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INTERFERENCE OF ANDALUSIAN ASPIRATION OF CODA /S/ AND VELARIZATION
OF WORD FINAL /N/ IN LOW-LEVEL L2 ENGLISH LEARNERS

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ABSTRACT

As part of a bilingual phonological study, ten L1 Andalusian Spanish and low-level L2 English speakers were interviewed in a three-part process. The interview was conducted in both languages as to evaluate the relationship between the strength of two phonological features of Andalusian Spanish, /s/ aspiration and /n/ velarization, in the L1 and in the L2. The results of this study were analyzed to see if the frequency and position of these particular phonological processes in the L1 would indicate the strength of the same process in the L2. Based upon the results of previous studies, participants were expected to exhibit /s/ aspiration and /n/ velarization in the same positions and with the same relative frequency in the English L2 as they do in the Andalusian Spanish L1. An analysis of the data collected during this study found that the processes of /s/ aspiration and /n/ velarization were prominently transferred from Spanish to English in this low-level stage of language acquisition. However, the strength of these processes in native Spanish did not necessarily predict their strength in English speech. While participants were almost six times more likely to aspirate /s/ than to velarize /n/ during the Spanish interview segment of the interview process, they were almost four times more likely to velarize /n/ than to aspirate /s/ during the English segments. The results regarding /s/ aspiration showed that there was no correlation between the frequency of aspiration in Spanish and in English. This was true of each of the four positions in which /s/ aspiration could occur, word-final, word-internal, phrase-final, and plural, as well. A general analysis of the total instance of /n/ velarization showed no correlation between a speaker's tendency to velarize in Spanish and his tendency to do so in English. However, a categorical analysis of the various positions in which /n/ velarization can occur did show that some instances of correlation do exist. While no correlation was found regarding the frequency of word-final prenasalized fricative, word-internal

preconsonantal, word-internal prevocalic, and phrase-final /n/ velarization in the two languages, the data retrieved does show that speakers who velarize word-final preconsonantal /n/ at high rates in their native Andalusian Spanish are likely to do so during English oral reading, as well. There was no correlation between Spanish speaking and English speaking, however. A correlation was also found between a speaker's tendency to velarize word-final prevocalic /n/ in L1 Andalusian Spanish and in L2 English, as well.

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INTRODUCTION

The many phonological features that separate two languages provide a source of potential interference during second-language acquisition. This study analyzes specifically the transfer of the phonological processes of /s/ aspiration and /n/ velarization from L1 Andalusian Spanish to L2 English. Based upon the results of related studies, it is expected that the strength and position of each process in the L1 will be direct predictors of its relative strength and position in the L2.

While nonnative Spanish speakers reside in a number of countries throughout the world, native speakers are generally restricted to Spain; South, Central, and North America; and the Caribbean zone. These regions are divided into “geolects,” language dialect zones defined through geographic terms. This study specifically focuses on the Spanish of Andalusia, the Southernmost region in Spain. There is not a single grammatical feature, such as verb conjugation, prepositional use, and syntactic pattern, which separates Andalusian Spanish from Castilian Spanish (Lipski, 1986). Andalusian Spanish is, however, a linguistic variety of Peninsular Spanish as the characteristics that distinguish it from other Spanish varieties are found mainly at the phonetic-phonological level (Ruiz-Sánchez, 2007). The linguistic peculiarities of this Spanish variety arose in the late Middle Ages, reflecting the influence of the Castilian and Leonese reconquest of the region. These distinct features of Andalusian Spanish arrived and developed at different times, but by the late fifteenth century Andalusian speech was already regarded as “different” by Spaniards of other regions. An imitation of the Andalusian Spanish spoken in Seville, the location of the present study, written by French traveler Baron Charles Dauillier in 1862 and quoted by Lipski (1986) reads as follows:

“Puez zeñó [...] no crea uzté que la non traído de Pariz ni de Londrez, que tal cual uzté la ve, la hemoz hecho acá de Zeviya.”

Ceceo and the transformation of final consonants, including weakening and deletion, are clear in this excerpt. Andalusian Spanish is a phonetic accent associated with consonant weakening, a phonological process that includes the weakening or deletion of consonants in the coda position. Out of all of the phonological processes associated with the variety, it is /s/ aspiration and /n/ velarization that are the most linguistically distinct phonological qualities of Andalusian Spanish speech. Although these processes will appear in the speech of native speakers throughout the Spanish-speaking world, they appear with the greatest strength and frequency in Andalusia. Both /s/ aspiration and /n/ velarization are related to the process of syllabification, occurring in the coda position of the syllable. These processes weaken the consonants, the alveolar consonant /s/ becoming a glottal consonant /h/ in /s/ aspiration and the alveolar consonant /n/ becoming a velar consonant /ŋ/ in /n/ velarization. Because of their strength in the Andalusian variety of Peninsular Spanish as well as their association with syllabification, these two features were highlighted in this study.

The phonological process of /s/ aspiration is perhaps the most distinctive quality of Andalusian speech. Table 1 below demonstrates the frequency of /s/ aspiration in a variety of Spanish language zones including Seville, the location of the present study. The table demonstrates the frequency of /s/ aspiration and deletion before consonants and in the word-final position. The table is an excerpt of the one provided by Lipski (1986).

Table 1. Behavior of /s/ in Various Spanish Dialect Zones

Dialect Zone	/s/C			/s/#C		
	[s]	[h]	[Ø]	[s]	[h]	[Ø]
Seville	0	95	5	0	91	5
Madrid	94	6	0	69	29	2
Murcia	1	70	29	0	80	20
Barcelona	29	1	0	92	8	0
Costa Rica	92	8	0	69	29	2
Bolivia	91	9	0	72	23	5
Mexico	96	4	0	65	32	2

The aspiration of /s/ is the most recognizable phonological process in Spanish. Aspiration most commonly occurs in the coda position, variations of which include

1. Internal proconsonantal position: este [es.te] to [eh.te]
2. Word-final preconsonantal position: las toman [las.to.man] to [lah.to.man]
3. Prepausal position: comemos [ko.me.mos] to [ko.me.moh] (Torreira, 2007)

It can also occur in the onset position because Spanish syllabifies at the level of the sentence. For instance, a sentence such as “¿Tienes algo?,” or “Do you have something?” in English, would syllabify as [tje.ne.hal.ɣo] instead of [tje.ne.sal.ɣo] (Hualde, 1989). Aspiration can evolve further into complete loss of /s/ in some instances. For example, the Spanish word “puesto,” or “set” in English, can be pronounced [pwe.to]. This /s/ deletion occurs due to the Spanish syllabification trend towards the preferred structure of consonant-vowel (CV). An example of this evolution is presented below with the word “disco”:

1. Sibilant pronunciation: [dis.ko] CVC-CV
2. Aspiration of /s/: [dih.ko] CVc-CV

3. Deletion of /s/: [di:.ko] CV-CV

While the phonological differences between aspiration and deletion are difficult to differentiate for nonnative Spanish speakers, researchers have found that /s/ transformation are so ingrained as part of speech that native speakers consistently distinguish between the two processes (Hammond, 1978). The familiarity with and the strength of these processes suggests learners will retain these processes in the L2.

Velarization of the alveolar consonant /n/ is another characteristic of Andalusian Spanish. Similar to /s/ aspiration, /n/ velarization occurs as part of the phonological process of consonant weakening. In Andalusian Spanish, the process generally occurs in the coda position, normally as a word-final consonant located before a vowel or before a pause (Lipski, 1986). For example, the phrase “en agosto” would be pronounced as [eŋ.a.gos.to] in many native Andalusian Spanish speakers. Previous studies have also demonstrated that although /n/ velarization does not occur before consonants at high frequencies, it will occur in this position before fricative consonants. Internal velarization is less common than word-final and is more likely to occur before vowels than before consonants (Lipski, 1986). While /n/ velarization is generally restricted to the coda position, its position is also subject to the rules of Spanish syllabification and thus could theoretically appear in the onset position.

Second Language Acquisition

The process of second language acquisition is not language specific, occurring in the same manner regardless of L1 and L2 classification (VanPatten, 1992). Paradoxically, both the success of L1 acquisition and the limits of L2 acquisition derive from the same set of learning principles. The initial state of the neural tissue involved in language learning is one of plasticity, forming permanent structures based on L1 experience. It is thus difficult to learn a second

language because of these permanent structures, particularly if the second language is phonologically, syntactically, or grammatically very different from the first. The old structures compete with the new ones to inhibit learning, a general process known as proactive inhibition (Ellis, 2006). Interference occurs after some features of the L2 have been acquired and can begin to compete with structures from the L1. It often occurs as a result of a language learner “falling back” on old knowledge when he or she has not yet acquired the same skill set (phonology, morphology, vocabulary, grammar, syntax, etc) in the second language (Krashen, 1981). Similar processes associated with second language learning include overshadowing and blocking. Overshadowing occurs when two cues are presented together and jointly predict an outcome and the one with the greatest salience is chosen. For instance, when native Spanish speakers with a low level of English proficiency are presented with the English word “me,” both the Spanish pronunciation [me] and the English pronunciation [mi] will be recalled. Because of their increased familiarity with the Spanish pronunciation, however, they are more likely to pronounce the word as [me]. Over time, however, these L2 English learners will ignore the Spanish pronunciation cue and choose the English one instead, a manifestation of the blocking process. This evolution is the reason low-level English learners were chosen to participate in this study, as the blocking process had presumably not fully formed at their level of English proficiency.

While the essential process of second language acquisition is the same regardless of context, its efficacy and velocity are greatly influenced by a variety of factors. This study specifically focuses on second-language acquisition in the case where the L1 is the national or official language and the L2 is learned by choice and not out of necessity. Because the L1 in this case is the language spoken at home and with friends, taught in schools, printed and heard in national media, and used in daily commercial interactions, it is often dominant over the L2. The

L2, as a language learned deliberately in school for potential use and not normally for practical use, is weaker (Dunn & Fox Tree, 2009). Numerous studies (e.g. Piske, 2001) have shown that factors such as age of language acquisition, amount of L2 language use, official language of country of residence, gender, length of formal instruction, motivation, language learning aptitude, and amount of L1 language use affect L2 proficiency and the degree of foreign accent. Exhaustive tests performed by Flege, Munro, and McKay, including translation tasks, mean sentence duration tasks, accent assessment, and self ratings, show that measurements of age of acquisition and amount of L1 use most successfully model language dominance (1995).

Age of acquisition, however, remains the best measure of degree of foreign accent in the L2. Long suggests that the L2 is spoken accent-free if it is learned by the age of six and foreign accents would be present in most individuals who begin learning the L2 after the age of twelve (1990). Studies by Selinker show that adult language learners demonstrate a distinct limit to the extent of which L2 pronunciation improves (1972). Adult L2 learners are often adept at communicating meaning but do not usually have adequate control of grammatical rules, pronunciation, and phonology (Salaberry & Lopez-Ortega, 1998).

Because it was important for the participants in this study to possess a strong Spanish accent when speaking L2 English, all were adult learners over the age of twenty-two. All participants had studied the required two years of English in secondary school but had discontinued their English study in the years before beginning adult language education classes at CLIC International House Sevilla. Much of what they had originally learned had been lost—all had started the adult English classes at the beginner level. Additionally, all participants were lifelong residents of Andalusia and had not spent more than two weeks in an English-speaking country. All participants only used English during class meetings or while completing homework

assignments and studying for exams. Because of their age and infrequent use of the language, L1 phonological interference was predicted to occur.

The efficacy and velocity of second language acquisition are also affected by the relationship between the L1 and the L2. The many phonetic differences which distinguish two languages represent a potential source of foreign accent in a second language learner because interference is very prominent at the level of phonetic implementation (Flege, 1981). L2 learners have particular difficulty mastering the intonation and pronunciation patterns of the L2 when they are different from those of their L1. Native Spanish speakers, for instance, often experience difficulty differentiating the English long and short vowels as well as pronouncing schwa vowels altogether. Spanish-accented English also features prosodic differences such as pitch accent and stress (Ikeno, Pellom, & Cer, et. al., 2003). The process of syllabification occurs very differently in each language. Spanish is a syllable-timed language, meaning that each syllable has the same duration. Spanish also syllabifies at the level of the sentence, resyllabifying word-final consonants preceding vowel-initial words (Daurer, 1983). English, however, is a stress-timed language—syllables have varying durations dependent upon the number and the pairing of phonemes in the syllable. Unlike Spanish, English only syllabifies within words and not at the level of the sentence (Treiman & Zukowski, 1990). The two processes highlighted in this study, /s/ aspiration and /n/ velarization, also occur very differently in the two languages. The process of /s/ aspiration, while very common in many Spanish dialects, does not occur in English. The process of /n/ velarization does occur in both languages, but appears in different positions. In normative Spanish, /n/ is velarized before velar consonants, as in the words “tengo” /teŋ.go/ and “cinco” /siŋ.ko/. However, as mentioned previously, it is quite common for native speakers of a variety of Spanish dialects—including that spoken in Andalusia—to velarize /n/ in a variety of

other positions. In normative English, /n/ is also velarized before velar consonants, as in the words “tank” /tɒŋk/ and “sing” /sɪŋg/. However, English /n/ velarization is limited to normative instances and does not occur in other positions as it does in Spanish. The differences in the behavior of /s/ aspiration and /n/ velarization in English and Andalusian Spanish present the basis for L1 phonological interference, the focus of the present study.

Foreign accent, however, is a fluid characteristic. Several studies (e.g. Salaberry & Lopez-Ortega, 1998) show that the degree of foreign accent is directly affected, almost paradoxically, by the task used to measure the accent. Attention is a large contributing factor, as attentive speech was found to have greater adherence to style, grammar, and pronunciation. Emotional investment also affects the degree of foreign accent, as oral production tests showed that grammatical form and phonetic accuracy was lower in the task associated with the more interesting topic. Additionally, greater L2 accuracy was found in narrative tasks as opposed to interview tasks because of communicative pressure. The speaker’s control of the grammatical requirements was also shown to affect the degree of L2 accuracy, as greater control allows greater management of cognitive and intellectual resources and thus greater L2 accuracy. Because of these findings, the present study was designed in three distinct segments: a Spanish interview, an English interview, and an English reading exercise. Popular and familiar conversational topics were chosen for the Spanish interview segment to facilitate L1 interference in L2 English speech. The English reading segment was added to take away some communicative control from the participants and thus to facilitate L1 interference.

METHOD

Participants

Twelve native Andalusian Spanish speakers enrolled in a low-intermediate English class at CLIC International House in Seville were recruited to take part in this study. CLIC International House is a branch of the International House World Organization, a worldwide organization of language schools. Headquartered in London, United Kingdom, the International House World Organization has schools located in forty different countries around the world. While a variety of modern languages are offered for study, English language learning is the primary focus of the schools. The participants in this study were enrolled in a low-intermediate English class that met for three hours once a week for twelve weeks.

Each of the participants was a native of the Andalusia region of Southern Spain and was characterized as a low-level L2 English speaker¹ by the International House World Organization English Placement Test². This test included questions of various forms and levels of difficulty in order to measure the class in which test-takers should be placed. Five subject areas, ranging in topic from the European Union to letter writing, provided the themes of the two fill in the blank sections. The first fill in the blank section of each subject area appeared in paragraph form and included items such as the following: “*When we _____, we were met at the station by someone who took us to the hotel.*” No answer choices were provided. The second fill in the blank section was formatted in sentence form and included items such as the following: “*On Monday morning a test was _____ to all new students.*” Answer choices to the fill in the blank included a.) ‘*had,*’ b.) ‘*given,*’ c.) ‘*taken,*’ and d.) ‘*done,*’ with the correct answer of b.) ‘*given.*’

¹ Due to the privacy regulations of CLIC International House Seville, specific participant scores were not released to the author and could not be included.

² Due to copyright restrictions, the author was unable to include a copy of the International House World Organization English Placement Test.

Participants were asked screening questions before the interview process began to make sure their level of L2 English proficiency was low enough for L1 Andalusian Spanish interference to occur. See Appendix A for a copy of these screening questions. The participants included three males and eight females, ranging in age from twenty-two to forty-six. None of the participants had spent more than two weeks in a foreign country in which English was the de jure or de facto spoken language. As English is an obligatory foreign language in the schools of Andalusia, all participants had studied English for 2-3 years in secondary school. The length of time spent studying English outside of secondary school ranged from one year to fifteen intermittent years. One participant's data was excluded from the study when halfway through the interview he revealed that he was an English instructor at the school and thus exhibited a much higher level of English proficiency than was necessary for this study. Participant 2's data was excluded because he did not complete the English reading segment of the interview process. See Table 2 for a more detailed analysis of participant background data.

Table 2. Participant Data

Participant	Sex	Age	Parents' English Level	Length of English Study
1	M	33	None	1 year
3	F	44	None	2 years
4	F	28	None	1 year
5	F	34	None	2 years total- 15 intermittent
6	M	35	None	7 years intermittent
7	F	33	Low	1.5 years
8	F	24	None	3 years
9	F	37	None	1 year
10	F	28	None	1 year
11	M	46	None	1 year

No compensation was offered for participation in this study—participants chose to participate completely voluntarily. Participants were asked to bring corrective eyewear or audio aids, resulting in normal or corrected to normal eyesight and hearing for all participants.

Materials

All interviews were recorded with the Tascam DR-07 portable digital recorder. Although the Tascam DR-07 can record in both MP3 and 16/24-bit WAV formats, the WAV version was used for this study because of its higher quality. A high-speed USB 2.0 connection was used to transfer these WAV files from the recorder itself to the computer to allow secure storage. However, these files were temporarily transferred back the Tascam recorder to analyze the phonological features. A pair of Bose headphones were used to listen to these interviews to allow for increased clarity.

A variety of documents were used to structure the three interview sections used in this study. The Spanish segment of the interview process was structured using five subject areas composed of several related questions of an open-ended nature. Each subject area was general and very familiar to the participants, including such topics as the culture of Andalusia, the best qualities of the city of Seville, how the city can improve, the nature of adult language education, and Andalusia's relationship with Spain and its other autonomous regions. The subject area of the best qualities of the city of Seville included questions such as the following:

1. *“What are some of Seville’s best qualities?”*
2. *“What makes Seville distinct from other cities?”*
3. *“Can you explain its motto?”*
4. *“What does the motto mean to you?”*
5. *“Where is your favorite place to go in the city and why?”*

6. *“What would a visitor want to see and why?”*

To view all of the questions used in the Spanish segment of the interview process, see Appendix B. The open-ended structure and familiar nature of the questions allowed participants to answer freely and comfortably, using their native Andalusian Spanish to respond. The phonological processes of aspiration and velarization noted during these interviews was thus completely natural.

The first segment of the English section of the interview process was structured in a manner similar to the Spanish section. It included three subject areas that each contained a group of related questions. The subject areas used in this segment of the interview process included holiday traditions, a comparison of Spanish and American cultures, and a comparison of Spanish and Latin American culture and language. The subject area of a comparison between Spanish and American culture included questions such as the following:

1. *“What are the differences you see between Spanish and American culture?”*
2. *“Do they have any similarities?”*
3. *“What are some stereotypes about American culture?”*
4. *“How is Spain distinct from Europe as a whole? Besides the language, what makes it unique?”*

The familiar nature of the topics encouraged participants to speak freely and knowledgeably, acting as a force to counteract the hesitancy they may have felt speaking in their L2 English. To view all of the questions used in this segment, please see Appendix C.

The second segment of the English section of the interview process was structured in a manner wholly different from that of the other two segments. Instead of an interview with a question and answer format, this second English segment was comprised of a written document

that participants were asked to read aloud. The specific document was one of Aesop's fables entitled "The Fox and the Goat." While the vast majority of the vocabulary and syntax of the original document was left untouched, certain words and phrases were changed or rearranged to create more positions in which /s/ aspiration or /n/ velarization could occur. The changes were slight and made only for phonological purposes. Examples of these changed sentences are listed below with the changes made highlighted in bold text:

1. Original: "*Holding onto the goat's horns, he reached the mouth of the well safely and made off as fast as he could.*"

Edited: "*Holding **on in** between the Goat's horns, he reached the mouth of the well safely and made off as fast as he could.*"

2. Original: "*If," said he, "you will place your front feet on the wall and bend your head, I will run up your back and escape, and will help you out after."*

Edited: "*If," said he, "you will place your front feet **on** the wall and bend your head, I will run up your back and escape, and will help you out **afterwards**."*

To view the entire paragraph used during the second English segment of the interview, please see Appendix D. This portion of the interview forced the participants to pronounce vocabulary and syntax with which they were not entirely familiar, allowing for a greater influence of L1 phonology in the L2 reading. As noted previously, a study completed by Salaberry & Lopez-Ortega showed that the speaker's control of grammatical requirements directly affects the degree of L2 accuracy (1998). As a written paragraph offers the speaker little control, greater L1 interference was expected.

Similar to the first two segments of the interview process, the post-interview portion of the interview followed a question and answer format. Participants were asked a variety of

questions regarding Andalusian Spanish, including its specific phonological characteristics, attitudes towards this variety of Spanish, and its differences as compared to other varieties of peninsular Spanish. Questions asked included “*How is the Spanish of Seville different from the Spanish of Madrid and Barcelona?*” and “*Are there any specific attitudes associated with the Spanish spoken in Andalusia?*” To view a full list of the questions asked during this post interview, please see Appendix E.

Procedure

As stated previously, all participants were students in the low-intermediate English class at CLIC International House Seville. Because of the convenience of the location, all participants chose to undergo the interview process immediately after their class in a nearby empty classroom. Participants sat across from the interviewer during the entirety of the interview process with the Tascam DR-07 placed in the center of the table separating them from the interviewer. The digital recorder remained in this position throughout the entire interview process, capturing every second of each interview. The only time it was turned off was during the interview with participant 7, as the room in which the interview was being conducted grew noisy and the location had to be modified.

The first part of the interview process was the Spanish segment. The interviewer read the interviewee a selection of questions from the five subject areas represented on the interview question sheet. The amount of questions the interviewer chose to ask depended upon the verbosity of the interviewee’s answers. If the interviewee did not understand the question, the interviewer would rephrase it and/or allow the interviewee to read the same question in written form. While the interviewer would mentally note /s/ aspiration and /n/ velarization in the speech of the interviewee, she did not write it down as to avoid disrupting the flow of the interview.

The second part of the interview process consisted of an English interview. Participants were informed of the change in languages and given a few moments to mentally adjust. The interviewer then read a selection of questions from the three subject areas represented on the interview question sheet. The specific number of questions asked was variable among participants, depending upon the verbosity of his responses. If the participant did not understand a question, the interviewer would phrase it in other words and allow him to view a written version. Once again, the interviewer made mental note of the specific phonological processes but neither commented on them nor wrote them down as to avoid disrupting the flow of the interview.

The third part of the interview process was the English reading segment. Participants were handed a written version of Aesop's fable "The Fox and the Goat" and asked to read it aloud. Phonological processes were once again noted but not mentioned.

The final part of the interview process was informal and not recorded by the Tascam DR-07 digital recorder. Participants were asked questions regarding Andalusian Spanish, including its associated characteristics and attitudes. Participants were encouraged to respond in either language, and their responses were noted in their respective interview papers.

Immediately after the conclusion of the interview process, the recorded files were transferred from the Tascam DR-07 digital recorder to a password-protected computer file. This provided a degree of security for both the data and the participants.

RESULTS AND DISCUSSION

Data from all three of the segments of the interview process were analyzed for this study, the aforementioned processes of /s/ aspiration and /n/ velarization functioning as the specific

focus of the analysis. The position and frequency of these processes was monitored in each segment as to identify changes and trends. During each segment of the interview process, /s/ aspiration was analyzed for occurrence in plural nouns as well as in the word-internal, word-final and phrase-final positions. The process of /n/ velarization was analyzed for occurrence in six positions: word-final preconsonantal, word-final preconsonantal fricative, word-final prevocalic, word-internal preconsonantal, word-internal prevocalic, and phrase-final. Originally, only the established categories for /n/ velarization in Andalusian Spanish, word-final preconsonantal, word-final preconsonantal fricative, word-final prevocalic, and internal preconsonantal (Lipski, 1986) were used for analysis. However, after listening to the digitally recorded interviews, it became apparent that /n/ velarization in the internal prevocalic position did occur and the category was thus added to all segments of the interview process. After this finding, all segments of each interview were re-analyzed for the occurrence of /n/ velarization in the internal prevocalic position.

The frequency of both /s/ aspiration and /n/ velarization in each position listed above was recorded in charts made for each segment of the interview process. Each of the possible positions of occurrence of the two processes were written across the top of the table and the participants were listed along the left side. Average frequencies were calculated for /s/ aspiration and /n/ velarization in each of the possible positions during each segment of the interview process. To calculate these averages, the sum of the rates of occurrence for each participant was divided by the total number of participants. An example of this calculation for /s/ aspiration in the word-final position during the Spanish segment of the interview process appears below.

$$\textit{Sum of individual frequencies} = 10+8+2+4+13+2+8+4+13+12 = 76$$

$$\textit{Sum of individual frequencies/ number of participants} = 132/10 = 7.6$$

Average frequency of word-final /s/ aspiration in Spanish interview segment = 7.6

To provide a generalized analysis of the frequency of both phonological processes, average total frequencies were calculated for both /s/ aspiration and /n/ velarization in each segment of the interview process. To calculate these average total frequencies, the average frequencies of occurrence in each position of the phonological process were added together. An example of this type of calculation appears below

Sum of average frequencies of /n/ velarization in English interview =

$$0+1.8+1.6+2+.2+.7 = 5.3$$

Tables containing the raw data as well as the average total frequency values for each segment of the interview process appear below.

Table 3.1.1 Spanish Interview Segment /s/ Aspiration Data

Participants	Word-final	Word-internal	Plural	Phrase-final
1	10	3	4	0
3	8	3	7	0
4	2	2	3	0
5	4	4	4	0
6	13	3	12	0
7	2	1	2	0
8	8	3	4	0
9	4	2	3	0
10	13	1	3	0
11	12	0	7	0
Average frequency	7.6	2.2	4.9	0
Average total frequency = 14.7				

Table 3.1.2 Spanish Interview /n/ Velarization Data

Participants	Word-final preconsonantal	Word-final preconsonantal fricative	Word- final prevocalic	Word-internal preconsonantal	Word- internal prevocalic	Phrase- final
1	0	0	1	0	0	0
3	0	1	0	0	0	1
4	0	0	0	0	0	0
5	1	2	0	1	0	1
6	2	1	1	2	0	3
7	1	1	1	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	2	0	0	0	0
11	1	0	2	1	0	1
Average frequency	0.5	0.7	0.5	0.4	0	0.6
Average total frequency = 2.7						

Table 3.2.1 English Interview /s/ Aspiration Data

Participants	Word-final	Word-internal	Plural	Phrase-final
1	0	0	1	0
3	0	0	0	0
4	0	2	1	0
5	1	1	0	0
6	0	0	1	0
7	0	1	1	0
8	0	0	1	0
9	0	1	2	0
10	0	1	0	0
11	0	1	1	0
Average frequency	0.1	0.7	0.8	0
Average total frequency = 1.6				

Table 3.2.2 English Interview /n/ Velarization Data

Participants	Word-final preconsonantal	Word-final preconsonantal fricative	Word- final prevocalic	Word-internal preconsonantal	Word- internal prevocalic	Phrase- final
1	0	1	2	2	0	1
3	0	1	1	2	0	0
4	0	0	1	0	0	1
5	0	1	1	2	1	0
6	0	1	3	3	0	1
7	0	1	2	3	0	0
8	0	0	1	2	0	1
9	0	1	2	3	0	1
10	0	1	1	1	1	1
11	0	1	2	2	0	1
Average frequency	0	0.8	1.6	2	0.2	0.7

Average total frequency = 5.3

Table 3.3.1 English Reading /s/ Aspiration Data

Participants	Word-final	Word-internal	Plural	Phrase-final
1	0	1	0	2
3	2	1	0	3
4	4	1	1	3
5	0	1	0	0
6	0	1	0	1
7	0	1	0	0
8	2	1	0	0
9	0	1	0	1
10	2	2	1	0
11	0	1	1	2
Average frequency	1	1.1	0.3	1.2

Average total frequency = 3.6

Table 3.3.2 English Reading /n/ Velarization Data

Participants	Word-final preconsonantal	Word-final preconsonantal fricative	Word-final prevocalic	Word-internal preconsonantal	Word- internal prevocalic
1	1	1	6	4	0
3	1	3	4	5	0
4	0	3	6	4	0
5	0	2	3	6	0
6	1	1	4	4	0
7	1	2	4	2	0
8	0	3	2	4	0
9	0	1	6	8	0
10	0	2	4	5	0
11	1	2	6	5	0
Average frequency	0.5	2	4.5	4.7	0
Average total frequency = 11.7					

The results of the Spanish segment of the interview process both corroborate and contradict existing information regarding the positions in which /s/ aspiration and /n/ velarization occur. As noted previously in this paper, studies completed by Torreira, Hualde, and Ruiz-Sanchez demonstrate that the process of /s/ aspiration is by far the most distinct and prominent process in the Andalusian variety of Spanish. The findings from these studies corroborated those from the present study. Although /s/ aspiration was not compared to all of the phonological processes in Andalusian Spanish and thus a conclusive relativity could not be determined, the average total frequency of aspiration was over four times that of /n/ velarization in the Spanish interview segment. The figure below presents a strong visual representation of the relative frequency of the two processes during the Spanish interview.

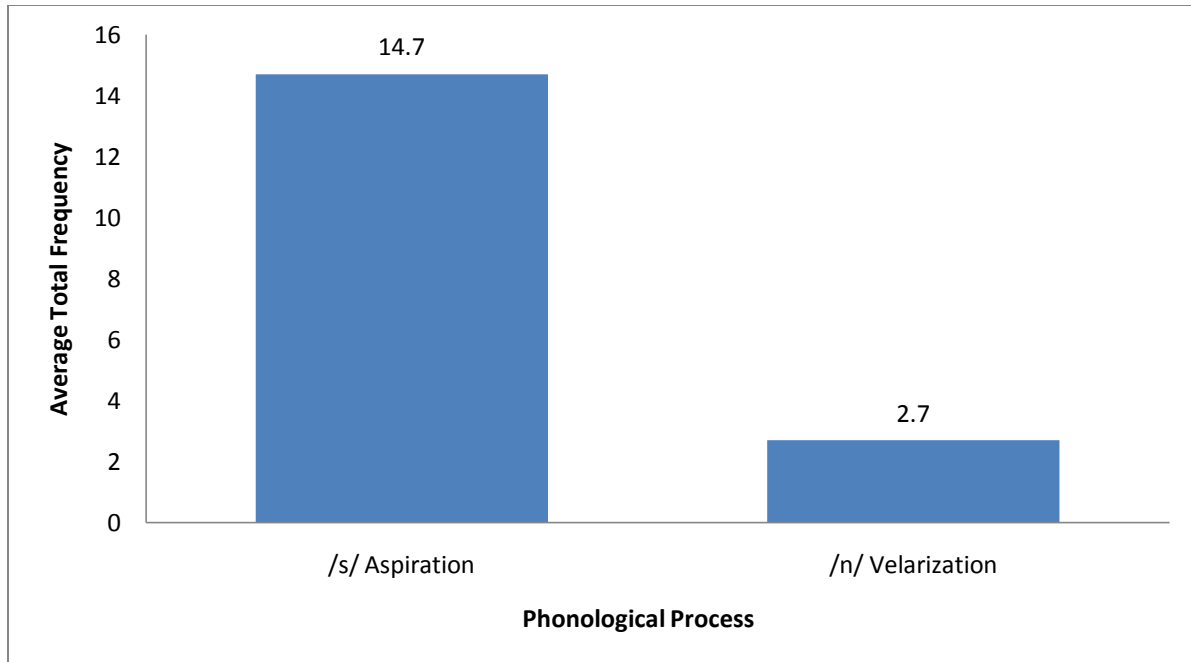


Figure 1: Relative frequency in Spanish interview segment

The findings from the present study also supported previous data regarding the position of /s/ aspiration. Although the process can occur in a variety of positions including word-final, word-internal, phrase-final, and plural, the word-final position has been found to be the most dominant (Torriera, 2007). This fact remained true in the present study, as the average frequency of /s/ aspiration in the word-final position was far greater than those of the other three positions. The figure below demonstrates the data regarding /s/ aspiration during the Spanish interview segment of the interview process.

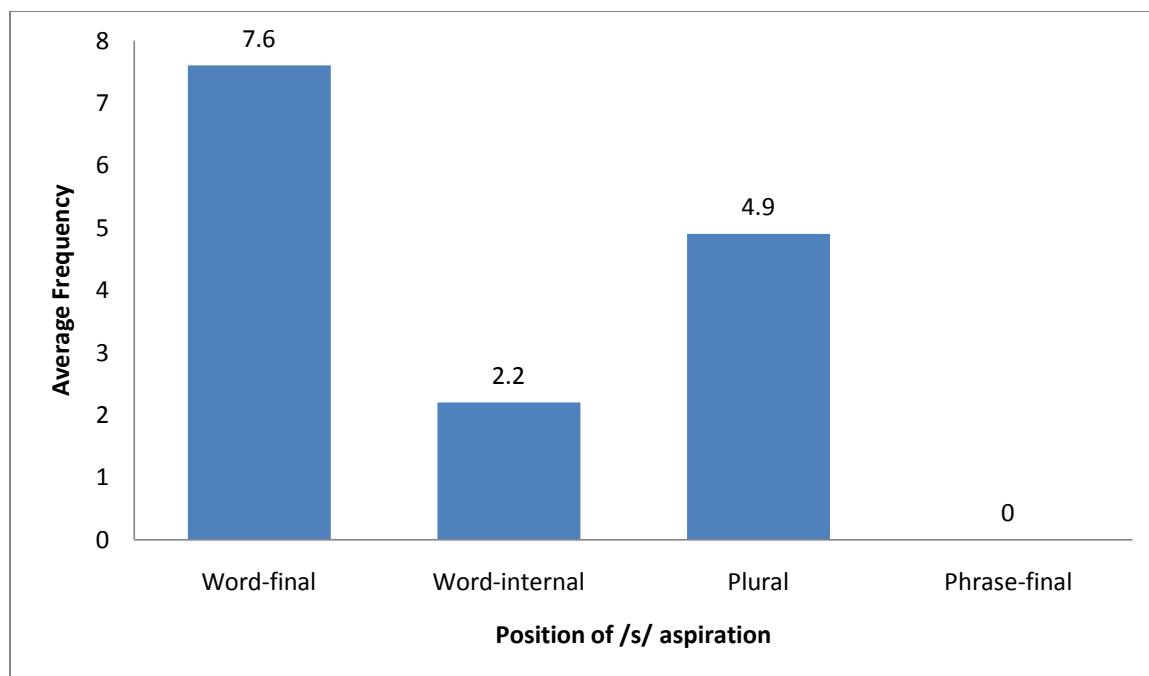


Figure 2: Average frequency of /s/ aspiration during Spanish interview in various positions

The data from the process of /n/ velarization in the present corroborates the data regarding this phonological process in other studies. For instance, Lipski states that /n/ is velarized most often in the word-final prevocalic, phrase-final, and preconsonantal fricative positions, noting that velarization is relatively uncommon in the internal preconsonantal and internal prevocalic positions (1986). In this study, word-final preconsonantal fricative /n/ velarization had the highest average frequency at .7, meaning participants velarized in this position an average of .7 times during their Spanish interviews. The process occurred most often in the phrase “tambien Feria” /tam.bjej. fe.ri.a/ over the course of the ten interviews. Phrase-final /n/ velarization had an average frequency of .6, the second highest rate. The process occurred in this position in the word “tambien.” Word-final prevocalic and word-final preconsonantal /n/ velarization had the third-highest average frequency at .5. Word-final prevocalic velarization occurred most often in the words “un” and “en” and word-final preconsonantal velarization occurred most often before dental consonants as in the phrase “buen

tiempo.” Participant 10 velarized before a nasal in the phrase “con mucho,” as well. Velarization in the internal preconsonantal position had an average frequency of .4, a surprisingly high number. Most researchers (i.e. Lipski, 1986) have determined the process to occur only very infrequently in this position. To determine whether the data acquired during this study was not merely an anomaly, more extensive research will be necessary. In the present study, it most commonly occurred before dentals, as in the word “centro” and before the alveolar /s/ as in the word “entonces.” Figure 1 below demonstrates the relative frequencies of /n/ velarization in these various positions.

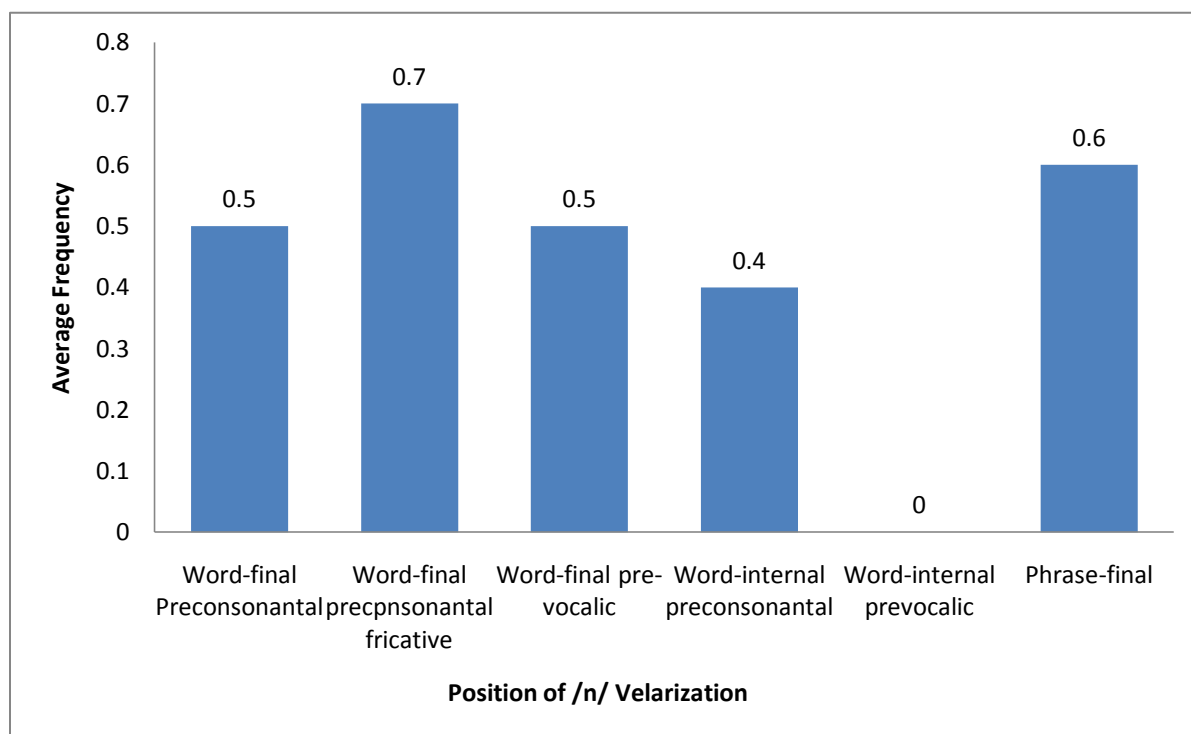


Figure 3: Average frequency of /n/ velarization in various positions during Spanish interview

A general analysis of the overall data indicates a significant change in the relative frequencies of /s/ aspiration and /n/ velarization as the participants transitioned from Spanish speaking to English speaking to English reading. Figure 2 below demonstrates the change in the average total frequencies of these phonological processes.

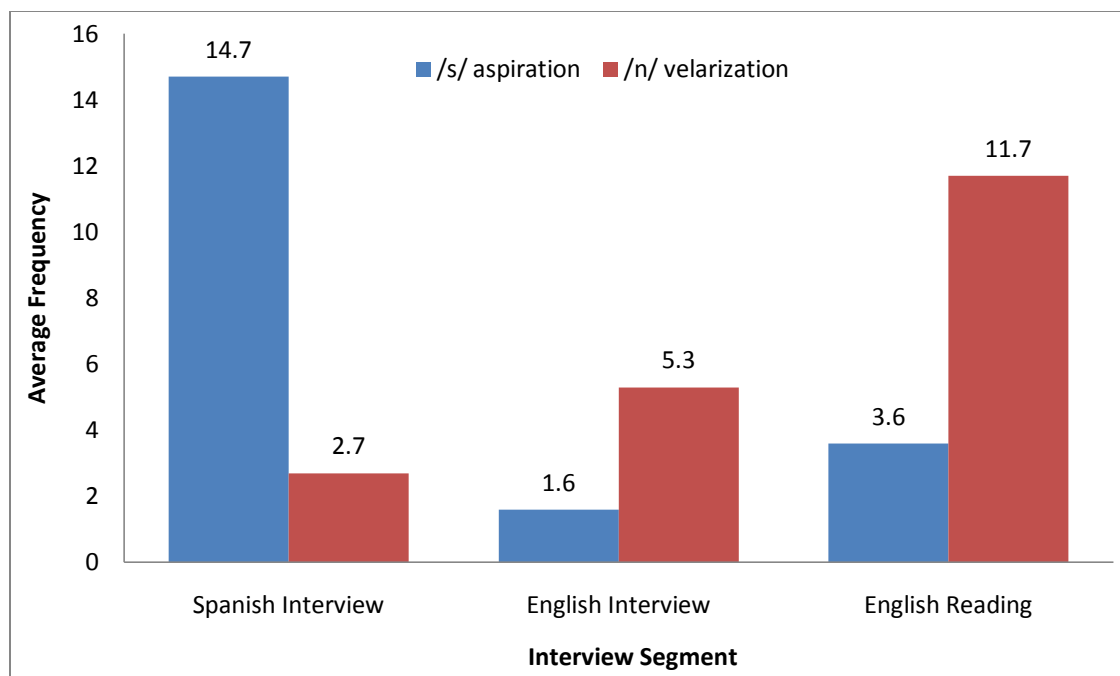


Figure 4: Relative frequencies of /s/ aspiration and /n/ velarization during interview process

As demonstrated by the above figure, participants displayed a much higher incidence of /s/ aspiration than /n/ velarization in the Spanish segment of the interview process. On average, participants aspirated /s/ a total of 14.7 times and velarized /n/ a total of 2.7 times during this first segment. This distribution is supported by previous studies (e.g. Torreira, 2007). The process of /s/ aspiration has been consistently documented to occur at a much higher frequency than does the process of /n/ velarization in native Andalusian Spanish. As mentioned in the introduction section of this paper, travelers and authors had noted by the late fifteenth century that Andalusians characteristically aspirated /s/. In the present day, it is not uncommon to hear Andalusian characters to speak with exaggerated aspiration on television programs and in movies. However, this trend changed drastically in the two English segments of the interview process. During the English interview, participants aspirated /s/ an average total of 1.6 times and velarized /n/ an average total of 5.3 times. This represents a drastic change in relativity, as participants were three times more likely to velarize /n/ than to aspirate /s/ during this segment.

The English reading segment of the interview process represented a continuation of this reversal. During this segment, participants aspirated /s/ an average total of only 3.6 times and velarized /n/ an average total of 11.7 times.

This drastic change in the relativity of these two phonological processes may be due to participants' awareness of /s/ aspiration as characteristic of Andalusian Spanish. As mentioned previously, the post-interview process included questions regarding the phonology of Andalusian Spanish and the associated attitudes. When asked to describe the so-called Andalusian "accent," all participants mentioned the process of /s/ aspiration as characteristic of speakers from the region. Many also mentioned /s/ aspiration as a negative phonological characteristic, explaining that Spanish speakers from the central and northern regions of the country often look down on Andalusian pronunciation. In popular culture, movies, television shows, and plays, characters from Andalusia often speak with exaggerated /s/ aspiration. They are characterized as clowns, homosexuals, servants, and generally uneducated (Solano, 2011). Wanting to develop an English accent, then, /s/ aspiration would more than likely be the first phonological characteristic low-level L2 English learners would reject from their Andalusian Spanish L1. Although the process of /n/ velarization is also characteristic of Andalusian Spanish, it is not often identified as so outside of linguistic circles; no participants mentioned /n/ velarization as characteristic of his speech or of the speech of the region. Participants, then, were unlikely to perceive the process as characteristic of the L1 and were thus less likely to monitor its usage in the English L2.

There are, however, other factors that may have contributed to the shift in the relative frequency of these phonological processes in the L2. As noted in Flege's 1981 study, the many phonetic differences which distinguish two languages represent a potential source of foreign accent in the speech of a second language learner as interference is prominent at the level of

phonetic implementation. The phonological process of /s/ aspiration does not occur in English—its presence would signify the presence of foreign accent and thus interference from an L1 in which this process commonly occurs. Aware of this phonological difference, participants actively monitor their English speech to prevent interference in the form of /s/ aspiration. The process of /n/ velarization, however, does occur in English in such words as “going” [go.ɪŋg] and “bank” [bɑŋk]. Because second language learners experience greater ease learning phonological elements in the L2 that are similar to those in the L1 (Ellis, 2006), it is logical that native Andalusian Spanish speakers will subconsciously perceive the process of /n/ velarization as a common feature between the Andalusian Spanish L1 and the English L2. They are less likely, then, to monitor their speech for /n/ velarization in English and will apply the process in positions common in the Andalusian Spanish L1 but nonexistent in the English L2.

In addition to the changes in relative frequencies of the two processes, a general analysis of the data also revealed a disparity between the average total frequencies recorded for /s/ aspiration and /n/ velarization between the two English segments of the interview process. Figure 3 below demonstrates this change.

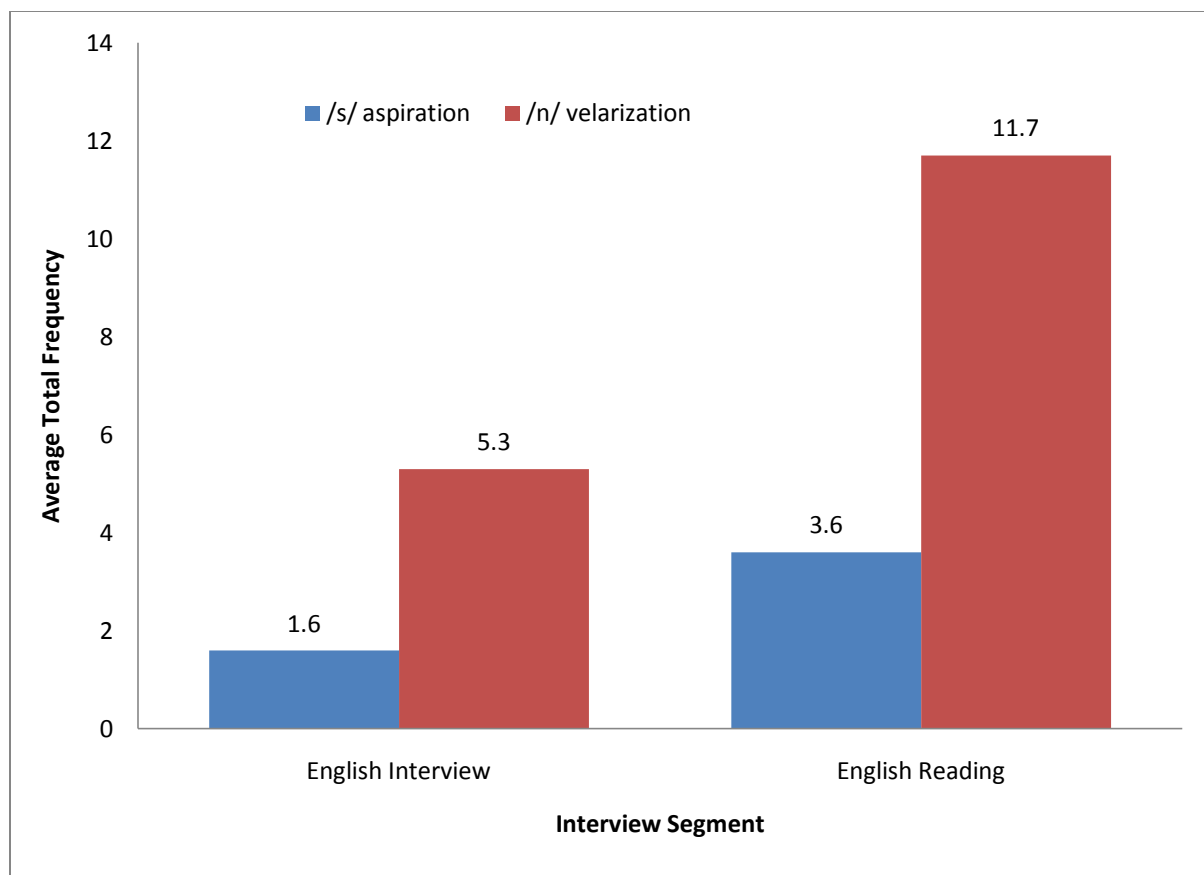


Figure 5: Relative frequencies of L2 phonological interference during English interview segments

The frequencies calculated for the English reading segment represent a very large increase from the English interview segment. Participants were almost twice as likely to aspirate /s/ and to velarize /n/ during the reading segment than they were during the interview segment. Because each segment of the interview process had roughly the same duration, the length of each was not a contributing factor in the frequency fluctuation. This disparity, then, was likely the result of the nature of the interview process. As mentioned previously, a study conducted by Salaberry & Lopez-Ortega (1998) found that the degree of foreign accent is directly affected by the task used to measure the accent. The speaker's control of the grammatical requirements was shown to affect the degree of L2 accuracy, as greater control allows greater management of cognitive and intellectual resources and thus greater L2 accuracy. During the English interview segment,

participants were free to answer the open-ended questions with whatever words, phrases, and sounds they chose—genuine L2 phonology was the purpose of this exercise. Having the freedom to choose their own answers, participants were more likely to choose words, phrases, and sounds with which they were both comfortable and familiar as they were aware the interviewer was a native English speaker. Thus, participants were less likely to mispronounce these chosen English words and less likely to demonstrate L1 Andalusian Spanish interference in their L2 English. They had greater control of the grammatical requirements. The English reading segment of the interview process, however, left the participants without the freedom to choose their responses. Instead of answering questions, participants were asked to read one of Aesop's fables, "The Fox and the Goat." As mentioned previously, this original syntax and vocabulary were subject to several changes prior to oration in order to incorporate more instances in which /s/ aspiration and /n/ velarization could occur. These changes often led to instances of overly formal vocabulary and difficult syntax in the story. Because the participants were not only unfamiliar with the story but also subject to instances of formal phrasing and difficult phonological juxtaposition, the average instances of /s/ aspiration and /n/ velarization were much higher during this segment of the interview process than they were during the English interview segment. They had no control of the grammatical requirements.

One of the major questions asked in this study was whether the frequency and the position of /s/ aspiration and /n/ velarization in the Andalusian Spanish L1 would predict their frequency and position in the English L2. As mentioned previously, the data retrieved from this study demonstrates that participants who aspirate /s/ at high rates in L1 Andalusian Spanish will not necessarily do so in L2 English, a phenomenon possibly attributed to the attitudes surrounding this phonological feature. High rates of /s/aspiration in L1 Spanish, then, do not

necessarily guarantee high rates of /s/ aspiration in English, even for low-level English learners.

Figure 6 below demonstrates the general trends of /s/ aspiration totals found in this study.

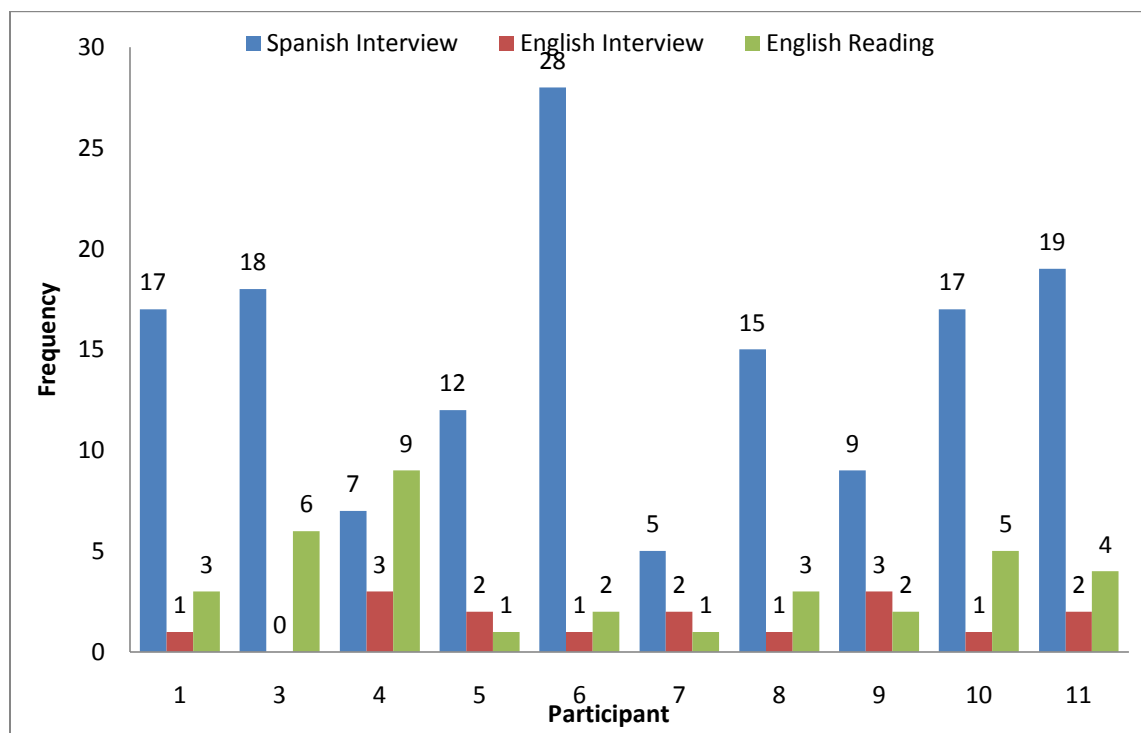


Figure 6: Instances of /s/ aspiration through the interview process

For instance, during the Spanish segment of the interview process, participants 6, 3, 10, 11, and 1 aspirated /s/ more than the average of 14.64 times. However, during the English interview segment, participants 4, 9, 11, 7 and 5 aspirated /s/ more than the average of 1.73 times. During the English reading segment, participants 4, 3, 10 and 11 aspirated more than the average of 3.6 times. The only participant to score consistently above average throughout the three segments of the interview process was participant 11. On a general basis, then, it is impossible to say the strength of /s/ aspiration in native Andalusian Spanish speech will affect the strength of /s/ aspiration in L2 English. A categorical analysis of the various positions in which /s/ aspiration can occur appears in the following paragraphs.

A number of researchers (e.g. Torreira, 2007) have demonstrated that /s/ aspiration occurs most prominently in the word-final position in native Spanish. This was true of the present study. A tendency to aspirate /s/ in this position in L1 Andalusian Spanish, however, did not lead to a tendency to aspirate /s/ in this position in L2 English. Figure 7 below shows the trends regarding /s/ aspiration in the word-final position.

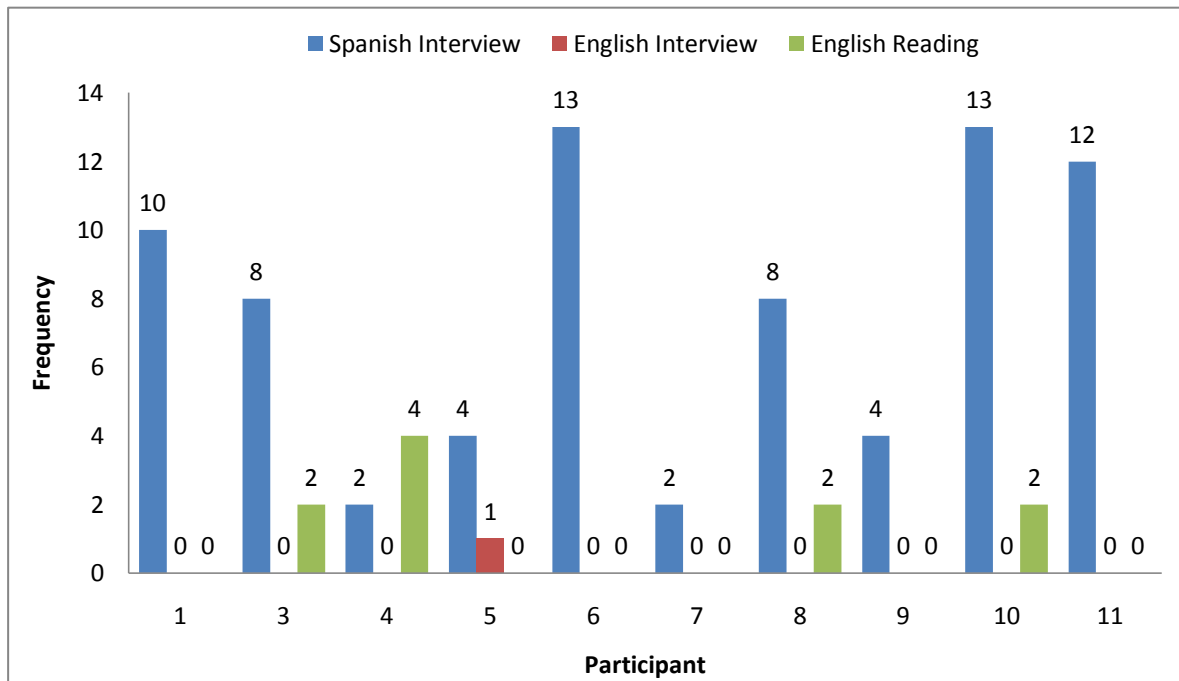


Figure 7: /s/ aspiration in the word-final position through the interview process

During the Spanish interview, participants 6, 10, 11, 1, 3 and 8 aspirated the average frequency of 7.6. During the English interview, however, only participant 5 aspirated in this position. Finally, during the English reading segment, participants 4, 8, 10, and 3 aspirated /s/ more than the average frequency of one. Although participants 10, 3, and 8 aspirated /s/ more than average during both the Spanish interview segment and the English reading segment, neither did so during the English interview segment. Thus, there may be a correlation between the tendency to aspirate /s/ in L1 Andalusian Spanish speech and the tendency to do so while reading in L2 English. To prove or disprove this correlation, future studies will be necessary.

The results regarding word-internal /s/ aspiration were inconclusive. Based upon the data gathered during this study, the tendency to aspirate in this position in native L1 Andalusian Spanish did not lead to a tendency to do so in L2 English. Figure 8 below demonstrates the frequency of word-internal /s/ aspiration through the three phases of the interview process.

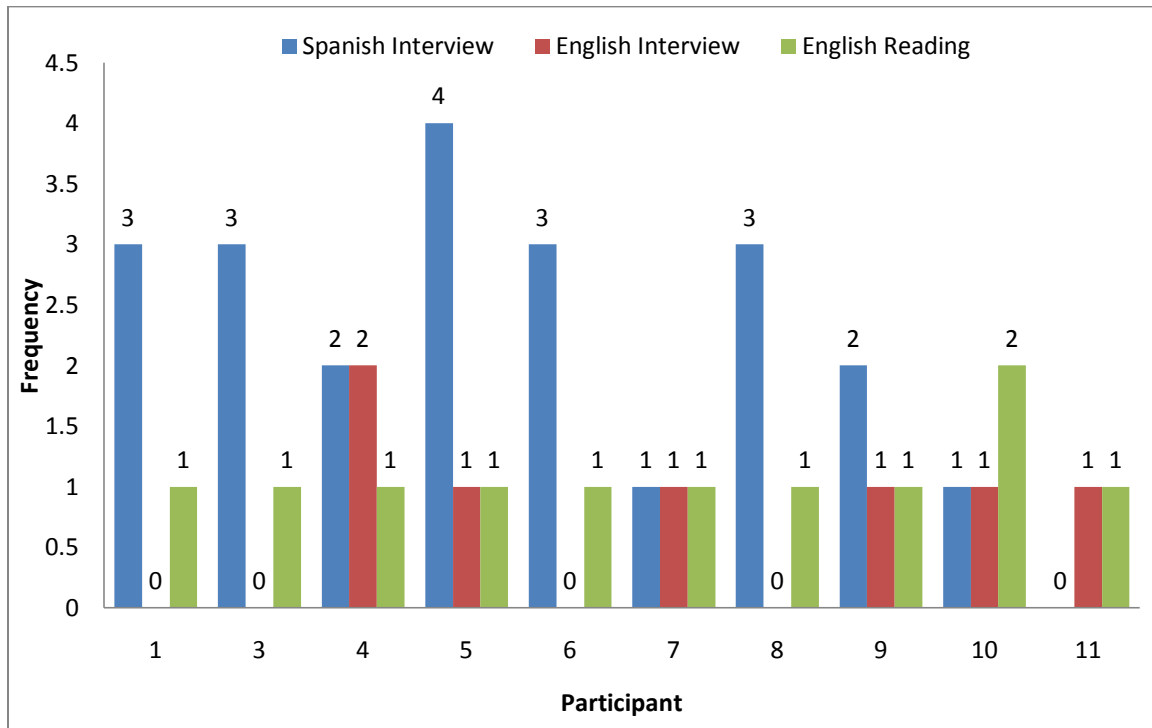


Figure 8: /s/ aspiration in the word-internal position through the interview process

During the Spanish interview segment, participants 4, 1, 3, 6, and 7 aspirated /s/ in the word-internal position more times than the average frequency of 2.2. During the English interview, participants 4, 5, 7, 9, 10, and 11 aspirated /s/ more than the average frequency of .7. Finally, during the English reading segment only participant 10 aspirated more times than the average 1.1. There is, then, no correlation.

Similarly, the data regarding /s/ aspiration in the plural position does not suggest any correlation between the frequency of the process in Spanish and its corresponding frequency in

English. Figure 9 below demonstrates the frequency of plural /s/ aspiration over the course of the interview process.

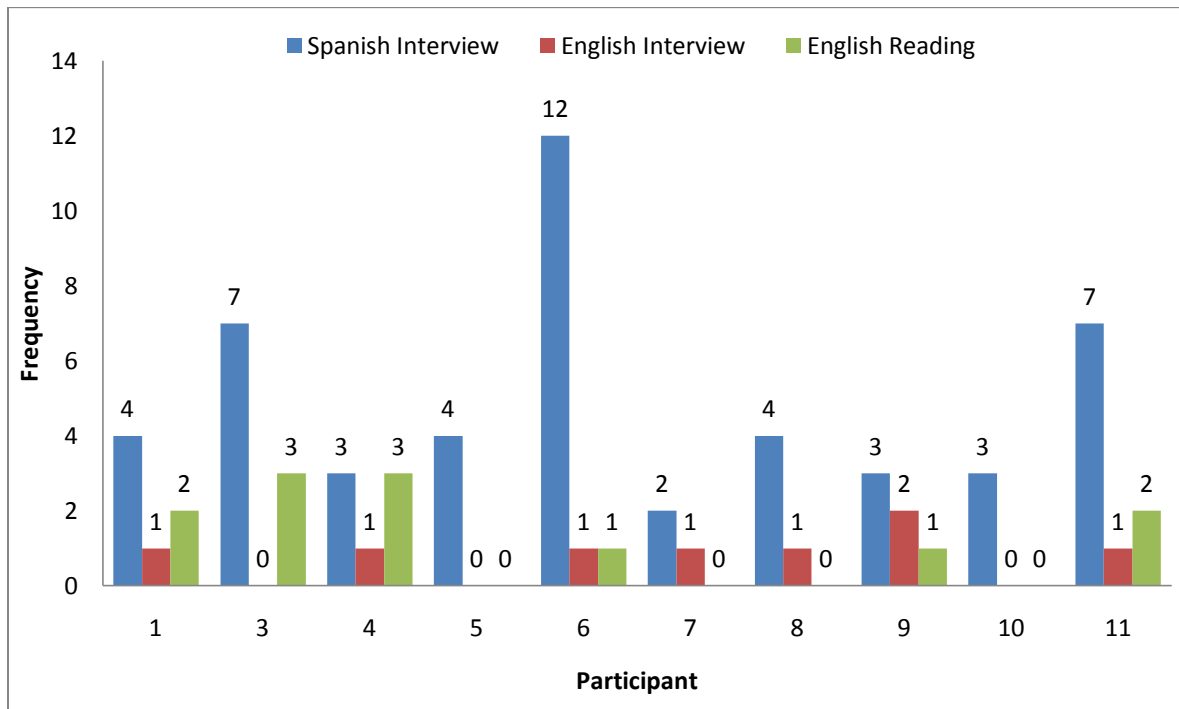


Figure 9: /s/ aspiration in the plural position throughout the interview process

During the Spanish interview, participants 6, 3, and 11 aspirated /s/ in the plural position more times than the average 4.9. During the English interview, however, all but participants 3, 5, and 10 aspirated more than the average of .8. During the English reading segment, participants 3, 4, 1, and 11 aspirated more than the average of 1.2. Because only participant 11 aspirated /s/ in the plural position above the average frequency during all segments of the interview process, the data shows no correlation between the tendency to aspirate plural /s/ in L1 Andalusian Spanish and L2 English.

Because of the nature of the data collected regarding phrase-final /s/ aspiration, no conclusions could be drawn. While various participants did aspirate in this position during the

English reading segment, not a single participant did so during the Spanish interview and English interview segments. There was thus no basis from which a correlation could be drawn.

A general overview of the trends of /n/ velarization in both English and Spanish yielded inconsistent results. Figure 10 below represents the total instances of /n/ velarization heard in participants' speech during each of the three interview segments.

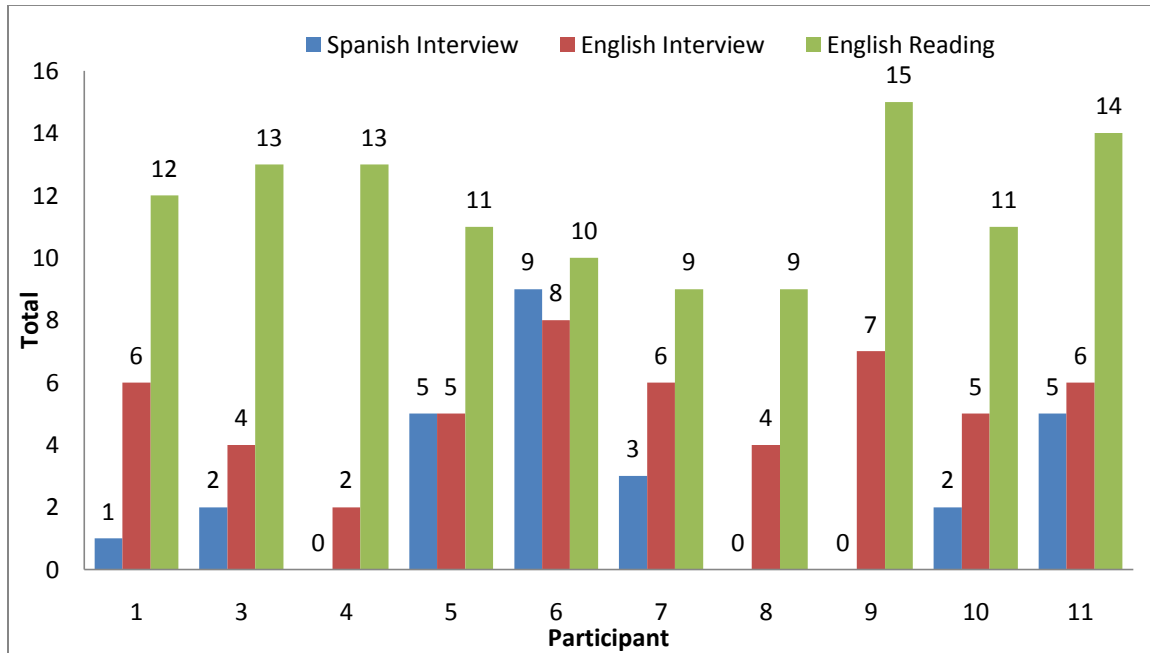


Figure 10: Total instances of /n/ velarization throughout the interview process

While participant 11 velarized /n/ more than average and participant 8 velarized /n/ less than average consistently throughout the interview process, other participant data yielded inconsistent results. For instance, while participants 6 and 7 yielded some of the highest totals of /n/ velarization during both the Spanish interview and English interview segments, they both yielded a very low total for the English reading segment. In a similar reversal, participants 3 and 4 velarized /n/ at rate well below average during the Spanish interview and English interview segments but yielded very high totals during the English reading segment. Based upon these results, it is impossible to note any correlation between the general tendency to velarize /n/ in L1

Andalusian Spanish and to do so in L2 English. A detailed, categorical analysis of the different positions for /n/ velarization appears in the subsequent paragraphs.

During the Spanish segment of the interview process, there were only four participants who velarized /n/ in the word-final preconsonantal position: participants 6, 5, 7 and 11. All did so before dental consonants as in the phrase “buen tiempo.” However, no participants velarized /n/ in this position during the English interview segment. During the English reading segment, participants 1, 3, 6, 7, and 11 velarized word-final preconsonantal /n/ one time, the only participants to do so. Unlike the Spanish interview segment, the participants all velarized /n/ before the bilabial /b/ in such phrases as “in before” during the English reading segment. Based upon this data, there is no correlation between the types of consonants before which participants will velarize /n/ in the L1 and in the L2. Additionally, while there is a strong correlation between /n/ velarization in spoken Spanish and in English reading, there is no predictor for spoken English. Figure 11 below demonstrates the relationship between preconsonantal /n/ velarization during the three segments of the interview process.

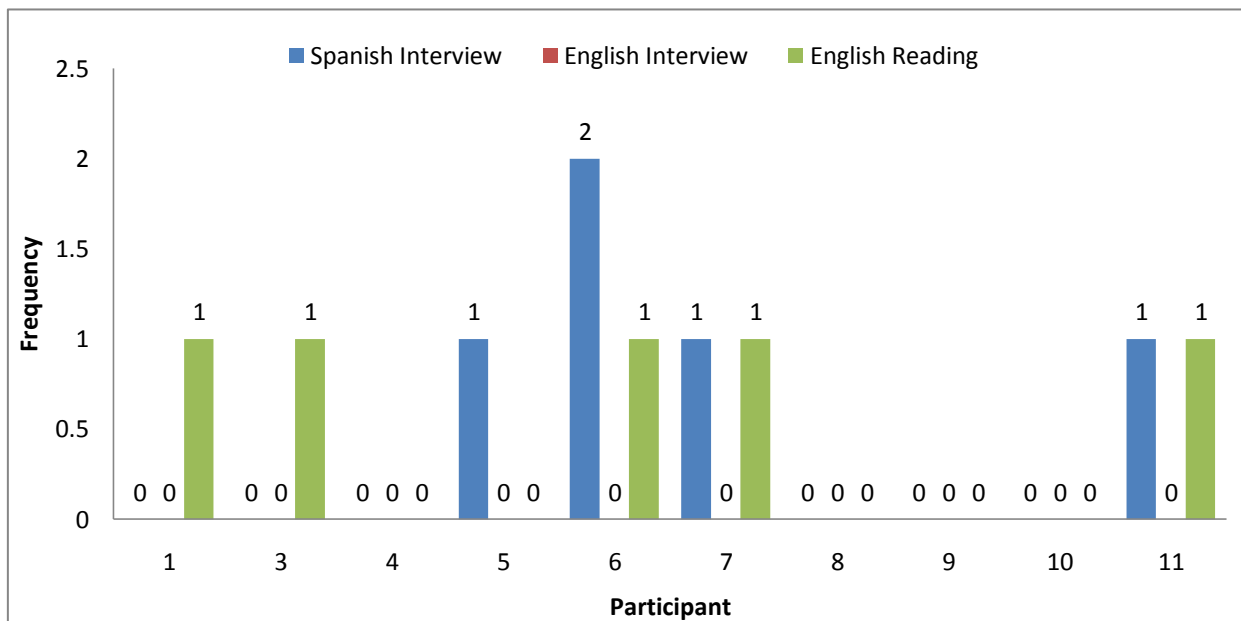


Figure 11: Word-final preconsonantal /n/ velarization through the interview process

The data regarding /n/ velarization in the word-final preconsonantal fricative position demonstrated no correlation between the tendency to velarize in this position in L1 Andalusian Spanish and to do so in L2 English. Figure 12 below demonstrates the trends found for velarization in this position.

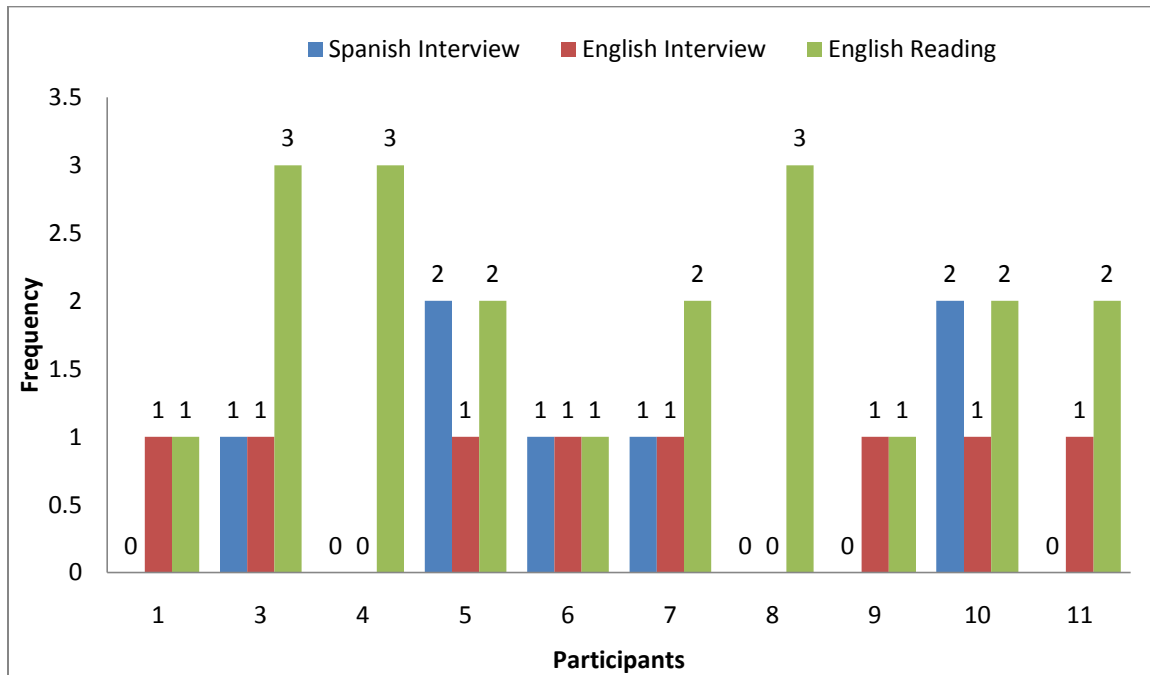


Figure 12: Word-final preconsonantal fricative /n/ velarization through the interview process

During the Spanish interview segment, participants 5, 10, 3, 6, and 7 velarized /n/ in this position above the average of .7 times. During the English interview, participants all but participants 4 and 8 velarized /n/ one time, above the average of .8. During the English reading segment, however, participants 3, 4, and 8 displayed the highest incidence of word-final preconsonantal fricative /n/ velarization. As only participant 8 velarized above the average during each segment of the interview process, a correlation was not found between the process in this position in L1 Andalusian Spanish and L2 English.

The data regarding word-final prevocalic /n/ velarization showed a slight correlation between the strength of the phonological process in L1 Andalusian Spanish and its corresponding strength in L2 English. Figure 13 below demonstrates this trend.

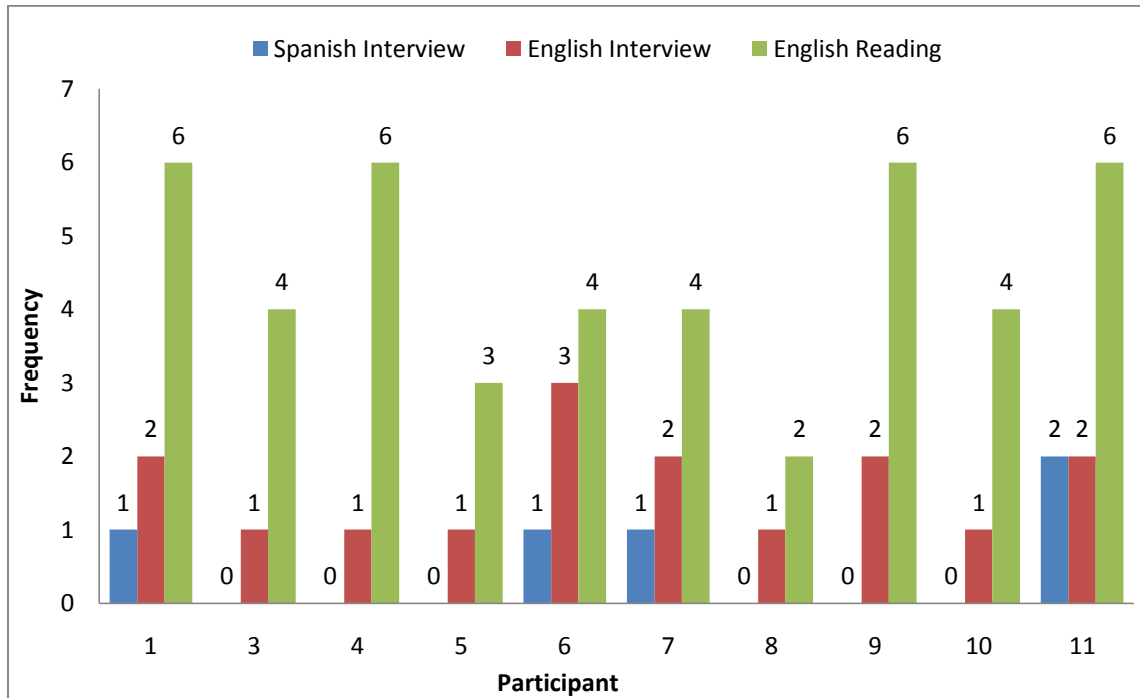


Figure 13: Word-final prevocalic /n/ velarization through the interview process

During the Spanish interview segment, participants 11, 1, 6, and 7 exhibited high tendencies towards velarization in this position, doing so above the .5 average. During the English interview segment, however, participants 6, 1, 11, 7, and 9 exhibited the highest rates, all velarizing more than the 1.6 average. During the English reading segment, participants 1, 4, 9, and 11 velarized more than the average of 4.5 times. As participants 1, 6, 7, and 11 consistently velarized /n/ more than the average amount of times in each category, the data does suggest a relationship between rates of /n/ velarization in this position in L1 Andalusian Spanish and L2 English.

The data regarding /n/ velarization in the internal preconsonantal position did not demonstrate a correlation between the process in L1 Andalusian Spanish and L2 English. Figure

14 below demonstrates the relationship between word-internal preconsonantal /n/ velarization throughout the interview process.

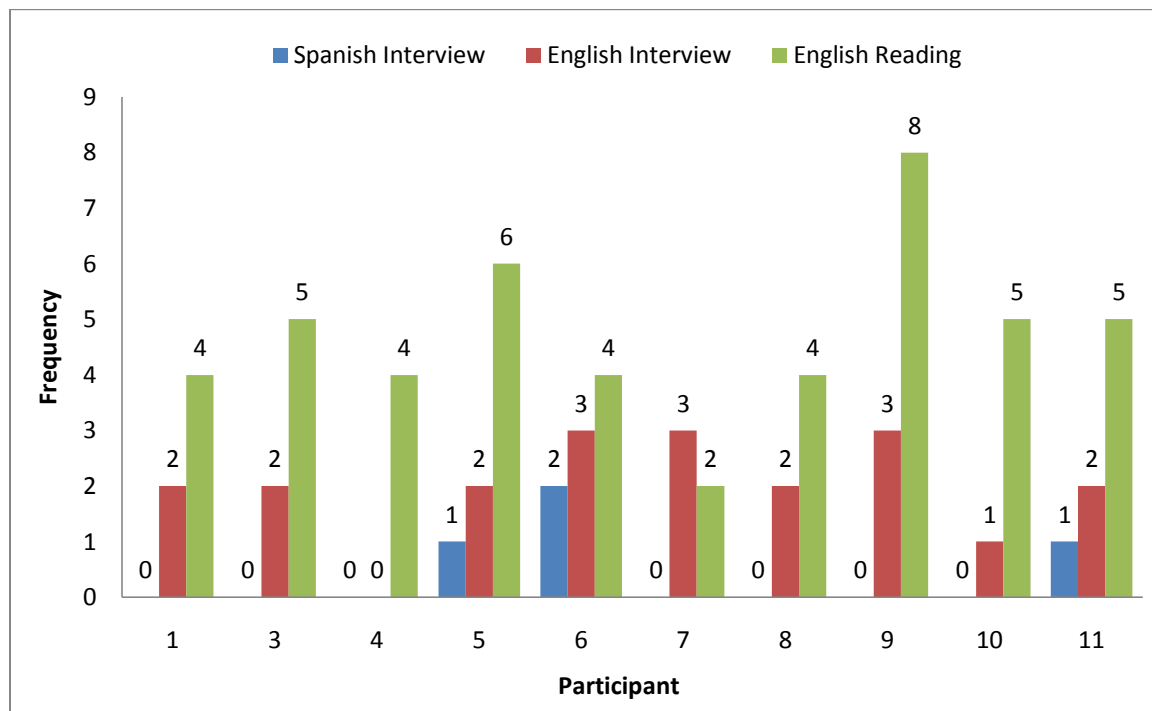


Figure 14: Word-internal preconsonantal /n/ velarization through the interview process

During the Spanish interview segment, participants 6, 5, and 11 exhibited high levels of /n/ velarization in this position, doing so above the average of .4 times. The process most commonly occurred before dentals, as in the word “centro” and before the alveolar /s/ as in the word “entonces.” However, in the English interview, participants 6, 7, and 9 velarized /n/ in this position above the average of two times. During this segment, the process always occurred before dentals as in the words “different,” “don’t,” “and,” and “fantastic.” During the English reading segment, participants 9, 5, 3, 10, and 11 exhibited high tendencies towards velarization in this position, doing so above the average of 4.7 times. As it did during the other two segments of the interview process, velarization occurred primarily before dentals in words such as “and,” “bend,” and “front.” While several participants velarized more than the average amount during

two segments of the interview process, not a single participant did so in all three. The results, then, yield no correlation. While the tendency to velarize /n/ in this position in L1 Spanish is not a predictor of the rate of the same process in low-level English speech, this data does provide insight regarding the process in general. While /n/ velarization in this position is not common in the majority of Spanish dialects, it did occur at a noteworthy frequency during this study. It was possible then, to gather information regarding the process itself. The results of this study clearly show that word-internal preconsonantal /n/ velarization occurs most prominently and most frequently dental consonants.

According to the results of several studies (e.g. Lipski, 1986), it is uncommon for native speakers of Andalusian Spanish to velarize in the internal prevocalic position. While no participants exhibited /n/ velarization in this position during the Spanish segment of the interview process, participants 5 and 10 each did so once during the English interview segment. Both participants realized this process in the word “Spanish,” pronouncing it as /es.pain.ish/. This phonologically-accented pronunciation is clearly related to the noun form, “Spain.” Although there were three positions in the English reading segment in which it was possible for /n/ velarization in the internal prevocalic position to occur, none of the eleven participants did so. Because this process is not normally exhibited in Spanish, let alone Andalusian Spanish, there is no direct path of correlation between the process in the L1 and in the L2. However, participants 5 and 10 also yielded the highest results for /n/ velarization in the word-final preconsonantal fricative position. This slight correlation, however, is inconclusive and requires further testing and research to establish or to disprove a true relationship.

Phrase-final /n/ velarization was the final category of the phonological process analyzed in this study. An analysis of the data regarding the process in this position demonstrated no

correlation between the frequency of the process in L1 Andalusian Spanish and in L2 English. Because the English reading paragraph used in this study provided no possible instances in which this process could occur, it was excluded from the analysis. During the Spanish interview, participants 6, 3, 4, and 11 velarized /n/ in this position more than the average of .6 times. During the English interview segment, however, all but participants 3, 5, and 7 did so one time. Because of these mixed results, a correlation could not be established.

The results of this study provide insight regarding Andalusian Spanish as well as phonological transfer during second language acquisition. The dominance of the process of /s/ aspiration in Andalusian Spanish, a characteristic researched and supported by decades of study and centuries of recording, was supported by the results of this study. While the process of /n/ velarization is also characteristic of Andalusian speech, participants were almost six times more likely to aspirate /s/ than to velarize /n/ during the Spanish interview segment of the interview process. This relative frequency, however, changed drastically when participants began speaking in English. During the English interview and reading segments of the interview process, participants were almost four times more likely to velarize /n/ than to aspirate /s/. Research suggests this change in relativity is due to participants' awareness of the process of /s/ aspiration as characteristic of Andalusian speech.

This study, however, did not merely analyze phonological relativity but also correlation. The data collected from the interview segments was used to research whether the strength and frequency of the phonological processes of /s/ aspiration and /n/ velarization in native L1 Andalusian Spanish could be used as a predictor for the degree of phonological interference in the English L2. The results regarding /s/ aspiration showed that there was no correlation between the frequency of the process in Spanish and in English. This was true of each of the four

positions in which /s/ aspiration could occur, word-final, word-internal, phrase-final, and plural, as well. The data regarding /n/ velarization, however, was not as clear. A general analysis of the total instances of /n/ velarization showed no correlation between a speaker's tendency to velarize in Spanish and his tendency to do so in English. However, a categorical analysis of the various positions in which /n/ velarization can occur did show that some instances of correlation do exist. While no correlation was found regarding the frequency of word-final preconsonantal fricative, word-internal preconsonantal, word-internal prevocalic, and phrase-final /n/ velarization in the two languages, the data retrieved does show that speakers who velarize word-final preconsonantal /n/ at high rates in their native Andalusian Spanish are likely to do so during English oral reading, as well. There was no correlation between Spanish speaking and English speaking, however. A correlation was also found between a speaker's tendency to velarize word-final prevocalic /n/ in L1 Andalusian Spanish and in L2 English.

Future studies, however, are necessary to support the findings in this study. A larger group of participants is needed to prove that several of the findings that contradict previous studies are not merely an anomaly and do have linguistic merit. Additionally, the use of a reading document that includes an equal number of instances in which all of the phonological processes can occur would also strengthen the merit of the study. "The Fox and the Goat," the reading document used in this study, did not, for example, provide any possible positions in which phrase-final /n/ velarization could occur. The use of timed interviews would also be useful as the varying length of the interviews used in this study did have an effect on the rate of /s/ aspiration and /n/ velarization. It would also be useful to test participants' English proficiency level in a more concrete manner than the means used in the present study. This would provide valuable

information regarding the level of English proficiency and the rate of L1 phonological interference.

This study provides interesting information regarding the level and type of L1 Andalusian Spanish interference in L2 English. Instead of the well-known and distinguishing phonological characteristic, it was the process that few, if any, native speakers are aware of that had the greatest extent of L2 interference. This study, then, provides the basis for future studies regarding the nature of phonological interference and its role as a reflection of overall L2 proficiency.

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Appendix A

Pre-Interview Screening Questions

1. What is your current age?
2. Are you a native of the Andalusia region of Spain?
 - a. If no, how old were you when you moved to Andalusia?
3. Have you ever spent two or more consecutive months in an English-speaking country?
4. Do/Did your parents speak English?
5. Did you learn English in elementary or secondary school?
 - a. If yes, for how many years?
 - b. If no, for how long have you been formally studying English?

Appendix B

Spanish Interview Questions

1. How would you describe the region of Andalusia? What makes it distinct from other regions of Spain? How has it changed since your childhood?
2. Does Andalusia have its own distinct culture? Is northern Spanish culture different from southern Spanish culture? How and why? What are some of the traditions associated with the region? Which do you enjoy most and why? What the importance of La Feria and what are the traditions surrounding it?
3. What are some of Seville's best qualities? What makes Seville distinct from other Spanish cities? Can you explain its motto? What does the motto mean to you? Where is your favorite place to go in the city and why? What would a visitor want to see and why?
4. What are some of Seville's bad qualities? What, specifically, do you dislike about the city and why? How can the city improve?
5. What made you decide to learn English as an adult? What are the benefits of learning a second language, specifically English? Would you recommend everyone learn a second language? Describe the learning process so far. What is the most difficult aspect of learning this second language and what makes it so difficult?

Appendix C

English Interview Questions

1. What is your favorite holiday and why? What are some of the traditions associated with that holiday? Do you eat special food, go to a certain place, or meet with specific friends or members of your family? Have these traditions changed since your childhood? Can you explain how? What is your favorite memory of this holiday?
2. What are the differences between Spanish and American culture (social, political, religious, food)? Do they have any similarities? What are some stereotypes about American culture? What are some stereotypes about Spanish culture? How is Spain distinct from Europe as a whole? Besides the language, what makes it unique?
3. Is Spanish culture different from Latin American culture? How and why are they different? Are there any similarities? How does Latin American Spanish compare to Peninsular Spanish, the Spanish you speak? What are the differences?

Appendix D

English Reading Paragraph

The Fox and the Goat

A Fox one day fell into a deep well and could find no means of escape. A Goat, overcome with thirst, came to the same well. When he saw the Fox, the Goat asked him if the water tasted good. Masking his sadness in a smile, the Fox praised the tasty water. He said it was completely worth the trip down and encouraged the Goat to descend. The Goat, mindful only of his thirst, instantly jumped down into the well. But just as he drank, the Fox told the Goat they were both trapped and suggested a plan of escape. "If," said he, "you will place your front feet in upon the wall and bend your head, I will run up your back and escape, and will help you out afterwards." The Goat readily assented and the Fox leaped upon his back. Holding on in between the Goat's horns, he reached the mouth of the well safely and made off as fast as he could. When the Goat upbraided him for breaking his promise, he turned around and cried out, "You foolish beast of a fellow! If you had as many brains in your head as you have hairs in your beard, you would never have gone in before you had inspected the way up, nor have exposed yourself to dangers from which you had no means of escape." Look before you leap.

Appendix E

Post-Interview Questions

1. Do you consider the Spanish spoken in Andalusia to be different from that spoken in Northern Spain? How are they different? What makes Andalusian Spanish sound distinct?
2. Are you aware of any specific traits related to Andalusian Spanish? Do you use them in your own speech?
3. Are there any attitudes regarding Andalusian Spanish? Are they positive or negative? Are there any stereotypes? Do you agree or disagree and why?

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