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LISTEN, SING AND LEARN: THE EFFECTS OF MUSICAL ACTIVITIES ON PHONEMIC AWARENESS IN THE FOREIGN LANGUAGE CLASSROOM

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
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Master of Arts

in

The Department of Foreign Languages and Literatures

by
Kelli White
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ABSTRACT

Traditionally, there has been a lack of emphasis placed on proper second language (L2) pronunciation in recent theoretical perspectives on foreign language pedagogy. Pronunciation is important because it is indicative of a learner's level of phonemic awareness, an important component of second language acquisition. Inaccurate pronunciation (and therefore poor phonemic awareness) is often the result of a lack of training in this area due to the focus on grammar and syntax in many language classrooms. One often-neglected method of training students in L2 pronunciation discussed in some theoretical literature is the use of authentic materials in the form of musical recordings. This thesis reports on the results of a lengthy longitudinal study in which the researcher measures the effects of musical training in the foreign language classroom on the acquisition of a series of phonemes in Spanish. Pretest and posttest scores for all participants in both the control and experimental groups were judged by native speakers of Spanish and assessed on a 5-point scale. The range of increase for the experimental group's scores ranged from 5% to 53%, with 33.4% as the mean percent of increase. The results of this study indeed suggest that musical training is an effective manner of increasing learners' pronunciation accuracy through developing phonemic awareness in the L2 classroom.

CHAPTER 1. INTRODUCTION

To learn a second language (L2), one must learn the language's grammatical structures, lexicon and phonological features (Gass & Selinker, 2001, p. 259). The third part of this, phonology (and more specifically pronunciation), has been shown in past research to "form a natural link to other aspects of language use, such as listening, vocabulary, and grammar" (Pennington & Richards, 1986, p. 219). As such, it was once considered to be a key component of second language acquisition (SLA). However, pronunciation instruction has varied in use and approach as a result of pedagogical trends (Arteaga, 2000, p. 339).

Because of the popularity of current teaching methods, such as Communicative Language Teaching (also known as CLT or the Communicative Approach), the goals of the second language (L2) classroom textbooks and teaching have changed. Pronunciation has come to be viewed as a component of linguistic (rather than communicative) competence. Instead of focusing on accurate pronunciation, what little pronunciation instruction still included in current methods emphasizes pronunciation that is merely comprehensible (Omaggio-Hadley, 2000). Many textbooks designed for use in the L2 classroom do not include pronunciation guides or information, nor do they explain the link between the sounds and orthography of the L2. The few included activities included in some class materials for pronunciation practice are consigned to laboratory manuals. Because of this, phonology has perhaps come to be viewed as the least important aspect of SLA (Elliot, 1997; Gregory, 2005). An observation of the neglect suffered by pronunciation instruction within the communicative framework led Arteaga (2000: 340) to refer to it as having "stepchild status" in the L2 classroom. This categorization of phonology as a low priority in SLA has diminished its true significance in attaining fluency in the L2.

Because past research suggests that the probability of achieving native-like pronunciation in an L2 is significantly lessened for learners who are exposed to the L2 after childhood, some would argue that pronunciation instruction is not an effective use of classroom time. Although children acquire the phonological features in their L2 with greater success than adults (Arteaga, 2000, p. 340), more recent research has demonstrated that older learners have the ability to achieve native-like phonetic proficiency through training (Gregory, 2005). The purpose of this thesis is to investigate the correlation between phonetic training and music; specifically, it seeks to answer the question: what effect, if any, does using musical activities in the L2 classroom have on phonemic awareness of the target language? Although some authors have posited a connection between music and language in general, and a few have hypothesized a correlation between the phonological aspects of SLA and music, the possible pedagogical implications of this link have not been exhaustively explored by any means.

Given the many commonalities between music and language, it stands to reason that some researchers have been justifiably interested in this topic in recent years and have noted that these areas are inextricably linked. For example, language and music may both be described as "universal and basic phenomena" (Nakata, 2002, p. 4) that the majority of people worldwide experience and use to express emotions and sentiments. Both can be vocal, as with speech and song; they can be gestural, as with sign language and dance; both may be written down, as with written language and composed music (Mithen, 2006, p. 15). As language acquisition requires the attainment of basic linguistic elements, such as syllables, words and phonemes, music education also requires the acquisition of basic elements. These include notes, phrases and melodies (Anvari, Trainor, Woodside & Levy, 2002). One may think also of teachers of both language and music and the elements upon which they focus. All speak of the "four" important

skills: writing, reading, listening and oral production (Liperote, 2006, p. 47). These skills are developed in a similar way in both acquisition processes. For example, the acquisition of musical phonological units occurs naturally, just as that of the first language (L1) phonemes does, through daily experience and contact (Anvari et al., 2002, p. 112). Similarly, children hear music and then learn how to produce it. In that same way, a child listens to his or her L1 for many months before s/he begins to produce utterances (Liperote, 2006, p. 46).

These ideas are not only prominent in linguistic and musical theory but have a biological basis as well. Recent scientific research has demonstrated an overlap in perception and production of music and language. It is important to note above all that both may be received and perceived by the same auditory apparatus and may be realized through the vocal cords (Nakata, 2002, p. 4). For both speech and music production, it is necessary to combine segments, such as phonemes and notes. These combinations permit endless possibilities of phrases and expressions (Anvari et al., 2002, p. 113). Finally, cognitive pathologies can lead to aphasia, or language loss, and amusia, or loss of ability to recognize and reproduce musical tones (Mithen, 2006, p.15). For these reasons, certain cerebral commonalities must exist in the processing of language and music.

According to some scientists, the phonologies of both music and language are processed similarly by several common functional areas of the brain, including Broca's area, the auditory cortices, and the primary motor cortex as well as supplementary motor areas, among others (Brown, Martinez & Parsons, 2006). Levitin and Menon (2005), for example, showed evidence of this overlap when they used MRI scans to map musical processes in the brain. The results showed that the processing of musical phrases activates a region of the brain that, prior to this study, had been associated only with the processing of language. A later event-related potential

(ERP) study of musical and linguistic syntax processing showed a strong overlap of nerve pathways and other neural resources utilized in both types of syntactic processing (Koelsch, Gunter, Wittfoth & Sammler, 2005).

Another study utilized Positron Emission Tomography (PET) to visualize the areas of the brain that are engaged during musical and linguistic generative tasks (Brown, Martinez & Parsons, 2006). The results revealed the activation of several functional areas of the brain, including those mentioned above. Based on these illustrative PET scans, the authors posit possible explanations for the activation of these areas of the brain, such as component sharing, intermingled representations, and adaptive coding. They conclude that music and language share neural pathways for the generation of complex sound structures, which they further define as phonology.

In recent years, many linguists have begun to investigate more thoroughly the phonological elements common to music and language supported by this scientific research. For example, the phonological systems of both music and language demonstrate duration, pitch, stress, and tone (Anvari et al., 2002, p. 113). These similarities are important in understanding the possible effects that music may have on the phonological aspects of language acquisition, specifically SLA.

With regard to the phonology of language, there is a body of evidence that supports the notion that phonological awareness, which describes the ability to perceive and manipulate small linguistic sound units apart from their meanings, is an important component of both first and second language acquisition. For example, proper development of phonological awareness plays an important role in a learner's abilities to produce words correctly and to form connections between phonological units and their orthographic representations (Ehri, 2005). Furthermore,

several recent studies (Anvari et al., 2002; Ehri, 2005; Herrera, Defior & Lorenzo, 2007) have demonstrated a correlation between phonological awareness and reading abilities because of the enhanced awareness of the phoneme/grapheme relationship afforded by well-developed phonological awareness.

There is also some empirical substantiation that music may be used to develop phonological awareness in many ways. Several researchers have noted that various musical activities, such as melodic chanting and singing in a target language, can be effectively employed to increase and train phonological awareness (Herrera, Defior & Lorenzo, 2007). This in turn would facilitate the acquisition and improvement of those linguistic skills affected by an individual's level of phonological awareness.

Although past research has explored in depth the role of phonological awareness in SLA, only a few studies have focused on the possible connection between the use of musical activities in the classroom and the development of phonological awareness. There are even fewer, if any, investigations focusing on the use of musical activities to develop phonological awareness in the adult foreign language classroom. However, from the perspective of the existent studies, the use of music may assist in the development of phonological awareness, which in turn would facilitate the acquisition of sound units in individuals learning a foreign language. Consequently, music may facilitate not only the acquisition of phonological features evidenced in spoken language but also the recognition of the grapheme/phoneme relationship and therefore the ability to sight-read words.

In order to create a viable theoretical framework for this study of music and phonemic awareness and explore possible pedagogical implications in the L2 classroom, it is necessary to carefully review and analyze currently available literature on the treatment of phonology in past

teaching methodologies, the role of phonemic awareness in SLA, and the use of music in the development of phonemic awareness. The theories encompassed in this literature are the basis for the pilot test and longitudinal study contained in this thesis. As will be shown from the perspective of current theory, this study demonstrates that musical activities can aid in the development of phonemic awareness in the L2 classroom.

CHAPTER 2. THEORETICAL BACKGROUND

This review of current literature is divided into three sections: the importance of phonology and its treatment in traditional L2 teaching, the role of phonemic awareness in SLA, and the use of music in the training and development of phonemic awareness.

Pronunciation—and all areas of phonology—is an important part of SLA because it is linked to the development of other linguistic skills and also influences the learner's affect both in society and in the classroom. As such, it is important to begin any discussion of the role of pronunciation in the context of its treatment in past and present teaching methods, such as the Grammar-Translation Method, the Direct Method, the Audiolingual Method, the Cognitive approaches of the 1960s, the 'designer' methods of the 1970s (Silent Way, Total Physical Response, Community Language Learning, and Suggestopedia), the Natural Approach, and Communicative Language Teaching. A brief critique of the phonological aspects of these methods will show that pronunciation instruction has thus far been flawed and sometimes ignored altogether.

The lack of inclusion of some type of phonological training has not allowed learners to properly develop phonemic awareness, which is important in the formation of phonological representations and the recognition and application of the grapheme/phoneme relationship, as will be discussed later in section 2.2. For this reason, it is important to draw on past research and explore ways to develop phonemic awareness (especially for late L2 learners) in the L2 classroom. Music seems to be one way to do this, as evidenced by past research that is cited in section 2.3. Although music has been used in L2 classrooms in the past and many different rationales have been given for this, there is not a comprehensive theory that explains its efficacy in facilitating SLA. However, it is clear from the past research cited in this section that music

facilitates the development of phonemic awareness, as evidenced by increased accuracy in pronunciation.

2.1 THE IMPORTANCE OF PHONOLOGY IN SLA AND ITS TREATMENT IN PAST TEACHING METHODS

Increased accuracy in pronunciation, despite its lack of inclusion in communicative teaching methodology, aids in intelligibility when communicating in the L2 and has been shown to be linked to good listening comprehension skills, as well. Accurate speech production is strongly correlated with learners' ability to understand authentic, native speech in the L2, even with the addition of interfering factors such as background noise (Arteaga, 2000, p. 342). Correct pronunciation is not only linked to comprehension of spoken language, but it is also correlated with early reading ability, which requires decoding phonological elements of the language (see section 2.2). Because there are many linguistic skills affected by the development of the learner's phonological system, it is important that a learner possess the ability to distinguish the pronunciation of various phones (Ehri, 2005).

In addition to its importance in decoding spoken and written language, pronunciation is closely tied to a learner's affect, which is documented to play an important role in SLA. Those learners who demonstrate poor pronunciation are often reluctant to employ the L2 and participate in oral practice activities, whereas those who display more accurate pronunciation are more eager to participate in activities that require the use of the L2 (Arteaga, 2000, p. 340). Many learners are concerned about pronunciation not only within the classroom context but also in the L2 community because they worry about how speakers of the L2 perceive them (Elliot, 1997, p. 104). This concern is not completely unwarranted. Although modern methodologies aim for intelligible pronunciation rather than native-like, speech that is accented is not always "neutrally

received" by listeners (Arteaga, 2000, p. 342). According to Leahy (1980, p. 217), "there is a great deal of prejudice among less language-wise members of our society who tend to concentrate more on the way something is said than on the actual content of the message," a fact that language teachers often forget. In fact, research has shown that many listeners equate a strong foreign accent with a low level of proficiency or even a low level of mental ability, and this can hinder a learner in many formal situations (Arteaga, 2000, p.342). These negative perceptions often negatively impact the learner's self-image and confidence in the L2; because of this, a learner's level of well-being when utilizing the L2 may be partially dependent upon his/her phonological development.

For these reasons, such pronunciation instruction was a key component in some of the first L2 teaching methods to be used in the United States. Through the years, however, as various methods gained and lost popularity, pronunciation instruction also varied in its classroom usage (Elliot, 1997). Each of these past methods had benefits and disadvantages regarding pronunciation instruction, as well as implications for future methods. In order to fully understand these implications, a brief review of past methods is necessary. The intent of this review is not to provide a complete critique of these methods but rather to highlight and examine the phonological aspects.

One of the earliest formal L2 teaching methods to be used in the United States, the Grammar-Translation Method, originated in the nineteenth century and is still currently popular in the teaching of Classical languages (Greek, Latin and Hebrew). The goal of this method was to promote literacy in the target language. This was done through translations, deductive grammar study, vocabulary memorization, and the analysis of written texts. Because the focus

was on written language, the only oral language use was reading aloud from texts. Little to no attention was given to pronunciation (Brown, 2006, p. 115-116).

This method has several potential drawbacks, which have been brought to light by more recent research, such as a lack of orientation towards communicative competence (Omaggio-Hadley, 2000, p. 108). However, even when one accepts the main goal of this method as the promotion of literacy, there still remain some insufficiencies. Because phonological awareness (see section 2.2) has been shown to be an important component of the early stages of language acquisition, especially in the decoding of written language (Ehri, 2005), some provision for phonological training should be included for such a method to succeed in even the limited goals described here.

While the Grammar-Translation Method demonstrated a complete lack of pronunciation instruction, one of the next methods to emerge, the Direct Method, emphasized correct pronunciation from the beginning of each course. To accomplish this, the teacher utilized phonetic notation to aid the students in learning correct pronunciation. Speech and listening comprehension were explicitly taught. Frequent instruction was given for the target language's phonological elements. However, while this method made great strides in placing proper importance on spoken language, there was a lack of emphasis on written language, and meaning was often ambiguous (Omaggio-Hadley, 2000, p. 108-109). Additionally, past research has shown that phonological training programs must contain some type of cultural context rather than consist solely of abstract drills (Sulzby & Teale, 2000, p. 748). The next methodologies to be introduced in the field, rather than address this problem, continued to utilize explicit pronunciation instruction and pattern drills and to focus on pronunciation in the extreme to the detriment of other skill areas.

One of the major methodologies to emerge during this revival of oral language teaching was the Audiolingual Method (ALM; also known as the Oral-Based Approach, the Michigan Method and the Army Method). The major focal points of this method were phonology and morphology. Proponents of ALM maintained that language was speech and not writing. Therefore, great importance was placed on developing native-like pronunciation and oral fluency. Students learned to use the language through drills and dialogue memorization (Brown, 2006, p. 74). Inaccurate pronunciation was always corrected by the teacher. Rather than being viewed as a part of the learning process, errors were something to be avoided at all costs (Omaggio-Hadley, 2000, p. 112).

Although phonology was treated as an integral part of SLA, this method (like the Direct Method) lacked focus on other skill areas and meaning. There was very little encouragement of creative language use; instead, production depended on memorization (Brown, 2006, p. 74). Furthermore, although there was overt pronunciation instruction, it placed far too much dependence on mimicry. Learners could recite well-rehearsed dialogues with correct pronunciation; however, with this type of instruction, it was much more difficult to develop accurate production of previously unrehearsed or spontaneous speech (Omaggio-Hadley, 2000, p. 113).

Because of the drawbacks to the Direct Method and ALM, as well as the research being carried out in this era, the next methods to emerge often disregarded the continued need for phonological development in the classroom. These included the cognitive approaches of the 1960s, in which more creative language use was encouraged. Although grammatical structures were explained and learners practiced them through speaking, little to no corrective feedback was given, especially in the area of phonology. The 'designer' methods of the 1970s, outlined

below, were widely varied in their approaches to language teaching and continued to ignore the need for phonological development (Omaggio-Hadley, 2000, p. 125).

The Silent Way, one of these methods, introduced vocabulary, sounds, and even syntax through the use of Cuisenaire rods. Learners practiced the language through repetition of the words and information presented by the teacher. Although the teacher introduced new information, learners were required to refine their understanding and pronunciation amongst themselves with minimal corrective feedback (Brown, 2006, p. 106).

One of the obvious drawbacks to the Silent Way was the low level of comprehensible input provided coupled with the lack of feedback. According to Krashen (1985), acquisition occurs through receiving and understanding language available to the learner, which he termed 'input'. For a learner to successfully acquire an L2, the learner must be inundated with input that is challenging yet comprehensible. It must be challenging in order for the learner to constantly progress to higher levels of competence. However, if the input contains structures that are far more advanced than the learner's current level of knowledge, s/he will be unable to comprehend the structures or incorporate them into the developing system. Krashen called this challenging yet comprehensible input 'i + 1' (Gass & Selinker, 2001, p. 259). Because of the importance of comprehensible input in the L2 classroom, methods such as the Silent Way were deficient in an important area of SLA. Only words and brief phrases were introduced by the teacher (as opposed to longer phrases and conversations), and the students repeated these brief utterances, but no feedback was given for either pronunciation or meaning. This problem would make it very difficult to develop a complete phonological system for the L2, as well as impeding the development of other skills.

The next method to emerge was Total Physical Response (TPR). In the early stages of courses utilizing this method, students physically responded to commands issued by the teacher in the L2. TPR placed importance on the complete development of listening comprehension before the emergence of speaking abilities, just as is the case in first language acquisition. Although this method emphasizes above all others listening skills, which can serve as a basis for other skills, it is very limited (Brown, 2006, p. 107).

The most common criticism of TPR is that the contexts of classroom situations are initially limited to commands and therefore do not expose learners to other linguistic structures. However, there are other limitations to the method that are equally detrimental to the developing L2 system. In order for a learner to develop a working L2 system, production is required in addition to receiving input. This production, also called 'output,' is integral to SLA for many reasons. Output allows the learners to test new forms, meanings and hypotheses about the L2; they can receive feedback; they can become independent in communicating in the L2; finally, learners' focus shifts from meaning to form. Whereas processing input is a relatively passive process, creating output requires that the learner not only grasp the meaning of key words and phrases but also that s/he process linguistic forms so that the structures used in the input become a part of the L2 system. Once these forms are incorporated in the learner's interlanguage system, s/he must manipulate these, along with correct meaning, to form output. Output not only helps learners practice previously learned material, it also pushes them to utilize information and structures to make themselves understood in communicative contexts, in which they may have to modify utterances and attempt to employ new forms. Without this active process, acquisition would be incomplete (Gass & Selinker, 2001, p. 277-278). This is true not only for the developing L2 system on the whole but also for the L2's phonological aspects. According to

Archibald (1995), complete acquisition of the L2 phonological system necessitates reconstruction of the sounds from the input. Because of the many limitations of TPR, it is no longer considered particularly useful as a complete method but rather is used for teaching commands.

Although some of the methods that followed TPR contained a wider array of contexts and structures and provided opportunities for production, these methods also were unable to effectively incorporate phonological training into instruction. For example, Community Language Learning (CLL) focused on creative language use. It was based on Carl Rogers' perspective on education in which the teacher and learner worked together to achieve a common goal in an environment of mutual respect, which in turn lowered the learner's defenses and facilitated learning (Brown, 2006, p. 103). The goal was to give the students the necessary tools for accomplishing communicative goals. This was done through translation of learner utterances. When a learner wished to address the group, s/he expressed his/her idea in the L1, the teacher would softly whisper a translation into the learner's ear, and the student would repeat the translation aloud for the group to hear. The teacher assisted all learners in expressing their thoughts on a given topic in this way. Such conversations (or sessions, as they were sometimes called) were recorded and transcribed as text. Learners later analyzed these materials in an attempt to glean information about the target language without interference from the teacher. While learners were free to express themselves rather than simply repeating dialogues, they were (initially, at least) completely dependent upon the teacher (Omaggio-Hadley, 2000, p. 124). There was no real, authentic language provided for the learners as input; learners mainly heard themselves repeating translations. Because no corrective feedback was given, development of phonological awareness was likely to be non-existent.

Suggestopedia, one of the next methods to surface, also featured no pronunciation instruction or training. Suggestopedia focused less on linguistic structures and creative language use and more on affective factors. Information was presented in a relaxed environment. The teacher enacted skits and dialogues until the learners were ready to engage in oral practice activities (Brown, 2006, p. 104). In Suggestopedia, like so many other methods, no pronunciation instruction or corrective feedback was given (Omaggio-Hadley, 2000, p. 127-128).

The teaching methods of the 1980s brought improvement in many areas but also perpetuated many of the same flaws, especially in the area of phonology. The Natural Approach, for example, recognized and attempted to address the learners' need for meaningful input. The main focus was effective communication in the L2, meaning that learners should understand and be understood by a native speaker of the L2. Because focus was always on meaning over form, there was very little error correction. No pronunciation instruction or feedback was given because foreign accent did not "grossly interfere" with meaning (Omaggio-Hadley, 2000, p. 120). However, like so many methods before it, the Natural Approach failed to take into consideration the consequences of not training and developing learners' phonological awareness in the L2 (see section 2.3).

While the Natural Approach disregarded pronunciation and ALM placed extreme importance on it, Communicative Language Teaching (CLT) claims to present a more balanced approach to phonology. CLT, currently the most commonly used and widely accepted foreign language teaching method in the United States, encourages learners to use the L2 to accomplish communicative goals in the classroom rather than focus on metalinguistic awareness (Elliot, 1997, p. 95). All four skill areas (listening, speaking, reading and writing) are promoted, and comprehensible pronunciation is emphasized as opposed to native-like pronunciation. Learners

are provided with challenging, yet comprehensible, input in the classroom (Omaggio-Hadley, 2000, p. 116).

Despite the profession of a balanced approach to language instruction, many textbooks based in CLT still do not contain activities designed to develop phonological awareness in the L2. In fact, under closer scrutiny, one can see that the framework of CLT has placed little importance on pronunciation (Arteaga, 2000, p. 340). Within communicative approaches, focus on phonological aspects of SLA has "fallen to the wayside and has suffered from serious neglect," and phonological training is considered to be "of limited importance" (Elliot, 1997, p. 95). Terrell is often cited in discussions of this fact; he observed: "communicative approaches likewise have not known what to do with pronunciation" (Terrell, 1997, p. 197). This lack of inclusion in current methodologies brings to light the fact that the stated goals of the communicative approach, such as developing the communicative skills of the learner and cultivating intelligible speech, are somewhat in opposition due to the low emphasis placed on phonology (Crawford, 1997). On this subject, Wipf (1985) noted that it was perplexing that communicative approaches accord pronunciation instruction little to no importance in the classroom, especially since "[e]ncounters with persons who have mastered the structure and lexicon of a second language yet produce all but unintelligible speech due to inadequacies in pronunciation, are not rare" (p. 55).

A problem common to all of these methodologies is that because all of the input comes from the teacher, if s/he is not a native speaker of the target language and is not knowledgeable about the L2 phonological system, the learners may struggle in the process of acquiring correct pronunciation. Learners in these situations will encounter difficulties in fully developing their

phonological awareness, which is key in learning to interpret the L2, as will be further discussed below.

2.2 THE IMPORTANCE OF PHONOLOGICAL AWARENESS IN SLA

The entirety of a speaker's phonological and intonational systems in a second language—commonly known as his/her L2 accent—is a very complex issue. This is because phonological acquisition of the L2 requires the acquisition of a segmental inventory, phonotactics, syllable structure, stress, rhythm and intonation; however, phonological systems are first built upon the individual phones of the language. Each language employs a subset of the phones found within human language. As these segmental inventories vary by language, phonological acquisition of a learner's L2 usually necessitates the learning of new sounds to perceive and produce. If learners are not made aware of these new phones in the L2 phonetic inventory, errors will occur in the formation of their L2 phonological systems (Archibald, 1998, p. 103). According to Hancin-Bhatt (1994), learners tend to produce the closest substitute available from the L1 inventory for a new sound in the L2. Although the sounds that are transferred in place of the correct phones generally agree in voicing and nasality and have similar places of articulation, a new sound category is not created unless the new sound is completely different from any found in the L2 inventory (Archibald, 1998, p. 103). Furthermore, phonological conflicts arise in the developing L2 phonological system not only when a new sound is presented but also when the L2 system requires that a single sound unit from the L1 be split into two distinct phonetic segments. In these cases, learners may have great difficulty perceiving and producing the two units in the correct contexts (Archibald, 1998, p. 92). Because of such issues, it is important that learners develop phonological awareness, meaning that they become aware of the salient aspects of the new phonological system.

While phonological awareness encompasses perception and manipulation of all of the above sound units (segments and prosodic features), phonemic awareness describes one aspect of overall phonological awareness dealing only with segmentals. Phonemic awareness may further be defined as the "conscious ability to segment spoken words into their constituent phonemes and manipulate phonemes" (Sulzby & Teale, 2000, p. 746). At the most basic level, it can be described as "the realization that oral words are sequences of meaningless sounds" that occur in many different words and phrases to which a speaker or learner of a language is exposed on a daily basis (Juel, 2000, p. 778). Focusing on phonemic awareness, rather than overall phonological awareness, in linguistic studies of language literacy and fluency is useful for three reasons: first, although awareness of suprasegmentals is very important in many languages, these features cannot supersede the importance of the segments themselves because a listener must first be prepared for the sequence of individual speech sounds s/he will hear while learning the language in order to learn to produce them (Arteaga, 2000, p. 343). Second, phonemic awareness is "directly related to the issue of understanding the pronunciation clues of the written language, one of the key features of becoming conventionally literate" in the target language (Sulzby & Teale, 2000, p. 746). In order to achieve fluency, learners must acquire "conscious, analytic knowledge of how phonetic and graphic elements map onto phonemes." Third, previous research has demonstrated that the ability to analyze phonemes is associated with proficient decoding of written language (Ehri, 2000, Sulzby & Teale, 2000, Juel, 2000). For this reason, phonemic awareness may be in some cases a precursor to conventional literacy; in other words, "to segment words into their constituent phonemes" is to some extent necessary to learn to read and write a language, making this concept an important part of any discussion of SLA (Sulzby & Teale, 2000, p. 746).

Phonemic awareness is important in production of printed individual words, especially unfamiliar words (Ehri, 2000, p. 385), such as those of a foreign language. To learn to produce new words, one must learn to form associations between sounds and meanings by means of phonological representations (Hu, 2003). During the process of SLA, because of the unfamiliar phonemes, syllable structures and prosodic features of the L2, the learner may experience more difficulty in organizing such features and forming phonological representations than in his/her L1.

One may ask why forming phonological representations for each word is significant in SLA. Forming phonological representations is of particular consequence for native speakers of English, for example, in learning to read and produce irregularly spelled words of their L1, such as "sword" and "sign", in which certain letters are silent or take on irregular pronunciations (Ehri, 2005). For this reason, one may speculate that for a native English speaker learning a foreign language such as Spanish, which utilizes many of the same graphemes in its alphabetic system but has different corresponding phonemes for many of these and makes use of some of the same phonemes but in different distributionary patterns, the phonological representations formed for the foreign words may become especially important during SLA.

Production of unfamiliar words involves not only forming representations but also *phonological recoding*, or "applying letter-sound relationships", also known as the *grapheme/phoneme relationship*, in order to convert written words into pronunciation (Ehri, 2000, p. 383). This means that learning to read and produce a word by sight requires the creation of a connection which links written words to their pronunciation and to the phonological representation of their meaning. One could also transfer this into the context of foreign words, which are inherently unfamiliar upon initial exposure to the learner. These connections are

formed from a learner's alphabetic knowledge of the language system. For this reason, when an individual demonstrates sensitivity to phonemic structures (or, stated differently, well-developed phonemic awareness), s/he has an advantage when learning the orthographic system that corresponds to the phonological system of the L2 (Anvari et al., 2002). Language learners who can divide a spoken word into phonemes often have the ability to relate phonological representations with their written representations. This concept was perhaps best stated by Ehri (2005): "When readers learn a sight word, they look at the spelling, they pronounce the word, they distinguish separate phonemes in the pronunciation, and they recognize how the graphemes match up to phonemes in that word" (167). It is important to note, however, that while this information is true of many orthographic languages, this is not necessarily the case for logographic languages, like Chinese, in which the "grapheme to phoneme route is unavailable" (Xiao, 2005, p. 222).

Given this information, it is clear that within orthographic languages, a learner's recognition of the relationship between grapheme and phoneme is to some extent indicative of his/her level of phonemic awareness in a given language. While production of printed words is not as simple as merely accessing phonological and orthographic representations (it also involves recognition of semantic and syntactic representations), it is still important to note that readers with explicit knowledge of the letter-sound correspondences create links between the orthographic representations in spellings and the phonemes in the articulations of specific words. This provides individuals who are learning a language in which there is usually a one-to-one correspondence between grapheme and phoneme with a reliable method of accessing previously learned lexical items in memory because these connections systematically capitalize on the grapheme/phoneme relationship.

This notion of the consciousness of the grapheme/phoneme relationship as evidence of well-developed phonemic awareness is substantiation that said awareness is correlated with the recognition and pronunciation of printed foreign words. That pronunciation stems from and is indicative of phonemic awareness in young language learners is a well-documented phenomenon (Hu, 2003). As Markham (1997, p. 83) states: "one never observes a learner with excellent pronunciation yet poor phonology, thus indicating some sort of implicational relationship." Phonetic performance is more directly observable than the learner's phonological system, and is therefore a fairly good indicator of his/her interlanguage phonology and thus of phonemic (and general phonological) awareness (Archibald, 1998, p. 92). Difficulty performing tasks that require the learner to demonstrate correct pronunciation, such as orally producing a written word, would then indicate a phonemic awareness that is not fully developed.

Poor phonemic awareness is thought to be characterized by an individual's tendency to organize his/her phonological representations for a given meaning at the suprasegmental level, such as in whole syllables, as opposed to the phonemic level, which leads to the aforementioned poor pronunciation (Hu, 2003). The idea that these factors influence language ability has been demonstrated in recent studies that test phonemic awareness and language skills (Anvari et al., 2002; Gromko, 2005; Herrera, Defior & Lorenzo, 2007, among others). Many of these studies have shown that there are children, classified as partial-alphabetic learners, who have difficulty developing many linguistic skills in their L1 due to poor phonemic awareness (Ehri 2001).

Not only is poor phonemic awareness an impediment to linguistic skill acquisition in one's L1, but it is also a limiting factor in SLA. A learner who cannot divide words into phonemes in his/her L1 will have difficulty dividing L2 words into phonemes in order to articulate them (Hu, 2003). Alternately, findings from other studies suggest that children who

have well-developed phonemic awareness in their L1 are better able to develop knowledge of L2 phonemes (Cárdenas-Hagan, Carlson & Pollard-Durodola 2006).

Because well-developed phonemic awareness is linked to accurate pronunciation and production of foreign words, foreign language learners need to train and develop their phonemic awareness. Although some programs designed for this purpose exist, there are very few, and many of these are not very effective. New programs need to be developed, and the answer to this problem perhaps lies in training exercises that promote understanding of how phonemes relate to their orthographic representations. These have proven to be especially advantageous. Of course, no training activity is beneficial without involving some sort of "mediation" of contextualized cultural activities (Sulzby & Teale, 2000, p. 748). As will be explained in a later section, this issue directly pertains to the current study, which posits one possible solution to this problem within the context of the foreign language classroom through examining the effect of music on the development of phonemic awareness.

Clearly, phonological representations, and therefore phonemic awareness, are important in learning alphabets and words, which often have so many structures probably unknown to the learner in the phonology of his/her L1 (Hu, 2003). In turn, this phonemic awareness facilitates learning a language's orthographic system. In summation, phonemic awareness is crucial in SLA, and it has been posited that it is possible to train and develop phonemic awareness (Anvari et al., 2002). This type of awareness is directly observable in a learner's phonetic performance (Markham, 1997).

According to past research, a learner's phonetic performance seems to fossilize before the other areas of linguistic ability and performance (Markham, 1997, p. 83). As Sleve and Miyake state (2006):

> As one gets older, one's ability to acquire nativelike proficiency in L2 pronunciation generally declines. Whether this trend reflects maturation constraints on the biological machinery dedicated to language acquisition or a more firmly established L1 phonology…, late L2 learners are at a disadvantage and so may rely more on other nonlinguistic mechanisms and abilities to aid in L2 acquisition. In particular, any ability that helps a late L2 learner analyze the novel L2 sound structure is likely beneficial, and musical ability appears to be a perfect candidate (679).

Past research has shown that after a certain time, often referred to as a critical period or sensitive period, learners will have more difficulty acquiring the L2, especially the L2 phonological features. Authors often debate not only the existence of this period, but also the age at which it begins. The most recent research shows evidence of its existence, and it is generally believed to begin before adolescence. Because of this sensitive period, late L2 learners face challenges in phonological acquisition (Sanz, 2005, pp. 106-109). However, current literature, such as the work by Sleve and Miyake, demonstrates that it is possible for older learners to develop phonemic awareness apart from explicit instruction. In fact, research has shown that explicit instruction is not sufficient for improving pronunciation (and therefore phonemic awareness), but rather learners must be exposed to the language in a variety of methods and contexts (Lightbown & Spada 2006, p. 107). Rather than be relegated to explicit instruction and drills as a separate curriculum, pronunciation improves most when incorporated into the communicative curriculum. Because of this, recent research advocates teaching pronunciation through a variety of listening tasks (Blickenstaff, 1963).

As Sleve and Miyake's 2006 study demonstrates, late L2 learners utilize nonlinguistic mechanisms, such as musical ability, to analyze and manipulate sound units of the L2. The use of musical activities to train phonemic awareness may conform to all conditions of proper training set forth in past research. According to several researchers (such as Anvari et al., 2002, Gromko, 2005; Herrera, Defior & Lorenzo, 2007), it does not require explicit instruction but

rather provides exposure to the L2 phonological system, thereby promoting phonemic awareness. This information is made available through the presentation of contextualized cultural information. According to Lems (2005), listening to music sung in the L2 may be considered a contextualized cultural activity because songs present information about cultural practices and history. As for increasing consciousness of the grapheme/phoneme relationship in these activities, one may conjecture that listening to music sung in the foreign language while viewing written lyrics may be one way to do this.

2.3 THE CURRENT ROLE OF MUSICAL ACTIVITIES IN THE L2 CLASSROOM

Although music has been used in L2 classrooms in the past and many different rationales have been given for this, there is not a comprehensive theory that explains its efficacy in facilitating SLA. However, it is clear from the past research cited here that music facilitates the development of phonological awareness. Presently, different theories have been borne out of what little research is currently available with regard to music and language phonology. One hypothesis, for example, suggests that music may simply be associated with short-term phonological memory (Salamé & Baddeley, 1989), while others posit that the repetitive presentation of previously learned vocabulary explains the connection of music sung in the L2 with the improvement of the language skills mentioned (Millbower, 2000; Lems, 2005). However, recent research shows that neither previous lexical knowledge nor short-term phonological memory fully explains the relationship between the use of musical activities and the ability to perceive new phonemes, acquire grapheme knowledge, and sight read unfamiliar words (Anvari et al., 2002). The research conducted by Anvari, Trainor, Woodside & Levy (2002) clearly demonstrates these points. Participants in this study included two groups of children, ages four and five, respectively. All were given tests to measure phonemic awareness,

music perception, and other cognitive abilities. The authors illustrate that, after phonological memory and prior lexical knowledge were taken into account, the ability to perceive pitch changes in music was strongly correlated with the development of phonological awareness, including phonemic awareness. More specifically, this skill may reflect the ability to process and analyze the phonological structure of the L2 (Anvari et al., 2002).

Other investigations have established that the use of musical activities develops phonological language awareness. Besson and Moreno (2006) studied the effect of an eight-week musical experience in the ability to process pitch changes in language phrases. The 20 participants were eight years of age, and each subject heard different linguistic phrases that had strong and weak pitch differences. Half participated in musical activities, which involved oral production tasks for the duration of the study, and, after eight weeks, both the control and experimental groups were exposed to the same linguistic phrases. The results indicate that even a short experience with musical activities requiring oral production has a significant positive effect on the ability to perceive and process phonological elements of a language, such as individual phonemes.

One of the most recent studies on this topic directly explores the effect that musical activities have on phonemic awareness. Herrera, Defior and Lorenzo (2007) carried out a longitudinal study with 97 children, all attending school in Spain with classes taught in Spanish, of whom approximately half spoke Spanish as a first language, and half spoke Tamazight, an oral Berber dialect. Their work compared two programs, one of which used musical activities, designed to train and develop phonemic awareness within the children's respective L1s, and the effects of these programs on phonological processing were assessed via pretests and posttests. Those subjects participating in the musical training program listened to children's songs and then

sang along with those songs. The investigation lasted two years, and at the end of study, those subjects that participated in the musical program obtained better results than other students on all measures of phonemic awareness. Alphabetic knowledge and awareness of pitch and tone similarities, such as in rhymes, were positively affected by the musical activities.

These investigations show the connection between music and the development of phonemic awareness in one's L1 and L2. Many teachers use music to facilitate SLA for a variety of reasons. Some use it to improve listening comprehension in a foreign language for adult learners, and it is also believed that singing or chanting songs facilitates fluency and pronunciation (Lems, 2005). Others use music to present new vocabulary (Millbower, 2000). The current literature has shown that in lexical lessons that use music, students learn more foreign words than those who experienced the same lessons without music (Lems, 2005). Other research has shown that music in the foreign language classroom assists in the development of the ability to distinguish prosodic features of the L2 (Nakata, 2002). Despite current beliefs and the widespread and varied uses of music in the foreign language classroom, not all of the advantages of using music in the L2 classroom have been examined, and a comprehensive theory that explains why music facilitates the phonological aspects of SLA does not yet exist.

It is clear that these concepts should, in theory, be applicable to the Spanish classroom. It is therefore possible that if musical activities that included listening to and singing along with music sung in Spanish were incorporated into Spanish language teaching, then the acquisition of new Spanish phonemes and graphemes as well as the ability to sight read words might be made easier, and the students might be more successful in attaining more native-like pronunciation in addition to these skills. The study carried out in the next section will attempt to give evidence of this hypothesis.

CHAPTER 3. EMPIRICAL STUDY

The objective of this study was to investigate these concepts from the perspective of the following research questions:

1. Does listening to and singing along with music sung in Spanish in the foreign language classroom assist in the development of phonemic awareness?
2. Specifically, are students better able to make the connection between grapheme and phoneme as a result of such training?
3. Are they better able to reproduce the following phonemes and their respective allophones correctly: /r̄/, /ɾ/, /d/, /b/, as well as the pure vowel sounds [a][1] and [i][2]?
4. Which of these, if any, show improvement following phonological training?

These sounds were chosen because each of them presents a specific difficulty for a native speaker of English learning Spanish as an L2. For the consonant sounds ([b], [β], [d], [ð], [r̄] and [ɾ]), the interference can mostly be attributed to transfer of the grapheme/phoneme relationship. For example, a study by Zampini (1994) showed that both the voiced bilabial stop and approximant allophones of the phoneme /b/ were almost always incorrectly produced by native speakers of English when these sounds were represented by orthographic 'v'[3]. The voiced dental stop and approximant variants of the phoneme /d/ not only are both mistakenly pronounced as the English voiced alveolar stop, but this matter is complicated by the phonemic status of [ð] in

[1] The low central vowel [a] is commonly mispronounced by native English speakers because in certain phonetic environments, the 'a' in English words is reduced to a schwa [ə]. This is often transferred by English speakers learning Spanish; for example, the Spanish *muchacha* [mu.chá.cha] is mispronounced as [mu.chá.chə]. Because of this, it is important to study subjects' improvement in pronunciation accuracy of the 'pure vowel sound', [a].

[2] In the Spanish language, /i/ has two kinds of vowel sounds. The first is the pure vowel [i], which occurs when the letter representing this sound, 'i', is given a written accent or appears alone as the vowel nucleus of a syllable. The second is the semivowel [j], which occurs in diphthongs (or sometimes triphthongs) when the vowel 'i' is juxtaposed with an adjacent vowel, usually a, e, or o. In this study, the improvement in accurate production of only the pure vowel sound [i] will be examined.

[3] According to normative manuals of standard Spanish pronunciation, the labiodental sound, [v], does not exist in Spanish and is considered non-native.

English (Elliot, 1997). As for the voiced alveolar tap [ɾ] and the voiced alveolar trill [r̄], although they are separate phonemes in Spanish, both sounds are pronounced as the American-English retroflex [ɻ]. The use of this sound for any instance of orthographic 'r' (including the separate letter 'rr' in Spanish) not only may interfere with intelligibility but also "may be negatively received by the listener" (Arteaga, 2000, p. 344). Because of these issues, learners should be trained to produce these consonant sounds correctly, so these sounds bear inclusion in such a study of phonemic awareness.

The vowel sounds present a different type of difficulty for native speakers of English learning Spanish. The low central vowel [a] and the high front vowel [i] are commonly mispronounced by native English speakers. One reason for this is that no Spanish and English vowels are identical because of orthographic representations, lip formation, tension and duration. These vowel sounds are often interchanged with the English sounds represented by a given letter and its surrounding phonetic environment, especially in cognates such as '*visita'* ([bi.sí.ta]), which native English speakers may mistakenly pronounce like the English 'visit' with the addition of a final 'a', which is reduced to a schwa ([vÍ.sI.tə]). The same type of transfer occurs in words such as the Spanish '*pan*' [pan], which is mistakenly produced as the English 'pan' ([p^{h}æn]). This problem of mispronouncing vowels also may be partially attributed to orthographic factors. For example, the letter 'i' almost never represents the sound [i] in English as it nearly always does in Spanish. Therefore, native English speakers learning Spanish often see the letter 'i' and automatically pronounce it as they would in English—usually [I]. The same type of error occurs with the letter 'a'. Learners generally produce the sound [æ] in place of the Spanish [a], depending on the phonetic environment in which it appears. Furthermore, whereas Spanish vowels are produced with the lips positioned in the extreme, the lips are more relaxed in

the production of English vowels and demonstrate less tension. Finally, learners mistakenly draw out the duration of many Spanish vowel sounds, as they do with English vowels. However, Spanish vowel sounds receive equal duration in any given syllable or phonetic environment, and these sounds have a much shorter duration in Spanish (Arteaga, 2000, p. 344).

From the perspective of current theories and ideas about phonemic awareness in SLA and uses of music in its development, it is possible that the use of this type of musical activity in the foreign language classroom will facilitate the development of phonemic awareness in students learning Spanish as L2. This should aid in the recognition of the grapheme/phoneme relationship in Spanish and improve pronunciation of the aforementioned phonemes. This study was realized in the L2 classroom to give evidence of this hypothesis.

3.1 PILOT TEST

To determine the viability of the proposed study and methodology, a pilot study was carried out. The objective of this study was also to investigate these concepts from the perspective of the proposed research questions (see above). The researcher administered all assessments and interacted with participants of this test. The results of the pilot test demonstrated a significant increase in pronunciation accuracy for the experimental group and a need for further study.

3.1.1 PARTICIPANTS

Participants of the pilot study were sixteen students between the ages of 18 and 24 who were enrolled in elementary Spanish courses at a major U.S. university at the time of the pilot study, all of whom began learning Spanish as a foreign language between the ages of 13 and 17 and spoke English as their L1. The experimental group included five females and three males, while the control group contained six females and two males. As there are generally more

females than males enrolled in elementary Spanish courses at this particular university, this constitutes a fairly accurate representative sample of the population under study.

3.1.2 METHODS

All participants took a pretest to establish a baseline measurement of phonological awareness and completed a posttest to assess how much improvement had occurred. The study lasted for three weeks. For that time period, the experimental group listened to music sung in the Spanish language for ten minutes per day, four days per week. Each week, participants were presented with a new song. They listened to the song twice in order to become familiar with it, and then were asked to sing along phonetically (meaning that they were not made aware of the lyrics or meaning; they were asked to attempt to reproduce the sounds heard) in order to practice the production of the sounds under study. The fourth time that each song was played, participants were presented with the lyrics and were asked to read them as they sang in order to form connections between current knowledge of Spanish orthography and the corresponding sounds.

Because it could be argued that music is effective as a training tool simply because it is engaging, the control group was given tasks that were also stimulating in order to isolate the efficacy of musical activities as opposed to other audiovisual input. The control group watched cartoons, films and soap operas in the Spanish language for ten minutes per day, four days per week for the same three-week period. Each week, they were presented with a new scene to watch, all selected because of their specific and frequent inclusion of the sounds under study. Utilizing similar methodology for the control group as for the experimental, each scene was played twice in order for the participants to become familiar with it. The scene was played a third time, at which point the participants were asked to enact the dialogue along with the film,

simply mimicking the sounds heard. The scene was played again, and the participants were shown subtitles and asked to read along as they recited the dialogue.

Similar pretests and posttests designed to measure phonological awareness were given on the first day and last day of the study. For this test, participants were shown individual words on a computer screen and were given five seconds to produce each. They were given several words to assess, among which each of the allophones of the phonemes under consideration were represented several times (see appendix). Audio recordings of this production task were made by means of a digital voice recorder. These recordings were played once for the judge, who had not witnessed the production task or met the participants, and scored for production of each individual word, focusing specifically on each allophone being researched. These sounds were scored on a scale of one to five, with one being "completely unintelligible" (this was further defined as "distorting meaning" of the indicated sound, denoting that the judge is unable to definitively decide which sound the participant was attempting to produce) and five being "near native", by a native speaker of Spanish. The judge was a native speaker of Spanish from Madrid, Spain, who had a few years of experience teaching Spanish to native speakers of English. The judge was aware of the research objectives; however, the researcher took measures to assure that the judge was unaware of which group or test (either pretest or posttest) was being presented at any given moment during the scoring process. This was done to diminish the possibility of examiner bias.

3.1.3 RESULTS OF THE PILOT TEST

The results of this study were not only ordered by each individual allophone but were also analyzed by each orthographic representation corresponding to the allophones under study. These results show that the experimental group experienced an increase in the level of

production based on the 5-point scale for all allophones tested for each of their corresponding graphemes. The percentage of increase ranged from 1.6% to 23.2%, with a mean percentage of 14.14%.

The phoneme that showed the greatest improvement was /b/ (with an overall increase of 16.27%), specifically its allophone [β] (with an increase of 20%), although scores for both [β] and [b] increased in those words containing orthographic *v* (23.2% and 11.6%, respectively). Zampini (1994) carried out a study with L2 learners of Spanish, all of whom spoke English as their L1, at both early and advanced course levels. The researcher found that at all levels, mistakes pronouncing [b] and [β] occurred when these sound were represented by orthographic 'v'. The results of this pilot study demonstrated that this problem can be improved through the development of phonemic awareness.

The subjects' production of the phoneme /r̄/ also demonstrated an increase. The 'r' grapheme corresponding to this sound (appearing in word-initial position) rose 23.2%; however, the 'rr' orthographic representation of this allophone only demonstrated a 1.6% increase (see Table 1).

The results of the control group demonstrate an increase in pronunciation accuracy in ten out of fourteen allophones studied. Interestingly, the voiced bilabial approximate, [β], of the /b/ phoneme showed a decrease in correct production on the five-point scale in one out of two orthographic representations (orthographic *v*), and the high front vowel, [i], demonstrated a 10% decrease as well. The average percentage of change for the control group's overall production was 2.3%, with changes ranging from -10% to 6.6% (see table 1 for complete comparative scores). The phoneme that showed the greatest improvement was /d/ (with an overall increase of 6.6%); its two phonemes (the voiced post-dental stop, [d], and the voiced dental approximant,

[δ]) showed identical levels of improvement. The voiced bilabial stop, [b], allophone of /b/ also demonstrated an increase in correct production by participants (4%). The participants' pronunciation accuracy of this sound where the *v* grapheme represents this phone increased 5%; however, the correct production of this sound when represented by its alternate grapheme, *b*, only increased 3.4%.

TABLE 1. COMPARISON OF PRETEST AND POSTTEST SCORES

Sounds Tested			Experimental Group				Control Group			
Phoneme	Allophone	Multiple Orth. Rep.	Pretest (1-5)	Posttest (1-5)	Change (1-5)	Change (%)	Pretest (1-5)	Posttest (1-5)	Change (1-5)	Change (%)
/ɾ/	**[ɾ]**		2.44	3.10	0.66	13.2	1.84	2.00	0.16	3.20
/r̄/	**[r̄]**		2.50	2.95	0.45	9.0	1.65	1.65	0.00	0.00
		r	1.67	2.83	1.16	23.2	1.00	1.00	0.00	0.00
		rr	2.92	3.00	0.08	1.6	2.00	2.00	0.00	0.00
/d/	**[d]**		2.67	3.67	1.00	20.0	2.00	2.33	0.33	6.60
	[δ]		3.11	3.67	0.56	11.2	2.67	3.00	0.33	6.60
/b/	**[b]**		3.10	3.77	0.67	13.4	3.00	3.20	0.20	4.00
		b	3.72	4.44	0.72	14.4	3.33	3.50	0.17	3.40
		v	2.17	2.75	0.58	11.6	2.50	2.75	0.25	5.00
	[β]		2.61	3.61	1.00	20.0	2.50	2.34	-0.16	-3.20
		b	3.00	3.75	0.75	15.0	2.50	2.75	0.25	5.00
		v	2.42	3.58	1.16	23.2	2.50	2.00	-0.50	-10.00
/a/			2.67	3.18	0.51	10.2	2.50	2.50	0.00	0.00
/i/			3.00	3.60	0.60	12.0	2.67	2.17	-0.50	-10.00

Although the control group exhibited some minor improvement for select phones, those participants also showed some decline in posttest scores for other sounds, indicating that perhaps, in the course of oral production, some deviation is to be expected. For those reasons, the decrease in scores may be attributed to mistakes rather than errors in the subjects' interlanguage phonological system. However, the experimental group showed no such deviation. The experimental group consistently demonstrated greater improvement in the correct production of these sounds. Although the scores for some phones showed more improvement than others,

all demonstrated at least a 9% increase (although subjects experienced only a 1.6% change on one orthographic representation for /ɾ/, they averaged a 23.2% increase for its alternate orthographic representation) in correct production. These results provide evidence for the hypothesis that music sung in the Spanish language aids in the development of phonemic awareness in individuals learning Spanish as their L2.

Groups were assessed not in comparison to each other but rather by level of improvement in contrast to their pretest scores. Although they were assessed independently of each other, it is important to note that the control group had poorer scores overall in both the pretest and the posttest, which may have affected results for a number of reasons. For example, the experimental group may have had a greater aptitude for acquiring an L2 or may have had previous phonological training.

There are other factors that may have influenced results. According to Arellano and Draper (1972), basic musical aptitude and language aptitude are strongly correlated. Perhaps because the experimental group demonstrated a higher level of linguistic competence, this group was more receptive to musical (or, indeed, any) training of phonological awareness than the control group. Alternately, because these skills are said to be mutually reinforcing, this may instead mean that the control group had poorer phonemic awareness and could have benefited more from the musical (or any) training. Therefore, it would be useful to test subjects' level of musical ability in order to separate and control for this variable.

In order for these results to be substantiated, the experiment needed to be repeated with a larger experimental and control groups for an extended period of time. For the results to be completely reliable, a larger panel of native-speaker judges was needed to confirm results, whereas there was only one judge for the production tasks in the pilot test. Also, the list of

words used in the pilot study for the production task often exhibited more than one sound under study within the same word and had an unequal number of words for each sound; this made judging difficult. Although these were limiting factors in the pilot study, it is clear that even this brief exposure to authentic musical materials sung in the Spanish language significantly improved the subjects' phonemic awareness. The results of this pilot study justify further research in the field. As such, a second study was carried out after eliminating these limiting factors (see section 3.2).

3.2 THE SECOND STUDY

Because the aim of this study was not to examine the often-debated critical period (see section 2.2, p. 23), the researcher chose participants who had already entered adolescence at the time of the study. Participants of this study were thirty students between the ages of 13 and 17 who were enrolled in elementary Spanish courses at a high school in the southeastern region of the U.S., all of whom were exposed to Spanish as a foreign language after the age of 11 and spoke English as their L1. Approximately half of these participants were female and the other half male. Because of the age of participants, parental consent was obtained and parents were provided with a detailed description of participants' role in this study and given an opportunity to have any questions answered. The researcher provided instructions to the subjects' instructor and acted as an observer.

3.2.1 METHODS

Similar methods were utilized for the study as were used in the pilot test. All participants took a pretest to establish a baseline measurement of phonemic awareness and completed a posttest to assess how much improvement had occurred by the end of the study. Similar pretests and posttests designed to measure phonological awareness were given on the first day and last

day of the study. For this test, participants were shown individual words on a computer screen, and they were given five seconds to produce each. They were shown several words to assess, in which each of the allophones under consideration appears several times (see appendix). Audio recordings of this production task were made by means of a digital voice recorder. These recordings were played once for the judges, who did not witness the production task or meet the participants, and were scored for production of each individual word, focusing specifically on each allophone being researched. These sounds were scored on a scale of one to five, with one being "completely unintelligible" (this is further defined as "distorting meaning" of the indicated sound, denoting that the judge was unable to definitively decide which sound the participant was attempting to produce) and five being "near native".

The judges were three native speakers of Spanish from Caracas, Venezuela; San José, Costa Rica; and Andalucía, Spain, respectively. The judges had taught Spanish as a foreign language to native speakers of English for 9.33 years, on average (the range was 8 to 12 years). Each judge had lived in the U.S. for an average of 19 years (with a range of 7 to 30 years) at the time of the study and had received formal academic instruction in Spanish phonology. The judges were not made aware of the research objectives; the researcher took measures to assure that the judges were unaware of which group (experimental or control) or test (either pretest or posttest) was being presented at any given moment during the scoring process. This was done to diminish the possibility of examiner bias.

The study lasted for eight weeks. For that time period, the experimental group listened to music sung in the Spanish language for ten minutes per day, five days per week (see appendix D for a complete, daily description of instructions given to the subjects). Each week, participants were presented with a new song. They listened to the song twice in order to become familiar

with it, and then were asked to sing along phonetically (meaning that they were not made aware of the lyrics or meaning; they were asked to attempt to reproduce the sounds heard) in order to practice the production of the sounds under study. The fourth and fifth times that each song was played, participants were presented with the lyrics and were asked to read them as they sang in order to form connections between current knowledge of Spanish orthography and the corresponding sounds.

Utilizing a similar rationale for this study as for the pilot test, the control group was given a separate type of engaging activity. The control group watched cartoons, films and soap operas in the Spanish language for ten minutes per day, five days per week for the same eight-week period. Each week, they were presented with a new scene to watch, all selected because of their specific and frequent inclusion of the sounds under study. Utilizing similar methodology for the control group as for the experimental, each scene was played twice in order for the participants to become familiar with it. The scene was played a third time, at which point the participants were asked to recite the dialogue along with the film, simply mimicking the sounds heard. The scene was played again on the fourth and fifth days, and the participants were shown subtitles and asked to read along as they recited the dialogue.

3.3 RESULTS

The results of this study were not only ordered by each individual allophone but were also analyzed by each orthographic representation corresponding to the allophones under study. These results show that the experimental group experienced an increase in the level of production based on the 5-point scale for all allophones tested for each of their corresponding graphemes (see Table 2). The percentage of increase ranged from 5% to 53%, with a mean percentage 33.4%. There was a great increase in accurate pronunciation of consonant sounds.

Although correct production of the voiced bilabial stop allophone, [b], of the phoneme /b/, only demonstrated an overall increase of 32.2%, scores for this sound when represented by orthographic 'v' showed the greatest improvement of all sounds examined (53%). Similarly, the scores for the voiced bilabial approximant, [β], showed an average increase of 22.2%; however, while scores for this sound when represented by 'b' only increased 5%, scores for its alternate representation, 'v', rose 37%. The allophone for which subjects' scores showed the greatest improvement in correct production was the alveolar tap liquid, [ɾ], with an increase of 48%. The subjects' accuracy in producing the alveolar trill liquid [r̄] also demonstrated an increase. The subjects' pronunciation of this sound when represented by the corresponding 'r' grapheme (appearing in word-initial position) rose in correct production 49%; however, the pronunciation accuracy of the 'rr' orthographic representation of this allophone only demonstrated a 43.2% increase. Finally, the scores for the production of the two variants of the /d/ phoneme averaged an increase of 17.5%. However, the scores for the voiced stop allophone of /d/, [d], only increased 14%, while the scores for the voiced dental approximant variant, [ð], showed a greater increase (21%).

The experimental group's scores for the vowel sounds under study, [a] and [i], increased as well. The subjects' production scores for the low, central vowel, [a], increased by 41.2%. On average, these subjects increased their pronunciation accuracy of the high, front vowel, [i], by 43.8%.

The results of the control group demonstrate that pronunciation accuracy remained relatively stable in spite of the participants' receiving high levels of engaging input. The mean increase for all scores for the control group was 1.36%, with a range of -4.6% to 10.2% and a mode of 0.6%. Scores showed a minor increase in eleven out of fourteen allophones. The

subjects' scores for the alveolar tap liquid, [ɾ], showed improvement in correct production with an increase of 0.6%. The subjects' accuracy in producing the alveolar trill liquid [r̄] also demonstrated an increase (1.4%). The subjects' pronunciation of this sound when represented by the corresponding 'rr' grapheme rose in correct production 2.4%; however, the pronunciation accuracy of the 'r' orthographic representation (appearing in word-initial position) of this allophone only demonstrated a 0.4% increase.

TABLE 2. COMPARISON OF PRETEST AND POSTEST SCORES

Sounds Tested			Experimental Group				Control Group			
Phoneme	Allophone	Multiple Orth. Rep.	Pretest (1-5)	Posttest (1-5)	Change (1-5)	Change (%)	Pretest (1-5)	Posttest (1-5)	Change (1-5)	Change (%)
/ɾ/	**[ɾ]**		2.10	4.45	2.49	48.0	2.19	2.22	0.03	0.6
/r̄/	**[r̄]**		1.92	4.23	2.31	46.2	1.89	1.96	0.07	1.4
		rr	1.54	3.70	2.16	43.2	1.55	1.67	0.12	2.4
		r	2.30	4.75	2.45	49.0	2.22	2.24	0.02	0.4
/d/	**[d]**		3.00	3.70	0.70	14.0	3.63	3.49	0.14	-2.8
	[ð]		2.40	3.45	1.05	21.0	2.76	2.85	0.09	1.8
/b/	**[b]**		3.19	4.80	1.61	32.2	3.24	3.37	0.14	2.8
		b	4.27	4.85	0.58	12.0	3.72	3.49	0.23	-4.6
		v	2.10	4.75	2.65	53.0	2.75	3.26	0.51	10.2
	[β]		2.88	3.99	1.11	22.2	3.42	3.45	0.03	0.6
		b	3.45	3.70	0.25	5.0	3.64	3.63	0.01	-0.2
		v	2.30	4.15	1.85	37.0	3.20	3.28	0.08	1.6
/a/			2.69	4.75	2.06	41.2	3.01	3.07	0.06	1.2
/i/			2.3	4.49	2.19	43.8	2.87	3.05	0.18	3.7

The scores for the production of one variant, [ð], of the /d/ phoneme averaged an increase of 1.8%. Although correct production of the voiced bilabial stop allophone, [b], of the phoneme /b/, demonstrated an overall increase of 2.8%, the scores for this sound showed improvement only when [b] was represented by orthographic 'v' (10.2%). Within the control group, this was the highest percentage of increase of all sounds and representations assessed. Similarly, the scores for the voiced bilabial approximant, [β], showed an average increase of 0.6%; however,

the scores for this sound showed improvement only when it was represented by orthographic ‘v’ (1.6%)

The control group’s scores for the vowel sounds under study, [a] and [i], increased slightly as well. The production scores for the low, central vowel, [a], increased by 1.2%. On average, these subjects increased their pronunciation accuracy of the high, front vowel, [i], by 10.2%. The control group’s scores for this sound showed the greatest improvement.

Interestingly, scores for three sounds ([d], [b] when represented by ‘b’, and [β] when represented by ‘b’) decreased by an average of 2.53%. The scores for the production of the stop variant of the /d/ phoneme, [d], decreased 2.8%. Scores for the voiced bilabial stop, [b], decreased 4.6% when represented by the grapheme ‘b’, while scores for the voiced bilabial approximant, [β], decreased 0.2% when represented by orthographic ‘v’.

3.4 DISCUSSION OF RESULTS

Although the control group exhibited some minor improvement for select phones, and a 10.2% improvement for one sound, those participants also showed some decline in posttest scores for other sounds, indicating that perhaps, in the course of oral production, some deviation is to be expected. For those reasons, the decrease in scores may be attributed to mistakes rather than errors in the subjects’ L2 phonological system. These minor deviations substantiate Elliot’s (1997) claims that, despite exposure to high levels of input, such as may be found in this study or just within the popular Communicative Approach, pronunciation remained relatively stable for most students. These results give further evidence of a need for a new approach to phonological training.

However, the experimental group showed no such deviation. The experimental group consistently demonstrated greater improvement in the correct production of these sounds.

Although the scores for some phones showed more improvement than others, all demonstrated at least a 14% increase in correct production. This gives evidence for the hypothesis that music sung in the Spanish language aids in the development of phonemic awareness in individuals learning Spanish as their L2.

Results for the scores for the phoneme /b/ were illuminating. Although subjects in the experimental group experienced only a 5% change on one orthographic representation for [β], they averaged a 37% increase for its alternate orthographic representation. While overall scores for this allophone demonstrated an increase, this increase was not as high as that of the [b] allophone. Both during the course of the study and while witnessing the judging process, the researcher noted that subjects in the experimental group began producing a stop, [b], for nearly all instances of orthographic 'v', which was easily noticed by many participants when 'v' appeared in utterance-initial position in the songs. This led to an increase in scores, as judges found this to be less non-native sounding than the labiodental fricative of English, but subjects still had difficulty perceiving and producing the subtler, approximant variant, [β].

It is also important to note that during the course of research, a few subjects in each group expressed concerns that they were 'unable' to produce the alveolar trill, [r̄], which is not found in their native English. Because of this, it is difficult to assess the efficacy of either type of input (spoken or sung) on this sound for some participants. This may have influenced the results for this sound, and would suggest that specific training of the appropriate pronunciation of sounds unfamiliar to the learners (or sounds not existent in the learners' L1) should be included as a part of a comprehensive theory of language instruction.

In each instance of a sound represented by multiple orthographic representations, the experimental group's scores increased by an average of 33.2%. This supports the hypothesis that

subjects were be better able to make the connection between the grapheme/phoneme relationship through this type of musical training. The appearance of a single 'r' in word initial position was no longer consistently produced as a retroflex liquid. Similarly, instances of orthographic 'v' were no longer constantly mistakenly pronounced as the labiodental fricative. Although subjects still had difficulty in perceiving and producing certain subtle variants for these sounds (such as [β]), and did not necessarily become near-native in their pronunciation, the recognition of this relationship did significantly aid in intelligibility and accuracy.

Groups were assessed not in comparison to each other but rather by level of improvement in contrast to their respective pretest scores. While in the pilot test, the control group had poorer overall scores and this was a possible limitation, in this second study, the experimental group began with poorer pretest scores. Because of they began with lower scores than the control group and still consistently showed greater improvement in pronunciation accuracy, it seems that beginning levels of phonemic awareness did not affect subjects' ability to benefit from this training.

The final factor that may have influenced scores was musical ability. According to Arellano and Draper (1972), basic musical aptitude and language aptitude are strongly correlated. Although authors have debated this claim for decades, recent research (Nakata, 2002; Sleve & Miyake, 2006) states that performance on standardized tests of musical ability, such as the Wing tests, are good predictors of phonological acquisition and achievement in an L2. As Sleve and Miyaki (2006, p. 679) state:

> "Of course, musical ability is unlikely to be a necessary component of adult L2 phonological acquisition, given, for example, the report of an individual who had exceptional talents in L2 acquisition but seemed to lack comparable musical skills…Nevertheless, for more typical late learners, the ability to analyze musical sound

structure would also likely facilitate the analysis of the novel phonological structure of an L2."

For this reason, the Wing Measures of Musical Ability were carried out for this study to explain further variation in scores. Perhaps because the control group demonstrated a slightly higher level of phonetic competence and higher scores on the Wing Tests of Musical Ability, this group would have been more receptive to musical (or, indeed, any) training of phonological awareness than the experimental group. However, Blickenstaff (1963, p. 360) speculated that, based on previous studies, learners with no prior musical training could benefit most from the use of musical activities in the classroom. This certainly may be the case with the results of this study. Although the experimental group had less musical ability (according to scores assessed in the Wing tests—see Appendix E), the subjects were still able to improve phonemic awareness from musical training. To isolate this variable as a definitive explanation for the drastic improvement experienced by this group, further research would be required

On the whole, the experimental group demonstrated significant improvement in phonemic awareness as evidenced by increased accuracy in pronunciation. The assessments of sounds that were represented by multiple orthographic representations demonstrate that subjects were better able to recognize the link between Spanish phonemes and their corresponding graphemes. These results have many possible implications, both for further research and for improvement of current foreign language pedagogy.

CHAPTER 4. CONCLUSIONS

Pronunciation instruction has been flawed, ignored and discarded. As the Direct Method and Audiolingual Method fell out of favor in the U.S., and approaches became more 'communicative', the explicit teaching of L2 phonology in the foreign language classroom also lost popularity. It is currently viewed by some as unnecessary and by others as difficult to teach (Terrell, 1989), and it does not seem to have a place in current communicative teaching methodology. However, as noted by Elliot (1997), even with the high levels of comprehensible input provided for learners in most communicative classrooms, there is often no real improvement of pronunciation accuracy without some type of pronunciation instruction or training.

Pronunciation instruction is important for many reasons in face-to-face interaction in the L2. When learners demonstrate competence in a language's phonological elements, it aids in intelligibility and eases communication. Such competence also increases a learner's confidence when using the L2. Furthermore, accurate pronunciation facilitates interaction between the L2 learner and native speakers because it decreases negative perceptions about the L2 learner's level of communicative competence.

Not only is pronunciation instruction important in face-to-face interactions, it also indicates a learner's level of phonemic awareness. As the literature cited here demonstrates, phonemic awareness is a key component of SLA for a number of reasons. It is important in the development of listening comprehension, which when not properly developed has been shown lead to a deficit in other language abilities (Ganschow & Sparks, 1986). Phonemic awareness furthermore allows the L2 learner to correctly form phonological representations, which are important in the recognition and production of foreign words. Finally, it aids in the recognition

of the grapheme/phoneme relationship, and awareness of this relationship is correlated with early reading ability (Anvari et al., 2002; Ehri, 2005; and Juel 2005, among others).

Clearly, phonemic awareness is an important component of SLA. Unfortunately for late L2 learners, as learners get older, it is more difficult to improve pronunciation and phonemic awareness (Archibald 1995). However, even without explicit instruction (which, when used alone, is insufficient), it is possible for late L2 learners to improve awareness through training programs (Gregory, 2005).

Because learners tend to rely on other, non-linguistic mechanisms to aid in improvement of L2 skills, methods of improving phonemic awareness apart from decontextualized, explicit instruction must be sought. These must include exposure to authentic, comprehensible input in the L2, which promotes phonemic awareness. It must involve cultural mediation and context. Finally, it must increase awareness of the grapheme/phoneme relationship. In this thesis, it was hypothesized that listening to and singing along with music sung in the foreign language while having access to written lyrics would satisfy all of these conditions.

These principles and theories led to this study of the effects of musical activities on phonemic awareness in the foreign language classroom. With regard to the original research questions, the results of the study carried out in this thesis demonstrate that listening to and singing along with music sung in Spanish in the foreign language classroom assist in the development of phonemic awareness. The results for all phones tested that were represented by more than one grapheme show that subjects were better able to make the connection between the grapheme/phoneme relationship as a result of this training procedure. Although subjects in the experimental group were better able to reproduce all sounds under study, the voiced bilabial stop allophone, [b], represented by orthographic ‘v’ and the alveolar trilled liquid, [r̄], represented by

a single orthographic 'r' (appearing in word initial position) demonstrated the greatest improvement in correct productions. It is also important to note that scores for the alveolar tap liquid, [ɾ], increased by 48%. The correct articulation of this sound (instead of the American-English retroflex liquid) improves native speakers' reception of learners' speech. Finally, subjects' production of the vowel sounds significantly increased, and this is an important finding because correct pronunciation of vowel sounds aids in intelligibility in communication with native speakers of Spanish, especially those who are unfamiliar with English and may not understand the transfer that causes errors in learners' production of these sounds (Arteaga, 2000). Bearing in mind these results, the use of this type of musical activity in the foreign language classroom facilitates the development of phonemic awareness in university students learning Spanish as an L2. This aids in the recognition of the grapheme/phoneme relationship in Spanish and improves pronunciation of the aforementioned phones, thus aiding in communication.

Although many subjects still demonstrated difficulty in perceiving the subtle differences between stops and approximants, most subjects were able to recognize that some of the sounds they had previously been producing (for example, producing the labiodentals [v] in all instances of orthographic 'v', in place of either [b] or [β]) were incorrect. This was reflected in the recordings, in which [b] was produced for most instances of orthographic 'v', and this led to an increase in scores. Furthermore, as previously stated, some subjects had difficulty producing the trilled liquid, [r̄], even upon discovering in which contexts the sound was usually produced. The process of acquiring these sounds could perhaps be aided by supplemental explicit instruction and practice for these more difficult sounds.

Judges expressed that it was sometimes difficult to judge the low, central vowel, [a], in words such as '*mal*' and '*tal*'. This difficulty seemed to be a result of the subjects' (native

speakers of American English tendency to velarize the final 'l' in such words. However, this seemed to be less of a factor in the posttest, because the subjects from the experimental group were able to articulate the correct vowel sound more clearly. Further research would show whether or not this increase in correct production of such words shows that subjects' tendency to mistake the alveolar sound, [l], that appears in such Spanish words for the velar sound that they had previously produced frequently. This is one more aspect of the L2 learners' Spanish pronunciation that may be affected by phonological training through musical activities.

Because the experimental group for the pilot test demonstrated a higher level of phonetic competence than the control group, and the experimental group for second study demonstrated a lower level of pronunciation accuracy than the control group of that study, it seems that a musical training program can benefit learners from all levels of phonemic awareness. Both experimental groups were able to significantly improve their scores on the pretest and posttest through the use of musical activities in the L2 classroom.

Contrary to what previous researchers have stated (Millbower, 2000), the improvement in oral production accuracy demonstrated by the subjects after using music in the classroom cannot completely be attributed to the presentation and repetition of previously learned vocabulary. While a select few words in the posttest were chosen from the lyrics of the songs utilized in the study, most were not. When called upon to pronounce those words that had not been included in the songs, most subjects were able to utilize newly acquired knowledge of the L2 sound system's phones to most or all of the unfamiliar words. Pronunciation accuracy increased even for words not rehearsed through songs, which suggests than such training would be advantageous for anyone learning Spanish as an L2, regardless of his/her prior level of linguistic ability in Spanish. This also shows that the behaviorist view of phonological acquisition is, as other

authors have noted, too simplistic (Brown 2006). Mimicry alone is not sufficient for actual acquisition to take place. The subjects' ability to call upon phonological knowledge gained as a result of this musical training in words not previously presented in the songs shows that imitation alone cannot account for the increase in pronunciation accuracy that took place during the course of this investigation.

Finally, it seems there are many pedagogical implications for the results of this study. Pronunciation accuracy was consistently improved through the incorporation of musical activities in the classroom. However, because some sounds can be more difficult for non-native speakers of the L2 to perceive, the effectiveness of a musical training program may be improved by adjunct explicit instruction. Although explicit instruction is not especially efficacious on its own, it is not necessarily with out merit (see Elliot, 1997, for a more complete discussion on this topic). Pronunciation instruction is, at times, useful in drawing learners' attention to sounds that are different from the L1 and difficult to produce. Perhaps when employing a musical training program of phonemic awareness, beginning each session with a brief explanation of a sound on which to focus and its orthographic representations, practice with its articulation, and examples of phonetic contexts in which it appears may be helpful. Learners may then be better able to notice the distinct sound. Of course, as the results of this study demonstrate, even without the addition of any type of explicit instruction, learners will benefit from musical activities. To determine the usefulness of combining the instructional element with the musical program, further study would be required.

Throughout the course of the study, the researcher observed subjects in the experimental group taking note of things such as linking of sounds across word boundaries, assimilation, and stress placed on syllables with written accents. Because overall phonological awareness was

outside the scope of this study (which dealt only with phonemic awareness), it is not possible to draw conclusions about the effectiveness of this training program in improving phonological awareness. However, it is an implication of other possible benefits of incorporating musical activities into the L2 curriculum.

Nevertheless, these results are not completely conclusive. Although the results demonstrate an increase in subjects' phonemic awareness, which is a key component of SLA, there is still a need to determine the efficacy of the use of a training program using musical activities in the development of overall phonological awareness. Some incidental findings of this study indicate that music may perhaps facilitate the acquisition of suprasegmentals, as well as segmentals. As such, there are numerous implications for further research.

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APPENDIX A

PILOT TEST PRONUNCIATION SCORE SHEET

Judge's Instructions: Please score each word for the sound provided on a scale of 1-5, with 1 being "completely unintelligible" (meaning you are unable to definitively decide which sound is being produced without looking at the printed word) and 5 being "near native". Circle the score.

pe**r**o	1	2	3	4	5
to**r**o	1	2	3	4	5
mo**r**eno	1	2	3	4	5

pe**rr**o	1	2	3	4	5
rico	1	2	3	4	5
a**rr**oz	1	2	3	4	5

dedo	1	2	3	4	5
don**d**e	1	2	3	4	5
mun**d**o	1	2	3	4	5

de**d**o	1	2	3	4	5
to**d**o	1	2	3	4	5
pi**d**e	1	2	3	4	5

baño	1	2	3	4	5
vino	1	2	3	4	5
vive	1	2	3	4	5
bebe	1	2	3	4	5

am**b**as	1	2	3	4	5

di**v**erso	1	2	3	4	5
vi**v**e	1	2	3	4	5
be**b**e	1	2	3	4	5

toc**a**ba	1	2	3	4	5
año	1	2	3	4	5
t**a**n	1	2	3	4	5
m**a**l	1	2	3	4	5

v**i**sita	1	2	3	4	5
ch**i**ca	1	2	3	4	5
h**i**jo	1	2	3	4	5

APPENDIX B

PRETEST PRONUNCIATION SCORE SHEET

Judge's Instructions: Please score each word for the sound provided on a scale of 1-5, with 1 being "completely unintelligible" (meaning you are unable to definitively decide which sound is being produced without looking at the printed word) and 5 being "near native". Circle the score.

p e **r** o	1	2	3	4	5
t o **r** o	1	2	3	4	5
h o **r** a	1	2	3	4	5
m o **r** e n o	1	2	3	4	5

p e **rr** o	1	2	3	4	5
c a **rr** o	1	2	3	4	5
r o s a	1	2	3	4	5
r a t a	1	2	3	4	5

d o s	1	2	3	4	5
d e c i r	1	2	3	4	5
m u n **d** o	1	2	3	4	5
d e j a r	1	2	3	4	5

t o **d** o	1	2	3	4	5
h o n r a **d** o	1	2	3	4	5
p i **d** e	1	2	3	4	5
c o m p r a **d** o	1	2	3	4	5

b a ñ o	1	2	3	4	5
b u e n o	1	2	3	4	5
v o y	1	2	3	4	5
v a m o s	1	2	3	4	5

s a **b** e	1	2	3	4	5
t o c a **b** a	1	2	3	4	5
d i **v** e r s o	1	2	3	4	5
n u e **v** o	1	2	3	4	5

a ñ o	1	2	3	4	5
t **a** n	1	2	3	4	5
m **a** l	1	2	3	4	5
g r **a** n	1	2	3	4	5

v **i** s t a	1	2	3	4	5
c h **i** c a	1	2	3	4	5
h **i** j o	1	2	3	4	5
n **i**	1	2	3	4	5

APPENDIX C

POSTTEST PRONUNCIATION SCORE SHEET

Judge's Instructions: Please score each word for the sound provided on a scale of 1-5, with 1 being "completely unintelligible" (meaning you are unable to definitively decide which sound is being produced without looking at the printed word) and 5 being "near native". Circle the score.

d u **r** a	1	2	3	4	5
d i **r** i g e	1	2	3	4	5
e s p e **r** a	1	2	3	4	5
c á m a **r** a	1	2	3	4	5

t o **rr** e	1	2	3	4	5
c e **rr** a r	1	2	3	4	5
r e s t o	1	2	3	4	5
r o j o	1	2	3	4	5

d e	1	2	3	4	5
d o l o r	1	2	3	4	5
s e g u n **d** o	1	2	3	4	5
d a r	1	2	3	4	5

m o **d** o	1	2	3	4	5
t o c a **d** o	1	2	3	4	5
m i **d** e	1	2	3	4	5
c a **d** a	1	2	3	4	5

b a i l e	1	2	3	4	5
b a j o	1	2	3	4	5
v o z	1	2	3	4	5
v a y a	1	2	3	4	5

h a **b** l a	1	2	3	4	5
t o m a **b** a	1	2	3	4	5
n u e **v** e	1	2	3	4	5
l l o **v** e r	1	2	3	4	5

m **a** n o	1	2	3	4	5
p **a** n	1	2	3	4	5
t **a** l	1	2	3	4	5
g r **a** n d e	1	2	3	4	5

d e n t **i** s t a	1	2	3	4	5
p r **i** s a	1	2	3	4	5
d **i** j o	1	2	3	4	5
s **i** n	1	2	3	4	5

APPENDIX D

DAILY INSTRUCTIONS PROVIDED TO THE INSTRUCTOR

Each week, a DVD, CD and lyric sheet will be provided for you.

On Monday and Tuesday, you will play chapter one of the DVD for 2nd period and the CD track for 3rd period. You will play each twice. On Wednesday, Thursday and Friday, you will play chapter 2 of the DVD and the CD track. On Thursday, you will give 3rd period a Lyric Sheet for the CD track. Each day, read the given instructions to the students for that day.

2nd period:

Day 1: "Please watch the film clip. Don't worry about understanding words or meaning; just try to listen to the sounds the speakers produce. Pay attention; you will be asked to reproduce these sounds tomorrow after seeing the clip again."

Day 2: "Please watch the film clip. I will pause the video after each line of dialogue, at which point you should try to reproduce the sounds from that line. Don't worry about correct meaning or grammar; just try to reproduce the sounds that you hear."

Day3: "As you watch the film clip silently, read the subtitles. Try to match the words and letters that you see to the sounds that you hear."

Days 4 & 5: "As you watch the film clip and see the subtitles, try to recite the dialogue along with the characters in the film. Try to imitate the sounds they make as you read."

3rd period:

Day 1: "Please listen to the song. Don't worry about understanding words or meaning; just try to listen to the sounds the singers produce. Pay attention; you will be asked to reproduce these sounds tomorrow after hearing the song again."

Day 2: "Please listen to the song. I will pause the video after each line of lyrics, at which point you should try to reproduce the sounds from that line. Don't worry about correct meaning or grammar; just try to reproduce the sounds that you hear."

Day3: "Please listen to the song. Try to sing along, either loudly or quietly to yourself. Don't worry about correct meaning or grammar; just try to reproduce the sounds that you are hearing."

Days 4: "As you listen to the song, read the lyric sheet. Try to match the words and letters that you read to the sounds that you hear."

Day 5: "As you listen to the song and read the lyrics, try to sing along. Try to imitate the sounds they make as you read and sing."

APPENDIX E

SCORES FOR WING TESTS OF MUSICAL ABILITY

	Control Group		Experimental Group	
	Mean	**Range**	**Mean**	**Range**
Chord analysis (20)	17.0	12-20	11.2	6-17
Pitch Change (30)	22.5	14-30	20.7	13-28
Tonal Memory (30)	23.4	16-30	18.6	12-29
Totals (80)	62.9	42-80	50.5	31-74

VITA

Kelli White is a native of Winnsboro, Louisiana, but currently resides with her husband, Jeff, in Baton Rouge, Louisiana. She obtained her Bachelor of Arts in Spanish from the University of Louisiana at Monroe in May of 2006. Kelli began pursuing the Master of Arts in Hispanic Studies in August of 2006 at Louisiana State University, where she taught Spanish as a graduate assistant. Her research interests are general correlations between music and language, applied linguistics, interlanguage phonology, and the use of music in the foreign language classroom. Kelli plans to continue teaching Spanish wherever she goes as she pursues her academic goals.