.

The following graph, Graph 5.2, exemplifies the NNS raters' assessments of the ELL participants' English intelligibility at T1, T2, and T3.

Graph 5.2. The NNS ratings of the ELL participants' intelligibility at T1, T2, and T3



Graph 5.2 demonstrates that the NNS raters' assessments of the ELL participants' English intelligibility increased across the instructional intervals. At T1 the NNS raters evaluated 25% of the participants with average intelligibility while 75% were rated with below average intelligibility. At the T2 interval we can observe that the percentage of average ratings increased to 41% of the participants. At T3 the NNS raters assessed 55% of the participants as having average and above average English intelligibility. Therefore, the NNS raters' evaluations of the participants' intelligibility, similar to those of the NES raters, increased over time.

In comparing Graphs 5.1 and 5.2, it can be noted that the NES raters assessed the ELL participants with higher intelligibility ratings than the NNS raters did at each instructional interval. Based on the differences in the ratings of the NES and the NNS raters, we can hypothesize that the NES raters were probably better able to comprehend

the ELL participants than the NNS raters were. That is, because the NES raters had native fluency in English, they could employ context to comprehend unintelligible utterances. However, the NNS raters may not have been able to rely on context to comprehend unintelligible utterances as the NES raters did<sup>20</sup>. Therefore, the ratings of intelligibility of the NES and NNS raters appeared to be influenced by the English proficiency and the capacity of the rater to employ linguistic cues (i.e., context) in their assessments.

The intelligibility assessments by the NES and NNS raters substantiated the findings revealed in the participants' self-reported changes to their intelligibility discussed in the previous section. In essence, the intermediate cases, Marco, Kyoko, and Flor all reported some improvement to their English speaking whereas the advanced participants (i.e., Chizu, Hyuna, and Zainab) reported no change in their intelligibility. In the raters' assessments in Graphs 5.1 and 5.2, several participants increased their intelligibility while there were also participants whose intelligibility did not change over the three instructional intervals. Hence, these NES and NNS ratings substantiated the participants' self-reported changes to their intelligibility.

Furthermore, the NES and NNS raters' evaluations corroborated the increases in the participants' production accuracy which were observed from T1 to T2. Namely, there were increases in participants' production accuracy from the T1 to the T2 interval while the T3 interval was associated with some destabilization. Similarly, we observed that the NES and NNS raters evaluated the ELL participants with higher ratings of intelligibility at the T2 and T3 intervals.

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<sup>20</sup> As previously described in Chapter III, the NNS raters had all passed the TOEFL and had advanced English proficiency.



In sum, regarding the NES and NNS evaluations of the participants' intelligibility over the instruction intervals, it was observed:

1. Both the NES and NNS raters' evaluations of the ELL participants' intelligibility increased across the three instructional intervals.
2. The NES raters consistently rated the English intelligibility of the ELL participants higher than the NNS raters did at each of the instructional intervals.
3. The NES and NNS ratings of the participants' intelligibility over the instructional intervals demonstrated similar patterns to the quantitative increases in production accuracy at the T2 and T3 intervals. Furthermore, the ratings substantiated the findings from the participants' self-reporting of their intelligibility.

### 5.3. The Influence of Learning Activities on English Intelligibility and Production

#### Accuracy

This section addresses the fourth research question which inquired about how the classroom learning activities may have conditioned the participants' production accuracy. The effectiveness of several of the classroom learning interventions self-reported by the participants in each oral communication classroom is examined (i.e., AE and LS). The data in this section were collected during the participants' T2 metalinguistic interviews and from my four classroom observations of the AE pronunciation and LS conversation courses which took place over a five week interval (i.e., weeks 2, 3, 5, and 6). In order to report both sets of the data, the section has been divided into three parts. In the first section, a brief description of the routine activities in each oral communication course is described from my field notes. These narratives present the foci of each course.

Furthermore, they serve to frame the classroom activities which the participants described in their interview responses. In the second section, the participants' self-reported classroom activities which complemented my field notes are discussed. In the third and final section, the participants' self-reported classroom activities which contrasted with my field notes are detailed.

### 5.3.1. Routine learning activities in the oral communication courses

In this section the routine standard procedures and activities are described for each of the oral communication courses. First the AE pronunciation course is presented followed by the LS conversation course.

The AE pronunciation class focused on the perception and production of English phonemes. This course met four days a week for 2.5 hours. The class began with a student presentation which lasted about 15 minutes. Each day one student selected a quote or a poem to read to the class. The presenting student then interpreted the meaning of the quote or poem for the class. After that, the other students had the opportunity to make comments about the selection. The instructor used this time to correct the pronunciation of both the student presenter and the audience. During the corrective feedback she would model the word and the student would repeat. This repetition continued until the student approximated the targeted phoneme.

Drilled pronunciation activities typically took the majority of the instructional time. These activities often lasted for 1.25 hours. First, the students checked their homework together. The instructor would ask different students to read their answers

aloud from their textbook. During this activity the instructor listened to the student's pronunciation and provided corrective feedback. Next, the instructor introduced the target phonemes of the daily lesson. For example, the class might cover the /i, ɪ/ vowel distinction or the consonants /p, t, k/ in one unit. The instructor began each unit by explicitly modelling the phonemes' articulation to the students by indicating how she positioned her mouth and the discussing pictures in the textbook. Then she produced the segment in isolation several times, and the students repeated the segments as a group. After that, she called on individual students to produce the target phoneme. In instances when an error was made, the instructor explicitly explained what she heard from the student. In addition, she explained how to correct the error. Next, the students listened to minimal pair perception exercises from a textbook CD. This activity was followed by textbook learning activities during which the students practiced producing the targeted phonemes as a class, in pairs, and individually. During these exercises, the instructor provided corrective feedback to the participants. Moreover, she provided additional corrective feedback for participants of a particular L1 if they had difficulty producing the targeted phonemes.

In the final hour of class the instructor focused on more authentic speaking exercises. Often she brought a song, a reading, or a poem which targeted the phonemes of the day. The class often had opportunities to listen to recordings of songs and poems which the instructor played from a CD or from YouTube. Sometimes students read aloud for the class. In the situations where students took turns reading aloud for the class, the instructor used this opportunity to provide corrective feedback to the students. A final activity was a conversational activity. During the conversational activity the students

paired off for short guided conversations during which they would ask and answer questions from a worksheet containing targeted phonemes of the day.

The LS conversation class focused on building the fluency and vocabulary of the participants. This class met four times a week for 1.75 hours. The instructor began each day with pronunciation drills. About 10 to 15 minutes were typically devoted to minimal pair drilled exercises. During this activity she often played a short video which featured a NES repeating minimal pairs (e.g., cap, cop). The class would repeat the words after the speaker in the video. On other days the instructor drilled the students individually from a worksheet consisting of minimal pair word lists. She would call on individual students to read their lists as she provided corrective feedback. She modeled the targeted word, and the student repeated the word. Then the instructor would ask the student to repeat a targeted phoneme until the student approximated the phoneme. In some cases she would repeat the word three to four times in order until the student was able to approximate the phoneme. In contrast with the pronunciation course, the conversation instructor did not explicitly teach phoneme articulation nor did she correct errors during fluency-building activities in this course.

The majority of the instructional time was spent on thematic conversations. Conversational instruction typically lasted for one hour. A thematically-based textbook was used to build vocabulary relating to a specific social situation (e.g., making introductions, going to a restaurant, and at the workplace). While introducing the unit, the instructor asked the students to generate their ideas about each social situation and the vocabulary necessary to complete a conversation in the social setting. She reviewed the new vocabulary related to the unit with the class. Then the students were grouped to

practice guided conversations from the textbook for the social situation of the day. The instructor monitored student groups and helped to guide the conversations. She also ensured that each student had a chance to participate. Additionally, the students had a chance to engage in their own authentic role-plays and conversations based on prompts from the textbook. The more advanced students often discussed topics independently while the instructor assisted less advanced students in a guided conversation.

Another focus of the course was discussing current events; about 30 minutes was devoted to sharing news stories. In this activity one student was asked to read a story from a monthly newspaper designed for English learners. The instructor defined new vocabulary and idioms from the story. Then, as a class they created a summary of the article as the instructor took notes on the board. In the time remaining the students would take turns commenting on the article or relating experiences from their home countries.

Finally, after observing both classes, I noted that the instructors' approaches to correcting segmental errors differed. The AE teacher would provide explicit articulation instruction on where to position the mouth or the lips in order to accurately produce the sounds. Furthermore, she would tell the students, *"I hear you say /r/ - /l/, my tongue touches the top to say /l/. Calllll."* Over the course of my observations, I observed the AE instructor on three occasions tell the class that *"The Spanish speakers put extra sounds at the beginning of the word, 'espeak'; the Asians put extra sounds at the end of the word, 'lunchi'."* By contrast the LS instructor would have the students repeat the word until they could best approximate her. She did not provide articulation guidance. Therefore, based on my field notes, it appears that the differences with regard to the participants' self-reported metalinguistic knowledge at the T2 and T3 intervals resulted from the

explicit pronunciation instruction given by the AE instructor in the pronunciation course whereas the LS instructor did not alert her participants to the segmental concerns which may have influenced their intelligibility.

### 5.3.2. The participants' self-reported classroom activities which evidenced effects on their intelligibility

This section explores how the participants' self-reported classroom activities which increased their intelligibility complemented my field notes. During the T2 metalinguistic interview I asked each participant whether they thought certain learning activities were helpful for their English speaking and pronunciation (Appendix E). The question was: *Were there classroom activities that helped you improve your pronunciation and speaking?* Accordingly, in each of the following excerpts, the participants self-reported the classroom learning activities which they felt were most beneficial to their pronunciation. Then, details from my field notes support how this classroom learning activity might have positively affected the participant's intelligibility within each classroom's community of practice (CoP) followed by those activities which did not seem effective<sup>21</sup>. First, I discuss the AE pronunciation participants followed by the LS conversation participants.

Marco, an intermediate native Spanish speaker enrolled in AE, felt that one activity influenced his pronunciation. He reported, "*Talk to my partner in the class.*" My

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<sup>21</sup> Lave and Wenger (1991) termed the socialization of novice learners into a 'community of practice' (CoP) as legitimate peripheral participation. By actively participating on the periphery during an apprenticeship, novices are socialized into the norms of the CoP through meaningful interactions with experts or 'old-timers'.

field notes supported Marco's statement. According to my observations, Marco and his class partner, Chizu, an advanced native speaker of Japanese, collaborated a few times during each class period on assigned targeted practice activities from the textbook. These collaborative activities took 30 to 45 minutes of class time. In the following excerpt, Marco and Chizu were identifying objects which began with /k/ from a picture in their textbooks.

(AE, O2, 9/23/2013)

Chizu: *Here is cake. Cake is k sound, right?*

Marco: *Yeah, k.*

Chizu: *K, cake.*

Marco: *Collar.*

Chizu: *Necklace.*

Marco: *Collar, collar.*

Chizu: *Collar? Teacher! Collar? Right, collar? Not necklace?*

Teacher: *Collar.*

Chizu: *Collar.*

In this conversation Marco and Chizu collaborated in identifying the appropriate word-initial /k/ words. This collaboration is an example of working within the zone of proximal development (ZPD) (Vygotsky, 1978)<sup>22</sup>. Namely, through the partners' combined efforts, they were able to complete the /k/ identification activity. Moreover, Marco served as the 'knowledgeable other' to help Chizu; he gently corrected Chizu's misidentification of a

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<sup>22</sup> Vygotsky termed the zone of proximal development as the distance between the current (emerging) stage of development of a learner and the stage to which the learner may progress with help of an 'expert.' Thus, with scaffolding and assistance of an expert, a novice learner may develop and acquire new skills and independence. Vygotsky stressed the importance of collective learning activities in order for a learner to internalize new skills.

‘collar’ as a ‘necklace’ by repeating the correct word for her. Thus, Marco was not only engaged in practicing the targeted /k/ sounds, but he also communicated intelligibly and appropriately with his partner. During another class session I noted that Chizu served as the ‘knowledgeable other’ partner and offered Marco assistance with his pronunciation of the /j/ sound in ‘university’. Of further interest, Marco, in acting as the expert, employed the correction method that the AE instructor used. In instances of student errors, the instructor modeled the correct word for the student to use, and the student repeated it. In this excerpt, Marco imitated the actions of the instructor and repeated the correct word for the picture task (i.e., collar)<sup>23</sup>. In turn Chizu repeated the correct word as the novice. Therefore, Marco had been socialized to the specific classroom routines by assuming the role of the knowledgeable other or expert in this instance. Based on my observations of Marco and Chizu, it appears that Marco’s self-reported classroom activity, working with his partner, was a beneficial collaboration which may have improved Marco’s pronunciation and intelligibility.

From my observations I also recorded that Marco seemed to enjoy interacting with people. He often joked with the other men in the classroom. He appropriately interjected humorous comments during class discussions which I noted in three of my four observations. At Marco’s T3 interview, I asked him if he and Pablo, another student, were friends as they frequently joked together in class. He responded, “*Yeah, Pablo, we joke all the time— he’s crazy.*” In addition, Marco spoke with me on a few occasions during and after class. For example, he shared a humorous quote with me that he used in

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<sup>23</sup> Vygotsky further described the process of internalizing a new skill with imitation. Thus, imitation of the instructor demonstrates an internalization of the social norms of the functioning of the classroom.



his class presentation because I had not attended the class on the day he presented. I also recorded that he frequently had coffee with a group of male classmates before class. My field notes revealed that Marco was an active participant academically, socially, and he also occasionally served as a ‘knowledgeable other’ in the AE classroom CoP. Hence, it appeared that Marco’s collaboration with his partner and other social experiences may have contributed in a positive manner to his production of English.

Kyoko, an intermediate native Japanese speaker also enrolled in AE, reported that classroom interaction improved her English oral communication skills. She stated, *“It help me to take class to speak to people.”* At T2 she reported that her comprehension improved; however, she was uncertain about her intelligibility. At T3, she noted that both her intelligibility and comprehension had improved. Based on my observations, Kyoko had both social and academic interactions which might have contributed to her increased comprehension and intelligibility in English at T2. For instance, the AE instructor assigned Kyoko a very talkative partner, Pablo. Pablo was an intermediate native Spanish speaker. Kyoko and Pablo established a good rapport early in the session, and they frequently talked together during class. In the following excerpt Kyoko, Pablo, and Jin, a native Korean speaker conversed casually before class began.

(AE, O2, 9/23/2013)

Pablo: *I’m not marry. But Kyoko is marry. Very marry. She have two children.*

Jin: *Twelve children?*

Kyoko: *(laughter) Oh! Twelve children? No, I have two children.*

Jin: *How many children? Twelve or two?*

Kyoko: *Two (holds up two fingers).*

Jin: *(laughter) Me, one.*

In this casual conversation the speaker and interlocutor tried to repair a misunderstanding; Kyoko actively engaged in correcting Jin's misunderstanding. That is, Kyoko employed both speech and gesture to ensure that Jin understood while Jin asked for clarification. Thus, this excerpt demonstrates an instance of ELLs collaborating and negotiating to ensure their conversation was mutually intelligible in a CoP. I observed that Kyoko spoke socially with her classmates before, during, and after class on a daily basis. Therefore, it seems plausible that Kyoko's self-reported activity, working with others, improved her comprehension and her intelligibility at T2 because she was often engaged in creating meaningful social conversations with her classmates.

I also recorded academic classroom interactions which might have contributed to Kyoko's increased intelligibility. For instance, Pablo would frequently check for Kyoko's comprehension when they worked together. Pablo would ask, "*You understand me, Kyoko?*" Additionally, when Kyoko spoke, Pablo also corrected her /l, r/ distinction when he encountered difficulty comprehending her. In these instances of collaboration, Kyoko was working in her ZPD while Pablo, the knowledgeable other, ensured her comprehension and intelligibility. Moreover, during class Kyoko sometimes asked questions to clarify misunderstandings when she encountered difficulty comprehending the instructor. For instance, the instructor briefly discussed postpartum depression during my third observation. Kyoko asked for clarification, "*Teacher, I don't know this sickness.*" Because Kyoko regularly asked for clarification and examples from the instructor, it is plausible that this direct interaction with the instructor may have increased her understanding of English through her questions. Based on my observations, Kyoko was a proactive learner and a lively participant in the AE class. Her frequent social and

academic interactions with both classmates and the instructor may have contributed to improving both her comprehension and intelligibility.

Chizu, an advanced native Japanese speaker, felt that explicit production instruction in AE was beneficial to her pronunciation. She said, “*The sound r, l help me. Also, the teacher corrects help me to make English sound.*” However, she did not report improvement in her intelligibility at either the T2 or the T3 interval. According to my observations, it seems probable that both activities may have contributed to improved pronunciation and intelligibility. I observed that one class session was entirely devoted to /r, l/ production. During that particular class session, the instructor targeted the native Japanese and native Korean speakers to repeat the drilled practice activities. In the following excerpt, Chizu was asked to read a column of /l/ words to the class.

(AE, O3, 10/7/2013)

Teacher: *Chizu, number three.*

Chizu: *Late, alone, call, clock, little.*

Teacher: *Call.*

Chizu: *Call.*

Teacher: *Calllllll.*

Chizu: *Call.*

Teacher: *Call. My tongue goes to the top. My tongue curls to the top of my mouth. Callllll.*

Chizu: *Call.*

In this excerpt an expert scaffolded instruction for a novice in a drilled practice activity.

This interaction between the AE instructor and Chizu permitted Chizu to work in her ZPD. Namely, the instructor, explained how to appropriately place the tongue in the

mouth in order for Chizu to better approximate the /l/ phoneme. This explicit correction was the standard instruction in the AE class. As a result of this correction, Chizu could better approximate the target production in her final utterance. While 2.5 hours of instructional time was devoted to the /r, l/ lesson, the explicit articulation practice of /r, l/ provided to the Asian students throughout the course session may have contributed to improving Chizu's intelligibility.

Chizu also reported corrective feedback was helpful to her pronunciation. On several occasions she took the initiative to ask the instructor for extra drilled practice repetition with segments which she found difficult to pronounce. During my second observation, Chizu asked the instructor, "*Teacher, when I say 'early' how do I say? Nobody understand me.*" The instructor then drilled her production of 'early' until she could better approximate the word. The instructor also drilled students on challenging phonemes. In the following excerpt Chizu asked a question about her intelligibility.

(AE, O3, 10/7/2013)

Chizu: *People understand me if I speak clearly, right?*

Teacher: *Clear clearly.*

Chizu: *Clearly.*

Teacher: *Cl cl cl clearly.*

Chizu: *Clearly.*

Teacher: *Clearly ly ly.*

Chizu: *Clearly.*

Teacher: *Oh wow, good!*

In this excerpt Chizu's pronunciation of 'clearly' was of concern to the instructor. Rather than responding to the question, the instructor provided corrective feedback regarding the

/l/ phoneme. Similar to the previous excerpt, we can see that with the scaffolded instruction of the AE instructor, Chizu was able to correct her errors and produce the word more intelligibly. Based on my observations, Chizu actively participated in both the teacher-centered and student-centered learning activities in each class session. For instance, she worked as Marco's partner and sometimes served as a knowledgeable other to correct his pronunciation errors. Furthermore, during the final week of instruction, the AE instructor commented to me that Chizu's pronunciation had improved since the beginning of the session. Therefore, it appears plausible that the drilled instruction may have influenced Chizu's pronunciation in a positive manner. However, as previously discussed, Chizu, having advanced proficiency, might not have been aware of the subtle changes to her pronunciation across the instructional intervals. Therefore, based on my observations, the instructor's comments, and Chizu's active participation in the CoP, we can thus gather that the targeted pronunciation activities in the AE course may have contributed toward her improved pronunciation at the T2 interval.

In sum, the three AE participants reported that the collaborative activities in which they interacted with a peer or an 'expert' were the most effective in improving their intelligibility. Through collaboration with an interlocutor they negotiated meaning or worked in their ZPD to build new skills. Furthermore, based on my field notes, these three participants actively engaged in the learning activities during each of my observations. Therefore, it appears that collaboration and active participation were paramount to improved pronunciation and intelligibility.

The following section documents how the LS conversation course participants' self-reported learning activities complemented my field notes.

Flor was an intermediate native Spanish speaker who felt that her intelligibility improved from her participation in LS. Regarding the class activities which helped Flor, she reported, *“Talk to the people in the class. When the teacher help me to say the new word in English.”* Based on my field notes of Flor’s behavior in the LS classroom, it seemed plausible that both of these activities may have influenced her intelligibility at the T2 interval. In my first two observations (i.e., weeks 2 and 3), Flor participated in class activities when directed by the instructor although she appeared to socialize exclusively in Spanish. I noted at week 2 that she had a brief conversation in Spanish during class. However, during my final observations (i.e., weeks 5 and 6), Flor had short conversations with non-Spanish speaking classmates and with her instructor. I also recorded at the T2 interview that Flor’s responses were longer than at T1, and she was able to elaborate in her responses. Additionally, her LS instructor commented to me at the end of the session, *“Flor is talking so much more now than she did at the beginning of the session.”* Based on these changes in Flor’s classroom behavior and use of English, it appears that she transformed her participation in the LS classroom from being marginalized to actively participating in the CoP. During my four observations of LS, I recorded that Flor engaged in practicing new vocabulary in structured conversations and role-plays. In the following excerpt, the instructor helped Flor and Young, a native Korean speaker, role-play a conversation about shopping.

(LS, O3, 10/9/2013)

Teacher: *Flor, how was shopping?*

Flor: *I go to buy the shoes, and my husband shoes, and the bag.*

Teacher: *Young, I want you to ask Flor about her activities when she went shopping. Ask her WHO went shopping with her, ask WHERE she went.*

Young: *Where you go shopping?*

Teacher: *We are using past tense. Where DID you go shopping?*

Young: *Where did you go shopping?*

Flor: *I go-*

Teacher: *Went.*

Flor: *I went to Macy's with my sister and my niece. My niece, she's young and beautiful.*

From the excerpt we can see that the instructor assisted Flor and Young in collaborating to create a conversation. The instructor demonstrated how to ask a question and suggested questions to ask about shopping. The instructor's scaffolding of the conversation helped Flor and Young work in their ZPD to build their conversational skills. Thus, with the instructor's assistance Flor was able to correct her utterance to make it more intelligible. Furthermore, we can make an interesting observation about Flor's comprehension in her response. In Flor's response to Young, she answered both the 'who' and 'where' suggestions posed by the instructor although Young simply asked Flor 'where' she went. Therefore, it appears that Flor was able to understand the instructor. The role-play activities in LS gave the students a chance to collaborate and interact in a safe environment and to receive feedback from the instructor and other ELLs regarding their comprehension and intelligibility. In addition to the role-plays, a class discussion of current events concluded each class. During the current events discussion the students might discuss a news story or summarize a TV show that they had enjoyed. I recorded that Flor was hesitant to participate in the current events discussions in the beginning of the session. Namely, she did not volunteer to read or share her experiences with the class. However, at the end of the session, Flor shared some of her favorite movies and television shows with the class. Therefore, the current events activity provided an

additional opportunity for the students to talk with each other in a class discussion. Thus, it can be surmised that scaffolded role-playing conversations and current events discussions could influence Flor's production and intelligibility in a positive manner.

Flor also reported that learning vocabulary words influenced her speaking. This activity also might have increased Flor's intelligibility based on my observations. In LS about 15 to 20 minutes of the daily thematic lesson was spent discussing background knowledge of the social situation and vocabulary. Furthermore, the vocabulary words were then used in role-play conversations. Therefore, the participants were able to use the words in context in different speaking situations. In the following excerpt, the instructor continued to work with Flor and Young on their shopping conversation.

(LS, O3, 10/9/2013)

*Teacher: Flor said she likes to take her niece shopping. Maybe you ask why, why do you like to take your niece shopping? Is it important to take your niece? Is she your shopping buddy? For me, my daughter is my shopping buddy, she always helps me to buy things on sale.*

*Flor: Yes, my niece, Alis, she is my shopping buddy.*

*Teacher: Okay good. So Flor has a shopping buddy. Young, do you have a shopping buddy?*

In the instructor's work with Flor and Young, she introduced a new expression. Again, the instructor served as the expert and helped the students collaborate to create an intelligible, appropriate conversation. The instructor defined and modeled how to use the expression. She gave the students opportunities to use the new vocabulary. This speaking activity gave Flor an opportunity to understand how to correctly use new vocabulary in context. Based on my field notes, it is plausible that the main activities of the LS class: participating in themed conversations and learning vocabulary conditioned Flor's



speaking and her pronunciation in a positive manner. Hence, it appears that her speaking confidence and participation may have increased as a consequence of her classroom interaction and collaboration with the instructor and her classmates.

Zainab, an advanced native Arabic speaker enrolled in LS, reported that time spent on vocabulary development was the most valuable activity for her. At T2 she reported, *“The vocabulary helps me. I don’t know idioms, and I can’t understand Americans when they use idioms.”* My observations supported Zainab’s self-reported classroom activity as positively influencing her comprehension and intelligibility. While Zainab did not report changes to her intelligibility at the T2 interval, in section 5.1 it was noted that she appeared more comfortable with her intelligibility at the T2 and T3 intervals. I observed that about 15-20 minutes of the LS course were devoted to introducing and scaffolding new thematic vocabulary. The instructor introduced the words and expressions, and she would help the students use them in context. Then the students had an opportunity to role-play and practice the new vocabulary in structured and authentic conversations for about 45 minutes. In the following excerpt, the instructor was introducing the idiom ‘to have a big head’ to the class when Zainab asked for clarification.

(LS, O2, 9/23/2013)

Teacher: *To have a big head. To feel overly proud. To think that you are better than other people; does he really have a big head, bigger than his body?*

Student 1: *No, he don’t.*

Student 2: *We have in Spanish.*

Teacher: *You have the same expression in Spanish, Nanci?*

Student 2: *Yes.*

Zainab: *How can I say it for what I say?*

Teacher: *I can say, he's got a big head.*

Zainab: *He's got a big head means he thinks he is better than everyone else.*

Teacher: *Yes, he's very proud of himself. Too much. Very proud.*

Zainab: *I think this sounds negative.*

Teacher: *Oh it's definitely negative. It's definitely negative.*

Zainab: *If I speak this kind of idiom-*

Teacher: *Say this idiom.*

Zainab: *If I say this idiom, he's got a big head, then Americans will understand me?*

Teacher: *Most Americans will understand this idiom. He thinks he's better than me, so I say he's got a big head. Do you have an expression like that in Arabic where someone thinks they are great, terrific, or wonderful?*

Zainab: *Yeah, but I cannot think right now.*

In the excerpt the instructor, the expert, is helping Zainab to understand and appropriately use the new expression. The teacher provided a model sentence and helped Zainab to better understand the negative connotation of the word. Therefore, with the help of the instructor, Zainab could comprehend and use the new expression. Zainab was in her ZPD. Further, the instructor asked Zainab to think of a similar expression in Arabic, so Zainab was able to synthesize her knowledge of the expression in her L1. Zainab was often assigned to a conversational group with other advanced LS students. I observed on two occasions that Zainab served as a facilitator. In instances where a group member did not contribute to the conversation, Zainab would ask questions to get the quieter students involved. Namely, she served as more of a knowledgeable other or a core member of the LS CoP. Therefore, it appears that the vocabulary work in which Zainab interacted with

the instructor and her peers in LS might have helped her to increase her intelligibility in English.

Hyuna, an advanced native Korean speaker in LS, had a different case. She self-reported that the activities in Let's Speak did not help her improve her English production nor did she report changes to her intelligibility over the instructional intervals. Hyuna said, "*Teacher tells me to slow down when I speak. I don't like to slow down, so I don't like to speak so much in class. I don't think class help me.*" From the excerpt, Hyuna's lack of participation appeared to be generated or mediated by the instructor's directions<sup>24</sup>. Based on my field notes I would agree with Hyuna's assessment of her class participation. During my observations at week two I noted that she participated and volunteered to share ideas in class. However, as the course progressed, she did not speak as frequently in class. At weeks five and six, Hyuna would respond only when she was called on. During a current events activity Hyuna shared, "*I watch Korean movies.*" She therefore, did not have a movie summary to share with the class. In contrast to Flor, Hyuna became reticent and rather isolated in the LS classroom at the end of the session. Based on my observations of Hyuna's classroom behavior, her pronunciation, fluency, and intelligibility might not have improved at the T2 interval.

I observed that Hyuna had some interactions in English outside of the classroom. She and a native Mandarin speaking classmate occasionally talked before class. In addition, she would sometimes engage in brief conversations with her other classmates before class regarding homework, the weather, and other student gossip in the student

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<sup>24</sup> Within Asian cultures 'maintaining face' is imperative in social exchanges. In Hyuna's case, if the instructor's request was made in a manner which publically threatened Hyuna's 'face', Hyuna might have been very embarrassed.

commons. On several occasions Hyuna and I had conversations which lasted for at least 10 minutes before and after class. During one such conversation with Hyuna at week 4, she shared an instance where she had apparently lost face in the LS classroom. *“Last week my son visit. I didn’t complete my homework every day. In the class the teacher told me I must do homework every day. Usually I do homework, but I had my son. I was too busy. This teacher does not understand. I do not like this style of teacher.”*<sup>25</sup> This public acknowledgement of Hyuna’s mistake to the class may have caused her to lose face and may have resulted in her reticent behavior. Therefore, based on my observations of Hyuna in class and in the student commons area outside of class, I feel that her aversion to participate may have resulted from a high affective filter, not wanting to take risks, or a personality conflict with the LS instructor<sup>26</sup>. Hyuna, consequently, began to participate less frequently during class which might have influenced a lack of progress related to her intelligibility.

To summarize, the LS cases demonstrated a greater variation in their learning experiences than the AE cases. Both Flor and Zainab felt that participation in the collaborative thematic conversational activities may have had influenced their oral proficiency in a positive manner. Conversely, Hyuna’s case and reticence in the LS classroom probably did not lead to improvement in her pronunciation. Moreover, it was observed that the level of participation of the LS participants differed. Zainab was an active participant in the LS classroom and served as a facilitator or knowledgeable other

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<sup>25</sup> I recorded that the LS instructor singled out students who did not complete their homework during two of my four observations. In both instances the instructor stressed the importance of completing homework to practice and use English outside of the classroom.

<sup>26</sup> Asian ELLs are often reported to be reticent to speak in class due to learning anxiety and/or cultural norms (Morita, 2004; Pashby, 2001).

in her CoP. Flor began her session marginalized in the LS classroom and participated more frequently at the end of the course whereas Hyuna's participation was the reverse.

In addition to the participants' self-reported classroom activities which complemented my observations, the participants also self-reported class activities which were not consistent with my observations. These activities are discussed in the following.

Marco, the intermediate Spanish speaker in AE reported an activity which did not seem congruent with my field notes. At T2 Marco stated, "*I do the book homework, I don't know if it's good, but I do.*" Based on this excerpt, Marco felt that his homework helped his speaking ability. In the AE course, the homework consisted of continued practice of the targeted phonemes which had been covered during the class session. The students had both oral and written textbook exercises to practice every night. While continued practice at home may have influenced production due to the English exposure outside of the classroom, I observed that Marco did not always complete his homework. In the following excerpt the instructor asked Marco to read his homework answers to the class.

(AE, O3, 10/7/2013)

Teacher: *Marco read column one.*

Marco: *I don't have my book.*

Teacher: *You didn't bring your book?*

Marco: *It's in my other car.*

Teacher: *Again?*

Marco: *Yes, again. Sorry.*

The excerpt illustrates how Marco was not prepared for class. Furthermore, the instructor's response implied that Marco had a habit of forgetting his work. Based on Marco's lack of preparation during my observation and the response of the instructor, I cannot verify how effective the homework practice would have been in Marco's specific situation.

It should be noted at this juncture that Marco felt that the homework might be valuable to his pronunciation or speaking, so his feeling cannot be dismissed. Namely, Marco demonstrated that he was an active participant in the AE classroom, and he appeared to enjoy being a student and learning. Marco's T1 interview revealed that he lived with his wife and adolescent children, worked outside the home, and took ESL classes. Therefore, we can assume that he had a busy schedule, and he might not have been able to complete his homework as frequently as he would have liked<sup>27</sup>. That is, he may have completed his work as often as his circumstances allowed. In essence, while I cannot verify that he completed his homework on a regular basis, based on his conscientious classroom behavior, it appears likely that he may have made attempts to adhere to the scheduled homework assignments to continue his English exposure and learning at home.

Chizu, an advanced native Japanese speaker in AE reported that class presentations in the American English course influenced her production accuracy. She said, "*Presentations in class help me to learn English.*" The benefits of this particular activity were difficult to measure. I observed that each student gave two or three

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<sup>27</sup> Lambert (2009) found that adult students with minor children in the home often had less time to study and complete homework than adult students who did not have children at home.

presentations during the 7.5 week session. During a presentation a student distributed copies of a quote or a poem to each member of the class. The presenting student read the quote or poem, and s/he interpreted it for the class. I observed that most students spent about one or two minutes actively presenting. In the following excerpt, Chizu presented her quote and her interpretation.

(AE, O2, 9/23/2013)

Chizu: *Hello everyone. Everyone have paper? Yes? My quote is: Fall down seven times, get up eight times. This means, you make mistake, you do it again. Try again.*

Teacher: *Chizu, what things do you have to redo, do again, if you make a mistake?*

Chizu: *You must do again your work, your job. Sometimes homework.*

Teacher: *Okay. You redo things at your job and your homework. Other ideas, class?*

This excerpt shows that Chizu's presentation was limited in length. She was actively engaged in speaking to the class for less than a minute. Then the following 10 or 15 minutes were used for comments from classmates to expand on her topic. Additionally, the instructor used this time for corrective practice of pronunciation. Based on the limited amount of time in which the AE students presented a quote or a poem, it appears unlikely that this activity influenced Chizu's production accuracy. However, the experience of giving a presentation in English before the class and spontaneously responding to the feedback from classmates may have increased Chizu's speaking confidence<sup>28</sup>.

In this section, we have noted some interesting patterns in the participants' self-reported activities which influenced their intelligibility. The activities in which the participants collaborated with an interlocutor appeared to be the most effective for improving their oral communication skills. In these activities the participants interacted to

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<sup>28</sup> It is important to note here that Chizu did not self-report an increase in her speaking confidence.

create meaningful conversations, practice new expressions, and solve problems. In other instances, an instructor or another expert scaffolded a new skill for a participant who was working in his/her ZPD. The activities which did not appear to be effective limited the learner's interaction and collaboration with interlocutors or there was not enough instructional time devoted to the activity. Therefore, it appears that interaction with an interlocutor or expert in which the participant negotiated meaning or learned a new skill was paramount to the improving the participants' oral proficiency.

It was also observed that there may be a relationship between active participation in the class activity and intelligibility. Namely, in the instances in which the participants were actively engaged throughout the class session, learning appeared to occur. Five of the six participant cases participated in the routine classroom learning activities. However, in cases where the participants were reticent, in the case of Hyuna, the learning outcomes were less clear or progress was not noted.

It may further be suggested that the collaborative activities in which the participants engaged in both AE and LS courses may have had some influence on the participants' production and intelligibility. Recall that the quantitative data revealed increased production accuracy at the T1 to the T2 interval while the accuracy at T3 destabilized. Furthermore, in the metalinguistic interview several of the participants also noted improvement to their intelligibility at the post-instructional intervals (i.e., T2 and T3). Finally, the NES and NNS raters assessed improvement to the participants' intelligibility at the T2 and T3 intervals. Hence, based on the increases in the participants' oral production at the post-instructional intervals, it appears that the learning activities



had some influence on these improvements to the participants' accuracy and intelligibility at the post-instructional intervals.

In sum, the findings regarding the classroom learning activities revealed:

1. The classroom activities in which learners were able to actively collaborate in the classroom CoPs appeared to influence both the participants' production and their intelligibility in a positive manner at the T2 interval.
2. The class activities which limited the learner's interaction and collaboration with interlocutors did not appear to be effective in conditioning the participants' production and intelligibility at T2.
3. The participants' metalinguistic awareness appeared to be influenced by the methods by which the instructor corrected segmental errors. That is, explicit error correction employed by the AE instructor was associated with the participants' awareness of how specific phonemes may hamper their intelligibility.

#### 5.4. The Participants' Self-Reported English Exposure Outside of the Classroom

In this section the fourth research question, how the participants' English exposure outside the classroom conditioned their production accuracy and intelligibility is discussed. To respond to this research question the English exposure self-reported by the six participant cases at home, at work, and in the community during their metalinguistic interviews at T1, T2, and T3 is explored.

#### 5.4.1. The participant's self-reported English exposure outside of the classroom at T1

The participants had varied exposure to English outside of the classroom. In order to establish the amount of outside exposure to English that each participant had at the beginning of the course, I asked the participants how often they used English in three different environments at T1. In addition, the participants were asked if they were exposed to English media (Appendix E).

- Do you work outside the home?
- Do you use English at home?
- How often do you use English in your neighborhood/community?
- Do you watch movies/TV in English?
- Do you listen to music in English?

The participants' complete responses to these five questions are presented in the following excerpts.

Marco: *I have a job, so I speak some English. I have to go shopping, go to the public office, go to the doctor. I like to watch the Discovery Channel, the History Channel; they have some good programs. Yeah, my kids they listen to music, watch TV at home.*

Kyoko: *I research almost every day at home. My family speak Japanese probably 95%. My children like to watch American television. I like Glee <sup>29</sup>, but I prefer Japanese television, news, I can understand. I listen classical music.*

Chizu: *I study at home every day. But I speak Japanese with my husband. It is easy. Sometimes I watch American movies.*

Flor: *Sometimes I speak English in the supermarket, not much. My family speak Spanish at my home. I watch the movies in English. Yes, I listen to the music.*

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<sup>29</sup> A popular American television program.

Hyuna: *I speak Korean at home. I don't listen to American music or television. I practice English every day by myself.*

Zainab: *Mostly we speak Arabic at home. My children, especially my older children, listen to American music and watch TV. I watch sometimes, but normally I am busy with my younger children. I use English at my children's school. With some friends I speak English.*

At T1 the six participant cases described very different experiences in their English exposure outside of the classroom. First, Kyoko, Chizu, and Hyuna had little exposure to English at the T1 interval. They might have engaged in self-study or consumed English language media in their homes. However, in this passive use of English they lacked the opportunities to engage in English conversations and negotiate meaning with interlocutors at T1 as they did in the classroom CoPs<sup>30</sup>. In addition, Flor reported that she had occasional exposure to English at the supermarket, and she was exposed to English media as well. Finally, Marco and Zainab had exposure to English in their home environments because of their children, in the community and at work. Therefore, the excerpts illustrate that Marco and Zainab had regular English exposure at the T1 interval while the other participants tended to be more isolated in their L1 cultures.

The participants' English exposure outside the classroom at T1 may also have influenced the participants' feelings of isolation in the US which were discussed in section 5.1 during the metalinguistic interview. For instance, Marco and Zainab did not report instances of feeling isolated in the US at any of the instructional intervals. They also reported having regular exposure to English at the T1 interval. Conversely, the other

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<sup>30</sup> Gass & Mackey (2006) described the importance of exposure to language (input), production of language (output, and feedback on production (through interaction) in L2 learning.

four participant cases: Kyoko, Flor, Chizu, and Hyuna noted situations in which they felt that they were isolated in the metalinguistic interview at T1. In particular, Kyoko and Hyuna reported that they had family members translate for them since they were not able to fully participate in society. Furthermore, Kyoko and Flor reported some negative emotions related to using English in their T1 metalinguistic interviews. These feelings of isolation expressed by Kyoko, Flor, Chizu, and Hyuna, may have resulted from a lack of meaningful interactions in English at the T1 interval. Therefore, at this juncture we may posit that a participant's English exposure outside the classroom in which a L2 learner is actively engaged in negotiating meaning may help the learner to feel more integrated into society.

#### 5.4.2. The participant's self-reported English exposure outside of the classroom at T2

At T2, the participants' exposure to English outside of the classroom was also examined (Appendix E).

- In the past month, have you changed your use of English?

Marco: *Not really. I speak English at work. I speak English here (school). At home sometimes my kids speak English, but mostly we speak Spanish at home.*

Kyoko: *Now I speak with my teacher and my classmates in English (at school). Pablo, my partner, is very talkative, so I talk him<sup>31</sup>, but at home I speak Japanese.*

Chizu: *Every day I practice English at my home after I came to America. I watch American movies. I speak English at class now.*

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<sup>31</sup> Pablo was Kyoko's table partner in the AE pronunciation course.

Flor: *Yes, I come here (school); I speak English. In the neighborhood, yes I speak English. I speak Spanish to my family. Sometimes I speak English to my friends.*

Hyuna: *I try to practice English for one hour each day. I know people need practice. I speak English with classmates.*

Zainab: *I use English when I am shopping or for appointments. Sometimes my children speak English at home. I like friends who don't speak Arabic because I have to use English. I can practice. Yesterday I went to Halloween party in my son's school, so I talk to the parents and the children. But I am shy to talk to Americans.*

At T2 the participants exhibited differences in their exposure to English outside the classroom. In three cases: Kyoko, Chizu, and Hyuna reported having passive exposure to English outside of the classroom at T2. Thus, for these participants there was little change in their outside exposure between T1 and T2; they remained rather isolated in their L1s outside of the classroom. However, at T2 Flor occasionally used English with her friends, and she shared her public office anecdote regarding her English intelligibility. Thus, Flor's use of English outside of the classroom appeared to increase from the T1 to the T2 intervals. Finally, Marco and Zainab again reported using English regularly in both the home, community, and work environments.

The participants' exposure to English outside the classroom again may have related to the participants' feelings of isolation. Marco and Zainab had regular English exposure at T1 and T2; neither participant reported feeling isolated in society or in activities outside of the classroom. In the case of Zainab, she seemed more comfortable and confident with her English intelligibility at the T2 interval during her metalinguistic interview. Thus, her exposure to English outside of the classroom in addition to that in the classroom may have conditioned her level of confidence at T2. It was also noted that Kyoko, Chizu, and Hyuna remained isolated in their L1s outside of the classroom at T2.

At this juncture it can be hypothesized that these participants felt marginalized in society. For instance, during the metalinguistic interview Chizu reported that she was not able to find a job in her field whereas Kyoko and Hyuna had translation assistance from family members. However, at T2 Flor reported practicing English with friends and using English in the community. In her T2 metalinguistic interview, Flor appeared to be more confident in her use of English. Thus, it is plausible that her level of confidence transformed in tandem with her exposure to English in new domains or contexts.

#### 5.4.3. The participants' self-reported English exposure outside of the classroom at T3

At T3 the influence of English exposure outside of the classroom on production accuracy and intelligibility was again examined. During the metalinguistic interview the participants were asked about their exposure to English outside of the classroom at the T3 interval (Appendix E).

- Have you changed your use of English in the past month?

Marco: *I speak English at work and in class. Sometimes I use at the business. No, I don't change.*

Kyoko: *Now I do not take class. I am at home, and I speak Japanese with my family. It is important I use English, I want to use and speak my friends. A lot of using is best. Good things.*

Chizu: *I practice English at my home. I do not take classes, but I have a tutor. She helps me to speak English. Sometimes I speak English to my friends.*

Flor: *Now I take intermediate ESL class. Sometimes I speak English to my friends and at the public office, and the supermarket.*

Hyuna: *I just practice every day at home, but my English is poor. I can't get a job here because of my poor English. I can only get a job in my community not in regular community.*

Zainab: *Maybe I use English more. For a few weeks I speak with more people outside. I don't attend classes, so at home I use Google to translation for practice. I call by phone to speak English. It is very good more than class. This is some sentence we will use in our usual life. But class is just learn grammar, I don't learn the speaking. I will volunteer in January to use English more. I will volunteer for woman rights.*

At the T3 interval we can note two transformations. First, Zainab created new opportunities to use English at T3. Through a rather aggressive investment to improve her English skills, she called people in order to practice her English. In addition, she made plans to volunteer in order to gain more experience speaking English in authentic settings. A second transformation was reported by Chizu; she increased her English exposure at the T3 interval by speaking English with her friends and working with a tutor. Thus, these new opportunities to practice English with different interlocutors might have led to opportunities for Zainab and Chizu to increase their English intelligibility between the T2 and T3 intervals.

The other four participant cases did not report increased exposure to English at T3. Flor reported occasional exposure to English in the community and with friends, and Marco's exposure to English remained consistent as well. In addition, we noted decreased English exposure in the cases of Kyoko and Hyuna. Namely, they discontinued courses at the T3 interval. Therefore, they remained rather isolated in their L1s.

We can again note that there appears to be a relationship with the exposure to English outside of the classroom and participants' ability to participate in society and their English speaking confidence. First, at T3 Kyoko and Hyuna reported feeling

marginalized and relied on family to translate; they also remained isolated in their L1s. Additionally, we noted transformations for Flor and Chizu at the post-instructional intervals regarding their level of participation in society. That is, at T2 and T3, Flor and Chizu participated more actively in new domains (i.e., speaking with friends, community use). At T3 they did not report concerns of feeling isolated or marginalized, and they appeared to be more integrated in society in their metalinguistic interviews at the T3 interval. Finally, Marco and Zainab exhibited the most exposure outside of the classroom at each of the instructional intervals and also demonstrated the greatest amount of confidence using English in different public and private domains. Based on these case studies, we can suggest that there is a relationship between the amount of meaningful exposure to English and the participants' level of confidence in using English.

It may be suggested with caution that there also appears to be a relationship between the outside classroom exposure and improved pronunciation and intelligibility. The intermediate participants (i.e., Marco, Kyoko, and Flor) all self-reported increases in their intelligibility at the T3 intervals despite very different levels of outside exposure. That is, Marco had regular exposure to English at home and work. Flor reported occasional use in the community and with friends while Kyoko had little exposure to English outside of the classroom. Similarly, the advanced participants (i.e., Chizu, Zainab, and Hyuna) did not report changes to their intelligibility over the instructional intervals despite varied English exposure. That is, Zainab and Chizu increased their English exposure outside of the classroom between the T1 and T3 intervals while Hyuna remained isolated in her L1. We would expect that one's production accuracy and intelligibility would increase with English exposure outside of the classroom. However, it



appears that other variables may condition each participant's self-assessment of their intelligibility. For instance, we previously noted that the participants' level of proficiency, L1 cultural mores, personal goals, and affective filter may also influence the participants' self-assessments of their pronunciation and intelligibility.

In brief, the following were found:

1. The participants' exposure to English outside the classroom related to their improvement in production accuracy and intelligibility at the post-instructional intervals.
2. There is a relationship between the participants' English exposure outside of the classroom and their attitudes toward speaking English and their level of participation in US society.

The next chapter presents a summary of both the quantitative and qualitative findings of the study. Following that is the discussion.

## Chapter VI. Summary of the Quantitative and Qualitative Findings

The present study used a mixed-method approach with the purpose of triangulating how the production accuracy and intelligibility of two cohorts of learners (i.e., a pronunciation course cohort (AE) and a conversation course cohort (LS)) changed after completing oral communication courses. Quantitative and qualitative analyses were conducted to examine the changes to the participants' English production and intelligibility over the three instructional intervals (i.e., T1, T2, and T3). The quantitative analysis was designed to measure the production accuracy of linguistic and social variables with the purpose of determining their constraints on production accuracy of word-initial and word-final consonants. The qualitative analysis evaluated the changes to the participants' intelligibility as self-reported by the participants themselves and assessed by NES and NNS raters. Furthermore, the qualitative inquiry investigated the influence of classroom learning activities and English exposure outside the classroom on the participants' production and intelligibility.

The results of the investigation are summarized:

1. A statistical analysis of the internal linguistic variables (i.e., the position of a target consonant within a word, the number of adjacent consonants within a word, the environment preceding a target consonant, the environment proceeding a target consonant, the sonority sequencing principle, and the grammatical affixes added to a word) revealed that the production accuracy for the AE and LS cohorts increased from the pre- to post-instructional intervals. From T1 to T2 the AE and LS cohorts

exhibited improvements. However, there was one notable difference in production between the cohorts related to the preceding and proceeding obstruent environments. That is, the AE cohort demonstrated a more dramatic improvement in accuracy at T2 than the LS cohort did. The T2 to T3 interval was associated with a slight destabilization of production accuracy for each cohort; slight increases and decreases were revealed. Finally, the cohorts' production accuracy was influenced by phonological language universals.

2. The social variables (i.e., formality of the speech elicitation protocol, native language, age of arrival in the United States, length of residency in the United States, English proficiency, level of education, and socioeconomic status) were found to exert an influence on the production accuracy of the participants. However, regardless of the social situation of the participant, they all showed improvement in their production accuracy between the T1 to T2 intervals.
3. In the qualitative analysis of six participant case studies in which they self-reported changes to their intelligibility over the three instructional intervals, the study revealed three points. First, the participants' metalinguistic awareness at the T2 interval improved. Second, several participants reported positive changes to their pronunciation at the T2 and T3 intervals. However, not all participants reported improvement at T2 and T3.
4. The NES and NNS raters evaluated positive changes for several participants' intelligibility from T1 to T2 and from T2 to T3. In addition, the NES raters

assessed the intelligibility more favorably than the NNS raters did at each of the instructional intervals.

5. The classroom learning activities in which the participants collaborated with an interlocutor or a knowledgeable other were reported by the participants to be effective in improving their accuracy and intelligibility. Other activities in which the participants did not collaborate with an interlocutor were deemed less effective.
6. Case studies revealed that the participants' exposure to English outside of the classroom conditioned their improvement in their intelligibility and confidence in using English.
7. Both the quantitative and qualitative analyses yielded improvements in production accuracy and ratings of intelligibility between the T1 and T2 intervals. Thus, the classroom interventions appeared to contribute to these consistent positive changes.
8. At T3 production accuracy destabilized while intelligibility ratings improved in the qualitative and quantitative analyses, respectively. This instructional interval was marked by both increases and decreases in the participants' English exposure outside of the classroom. Hence, we may suggest that attrition, class participation, and inconsistent use of English was paramount to influencing production and intelligibility in a positive manner at this instructional interval.

## Chapter VII. Discussion

In this chapter the findings of my study are discussed in relation to the existing literature. Then I detail the limitations of the study followed by its pedagogical implications. I conclude the chapter with recommendations for future research.

### 7.1. Discussion

This study was conducted to investigate the effects of oral communication instruction on ELLs' production accuracy and intelligibility between pre- and post-instructional intervals. The study advanced previous research in that improvement to the participants' speaking skills was triangulated to include analyses of both their production accuracy of consonants and their intelligibility perspectives. Most of the existing research on the effects of pronunciation instruction included either an analysis of changes to participants' production accuracy (i.e., Couper 2003, 2006; Elliott, 1995; Hahn, 2002) or changes to the participants' intelligibility as evaluated by NES raters (Derwing et al., 1997, 1998; Macdonald et al., 1994; Perlmutter, 1989). Another assessment was employed by Chang (2006) who examined changes to the participants' self-ratings of their intelligibility as a result of instruction. The present study built on this existing research by including an analysis of production accuracy, NES and NNS evaluations of the participants' intelligibility, *and* self-ratings of intelligibility by the participants themselves. In this chapter how the findings relate to previous research is discussed.

My findings revealed improvement in the intelligibility and production accuracy of both the AE and the LS cohorts from the pre- to post-instructional intervals. That is, the participants' intelligibility as evaluated by NES and NNS raters and their production accuracy of word-initial and word-final consonants improved from T1 to T2. Similar findings have been documented in the literature related to the effectiveness of pronunciation instruction. The research of Derwing et al. (1997; 1998) and Perlmutter (1989) found that ELLs' intelligibility as assessed by NES raters also improved at the post-instructional interval. The literature also demonstrated that the production accuracy of L2 participants increased from pre-to post-instructional intervals in other studies (Gilmore, 2011; Kennedy, Blanchet & Trofimovich, 2014; and Hahn, 2002). While the focus of the curricula in the aforementioned studies varied (i.e., segments, word stress, or intonation were examined), the studies reported improvement in pronunciation and intelligibility over the course of an academic semester. In addition, targeted segmental pronunciation interventions conducted during an ESL course also have been found to be effective in the studies of Couper (2003, 2006) and Elliott (1995). These brief interventions may have been effective due to their narrow curricular focus on segmental production. Conversely, other studies of pronunciation interventions were not associated with statistically significant changes the post-instructional intervals (Chang, 2006; Macdonald et al., 1994). For example, Chang concluded that there might not have been enough instructional time devoted to each phonological aspect covered in her pronunciation course. It should be noted that Chang's course consisted 24 hours of instructional time over an eight-week session. Furthermore, Macdonald et al. (1994) did not find significant differences between the participants' pre- and post-instructional

speech samples. The interventions in Macdonald et al. lasted a total of 10 to 30 minutes. However, in the present study the AE participants attended class for 75 hours and the LS participants attended class for 60 hours over a 7.5-week period. With respect to these findings, Acton (1984) proposed that a pronunciation course targeting fossilized production of advanced learners should be 48 instructional hours in order to produce improvement in intelligibility. Therefore, based on the differences between the present study and those of Chang and Macdonald et al., it is plausible that the length of a pronunciation intervention is essential to yielding positive changes to accuracy and intelligibility.

With regard to the production of each cohort, a preference for simple CV syllables and language universals appeared to influence the cohorts' accuracy. Namely, the study revealed that both cohorts' production was highly accurate for environments in which a single onset consonant preceded a vowel (i.e., CV syllable). In contrast, word-final codas, consonant clusters, and environments in which an obstruent consonant preceded or proceeded the target consonant(s) were produced with lower accuracy. The latter environments consisted of complex syllable structures in which adjacent consonant strings occurred. These complex syllable structures are not universally permitted in world languages, and thereby, they may have challenged the ELL participants in the study. Research investigating ELLs' production accuracy (e.g., Anderson, 1983; Ha et al., 2009; Hancin-Bhatt; 2000; Hansen, 2004; Kim, 2001; Setter, 2008; Tarone, 1980) echoed similar tendencies regarding universal CV syllables. This research showed that ELL participants exhibited higher production accuracy for universal syllable structures whereas they often repaired complex English syllables structures. These patterns of

interlanguage errors and repairs could be a result of *markedness*, or rare phonological aspects found in L2. For instance, Blevins (1995) claimed that marked features are often subject to repairs. Thus, as the ELL participants repaired complex English syllable structures for more universal structures, their production accuracy decreased.

Another interesting aspect related to the cohorts' production was the segments preceding and proceeding the target consonant. In the present study both the AE and LS cohorts demonstrated higher accuracy in environments where vowels and sonorants preceded and proceeded the target consonant. However, the participants' accuracy for preceding and proceeding voiced and voiceless obstruents was lower across all instructional intervals. Thus, there appeared to be a hierarchical relationship between the preceding/proceeding segment and production accuracy. That is, vowels eased production whereas obstruents yielded low production accuracy. Kim (2001) found that the segment proceeding a word-final coda influenced production accuracy as well. In particular, Kim noted that proceeding voiced obstruent environments yielded low production accuracy. Furthermore, Clements (1988) asserted that there were universals associated with syllable sonority. He claimed that non-sonorous onsets are common among world languages (i.e., obstruents). Regarding coda consonants, sonorous coda consonants are universally preferred (i.e., sonorants) whereas obstruent codas are more rare or marked among world languages. Hence, the cohorts' low accuracy associated with the obstruent environments in my study may have been conditioned by this preference for sonorous coda consonants.

Another finding related to production was how L1 influenced the participants' accuracy. The findings showed that speakers of Arabic, Tamil, and Marathi were more accurate than the speakers of Spanish, Japanese, and Korean and Mandarin. Transfer



from L1 or the phonological constraints of the participants' L1s may have influenced the participants' production accuracy. The Arabic, Tamil, Marathi, and Spanish speaking participants spoke L1s which permit consonant clusters (Dhongde & Wali, 2009; Keane, 2006; Kiparsky, 2003; Lleo, 2003). Therefore, these participants might have been able to transfer their L1 familiarity with cluster production to English. However, the speakers of Mandarin, Korean, and Japanese did not have consonant clusters in their L1s (Anderson, 1983; Hancin-Bhatt & Bhatt, 1997; Kim & Jung, 1998) Due to this L1 cluster restriction, the speakers of East Asian languages might have had a tendency to modify consonant clusters more frequently than the participants whose L1s permitted clusters<sup>32</sup>. The research has shown that ELLs whose L1s permit consonant clusters demonstrated more accurate production accuracy than those ELLs who spoke an L1 which prohibited consonant clusters (Anderson, 1983 and Hancin-Bhatt & Bhatt, 1997). Thus, it appears that the phonological constraints of the participants' L1s did in fact influence their English production accuracy.

Another interesting aspect of this study in relation to the existing literature is the comparison of production accuracy between experimental cohorts. Both instructional cohorts exhibited similar improvement from T1 to T2 with the exception of one phonological variable. That is, the AE cohort demonstrated slightly larger increases in production accuracy at the T2 interval for the preceding and proceeding obstruent

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<sup>32</sup> Regarding the accuracy of the native Spanish speakers, five of 13 participants were placed at beginner proficiency whereas most of the other groups consisted exclusively of intermediate and advanced participants. Hence, the large number of novice participants may have confounded the results for the Spanish speakers.

environments than the LS cohort did. Thus, we may suggest that these slight increases for the AE cohort resulted from differences in instructional methods.

There are several observations that can be made based on the mild differences that emerged between the two cohorts. For instance, we have examined how the preceding and proceeding obstruent environments challenged the LS cohort due to the markedness of these features. It was also found that the three AE case studies cited concerns regarding their production of segments at T2 whereas the LS case studies did not report any segments which hampered their intelligibility. Differences between instructional cohorts were also noted in Derwing et al. (1998) who found variation in the intelligibility ratings of two instructional cohorts at the post-instructional interval. They found that NES raters evaluated improved intelligibility for both a segmental instructional cohort and a prosodic instructional cohort on a reading task at course completion. However, the NES raters evaluated improved intelligibility only for the prosodic instructional cohort on a narrative task. Derwing et al. (1998) concluded that the differences in instructional interventions yielded the differences in intelligibility ratings for the cohorts at the post-instructional interval. In essence, in both the present study and in Derwing et al. (1998) improvement for all the instructional cohorts was observed. However, it was also noted that one cohort in each of the studies demonstrated greater improvement than the other based on an instructional intervention. Hence, it may be suggested that while the English exposure and interaction in an oral communication classroom can improve intelligibility, specific instructional interventions might yield even greater improvements to intelligibility.

While I found that production and intelligibility improved at the T2 post-instructional interval, I also reported differences between the participants' production accuracy and the NES and NNS raters' evaluations at T3. At T3 the AE and the LS cohorts exhibited production instability; there were slight improvements and regressions in production accuracy. Surprisingly, the NES and NNS raters evaluated improvement in the participants' intelligibility at the T3 interval. The existing research on production accuracy also echoed similar instability at the delayed post-test interval (i.e., T3) with regard to production accuracy. Both Couper (2006) and Hahn (2002) reported that their participants exhibited decreases in production accuracy at a delayed post-instructional interval (i.e., T2 to T3). Thus, it is plausible that this production instability at T3 in the present study and those of Couper (2006) and Hahn (2002) may point to instances of some learning attrition or inconsistent use of English after completion of a pronunciation course. With regard to the intelligibility ratings, it can be suggested that the NES and NNS raters' assessments of intelligibility in the present study might have been influenced by the raters' familiarity with the participants' pronunciation and speech patterns at the T3 interval. For example, the raters had the opportunity to listen to each of the participants at the T1 and T2 intervals prior to hearing the T3 speech samples. There was some familiarity with each of the participants' dialects at the T3 interval. The existing research has also demonstrated that familiarity with a dialect is correlated with greater intelligibility (Anisfeld, Bogo & Lambert, 1962; Lindemann, 2005; Munro, Derwing & Morton 2006). Therefore, it appears that both the NES and NNS raters' were more familiar with the participants' accents at the T3 interval having previously evaluated

speech samples at T1 and T2. This familiarity may have played a role in producing more favorable evaluations regarding the ELLs' dialects at the T3 interval.

Another finding of this study showed that the NES raters consistently assessed the ELL participants' with higher ratings of intelligibility than the NNS raters did. Studies by Fayer and Krasinski (1987) and Munro et al. (2006) reported similar results. That is, native speaker ratings of L2 learners' intelligibility were more favorable than the ratings of non-native speakers. These patterns may be attributed to differences in what the NES and NNS raters considered an incomprehensible utterance. There are several aspects of an utterance which fluent English speakers rely on in order to extrapolate meaning: phonological, grammatical, and lexical (Ellis, 2002). Depending on the proficiency of a NNS rater, s/he may have lacked the ability to employ all these cues simultaneously in English which could result in lessened comprehensibility. To this end, Jenkins (2002) suggested that while a NES relies on context and prosody to comprehend a non-native utterance, a NNS often relies on appropriate segmental production of an utterance for comprehension. Consequently, in the present study, the NNS raters may not have been able to contextualize a mispronounced word. They may have required extra time to comprehend a non-native utterance, and in some instances, they might not have comprehended a non-native utterance. In addition, the differences in NES and NNS ratings may have also emerged from the raters' attitudes toward ELLs. In my study the NES raters affirmed that they had previous exposure to a variety of ELL accents in several contexts according to their language background questionnaire, and they were sympathetic interlocutors. However, the NNS raters, having achieved an advanced level of English fluency themselves, might have higher expectations or judgements of how an

ELL ‘should’ sound in English. That is to say, if an ELL speaks with a pronounced accent, s/he may be judged as not working hard enough to improve his/her English intelligibility or not appropriately representing a particular L1 group. In a study by Fayer and Krasinski (1987), it was found that Puerto Rican NNS raters were less tolerant of the errors made by Puerto Rican ELLs than NES raters were. Thus, it appears that the differences in the NES and NNS assessments may have resulted from different concepts and attitudes toward intelligible output based on the English fluency of the rater.

Also related to intelligibility is the communicative competency of the ELL participants. Hymes (2001) defined one’s communicative competence as having knowledge of linguistic structures of a language and the ability to appropriately use the language in a number of different domains and contexts. In my study, we have determined that the participants improved their production accuracy and intelligibility at the post-instructional intervals. In addition, they had the ability to appropriately use English within the classroom context and in informal discussions; however, it has not been emphasized. For instance, in Marco and Chizu’s collaboration to identify ‘collar’, Chizu used the term ‘necklace’. Marco’s response to Chizu’s error was to employ the instructor’s method of error correction which demonstrated an understanding of the appropriate social mores of error correction in the AE classroom. Additionally, Chizu began her presentation in the AE class with a very brief introduction, demonstrating that she understood the structure of a presentation. Furthermore, in a conversation between Kyoko and her classmate, Jin, Jin misunderstood an utterance. In this situation both Jin and Kyoko worked together to appropriately resolve the misunderstanding. Therefore, the case studies demonstrated that they had communicative competency in English.

With regard to the analyses of the six participant case studies, it was observed that three intermediate participants reported improvement to their intelligibility at the post-instructional interval. However, the three advanced participants reported no progress in their pronunciation. Likewise, the existing literature has revealed similar findings (Couper, 2003; Lapkin, Hart & Swain, 1995; Lynch, Klee & Tedick, 2001) For instance, Couper (2003) found that the majority of his high-intermediate ELL participants noted positive change in their pronunciation after completing pronunciation interventions. The reasoning behind this finding may be that advanced learners often have more accurate production than intermediate or beginners at the onset of instruction; therefore, they may have fewer changes to report than less proficient learners do at the conclusion of instruction.

Another concern related to why the three advanced participants in the case studies did not report change in pronunciation may be related to fossilization. The fossilized or systematic errors of advanced L2 learners are often cited as very difficult to correct (Acton, 1984). Some of these fossilized errors may remain ingrained in the advanced participants' L2 phonetic systems after pronunciation instruction as well. Additionally, it can be suggested that advanced learners may consider near native pronunciation as their goal or end-result of instruction rather than improved intelligibility. For instance, in the current study Hyuna was a native Korean speaking participant who wanted to speak English as fluently as she spoke Korean. This particular goal might be difficult for adult and older adolescent learners to achieve (Derwing, 2008; Levis, 2005). Furthermore, due to this difficulty of attaining native-like pronunciation Acton (1984), Derwing (2008), and Levis (2005) asserted the need to emphasize intelligible pronunciation rather than

native pronunciation as a goal for oral communication courses. In sum, various factors may have conflated to influence advanced learners' perspectives regarding improvement while these factors may not have played a prevalent role for beginners and intermediates.

Another pattern which I noted that may have affected participants' perspectives regarding intelligibility is that of 'caution'. Couper (2003), Chang (2006), Elisha-Primo, Sandler, Goldfrad, Ferenz, & Perpignan (2010), and de Saint Leger and Storch (2009) noted that their participants often self-rated their skills in L2 conservatively. Fye, Fye, Meyer, Ziman, Sanders, and Hill (2014) also found that the majority of their participants tended to self-rate their test performance lower than how they actually performed. In the case studies of Kyoko and Chizu, both of whom spoke Japanese as a native language, they were hesitant to report improvements to their intelligibility. In particular, Runswick (1993) noted that Japanese tended toward self-deprecation rather than self-promotion in their interactions. Therefore, the participants' hesitancy to self-report improvement to their intelligibility may have been conditioned or relegated by a general tendency towards humility associated with their cultural values.

Another important finding from the study related to how the social variables were found to condition production. It was noted that regardless of the participants' formality of speech, L1, age of arrival, length of residence, English proficiency level, level of education, and SES, the participants' accuracy improved from T1 to T2. Similar findings were reported in the existing literature related to participants' level of English proficiency. For instance, regarding the participants' proficiency level, Hahn (2002), Ingels (2012), and Sardegna (2009) found that all learners were able to improve despite their proficiency level. Additionally, I found that Marco and Flor, both of whom were

less affluent and high school-educated, self-reported improvement in their intelligibility over the instructional intervals. This finding was echoed in a study of adult Taiwanese ELLs (Yeh, 2005); the SES of adult ELLs did not appear to influence the learner's achievement or motivation to learn English. Hence, the findings of my study demonstrated that while social demographic variables initially had some influence on ELLs' production (i.e., at T1), the participants were able to improve their production accuracy after oral communication instruction or other learning interventions.

Interestingly, the study revealed differences related to the participants' metalinguistic knowledge at the T2 and T3 intervals which appeared to result from their instructional cohorts. At the T2 interval, the three AE cases (i.e., Marco, Kyoko, and Chizu) cited specific segments which were challenging and could hamper their English intelligibility. In particular, Chizu described the difficulty of pronouncing English consonants because her L1, Japanese, consisted of mostly CV sequences. This description provided evidence that she comprehended why her English pronunciation might have errors due the difference in the structures of English and Japanese syllables. Thus, it is plausible that the explicit teaching and corrective feedback of segmental production in AE provided the participants with insight as to how their production errors conditioned their intelligibility. While the AE cases realized that the appropriate production of specific phonemes might be related to intelligibility, the LS participants did not report how phonological errors might influence their intelligibility. For example, in my final LS observation, I noted that Zainab's partner misunderstood Zainab's production of 'people' as 'Bible' which resulted in communication breakdown for the pair. This error was an instance of how production hampered Zainab's intelligibility. Interestingly, in her T3



metalinguistic interview, Zainab cited /p, b/ as an example of a difficult phoneme for Arabic speakers, and she did appear to understand how inappropriate production of /b/ for /p/ might hamper one's intelligibility despite her experience in LS with her partner. These findings supported the existing research related to explicit pronunciation instruction and awareness-raising activities (Chang, 2006; Couper, 2003; and Hahn, 2002). Thus, it appears that adult L2 learners might need explicit instruction to help them realize or 'notice' how their fossilized production errors might be perceived by interlocutors. Moreover, Pennington (1998) and Zybert (1997) asserted that adult L2 learners should have phonological instruction in the TL to practice targeted phonological features and receive explicit feedback from an instructor. This explicit instruction can assist adult learners in helping them reclassify their L1 phonological schemata and realize how their errors may be misunderstood.

My findings revealed that five of the six participant cases self-reported collaborative classroom learning activities as beneficial to their pronunciation. That is, the three AE cases (i.e., Marco, Kyoko, and Chizu) and two of the three LS cases (i.e., Flor and Zainab) cited that activities in which they collaborated with classmates and the instructor influenced positive changes to their pronunciation and intelligibility. The research of Watanabe and Swain (2007) revealed that peer-peer collaboration could help a L2 learner 'notice' and learn in the L2. This type of peer interaction was evidenced in my study when Chizu mistook a necklace for a collar and Marco corrected her. Thus, through their collaboration, Marco served as the expert and Chizu learned the correct term for a collar. Kyoko and her partner, Pablo, had more of an expert-novice relationship in that Pablo often checked for Kyoko's understanding during their

conversations. Both these peer relationships appear to have helped the learners because Pablo and Kyoko reported pronunciation improvement at the post-instructional intervals, and Chizu's instructor felt that Chizu's production improved as well. These peer interactions were also substantiated by the work of Keating and Egbert (2006). Keating et al. suggested that the importance of conversations between experts and novices in a number of contexts and domains contributed to socializing a learner in L2. Often collaborative classroom activities have been informed by sociocultural instructional methods. Vygotsky (1978) posited the theory of the zone of proximal development (ZPD) for children. The ZPD referred to the distance between a child's current developmental level and their potential development with the assistance of an adult or an expert. Vygotsky's perspectives have been applied to the L2 classroom in order to help both children and adult L2 learners acquire new linguistic patterns and skills in the TL (Aljaafreh & Lantolf, 1994; Long, 1985; Pica 1987). For instance, Aljaafreh and Lantolf (1994) contended that interaction with an interlocutor was essential to language learning and error correction. Through collaborative learning activities, an 'expert' scaffolded and assisted the L2 learner in expanding his/her schemata and acquiring new knowledge the TL. Often the instructor has the role of an expert; however, there have been instances in my study where a student acted as an expert. Thus, based on the findings of my study it is plausible to suggest that the collaborative classroom activities in which an expert scaffolded a new segment, word, or skill may have influenced pronunciation and intelligibility.

While most of the participant cases in the qualitative analysis of this study noted that they preferred collaborative activities, there appeared to be some variation in the

learning styles of the participants, another aspect to consider regarding the improvement of accuracy and intelligibility. Teacher-centered activities were reported to be helpful for participants: Chizu and Flor reported that corrective feedback and scaffolding from the instructor was effective for improving their pronunciation and intelligibility.

Furthermore, in my observations of both the AE and LS courses, both instructors would raise the student's awareness of an error by correcting it and having the student repeat the correction<sup>33</sup>. Aljaafreh and Lantolf (1994) also revealed that error correction benefited novice L2 learners. Additionally, in the present study Marco, Kyoko, and Flor reported that interacting with a classmate was an effective learning activity. During my observations, I noted that both Marco and Kyoko enjoyed socializing with classmates before, during, and after class as well. Cazden (1988) reminded us of the importance of interaction between classmates. Namely, students need an opportunity to interact with peers having similar social power in an academic setting in addition to their interaction with an instructor. The existing research on learning styles also has demonstrated that adult students have preferences for specific learning strategies and activities in the classroom (Andreou, Andreou, & Vlachos, 2008; Braxton, 1999; and Ellis, 1989). These studies have revealed that despite a L2 learner's preferred learning style, participants exhibited improvement in their L2 skills after completion of a language course. Therefore, it is plausible to suggest from my study that the diversity of classroom activities in the AE and LS courses contributed to improvements in production and intelligibility.

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<sup>33</sup> The AE instructor emphasized the erroneous segment to the student and would explain the correct articulation if necessary. The LS instructor corrected both pronunciation, grammatical, and lexical errors by repeating the word without an explanation of the error.

One of the cases in the study, Hyuna, did not feel the classroom activities in the LS course improved her pronunciation or English speaking skills. She exhibited a negative attitude which may have affected her development. One such variable which may have influenced Hyuna's dissatisfaction with the LS course was her affective filter. She self-reported a couple incidences which might have caused her to lose face in the LS classroom in the beginning weeks of the course, and she became reticent toward the end of the course. According to Krashen (1982) negative interactions might have raised her affective filter. That is, a low affective filter would have permitted comprehensible input to be processed easily whereas a high filter would have impeded the processing of input. Other studies corroborated the importance of a low affective filter in the language learning classroom (Baran-Lucarz, 2014, Dornyei and Kormos, 2000, MacIntyre, 2007, MacIntyre and Gardner, 1994, Pashby, 2002). In addition, Saito and Samimy (1996) found that particularly for intermediate and advanced L2 learners, anxiety was a significant predictor of performance. Based on Hyuna's case in this study, it is plausible that L2 anxiety and/or a negative attitude may have correlated with a lack of improvement in oral production.

In addition to anxiety, two other social-psychological variables may have influenced Hyuna's learning difficulty. First, power was found to cause reticence in L2 learners (Tsui, 1996). Bourdieu (1977) described that NNS might feel marginalized or lack the power to use the TL. For example, adult L2 learners may not feel that their L2 speech is legitimate and may hesitate to communicate and take risks in speaking their L2. As Hyuna described in several excerpts, she had a family member translate for her in certain contexts. Therefore, she may not have felt empowered to use English in several

contexts. A second variable which may have mediated Hyuna's reticence in LS was her learning style. While the beginning of each LS class was teacher-centered, the majority of the LS class allowed students several opportunities to work collaboratively in small groups and as a whole class. For instance, student groups were expected to engage in and role-play thematic conversations. Hyuna was typically assigned to a group of advanced ELLs who received less scaffolding from the instructor than beginner student groups. Thus, the advanced group did not engage with the instructor very frequently during these role-play activities. These collaborative activities represented a more experiential student-centered learning style (Ellis, 1989). Conversely, Hyuna may have preferred a more formal lecture style including teacher-centered activities and scaffolding as Chizu preferred. Ellis contended that a student whose primary learning style did not match that of the class may struggle due to the style incongruence. Therefore, it appears that Hyuna's dissatisfaction with the LS course may have been one or a combination of social-psychological issues.

In this study I found that several of the participant case studies preferred interactive and collaborative learning activities. In addition to the benefits of the collaboration, these participants also appeared to have a positive attitude towards the classroom activities and language learning in the AE and LS courses. Therefore, it appears that there is a relationship between the students' participation and their attitudes toward language learning. The framework of communities of practice (CoP) may help us to explain this phenomenon. The theory of CoPs was proposed by Lave and Wenger (1991) by which a novice learner is 'socialized' or acquires appropriate linguistic, cultural, and social knowledge by interacting with experts or 'old timers'. During this

learning process the novices transform from participating on the periphery to becoming core CoP members. During the socialization process a learner will change his/her relationship with the CoP and with others in the CoP. In the present study we observed different levels of participation of the participant cases within an oral communication CoP. First, Marco and Chizu took turns serving as ‘knowledgeable others’ in their collaborative partnership in the AE course. Second, Zainab and Kyoko both actively participated in their respective CoPs. Third, we also noted transformations in Flor’s increased LS participation and Hyuna’s regression from participation to non-participation in the LS classroom. We have previously noted that in the five case studies where participants engaged in the class activities on a regular basis, positive feelings were reported and documented with regard to the learning activities. It was also remarked on the exception of Hyuna, who was disengaged from the class and felt marginalized. Thus, there appeared to be a difference between participating on the periphery and marginalization within a CoP with regard to the participants’ attitudes in the present study. Further, Wenger (1998) explained how active participation on the periphery differed from marginalization in a CoP: “In the case of *marginality*, a form of non-participation prevents full participation. It is the non-participation aspect that dominates and comes to define a restricted form of participation” (p. 166). In essence, one who is marginalized has a stalled trajectory within the CoP; they are not working towards becoming a fully participating member. The existing research also has shown that in mainstreamed classrooms, ELLs’ attitudes appeared to be associated with their levels of participation or willingness to participate (Leki, 2001; Miller, 2000; Morita, 2004). However, Morita also found that one case was able to transform her level of participation

during the semester from reticence to increased group participation, and her confidence in speaking English grew in tandem. Finally, Dornyei and Kormos (2000) asserted that the willingness to participate in a classroom setting was strongly correlated with the attitudes toward the course, the learning task, and linguistic competency of the student. That is to say, in a classroom setting where a L2 learner feels comfortable and enjoys the learning activities, s/he might be willing to participate. However, a setting which is considered negative by the L2 learner, s/he might be hesitant to participate and communicate. Thus, based on this study and the existing research, a positive attitude and peripheral participation in the classroom CoP appeared to be a key component to success in the L2 learning process.

My study investigated whether English exposure and experiences that the participants had outside of the classroom correlated to improved accuracy and intelligibility. The results showed that there appeared to be a relationship between outside exposure and intelligibility. Four cases: Marco, Chizu, Flor, and Zainab reported that they had exposure to English outside of the classroom at the post-instructional intervals (i.e., T2 and T3). Of these cases, Marco and Flor self-reported improvement at the post instructional intervals whereas Chizu and Zainab did not<sup>34</sup>. However, Chizu's instructor felt that her pronunciation improved at the post-instructional intervals, and Zainab reported having positive intelligible interaction with friends and NES interlocutors in the community. Therefore, it appears that outside English exposure influenced the intelligibility of several of the participants. Derwing, Rossiter, Munro, Thomson (2004)

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<sup>34</sup> We noted earlier that the advanced cases (i.e., Chizu, Hyuna, and Zainab) did not report improvement to their intelligibility. This might have been conditioned social-psychological variables related to their advanced proficiency level.

and Flege, Munro, & MacKay (1995) found a correlation between intelligibility and the amount of outside language exposure. Additionally, Piller (2002) found that among couples in which one spouse was a NES and the other spouse was a native German speaker, several of the participants were sometimes able to ‘pass’ temporarily as a native speaker of their spouse’s L1 in certain contexts due to the hours of exposure in the TL. It is plausible that the use of English outside the classroom may have influenced changes to intelligibility in these cases. In addition, we also observed that Kyoko and Hyuna self-reported little exposure to English outside of their L1 communities. Kyoko reported some improvement in her English at the post-instructional intervals while Hyuna did not. However, Kyoko’s frequent participation in the AE classroom may have resulted in improved intelligibility at the post-instructional intervals. Furthermore, the concept of social networks may help explain the variation in intelligibility of the participant cases under observation. A social network consists of an individual’s relationships and ties to others (Milroy, 2002). Researchers have found that L2 learners’ social networks influenced their pronunciation and TL acquisition (Kim, 2007; Li, 1995; Wiklund, 2002). For instance, L2 learners who had regular contact with both native and non-native interlocutors tended to exhibit linguistic patterns which were closer to native speakers than L2 learners whose networks were immersed in their L1 communities. Thus, these findings suggest that the use of English with NES and NNS interlocutors in different contexts (i.e., at home, at work, and in the community) conditioned the intelligibility of the case studies in my study. Based on my study and the existing research, it appears that the exposure to English both inside and outside of the classroom in tandem conditioned improvements in several participants’ intelligibility.



I also reported that there was a relationship between the learners' outside English exposure and their attitudes towards English. The findings revealed that Marco and Zainab who had regular English exposure outside of the classroom or English social networks at each of the instructional intervals did not report feelings of isolation or marginalization, and they had positive attitudes toward English language learning. Chizu and Flor also self-reported transformations in their outside exposure; their attitudes toward speaking English appeared to improve as well. That is, they appeared to gain confidence in their ability to speak and use English in different contexts. Finally, Kyoko and Hyuna, who remained isolated in L1, noted feelings of marginalization, discomfort, and having inadequate English skills across all the instructional intervals. McCann, Hecht, & Ribeau (1986) maintained that the use of L2 in different social networks and domains was paramount to a lowered affective filter in L2. In addition, Kim (2007), Lynch, Klee and Tedick (2001), and Miller (2000) revealed that learners with little exposure outside of the classroom felt marginalized, outcast, or disconnected from society or social networks. These findings are suggestive of how English exposure outside of the classroom and the use of English in social networks can affect a L2 learner's attitude, sense of belonging in society, and possessing legitimate power to use the L2 in several domains. Briefly, similar to the relationship between classroom CoP participation and attitude, participation in different social domains in the home and in the community appeared to have a relationship as well.

Based on my findings and the existing research, an important aspect of language learning appears to be a 'sympathetic interlocutor'. That is, an interlocutor who is invested in helping an ELL to communicate effectively. I found that the oral

communication classroom often met the needs of providing a sympathetic interlocutor for the participant case studies. For example, several of the cases engaged in collaborative or scaffolded learning activities in the ESL classroom during which they needed to communicate intelligibly with classmates or the instructor. In these instances the speaker and interlocutor had an interest in co-creating meaning. In addition, I documented that several of the participant cases appeared to enjoy socializing with peers during my classroom observations. The research of Cao (2011) also showed that the interlocutor was a critical variable in ELLs' willingness to communicate in the ESL/EFL classroom. Further, I revealed that meaningful interactions outside of the classroom appeared to influence ELLs' intelligibility in a positive manner. Those participants who had found sympathetic interlocutors or social networks in L2 seemed more connected to US society. Namely, both Flor and Zainab cited examples of engaging in conversations with sympathetic NES interlocutors in the community. Thus, these interactions gave them legitimacy to use English in the community which may have helped them feel connected to US society. By contrast, Kyoko and Hyuna lacked meaningful interaction in the community and felt marginalized. Hence, the sympathetic interlocutor appeared to be an important influence to the socialization of the ELL participant cases both in and outside of the oral communication classroom.

In sum, I suggest that there may be a relationship between how the participants' production improvement and intelligibility was attested in the quantitative and the qualitative analyses and their interactive exposure to English both inside and outside the classroom. The improvements in pronunciation at T2 may largely have resulted from classroom instruction. In addition, having access to English outside the classroom

environment also seemed to relate to how the participants felt about their English ability and their feelings of marginalization, something we evidenced from the metalinguistic interviews. Therefore, it also appears that other factors such as confidence, power, and having sympathetic English speaking interlocutors also contributed to growth in English knowledge and intelligibility. However, we cannot draw a direct connection between these factors and how they may have directly impacted pronunciation.

## 7.2. Limitations

This section addresses seven concerns which arose from my study.

The first concern related to the design of my study and my role as the researcher and interlocutor during interviews. I conducted my study at a site where I did not have ties to the college, the faculty, or the students in an attempt to remove bias from my study and my observations. As a result, the participants that I recruited did not know me personally, and they had little prior interaction with me when I interviewed them at T1; I was an ‘unknown’ interlocutor. I developed a relationship with the participants over the course of the study through classroom observations and informal conversations; I became a sympathetic interlocutor at the T2 and T3 intervals. These changes from an ‘unknown’ to a ‘known’ interlocutor may have influenced my data. Cholewka (1995) revealed that intermediate adult language learners reverted to L1 aspects in unfamiliar oral interview settings with an unfamiliar interlocutor. Thus, based on Cholewka’s findings, my status as an unknown interlocutor may have influenced the participants’ production accuracy and intelligibility in a negative manner at the T1 interval. However, at the subsequent

instructional intervals, after the participants had interacted with me several times, my presence as a known and sympathetic interlocutor may have been a more positive influence on the production accuracy and intelligibility of the participants.

A second concern related to SES. My study exclusively focused on the participants' household incomes to define SES and did not account for other extraneous variables which may influence ELLs' access to English. Rickford (1986) emphasized the importance of considering social networks, gender, and ethnicity with SES as these are interwoven variables, and they need to be considered as a whole in a complete analysis of SES. In other words, due to social stratification, different SES groups may be afforded different English exposure which appears to correlate with production and proficiency. Furthermore, Lan (2003) described changes to migrant workers' professional titles, social class, and their ability to communicate which often co-occur with immigration. Hence, with regard to the more affluent participants in my study, their economic mobility might have provided them more opportunities to interact with NES within their communities. In addition, the more affluent speakers may have been able to afford tutoring services which the less affluent could not afford. Therefore, it appears that the amount and quality of exposure to English is correlated with SES, and my study did not inquire or probe into how SES may have been influenced by the quality of English exposure.

Another concern related to the instructors' backgrounds. The AE and LS courses were taught by two different instructors. One of the instructors had a background in pronunciation and phonetics. She had been teaching oral communication courses for several sessions. The other instructor had an English literature background and had been teaching oral communication courses for one semester prior to the commencement of this

study. Therefore, there was a lack of experience in terms the latter instructor. Derwing and Munro (2005) contended that ESL instructors often do not have an adequate training in phonology, and therefore, often rely on intuition to teach pronunciation. Thus, related to the present study, the differences in the instructors' backgrounds might have influenced the course delivery.

A fourth concern related to the social-psychological variables which might have influenced the production accuracy and intelligibility of the participant case studies. While suggestions were offered to explain why the case studies emerged in the manner that they did, probing questions which delved into the social-psychological behaviors of the participants were not conducted during the metalinguistic interviews. Therefore, I could not draw conclusions or correlations regarding the participants' motivations and behaviors in and outside of the classroom.

The proficiency levels in the present study presented a concern. The participants were placed according to the college's ESL testing specialists during an intake process. That is, the participants' levels of English proficiency were defined and determined by the college itself not by me, nor through a test that I administered. Furthermore, students frequently advanced through the program by taking a sequence of ESL courses without reassessment until they were recommended to exit the program by an ESL instructor. With regard to the participants in the current study, the proficiency level of one of the participants coded as 'advanced' appeared to be a concern. The testing specialists at Atlantic College had placed the participant at the advanced level prior to her enrollment in LS (i.e., at T1). However, one of the veteran instructors had recommended that she enroll in intermediate the two course at the completion of her LS course (i.e., at T2).

Because I did not administer a proficiency test myself, there may be discrepancy regarding the participants' placements by the college and their actual English proficiency.

A sixth concern in my study related to the number of participants in each L1 category. Several of the L1 groups consisted of either one or two participants (i.e., Arabic, Marathi, Mandarin, and Tamil). While these L1 groups exhibited patterns of improvement from the T1 to the T2 intervals, the high production accuracy associated with several of these L1 groups cannot be applied to a whole population of speakers.

The final limitation related to the participant attrition. Atlantic College offered ESL students with the opportunity to complete two 7.5-week learning sessions in one semester. Most of the participants tended to take courses for the entire semester. That is, they would enroll in one ESL course for the Fall I session and take a second course during the Fall II session. Those participants who were recruited during the Fall I session tended to keep in contact with me and participated in the metalinguistic interviews through the delayed post-test interval (T3). However, several participants who were recruited at the Fall II session attrited. Attrition was affected by two variables: weather and travel. First, the year during which the study was conducted was one in which winter weather conditions presented challenges. Second, several students concluded their ESL sequences at the end of the semester and were not available at the T3 interval. Attrition was also evidenced in relation to several students who used the long holiday break to travel. In the latter cases, the participants were not available for a T3 interview. Such interruptions affect and present challenges in studies involving delayed post-test intervals.

### 7.3. Pedagogical Implications

The following section addresses the ways in which the findings of the present study may inform teaching practices and curricula. Five key points for curriculum and instruction are highlighted.

One of the goals of the present study was to compare how the methods employed in two cohorts of oral communication courses influenced the participants' production accuracy of word-initial and word-final consonants and their intelligibility. The collaborative activities employed in both the AE and LS courses were found to influence the participants' intelligibility in a positive manner. In the previous chapter we also noted that typical semester courses which met four to five hours a week produced positive changes to L2 participants' intelligibility in these studies (Derwing et al., 1997, 1998; Hahn, 2002; Kennedy et al., 2014; Perlmutter, 1989). Acton (1984) also recommended that a pronunciation course designed to reduce fossilized errors in advanced ELLs should consist of 48 hours of instructional time to produce improved intelligibility. Nevertheless, Couper (2003, 2006) and Elliott (1995) also demonstrated that short pronunciation interventions exclusively targeting segmentals introduced in a L2 course which covered all modalities conditioned positive changes to L2 learners' production accuracy as well. Thus, it is important for program administrators, instructors, and students to set realistic pronunciation expectations regarding changes to ELLs' intelligibility based on the length of the program or intervention. For example, a broad curriculum which incorporates both segmental and intonational patterns is best suited for a semester-length course. However, community education settings or the pronunciation aspect in an ESL course covering all modalities of communication should provide a limited pronunciation curriculum in order

to produce positive changes as there is not enough instructional time to cover both segmentals and prosody (Chang, 2006). Finally, Derwing and Munro (2005) have described incongruence between pronunciation instructors' goals of improving ELLs' intelligibility and the participants' goals of achieving near-native pronunciation. Thus, instructors of adult L2 learners should emphasize that oral communication instruction can indeed condition positive changes to one's intelligibility; however, native or near-native pronunciation is an unrealistic goal for such a course.

Over the past three decades there have been changes to pronunciation curricula as recommended by experts. The audiolingual pronunciation curricula which were used through the mid-1980s incorporated extensive minimal pair drills and mimicry with the goal of native production (Fries, 1945; Paulston, 1970). More recently, Acton (1984), Morley (1996), and Pennington (1989) asserted that communicative activities yielded improved intelligibility and communicability. My findings showed that both drilled practice and conversational activities employed in the AE and LS courses yielded similar results regarding production accuracy. However, it was noted that the AE participant cases exhibited a slightly greater improvement for one phonological variable at the T2 interval and were able to cite specific segments which hampered their intelligibility. We attributed these changes to the explicit articulation and corrective feedback employed in the AE course. The literature also supports the use of explicit error correction and awareness-raising activities in the pronunciation classroom in order to help students monitor their pronunciation for greater accuracy and intelligibility (Acton, 1984; Celce-Murcia, Dornyei & Thurrell, 1997; Couper, 2003, 2006; Hahn, 2002; Pennington, 1998). Furthermore, explicit teaching can assist adult L2 learners in gaining metalinguistic



awareness faster than if they acquired it on their own (Widdowson, 1990). Thus, it appears that incorporating explicit articulation and awareness-raising activities in the oral communication curriculum is important as it permits adults to comprehend how their L2 errors may influence their intelligibility.

My findings suggest that most of the participants in the case studies preferred collaborative learning activities during which they interacted with an interlocutor, yet their learning styles differed. Research has demonstrated that students have preferences for learning (Andreou et al., 2008; Khmakhien, 2012; Yassin, 2013). Because a learner might favor one learning style over another, language skills will develop differently based on the learning preferences of the individual (Ellis, 1989). For example, one student who prefers dyadic conversational activities may improve in his/her speaking fluency while another student who enjoys drilled practice with an expert may improve his/her intonation. Thus, it is recommended that instructors employ several instructional models and learning activities, including partner and group work, in which students can practice a variety of speaking tasks. For instance, student pairs and groups could identify targeted segments and words in a picture, a song, or a poem. They could read, role-play, or create a dialogue or a story together. Furthermore, in employing a more formal teacher-centered approach, an instructor can lead drilled practices, whole class discussions, or present media which target specific segments or words in the L2 classroom to accommodate the various learning styles of the learners.

The present study revealed that the NES raters were better able to comprehend the ELL participants than the NNS raters were. Familiarity with a dialect has been found to condition intelligibility and comprehensibility between interlocutors in a positive manner

(Jenkins, 2002; Lippi-Green, 1997; Munro et al., 2006). For instance, two NNS of the same L1 might be intelligible to each other. However, NNS of different L1s might have lower mutual intelligibility. There is some debate as to whether pronunciation classes should consist of a homogeneous class in which the ELLs speak the same L1 or a heterogeneous class of ELLs who speak several L1s (Derwing, 2005). The current study revealed that a heterogeneous mix of ELLs of several different L1s might benefit the learner in the future by providing an opportunity for exposure to a wide range of English dialects. Jenkins (2002) also suggested that ELLs' exposure to NNS of several L1s may help them to clarify English pronunciation and broaden their English comprehension skills. Varonis and Gass (1985) also noted that in NNS/NNS dyads both parties share the onus of communication breakdown due to their non-native competencies; therefore, the negotiation of meaning and repair processes differ from NES/NNS conversations in which the NES is the 'knowledgeable other'. Through interaction with ELLs of different L1s in the classroom, a learner can practice negotiating meaning in a non-threatening environment. Finally, the inclusion of media: songs, movie clips, recorded poems spoken by NNS speakers can also help ELLs gain familiarity with NNS of other L1s.

A final point, my findings and the existing research overwhelming demonstrated that a L2 learner acquired a language through active participation and interaction with interlocutors both in the classroom and outside of the classroom. The recent research on pronunciation teaching recommended employing communicative methods in which L2 learners collaborate in dyads and groups (Celce-Murcia et al., 1997; Morley, 1991; Pennington, 1989). Swain (1993) maintained the importance of active participation in conversations through output. Therefore, it is paramount that L2 teachers stress the

importance of using the TL in the classroom and create opportunities for students to engage collaboratively with their peers during class. ESL programs and community-based programs can include extracurricular activities to provide ELLs with more opportunities for interaction in English outside of the classroom as well. ESL lunches, coffee breaks, book clubs, or conversational groups can provide a relaxing atmosphere for ELLs to interact with a range of sympathetic interlocutors at both the novice and expert levels. Furthermore, conversational partner activities in which an ELL interacts with a single sympathetic expert such as a NES student or an advanced NNS may be more appropriate for very hesitant and anxious learners, so they can reduce their anxiety. Finally, L2 learners should also be encouraged to seek opportunities and communicate in new domains outside of the classroom in which they can use the L2 with a variety of interlocutors.

#### 7.4. Future Research

The convenience sample I employed in my study may have drawn students of particular persona (i.e., a motivated learner). The inclusion of all the students in an oral communication course as study participants would provide a more accurate depiction of the results of instruction on production and intelligibility of a particular cohort. In my study AE and LS students who had attendance issues or employed L1 in the classroom declined to participate<sup>35</sup>. By including those students who appeared less motivated in the

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<sup>35</sup> Absenteeism in a class may not indicate an unmotivated learner in all cases. Lambert (2009) revealed that students who are parents of minors or employed often do not have as much time for their studies as those student are unemployed or do not have children. For instance, both Kyoko and Zainab were motivated learners, and they missed some classes due to obligations at their children's schools. Therefore, other variables may affect students' absenteeism.

oral communication classroom in a study, one could investigate whether those less motivated students exhibited similar improvements in intelligibility and production as more motivated learners. Furthermore, while the current study did not code for social-psychological variables, these variables (i.e., motivation and confidence) could be included in an in-depth qualitative inquiry in order to investigate their relationship to adult ELLs' English exposure. Thus, we might gain better insight in to how social-psychological variables influence more reticent adult L2 learners.

An interlocutor's familiarity with the dialect of a speaker was another concern that was raised in the present study. This phenomenon has been investigated through the use of NES raters to assess the intelligibility of ELL participants (Derwing et al., 1997, 1998, Perlmutter, 1989). However, precious few studies on production and intelligibility of ELLs have addressed how NNS might comprehend the speech of a NNS of a different L1 (Fayer & Krasinski, 1987; Munro et al., 2006). With globalization and the use of English as a lingua franca, NNS from different L1s are communicating with greater frequency and more rapidly than ever before. In order to promote better understanding between NNS, further investigations related to the intelligibility of ELLs and NNS are needed. The results of such a study can assist ESL instructors who teach in large metropolitan areas where the immigrant population is diverse. Such an investigation may also assist English as an international language (EIL) instructors design curricula which can best address the salient phonological features needed for mutual intelligibility between NNS of different L1s.

Finally, the present study examined NES and NNS ratings of participants' intelligibility. However, it did not address which aspects of speech were the most

important to the raters' comprehension of the participants. Derwing et al. (1998) examined the influences of comprehensibility, intelligibility, and accentedness rated by NES. In addition, there has been some research into how NNS perceive ELLs (Munro et al., 2006). However, during the debriefing session for the NES and NNS raters in my study, some interesting comments were made by the raters. In certain instances the raters noted that a particular phoneme or a word which was critical to their comprehension of an utterance was completely unintelligible to them. Therefore, an in-depth investigation of what the raters perceive during a listening session could assist researchers in better understanding what phonological aspects of ELL pronunciation correlate with intelligibility for both NES and NNS interlocutors. Furthermore, as Fayer and Krasinski (1987) noted, documenting the raters' reactions to unintelligible utterances may also assist researchers understand the degree of discomfort and frustration felt by English speaking interlocutors.

## 7.5. Conclusion

In sum, the framework of intelligibility has guided my study due to its significance as an appropriate goal for L2 learner pronunciation. I have revealed that the participants' production accuracy and intelligibility increased over the instructional intervals. While the growth in production accuracy is promising, intelligibility rather than near-native pronunciation accuracy should be the focus of oral communication courses as it is a realistic goal for adult L2 learners (Acton, 1984; Derwing, 2008; Levis, 2005). Intelligibility refers to how well one can be understood by others; it is highly subjective and dependent on the interlocutor. Whether an ELL produces /s/ rather than /θ/ in 'think'

is irrelevant provided that an interlocutor can understand him/her. As attested in the NES and NNS raters' assessments in this study, an interlocutor might have to adjust to a speaker's utterance according to each context. For example, due to the variation of NES dialects, a NES interlocutor might have to tend more closely to an unfamiliar dialect of another NES speaker. In this instance where two NES of different dialects interact, production may be accurate (within the dialect); however, it may not always be easily intelligible to the NES interlocutor. In another instance, many immigrants have arrived in countries where English is the majority language; they realize that accurate or intelligible speech is important to their economic well-being and to earn respect from others (Derwing, 2003). We should not assume that all immigrants or foreign-born visitors wish to lose their 'foreign accent' as an 'accent' ties them to their L1, home culture, and identities (Schecter & Bailey, 1997). Furthermore, a growing number of people use English as an international language (EIL) globally (Jenkins, 2002; Kachru, 2006). For these individuals who reside in a non-Anglophone country, English might be used in business, education, or as a lingua franca. Native pronunciation is not a reasonable goal in EIL situations as these NNS may not have frequent contact with NES. On a final note Lippi-Green (1997) reminded us that 'accent' and 'dialect' are "Structured variation in a language" (p.45). That is, our ideas of 'accent' and what sounds native and non-native are socially constructed, and what is considered native or non-native varies based on the interlocutor in each context. Therefore, in the past few decades researchers have emphasized the importance of intelligible rather than native production since one's intelligibility is paramount to effective communication. Thus, those phonological features

which are most important to the intelligibility of the L2 learner should be the focus of instruction.

## Appendix A: Pilot Study Word-Final Consonant Clusters

<b>Cluster type</b>	<b>Example</b>
liquid + liquid	<b>Girl</b>
liquid + nasal	<b>Film</b>
liquid + voiced obstruent	<b>card, balls</b>
liquid + voiceless obstruent	<b>Sport</b>
nasal + voiced obstruent	<b>hand, runs</b>
nasal + voiceless obstruent	<b>Aunt</b>
voiceless obstruent + voiceless obstruent	<b>ask, writes</b>
liquid + liquid + voiced obstruent	<b>Girls</b>
liquid + nasal + voiced obstruent	<b>Films</b>
liquid + voiced obstruent + voiced obstruent	<b>Cards</b>
liquid + voiceless obstruent + voiceless obstruent	<b>first, sports</b>
nasal + voiced obstruent + voiced obstruent	<b>Hands</b>
nasal + voiceless obstruent + voiceless obstruent	<b>strength, aunts</b>
voiceless obstruent + voiceless obstruent + voiceless obstruent	<b>Asks</b>



## Appendix B: Student Demographic Interview

*Respond to the following questions.*

The following questions will help me understand your language background, your interest in English pronunciation, and how you use English in your daily life.

All the information you provide will be kept confidential.

1. Age:      18-19 \_\_\_\_      20-29 \_\_\_\_      30-39 \_\_\_\_      40-49 \_\_\_\_      50+ \_\_\_\_

2a. How long have you lived in the US? \_\_\_\_\_ months      \_\_\_\_\_ years

2b. Have you lived in other English speaking countries?      Yes      No

2c. Which countries? \_\_\_\_\_ How many years? \_\_\_\_\_

3a. What is your current ESL level?

Beg. 1      Beg. 2      Int. 1      Int. 2      Adv. 1      Adv. 2

3b. How many years have you studied ESL in the US? \_\_\_\_\_

3c. Where have you studied English in the US ? \_\_\_\_\_

*(Please provide school names)*

4. What is your family income:      \_\_\_\_ \$0-\$49,900      \_\_\_\_ \$50,000-more (+)

5. Did you graduate from high school?      Yes      No

University?      Yes      No

- 6a. Did you study English in your home country? Yes No
- 6b. How many years did you study English in your home country? \_\_\_\_\_
- 6c. Were any of the English teachers in your home country native English speakers?
- Yes No
- 7a. Have you studied English pronunciation as a separate class or as part of an ESL class?
- Yes No
- 7b. Do you know how to use a pronunciation guide in a dictionary? Yes No
- 7c. Are you familiar with phonetic alphabets? (example: θ, ʃ, ʒ) Yes No
8. Will you be available to participate in the study during the pronunciation course?
- Yes No
9. Will you be available to participate in the final interview during the Fall 2 session?
- Yes No
10. Is your husband or wife a native English speaker? Yes No
- 11a. Do you have children enrolled in a US school? Yes No
- 12b. How many years have your children attended US school? \_\_\_\_\_

## Appendix C: Sentence List

*Read the following phrases aloud.*

Say cash now.

Say zebra now.

Say this now.

Say breathe now.

Say mouth now.

Say sum now.

Say gut now.

Say beige now.

Say have now.

Say lens now.

Say duck now.

Say passed now.

Say lane now.

Say month now.

Say judge now.

Say solve now.

Say neck now.

*Say coats now.*

*Say bar now.*

Say bring now.

Say ship now.

Say price now.

Say face now.

Say cars now.

Say tab now.

Say balls now.

Say vat now.

Say play now

Say rug now.

Say flat now.

Say ball now.

Say large now.

Say choose now.

Say pens now.

Say half now.

Say belt now.

Say map now.

*Say tax now.*

*Say pad now.*

Say dance now

Say thing now.

Say film now.

Say worse now.

Say slip now.

Say old now.

Say drums now.

Say kept now.

Say gives now.

Say great now

*Say slow now.*

Say heart now.

Say stopped now.

Say arm now.

Say aunt now.

Say jogged now.

Say March now.

Say six now.

Say loves now.

Say bags now.

*Say past now.*

Say self now.

Say sink now.

Say orange now.

Say golfs now.

Say spring now.

Say small now.

Say heard now.

Say stamp now.

Say smell now.

*Say adds now.*

Say response now.

Say directs now.

Say pounds now

Say banks now.

Say sands now.

Say parks now.

Say cards now.

Say first now.

Say sports now.

*Say films now.*

Say asks now.

Say next now

Say thinks now.

Say parents now

Say worst now.

Say girl now.

Say girls now.

Say served now.

Say tenths now.

*Say yards now.*

Say solves now.

Say desks now.

Say palms now.

Say months now.

Say splat now.

## Appendix D: Personal Experience Interview Questions

*Respond to the following questions.*

T1

1. What is a surprising cultural difference that you find in America?
2. Do you have a favorite movie star?
3. What are your favorite activities to do in your free time?
4. Is there an American food you like to eat?

T2

1. What is your favorite food? How do you prepare it?
2. Describe your family.
3. What is your favorite type of music, singer, or band?
4. What do you miss about your home country?

T3

1. What is your favorite movie?
2. Do you like sports? Do you watch sports on TV?
3. Who do you admire?
4. What is an ideal job for you?

## Appendix E: Participant Metalinguistic Interview

## T1 Interview

*Respond to the following questions.*

1a. Do you work outside the home? Yes No

1b. How often do you use English at work?

0%-20%      20%-40%      40%-60%      60%-80%      80%-100%

2a. Do you use English at home? Yes No

2b. How often do you use English at home and with family and friends?

0%-20%      20%-40%      40%-60%      60%-80%      80%-100%

2c. How often do you use English in your neighborhood?

0%-20%      20%-40%      40%-60%      60%-80%      80%-100%

3. Do you watch movies or TV in English? Yes No

4. Do you listen to music in English? Yes No

5. What are your goals for learning English? \_\_\_\_\_

6. Do you feel that Americans can understand you when you speak English?

Yes No

7. Can you understand Americans when they speak to you? Yes No

8. Are there situations where you do not like to use English? Yes No

Please explain:

---

(Examples: doctor's office, paying bills, on the telephone, at your children's school)

9. What areas of English pronunciation do you find easy? \_\_\_\_\_

10. What areas of English pronunciation do you find difficult? \_\_\_\_\_

11. How would you rate your English pronunciation on a scale of 1 to 5? 1 cannot be understood, and 5 is excellent English? \_\_\_\_\_

12a. Do you think it is okay to speak English with an accent?                      Yes      No

12b. Why or why not? \_\_\_\_\_



## T2 Interview

*Respond to the following questions.*

1. Has your pronunciation has changed from your participation in the pronunciation course? Yes No

2. Do you feel you can better understand Americans now? Yes No

3a. In the past 2 months, have you changed your use of English? Yes No

3b. Do you use it more or less often now? \_\_\_\_\_

4. Were there classroom activities or topics taught which helped you improve your pronunciation? \_\_\_\_\_

5. Are there situations where you do not like to use English? Yes No

6. Please explain:

\_\_\_\_\_

(Examples: doctor's office, paying bills, telephone, supermarket, post office)

7. Were there class activities that you found useful? \_\_\_\_\_

8. Were there class activities that were not useful? \_\_\_\_\_

9. What areas of English pronunciation do you find easy? \_\_\_\_\_

10. What areas of English pronunciation do you find difficult? \_\_\_\_\_

11. Did you work on your pronunciation outside of class? Yes No

12. How would you rate your English pronunciation now on a scale of 1 to 5?

For example, 1 cannot be understood, and 5 is excellent English? \_\_\_\_\_

13. If Americans can easily understand your English, is that pronunciation good enough?

Yes    No

## T3 Interview

*Respond to the following questions.*

1. Do you use English more often now after you finished your pronunciation course?

Yes No

2. Do you watch more English TV/movies or listen to more English music now?

Yes No

3. Can you understand American speakers more easily since you have taken the pronunciation course?

Yes No

4. What is different about your speaking now? \_\_\_\_\_

5. Are there situations where you do not like to use English? \_\_\_\_\_

(doctor's office, children's school, telephone)

6. What areas of English pronunciation do you find easy? \_\_\_\_\_

7. What areas of English pronunciation do you find difficult? \_\_\_\_\_

8. How would you rate your English pronunciation on a scale of 1 to 5? 1 cannot be understood, and 5 is excellent English? \_\_\_\_\_

9a. Do you think it is okay to speak English with an accent? Yes No

9b. Why or why not? \_\_\_\_\_

## Appendix F: NES Questionnaire

*Respond to the following questions*

1. In which state/county were you raised?

\_\_\_\_\_

2. Was English the only language spoken in your home growing up?      Yes      No

3. Do you speak another language? \_\_\_\_\_

4. At which level did you study that language? \_\_\_\_\_

(Elementary, middle, high school, college)

5. How many years of foreign language study have you had? \_\_\_\_\_

6. Do you often interact with ELLs and international students?      Yes      No

7. Which groups of ELLs do you most encounter? \_\_\_\_\_

(Spanish speakers, Arabic speakers, etc.)

## Appendix G: NNS Questionnaire

*Respond to the following questions*

1. What is your native language? \_\_\_\_\_

2. Did your family speak other languages in your home when you were growing up?

Yes No

Which one(s)? \_\_\_\_\_

3. Did you learn other languages in school? Yes No

Which one(s)? \_\_\_\_\_

4. In what city or area of your country are you from? \_\_\_\_\_

5. Have you lived in other countries other than your home country and the US?

Yes No

Which one(s)? \_\_\_\_\_

6. Have you passed the TOEFL? Yes No

7. Do you have much contact with ELLs and other international students? Yes No

8. Which groups of ELLs do you most encounter?

\_\_\_\_\_

(Spanish speakers, Arabic speakers, etc.)

## Appendix H: Rater Answer Sheet

*Directions: You will listen to 28 speaking samples of English language learners (ELLs). You will be asked to give each speaker a score on their intelligibility. Please rate each speaker based on the following scale: 1 (difficult to understand) to 5 (native or near-native comprehensibility).*

Speaker 1: \_\_\_\_\_

Speaker 15: \_\_\_\_\_

Speaker 2: \_\_\_\_\_

Speaker 16: \_\_\_\_\_

Speaker 3: \_\_\_\_\_

Speaker 17: \_\_\_\_\_

Speaker 4: \_\_\_\_\_

Speaker 18: \_\_\_\_\_

Speaker 5: \_\_\_\_\_

Speaker 19: \_\_\_\_\_

Speaker 6: \_\_\_\_\_

Speaker 20: \_\_\_\_\_

Speaker 7: \_\_\_\_\_

Speaker 21: \_\_\_\_\_

Speaker 8: \_\_\_\_\_

Speaker 22: \_\_\_\_\_

Speaker 9: \_\_\_\_\_

Speaker 23: \_\_\_\_\_

Speaker 10: \_\_\_\_\_

Speaker 24: \_\_\_\_\_

Speaker 11: \_\_\_\_\_

Speaker 25: \_\_\_\_\_

Speaker 12: \_\_\_\_\_

Speaker 26: \_\_\_\_\_

Speaker 13: \_\_\_\_\_

Speaker 27: \_\_\_\_\_

Speaker 14: \_\_\_\_\_

Speaker 28: \_\_\_\_\_

## Appendix I: Classroom Observation

Date: \_\_\_\_\_

Class: \_\_\_\_\_

Activities	Drills	
	Reading dialogues	
	Free Speech	
	Presentations	
	Other:	
Organization	Whole class	
	Groups/Teams	
	Partner	
	Individual	
Content	Consonants	
	Vowels	
	Stress	
	Intonation	
	Linking/Reduction	
Modality	Perception	
	Production	
Artifacts	Audio:	
	Visual:	
	Media:	
	Other:	



Student Interactions	Teacher	
	Student	
	Researcher	

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