

SOCIO-COGNITIVE APPROACH TO TEACHING L2 PRONUNCIATION:  
AN ACOUSTIC ANALYSIS OF SPANISH DIPHTHONGS

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## ABSTRACT

To date, few studies have emphasized the use of language learning strategies in the acquisition of L2 pronunciation, specifically those classified as cognitive and metacognitive strategies. Yet, there is a significant gap in the literature that this study attempts to fill, namely, the lack of descriptions of the acquisition of L2 Spanish diphthongs. This study draws upon various approaches, namely, cognitivist, constructivist, and sociopsychological, to shed light on the application of four language learning strategies (i.e., critical listening, repetition, rehearsal, and annotation) combined with Dickerson's covert rehearsal model (CRM) to practice the pronunciation of Spanish rising diphthongs (SRD); that is, /ia/, /ie/, /io/, /iu/, ua/, /ue/, /uo/, and /ui/. Sixteen native English-speaking L2 Spanish learners were randomly assigned to experimental ( $n = 8$ ) and control ( $n = 8$ ) groups. A group of 8 native Spanish speakers provided baseline values of diphthong productions.

Learners were recorded performing three tasks at pretest: a word list (Task 1), a Spanish text (Task 2), and an English sentence list (Task 3). An acoustic analysis of the first two tasks from the pretest and posttest was conducted with respect to three acoustic measures: (a) total duration of the diphthong, (b) duration of the three parts of the diphthong (i.e., Vowel 1, Vowel 2, and Transition), and (c) duration of individual diphthongs. An additional element of investigation in this study was the role of individual social factors, including motivation and attitude, as well as the linguistic factor, L1 dialectal variety.

Quantitative results from learners who employed the self-monitoring strategies and CRM model (i.e., L2 experimental group) revealed statistically significant target-like achievement in

the pronunciation of SRD with respect to all acoustic measures in Task 1, but not for Task 2. Correlation analyses suggested that extrinsic motivation was a potent factor affecting the pronunciation of SRD in both the L2 experimental group and L2 control group. Moreover, affective attitude was positively correlated with the target-like productions of SRD in L2 experimental group learners. Statistical examinations of the L1 learners' dialectal variety and the pronunciation of SRD did not provide strong evidence in support of the effect of a specific L1 variety influencing the pronunciation of SRD in the L2 Spanish learners.

## LIST OF ABBREVIATIONS AND SYMBOLS

AAVE	African American Vernacular English
ACTFL	America Council on the Teaching of Foreign Languages
ANOVA	Analysis of variance
BDI	Biography-driven instruction
CAH	Contrastive analysis hypothesis
CALLA	Cognitive Academic Language Learning Approach
CLT	Communicative language teaching
CRM	Covert rehearsal model
ELI	English Language Institute
<i>F</i>	Fisher's F ratio
GAE	General American English
L1	First language
L2	Second language
LAMP	Learners Attitude and Motivation
LLS	Language learning strategies
MANOVA	Multivariate analysis of variance
NCATE	National Council for Accreditation of Teacher Education
<i>n</i>	Number of cases
PRAAT	Speech Analysis Computer Software
<i>r</i>	Correlation coefficient

SBI	Strategy-based instruction
SLM	Speech learning model
SRD	Spanish rising diphthongs
SVS	Southern vowel shift
TR	Transition section of the vowel sequence
V1	Vowel Target 1 of the vowel sequence
V2	Vowel Target 2 of the vowel sequence

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## 1. INTRODUCTION

Pronunciation is an aspect of second language teaching that has previously received little attention compared to other areas (e.g., grammar, vocabulary acquisition, writing, listening, and speaking) of second language (i.e., L2) teaching. Due to the inconsistent nature that pronunciation instruction has had over the years, debates on whether or not to include pronunciation in the L2 curriculum have become intense (Arteaga, 2000; Elliot, 1995). In more recent years, there has been a gradual shift towards recognition of pronunciation as an integral part of L2 instruction and of the need to integrate pronunciation instruction in the language curriculum (Levis & LeVelle, 2011; Lord & Fionda, 2014; Thompson & Derwing, 2014). In spite of this, most researchers and scholars would agree that pronunciation is still being overlooked and that more methodological refinement is needed to implement pronunciation instruction in L2 classroom (Barrera Pardo, 2004; Camus-Oyarzún, 2006; Lord, 2005; Lord & Fionda, 2014; Meléndez-Ballesteros, 2014; Morley, 1991; Pennington & Richards, 1986; Seyedabadi, Fatemi, & Dishghadam, 2015).

Surprisingly, most of the existing research on pronunciation instruction in L2 learners has fallen short in providing effective methodological strategies for teachers to create pedagogical materials that improve their learners' pronunciation skills (Barrera Pardo, 2004; Hodges, 2006; Levis & LeVelle, 2011; Lord, 2005). In addition, as many teachers have stated, they do not have enough time to devote to developing pronunciation skills (Añorga & Benander, 2015; Elliot, 1995). In addition to time constraints, lack of pedagogical materials caused uncertainty among language teachers and lack of confidence about their knowledge and ability to teach

pronunciation (Burgess & Spencer, 2000; Cecil-Murcia, Brinton, & Goodwin, 1996; Silveira, 2004). Consequently, language teachers have disconnected pronunciation from other aspects of L2 teaching; therefore, as Terrell (1989) so emphatically stated that today's teachers do not know "what to do with pronunciation" (p. 197).

Since the advent of new pedagogical approaches to language teaching, pronunciation instruction "has become a casualty in the language classrooms" (Thompson & Derwing, 2014, p. 1). The place that pronunciation once had in the classroom started to change with the introduction of cognitive approaches to teaching and learning language in the late 1950s, where the focus was inductive versus deductive learning (Fachun & Jinxia, n.d.). The cognitive approach, then, came to oppose the teaching principles of the audiolingual and the direct method, for which explicit pronunciation instruction was a high priority (Terrell, 1989). In the 1960s, the natural approach moved towards the idea that language learning occurs through exposure, drawing away from form-focused pedagogical practices. Within the principles of this approach, it was inevitable that direct pronunciation instruction, once required with the audiolingual method, would be neglected in language pedagogy (Martin, 2013).

In the 1980s, this trend continued with the addition of even more innovative ideas of the communicative approach (CLT), which today is one of the most influential methods for teaching foreign and second languages (Hodges, 2006; Levis, 2005). In contrast to audiolingual-oriented instructors, CLT teachers hold the assumption that accuracy is not as important as fluency (O'Connor, 2014). Within the context of CLT, Munro and Derwing (2006) developed three principles to assess learners' pronunciation accuracy: accentedness as "how...a pattern of speech sounds compared to the local variety"; comprehensibility as "the listener's perception of how easy or difficult it is to understand a given sample"; and intelligibility as "the degree of a

listener's actual comprehension of an utterance" (as cited in O'Connor, 2014, p. 8). Given that the last two constructs (i.e., intelligibility and comprehensibility) are those most extensively used in the research of L2 pronunciation instruction, teachers have wrongly believed that as long as learners have a high enough level of pronunciation that it does not interfere with their communicative skills, there is no need to teach pronunciation explicitly (Elliot, 1995).

Although pronunciation seems to be gradually regaining the place that it once had in L2 teaching and learning, many language instructors are still hesitant about teaching pronunciation. It has not been easy for most language teachers to find a place for pronunciation instruction in their classrooms (Counselman, 2010; Echelberger, 2013; Martin, 2013). Thus, in a field that demands communication competence and oral skills, pronunciation is often seen as the "step child" (Arteaga, 2000, p. 340) of second language learning and teaching (Hodges, 2006). To some extent, this is the result of misguided assumptions that teachers in the communicative approach classrooms have developed about the teaching of pronunciation (Silveira, 2004).

One assumption that many teachers have is associated with Lenneberg's (1967) critical age hypothesis. Lenneberg (1967) suggested that "native accents [are] not only unrealistic, but perhaps unachievable for adult learners of a foreign language" (Levis & LeVelle, 2011, p. 2). Thus, if L2 learners will never be able to become "perfect pronouncers" (O'Connor, 2014, p. 7) no matter how much instruction they receive, then "why waste time on teaching [it]?" (Terrell, 1989, p. 201). Teachers who have accepted this hypothesis have downplayed the role that pronunciation has on learners' comprehensibility and intelligibility (Derwing & Munro, 2005), which has become a problem for second language learners (O'Brien, 2004). Relatedly, Lord and Fionda (2014) assert, "there are sociopragmatic consequences tied to pronunciation, beyond the question of comprehensibility" (p. 214). Therefore, learners are concerned about their L2

pronunciation and want to find ways to reduce their foreign accent to avoid negative judgments from native listeners (Kissling, 2013).

Another current assumption is that pronunciation will develop on its own parallel with other areas of language communication (e.g., listening and speaking) because they are all interconnected (Alley, 1991). Then, in a field that demands a high level of communicative competence and oral skill, pronunciation is treated in a cursory manner in L2 classroom, especially at the beginning levels, and it is expected to develop through exposure to the target language (Counselman, 2010; Hodges, 2006; Lord, 2005). However, the fact is that generally instructors feel that their students, even at the advanced level, have serious pronunciation difficulties (Correa & Grim, 2014). In this way, suggesting that treating pronunciation as a peripheral component of L2 instruction has not been the best pedagogical choice for learners (Arteaga, 2000; Lord, 2005). Research, however, suggests that acquiring pronunciation is no different than acquiring syntax, pragmatics, or morphology (Alley, 1991; Seyedabadi et al., 2015).

Furthermore, teachers seem to have developed the misconception that including pronunciation in their L2 curricula will interfere with the purpose of communicative and meaningful language teaching as it will evoke the premises of the traditional methods (Pennington & Richards, 1986). In previous years, when the audiolingual approach and the direct method were the prominent methods for teaching, pronunciation instruction included the employment of imitation drills, repetition and memorization, and addressed the phonological rules explicitly (Chang, 2012). Under this notion then, teachers have cast aside pronunciation instruction because of the misconception that this is in direct opposition to the principles of the communicative approach. With that respect, Levis (2005) indicates the basis of this mindset:

“[the] old assumptions [of the audiolingual approach and the direct method] are ill-suited to a new reality” (p. 376). In addition, ACTFL has suggested guidelines to assess learners’ speaking skills in which learners are hierarchically placed in speaking proficiency levels (i.e., *Distinguished, Superior, Advanced, Intermediate, and Novice*) that, surprisingly, do not seem to either address or provide descriptions on how to assess learners’ pronunciation (Lepore, 2014; Levis, 2005; Morin; 2007; Pennington & Richards, 1986). Because of this, Gilakjani and Ahmadi (2011) pointed out that pronunciation has been wrongly viewed as a subskill of speaking, when it should be seen as a separate language skill. O’Connor (2014) stated that it seems as if the standards that were once emphasized in the audiolingual approach for pronunciation instruction have been downgraded. Consequently, teachers and language programs have devalued the function of pronunciation in language teaching and learning (Martin, 2013).

To address this problem, researchers have started to expand beyond the studies of formal pronunciation instruction and have begun to explore other methods. Since the development of cognitive psychology, which was triggered in studies by Rubin (1975) and Naiman, Frohlich, Stern, and Todesco (1978), the use of language learning strategies (LLS) became a new pedagogical trend for improving learners’ language proficiency (as cited in O’Malley, Chamot, Stew-Manzanares, Russo, & Küpper, 1985). Second language researchers and cognitive psychologists combined their efforts to explore the mechanisms that “good” language learners used in order to develop their language skills (Brown, 2007, p. 132). Oxford (1990) describes LLS as specific steps that learners employ to facilitate their learning process, and that will eventually allow them to develop more self-directed skills, which can be easily transferred to different language contexts (as cited in Eckstein, 2007).

With this reasoning in mind, for more than 30 years many scholars especially in the field of teaching English as a Foreign Language (EFL) have been interested in using LLS to address the problems in L2 pronunciation (Peterson, 2000; Sardegna, 2009). Second language researchers and scholars have become more concerned about analyzing the effects of using LLS to develop pronunciation proficiency in L2 learners (e.g., Eckstein, 2007; Osburne 2003, Pawlak, 2010; Rokoszewska, 2012; Szyszka, 2015). With the principles of the information-processing models (introduced by, e.g., Anderson, 1987, and McLaughlin, Rossman, & McLeod, 1983) permeating into L2 learning and teaching, special attention has been given to the implementation of cognitive and metacognitive strategies for L2 pronunciation. These strategies involve inference, auditory representation, note taking, [self]-monitoring, and self-evaluation activities (Chamot & O'Malley, 1987). Specifically, the cognitive strategies involve the development of reasoning and analytical skills, according to Osburne (2003); the metacognitive strategies involve more self-directed, self-regulated activities that develop autonomy in learners (Chamot & Kupper, 1989).

Language learning strategies have not only been shown to improve language performance and to encourage learners' autonomy, but also been demonstrated to be teachable and to expand the role of the teacher in many ways. In light of this, Mousoulides and Philippou (2005) have stated that the use of these self-regulatory strategies can have an important influence on learners' pronunciation achievement. In fact, Sardegna and McGregor (2012) pointed out that the goal of pronunciation instruction should be empowering students with pronunciation learning strategies that they can use to correct their mistakes. Therefore, given that "most of the literature on pronunciation deals with what and how to teach, while the learner remains an abstract, silent body in the classroom," as Vitanova and Miller (2002) explained (para. 1), the idea of

implementing LLS to teach L2 pronunciation places an emphasis on the learners and learning rather than on the teacher or teaching. In this way, learners are instructed on how to take control of their own learning outside the classroom (Hişmanoğlu, 2006; Pennington & Richards, 1986). Thus, the main goal for implementing these strategies is to encourage language learners to become “autonomous...and, eventually, allow them to gain control over the use of various aspects of pronunciation” (Pawlak, 2010, as cited in Londoño-Díaz, 2014).

The seminal work of Peterson (2000) explains the need to create a very well-defined taxonomy of strategies that are teachable to L2 learners and that produce positive effects on pronunciation in a relatively short period of time (Morley, 1991; Pennington & Richards, 1986). Peterson (2000) developed a comprehensive taxonomy of pronunciation strategies based on Oxford’s (1990) classification of learning strategies, which listed L2 pronunciation strategies (Pawlak, 2010). Following these steps, Eckstein (2007) developed his own taxonomy for pronunciation strategies based on Kolb’s (1984) experiential learning theory. Even more recently, the work of Sardegna (2009, 2011) has also become very popular (Ingels, 2011). Her focus of analysis was measuring the effectiveness of Dickerson’s covert rehearsal model (CRM) for pronunciation improvement of English language learners, which has been adapted for L2 Spanish learners in this study.

The basic principle of CRM, proposed by Dickerson in the late 1980s, is to offer students strategic skills that allow them to become self-monitors and self-evaluators of their own pronunciation mistakes (Sardegna, 2009). Upon doing so, CRM “promotes students’ autonomy and empowers them to improve on their own after instruction ends” (Sardegna & McGregor, 2012, p. 39). Therefore, Dickerson’s (1987, 2000) CRM emphasizes the importance of developing self-criticizing abilities by engaging learners in a conscious monitoring practice that

they can perform privately during their covert rehearsal time outside class (Eckstein, 2007; Sardegna, 2009). According to Martin (2013), this model seems to include the most complete strategic plan for pronunciation instruction as it provides a step-by-step description of the techniques that teach learners how, when, and why strategies can be used to develop their language pronunciation.

Although research into strategy-based instruction on pronunciation has provided evidence of improving L2 pronunciation in second language learners, this area of study is practically in its infancy. Chamot and Kupper (1989) stated that although metacognitive strategies seem to have a certain level of impact on students' achievement of learning goals, which incidentally includes pronunciation, there are other factors that should be considered. Among those are the following: the type of instruction the student receives, the type of strategies or methods the teacher uses, the type of motivation a student has, the type of attitude towards the target language, or level of difficulty of the task, and so on. Pintrich and De Groot (1990) suggested that "students' perceptions of the classroom as well as their beliefs about learning [the target language] are relevant to cognitive engagement and classroom performance" (p. 33). Ducate and Lomicka (2009) indicated that regular instruction or metacognitive strategies alone do not serve as the only indicators to students' linguistic achievement. Therefore, it is imperative that teachers take other factors into consideration when assessing their learners' performance or improvement (Pennington & Richards, 1991; Zhang, 2009).

Considering the issues discussed previously, another area that has gained interest in the acquisition of foreign language pronunciation is the investigation of the extent that learners' individual factors affect pronunciation development, including motivation, attitude towards the learning of a target language, and first language (L1) interference (Sardegna, Lee, & Kusey,

2014; Selinker, 1972). Additionally, Elliot (1995) and Sardegna et al. (2014) found that the use of cognitive strategies might affect second language learners' emotional reactions, namely motivation and attitude towards second language pronunciation. Attempts to investigate the effects of the use of pronunciation strategies to improve L2 learners' oral production of phonetic features have recently grown in popularity (Rokoszewska, 2012). Scholars such as Peterson (2000) and Pawlak and Szyszka (2018) have proposed the need to develop a specific taxonomy of learning strategies that language learners can use to improve their L2 pronunciation skills.

In view of the aforementioned, with the purpose of filling the gap in pronunciation instruction, this study aimed to investigate the effects of employing a pronunciation practice model that learners could use outside the classroom to improve their L2 Spanish pronunciation. This pronunciation practice model includes two cognitive learning strategies (i.e., repetition and annotation) and two metacognitive strategies (i.e., critical listening and rehearsal), generally referred to as self-monitoring strategies in this study, and Dickerson's (1987, 2000) Covert Rehearsal Model (CRM). Specifically, the goal of this study was to examine whether the featured self-monitoring strategies and the CRM would help beginning L2 learners achieve more target-like pronunciation of Spanish rising diphthongs (SRD). To clarify, the concept of target-like pronunciation is being used in reference to a group of native Spanish speakers who provided a L1 (i.e., first language) Spanish pronunciation model for this study.

The inclusion of beginning L2 Spanish learners in this study has a two-fold purpose: (a) to support the idea that segmental features, including vowel and diphthongs, should be an important aspect of pronunciation instruction at the beginning levels of L2 learning (Darcy, Ewert, & Lidster, 2012), and (b) to expand the research on L2 pronunciation that includes beginning rather than intermediate or advance L2 learners. In this sense, Darcy et al. (2012)

pointed out that the major focus at lower levels of L2 teaching should be targeting the basic phonemic inventory to help learners construct streams of utterances. Additionally, research has also suggested that pronunciation instruction is more beneficial if implemented from the very beginning of L2 learning and not reserved for advanced levels, so that, according to Nagle (2013), it “set[s] the stage for long-term attainment” (p. 19). Further, because pronunciation is most malleable during the starting months, it should be instructed from the beginning and scaffolded as learners advance in their language learning process (Best & Tyler, 2007; Darcy et al., 2012).

Given that diphthongs are one of the most challenging areas of Spanish pronunciation for English-speaking learners. In fact, research has shown that L2 Spanish learners tend to substitute English vowels for Spanish vowels, which results in mispronunciation of Spanish diphthongs (Morrison, 2003, 2006, as cited in MacLeod, 2008; MacLeod, 2012; Zárata-Sández, 2011). This is due to the differences that exist between the English and Spanish vowel and syllabification systems. Learners in this study are categorized as *Novice Learners* who, according to ACTFL 2012 guidelines for speaking proficiency, have “pronunciation ... [that is still] strongly influenced by [their] first language,” and that “because of their pronunciation, [they] may be unintelligible” (p. 9). Thus, the difficulty in acquiring appropriate pronunciation of these phonological features in beginning level learners is evident.

In view of that mentioned above, it is the goal of this study to provide learners with pronunciation instruction and practice that would help them acquire more accurate pronunciation skills for a more comprehensible and intelligible target language output. Similarly, previous research has reported that classroom instruction alone is not enough for learners to acquire more accurate pronunciation and that pronunciation instruction and practice is needed to maximize the

benefits of L2 classroom exposure (e.g., Best & Tyler, 2007; Celce-Murcia et al., 1996; Counselman, 2010; Echelberger, 2013; Hodges, 2006). Therefore, the purpose of the study was to implement pronunciation practices that would help learners produce more accurate pronunciation, which would allow them to develop their speaking proficiency level. In this respect, several scholars have found that there is a strong relationship between accurate speech production and comprehension and intelligibility (Arteaga, 2000; Munro & Derwing, 1999). The self-monitoring approach in this study offers novice learners the out-of-class self-instruction that is referred to by Dickerson (2000) as covert rehearsal, which learners need in order to address their L2 pronunciation issues on their own. In addition, learners will be less likely to become anxious or experiencing an inhibitory effect when speaking in Spanish because they already have had the opportunity to practice and rehearse their pronunciation prior to engaging in target language interactions.

Additional aspects of investigation in this study are individual learners' factors such as learners' motivation and attitude based on Gardner and Lambert's (1972) socioeducational construct, and Deci and Ryan's (1985) self-determination theory. The goal is to examine how motivation and attitude may have an influence in the learning of L2 Spanish pronunciation. Furthermore, this study considers the ramifications that learners' first language (L1) dialectal variety may have on the pronunciation of L2 Spanish rising diphthongs (SRD), which will be examined in light of the contrastive analysis hypothesis (CAH). The following chapters provide a more detailed description of these models.

### **1.1 Research Questions**

In consideration of the issues discussed previously, the present study seeks to answer the following questions:

**Research Question 1:** To what extent does the employment of self-monitoring strategies and Dickerson's covert rehearsal model help learners acquire more target-like pronunciation of Spanish rising diphthongs in both noncontextualized and contextualized elicited tasks?

**Research Question 2:** Is there a correlation between learners' motivation to acquire more target-like pronunciation and the pronunciation of Spanish rising diphthongs that learners achieve in both noncontextualized and contextualized elicited tasks?

**Research Question 3:** Is there a correlation between learners' attitude towards acquiring more target-like pronunciation and the pronunciation of Spanish rising diphthongs that learners achieve in both noncontextualized and contextualized elicited tasks?

**Research Question 4:** To what extent does learners' English dialect variety influence the level of target-like pronunciation of Spanish rising diphthongs that learners acquire in both noncontextualized and contextualized elicited spoken tasks?

## **1.2 Chapter Overview**

Following this introduction, Chapter 2 reviews relevant literature that provided the rationale for this study and guided the development of the different aspects of investigation of this project. I first start with an overview of how scholars have addressed the teaching of L2 pronunciation within the context of the communicative approach to language teaching. Considering that the primary focus of this study is examining the effect of LLS use on L2 pronunciation, I next provide a description of the theoretical framework that supports the use of LLS for L2 teaching and learning, and how the LLS have transpired in L2 pronunciation instruction. Next, the chapter transitions into the description of the LLS and Dickerson's (1987, 2000) covert rehearsal components that I specifically adopted for the acquisition of L2 Spanish pronunciation in this

study. After this, I review the L2 pronunciation theories relevant to this project. I then provide a description on Spanish vowels and diphthongs and the implications for the L2 Spanish teaching and learning. In this section, I move into a specific discussion of dialectal variations in the production of Spanish diphthongs, and that of English vowels to appropriately situate the reader in another area of investigation of this study: the effect of learners' L1 dialectal variety in the production of the featured SRD. Building on the understanding that learners' individual factors play a role in the acquisition of an L2, I focus on both motivation and attitude. In particular, I outline how scholars have previously conceptualized motivation and attitude, and discuss the respective frameworks adopted for the purpose of this study, which include Gardner and Lambert's (1972) socioeducational construct and Deci and Ryan's (1985) self-determination theory. Additionally, I provide a discussion of the role that the L1 has played in the acquisition of an L2. Specifically, I consider the potential effect that learners' L1 dialectal variety has on the acquisition of L2 pronunciation. I conclude Chapter 2 with a review of the studies that have been conducted on L2 pronunciation instruction and L2 Spanish vowels and diphthong production. In this section, I also provide a synopsis of studies on the use of LLS and L2 pronunciation. Finally, I provide a description of studies that have examined the role of motivation and attitude on L2 pronunciation learning.

In Chapter 3, I provide the methods and procedures for the study. I begin by describing the Spanish course and the level of the L2 Spanish learners who participated in the study. Then, I move on to describing the procedures for recruitment of participants, including the English-speaking learners of Spanish and the Spanish speakers (which serve as a baseline L1 Spanish pronunciation). I continue with a description of the instruments used: (a) English-speaking learners' and Spanish speakers' recordings of the two Spanish elicited tasks (i.e., word list and

Spanish text), which allowed me to assess learners' pronunciation of Spanish rising diphthongs; (b) the Learner Attitudes and Motivations of Pronunciation (LAMP) questionnaires, which allowed me to evaluate learners' feeling and emotions towards the acquisition of Spanish pronunciation; (c) English-speaking learners' recording of English sentence list; and (d) background questionnaires, which allowed me to evaluate the role of learners' L1 in their pronunciation of SRD. Following this, I outline the timeline of events and the procedures used to carry out the activities during the intervention phase for both English-speaking groups (experimental and control). Furthermore, I provide a description of the methods used to conduct all acoustic measures that preceded the statistical analysis of the data.

In Chapter 4, I present the results from this study. First, I analyzed all data quantitatively, using both descriptive and inferential statistics when necessary. The inferential tests included multivariate analyses of variance (MANOVA), analyses of covariance (ANCOVA), analyses of variance (ANOVA), and Pearson's correlation tests. Next, I present the results in Chapter 5. I first provide a report of learners' use of self-monitoring strategies for pronunciation practice prior to the study. Then, I evaluate the effect of the self-monitoring strategies and learners' pronunciation of SRD in light of the following frameworks: Krashen's (1985) monitor hypotheses, cognitive theory, learner-centered classrooms approach, the strategy-based instruction, Flege's (1995) speech learning model, and cognitive phonology. I then discuss the findings of the motivation and attitude correlation test analysis and learners' pronunciation of Spanish rising diphthongs on account of the socioeducational construct and the self-determination construct. Last, I move into identifying the ramifications that the learner's English regional variation brings to the results in the productions of SRD in this study, based on the contrastive analysis hypothesis. Finally, in Chapter 6, I give concluding remarks about each of

the different aspects of investigation of the present study. I also provide pedagogical implications and make connections to the ACTFL and NCATE (National Council for Accreditation of Teacher Education) of framework. Finally, I outline the limitations of the study and possible future research proposals.

## 2. LITERATURE REVIEW

### 2.1 Introduction

This literature review begins with an overview of the current approaches to teaching second language (L2) pronunciation within the context of the communicative approach (CLT). The next section of this chapter outlines and describes the theoretical framework that supports the use of language learning strategies (LLS) in the field of second language teaching and learning within the CLT approach, which are referred to as self-monitoring strategies in this study. Also in this section, the researcher provides a definition of the self-monitoring and self-assessment terms as well as an overview of the theories that are linked to these concepts in the field of SLA. In order to place the role of individual learners' factors in the context of L2 pronunciation, the researcher provides an overview of the motivation and attitude framework adopted for the purpose of this study, which includes the socioeducational construct put forward by Gardner and Lambert's (1972), and Deci and Ryan's (1985) self-determination theory. The researcher discusses how scholars have previously described the effect of learners' L1 on the acquisition on L2, specifically on L2 pronunciation. Chapter 2 concludes with a synopsis of different studies that have been conducted on (a) L2 Spanish pronunciation instruction, (b) L2 Spanish vowels and diphthong production, (c) the use of LLS and L2 pronunciation, and (d) the role of motivation and attitude on L2 pronunciation learning.

## **2.2 Pronunciation Instruction in the Communicative Learning and Teaching (CLT) Approach**

In the 1970s, the development of CLT brought about the decline of L2 pronunciation. The re-evaluation of the language teaching and learning theories in the late 1980s resonating in the principles of CLT brought about the idea that pronunciation was a component of linguistic competence rather than a component of communicative competence, or as an aspect of accuracy rather than an aspect of conversational fluency (Pennington & Richards, 1986). Essentially, CLT was designed to develop L2 fluency and to emphasize the comprehension and production of messages rather than to emphasize accuracy or the teaching of correct language forms (Spada, 2007, as cited in Miller, Berkey, & Griffin, 2015). In this respect, the traditional approaches for teaching pronunciation do not seem to be compatible with the principles of the communicative approach (Gordon, Darcy, & Ewert, 2013). The five core tenants of CLT are as follows:

1. Language is best learned within the larger structure of communication, with the goal of teaching learners how to use the L2 effectively in a variety of communicative situations.
2. Classroom tasks and materials should mirror students' goals and interests and foster their desire to communicate in the L2.
3. The most effective way to acquire language is through active participation. Students are encouraged to ask questions and work independently in groups where there is negotiation of meaning.
4. The syllabus should focus on preparing learners to express themselves in a variety of communicative situations.
5. Errors are a normal part of the language learning process. Therefore, students are encouraged to take L2 linguistic risks and formulate working hypotheses about the language systems; these hypotheses should eventually be confirmed or denied through exposure or instructor feedback (Martin, 2013, p. 27).

The shift in focus of the CLT principles to develop communicative competence and fluency instead of accuracy for language use seemed to have been the factor that caused the marginalization of pronunciation in the CLT classrooms (Terrell, 1989). Paradoxically, the idea of pronunciation as a central part of grammatical competence was not embraced anymore; on the

contrary, it was neglected and given cursory attention by instructors (Levis & Sonssat, 2017). In view of this, many linguists started to reexamine the current language teaching/learning paradigms and shifted their approaches regarding pronunciation instruction to somewhat reinstate the importance that pronunciation instruction once had during the “Reform Movement in language teaching” (Datko, 2013, p. 2).

An attention renewal in pronunciation was initiated with the reassessment of the former approaches to pronunciation teaching (Morley, 1991). The pivotal work of Munro and Derwing in the mid-1990s paved the way to research on L2 pronunciation instruction with their two constructs: (1) comprehensibility—how easy a speaker’s message is understood or perceived by the listener; and (2) intelligibility—the actual message understood by the listener (Camus-Oyarzún, 2006). Morley (1987) proposed a pronunciation instruction model that emphasized the principle of intelligibility to replace the former idea of native-like pronunciation attainment (as cited in Levis, 2018). Essentially, what he suggested is that learners need to simply be understood and that the main objective of the classroom pronunciation instruction should be to acquire a pronunciation that does not detract learners from comprehensibility (Munro & Derwing, 1999). Rooted in the principles of the communicative approach, Morley (1987) developed a set of parameters that one must consider for pronunciation instruction:

1. Pronunciation should be integrated into oral communication as an essential component rather than a separate one.
2. Pronunciation instruction should prioritize the teaching of suprasegmental phonological features such as rhythm and intonation, syllable structure, liking, phrasal stress, and their role in communication.
3. Pronunciation instruction should emphasize learner-centered teaching by raising learners’ awareness about their own speech production and by having them monitor it.
4. Input should come from natural and contextual speech.
5. Pronunciation instruction should include meaningful tasks that are in line with real-life purposes. (Levis & Sonssat, 2017, p. 6)

With a different mindset on pronunciation instruction, scholars started to recognize the notion that pronunciation was indeed the aspect of language that physically shaped speech and carried the spoken message, and that withholding its instruction would take away learners' opportunity to improve their oral communication skills systematically (Ryu, 2002). In view of this, Celce-Murcia, Brinton, and Goodwin (1996) proposed a communicative framework for pronunciation that was compatible with the communicative principles of the CLT. Essentially, they proposed a framework that implemented pronunciation instruction through tasks that focus on meaning and not on form and that optimize the contextualized language of teaching and learning.

Celce-Murcia et al.'s (1996) pronunciation framework was designed for the classroom. The idea was for the instructor to present, over the course of a few lessons, different pronunciation features in each lesson. Celce-Murcia et al.'s pronunciation framework is comprised of five phases that are embedded in the CLT principles: (1) Description & analysis, where learners are given an explanation of how the new pronunciation feature is produced and when it is used; (2) listening discrimination, which emphasizes listening practice that aims for the accurate identification of the phonological feature introduced; (3) controlled practice, where learners focus on monitoring the newly learned pronunciation feature in oral production; (4) guided practice, where learners engage in structured communication exercises with some monitoring; and (5) communicative practice, where learners engage in fluency-building activities through creative and communicative language exchanges.

To emphasize the notion of a learner-centered classroom for L2 pronunciation, Morley (1991) designed a different pronunciation model: the teacher-as-coach model. This model stressed the idea of a partnership between the teacher and the student in which the instructor acts

as a coach who facilitates learning. In Morley's model, the instructors act similar to "a debate coach, a drama coach, a voice coach, a music coach, or even a sports coach" (Morley, 1991, p. 507). His model gives instructors a list of responsibilities that they need to fulfill that comply with the paradigms of the CTL approach:

1. Conduct pronunciation diagnostic analysis to determine the needs of learners and prioritize the feature that most affect speech intelligibility and comprehensibility.
2. Guide learners in setting realistic short and long-term pronunciation goals.
3. Design a syllabus for the entire group of learners, while also designing personalized programs for individual learners.
4. Develop an assortment of instructional tasks to provide genuine communicative activities grounded in real-world contexts and situations.
5. Organize out-of-class fieldtrips for authentic spontaneous speaking practice and associated follow-up activities.
6. Provide a variety of native and nonnative [target-speaking] models (either recording of invited guests) for listening and speaking tasks.
7. Provide constructive feedback with suggested modification for target improvement.
8. Monitor students' output and assess their progress.
9. Encourage student self-monitoring.
10. Support and encourage all learners in their efforts, regardless of their level of pronunciation improvement. (Adapted from Martin, 2013, p. 35)

Although both Celce-Murcia et al.'s (1996) and Morley's (1991) models for pronunciation teaching highlight the concept of using communication activities to improve L2 learners' pronunciation, it seems that teachers are still not clear on how to integrate pronunciation into communicatively oriented materials (Dickerson, 2014, as cited in Levis & Sonsaat, 2017). Additionally, their approach to pronunciation instruction seems to fall short of providing learners with the tools that they need to achieve more native-like pronunciation, which is in fact one of the major concerns (Derwing, 2003; Timmis, 2002). Learners are aware of the "social penalty" (Arteaga, 2000, p. 342) that is associated with strongly accented speech and how this affects native speakers' judgments (Derwing & Munro, 2009).

Therefore, the extent to which target language instruction helps learners improve their L2 accent is still an empirical question. Although the amount of general language instruction does

not seem to affect global accent, pronunciation instruction has been shown to improve L2 production accuracy in L2 pronunciation as well as in foreign language contexts, including English (e.g., Pennington & Richards, 1986), French (e.g., Clark, 1967; Walz, 1980), German (e.g., McCandless & Winitz, 1986; Moyer, 1999), and Spanish (e.g., Elliott, 1995; Lord, 2005), leading some researchers to suggest that most adult L2 learners do not achieve native-like pronunciation without the help of explicit instruction ( Neufeld, 1978; Piske, MacKay, & Flege, 2001). Drawing learners' attention to particular acoustic features of the L2 system, even briefly, seems more expedient than merely exposing them to L2 sounds (Wipf, 1985). However, the common mindset of instructors is that learners will discover the relevant acoustic features of the target language for themselves. In that respect, instructors and scholars have undervalued the importance of empowering learners with the techniques to become autonomous learners that know how to address their pronunciation issues on their own beyond the scope of their language classrooms (Tikkakoshi, 2015).

Instructors need to offer opportunities for learners to practice their language production within the context of the classroom and also to train learners with perception and prediction strategies that they can use in the future (Martin, 2013). The current study proposes the implementation of a learner-strategy pronunciation model that includes four language-learning strategies, namely, two cognitive (i.e., repetition and rehearsal), and two metacognitive (i.e., critical listening and annotation) in conjunction with the components of Dickerson's (1987, 2000) covert rehearsal model for learners to practice the featured Spanish rising diphthongs.

## **2.3 Theoretical Framework on the Use of Language Learning Strategies (LLS) in CLT Classrooms**

**2.3.1 Cognitive theory.** The principles of cognitive theory support the idea that general human cognitive faculties account for the learning of a language (Anderson, 1983 and DeKeyser,

1998, as cited in Couper, 2015). The information-processing models put forward by cognitivists' views in the late 1990s influenced the way L2 scholars viewed language learning. Cognitivist models were based on the notion that language learning resulted from internal mental activity and involves the acquisition of complex cognitive skills including attention, noticing, perception, and working memory (Tavakoli & Jones, 2018). Thus, second language acquisition was a conscious and reasoned thinking process that involved the deliberate use of language learning strategies (O'Malley, Chamot, & Walker, 1987). In that respect, cognitivist models posited that strategic competence was necessary for learners to take control of their own learning and to help them comprehend and retain information (Anderson, 1983, as cited in Carrier, 2003).

With this in mind, L2 linguists started to examine the effect of applying language learning strategies to the teaching and learning of a second language (O'Malley & Chamot, 1990). O'Malley and Chamot defined language learning strategies (LLS) as “behaviors and thoughts that a learner engages in during learning that are intended to influence the learner encoding process [for language acquisition]” (p. 17). According to Anderson (1983), one of the pedagogical advantages of using learning strategies for second language instruction is that they are appropriate at various stages in the skill of learners' L2 acquisition process (as cited in O'Malley & Chamot, 1990). Earlier studies on learning strategies in L2 learning and teaching focused on identifying the strategies used by the most successful learners (e.g, Bialystok, 1978; Chamot & O'Malley, 1987; Rubin, 1975; Stern, 1983). With the information gathered from these studies, scholars were able to document different learning strategy taxonomies, which were mainly divided into metacognitive, cognitive, and social strategies.

Table 1 illustrates the three categories of strategies with their corresponding subdivisions based on Oxford (1990). Only two categories of her classification scheme were covered and

adapted to fulfill the purpose of the pronunciation intervention in the current study, that is, cognitive and metacognitive. Metacognitive strategies are defined as those strategies that involve directed attention or consciously direct one's own attention to learning a task and self-evaluate one's performance or self-assess a learning or problem-solving activity (Cohen, Weaver, & Li, 1996). Cognitive strategies, on the other hand, are defined as those strategies in which learners work with and manipulate the task materials themselves toward the achievement of a goal-related task (Chamot & Kupper, 1989). As for sociocognitive strategies, these are defined as strategies that learners employ to interact with the teacher or other students to solve problems or to express feelings or emotions (Pawlak, 2010). Although only cognitive and metacognitive strategies are being used in this study, it should be pointed out that scholars have not yet defined a clear distinction between these two categories of strategies. Scholars have indicated that cognitive and metacognitive strategies are often interchangeable and that it is difficult sometimes to make a clear distinction between the two (Chang, 2012).

Table 1

*Oxford's (1990) Classification of Language Learning Strategies*

Category	Subcategory	Learning strategy
Metacognitive	Centering learning	Overviewing and linking with already known material, paying attention, delaying speech production to focus on listening.
	Arranging and planning	Organizing, settings goals and objectives, identifying the purpose of the task.
	Evaluating your learning	Self-monitoring (purposeful listening), planning for a language task. Self-monitoring, self-evaluation.

Cognitive	Practicing/rehearsing	Repeating after the teacher or a target model recording, practicing with sounds, recognizing and using formal language rules and patterns, making use of symbols and articulatory descriptions, comparing and contrasting the sounds between L1 and L2
	Creating structure for input and output language	Taking notes Summarizing Highlighting
Socioaffective	Lowering anxiety	Using music, using laughter
	Taking your emotional temperature	Meditation, using checklist, listening to your body, writing a language learning diary

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*Note.* Adapted from “Classification Theories of Foreign Language Learning Strategies: An Exploratory Analysis,” by K. Vlčková, J. Berger, and M. Völkle, 2013. *Studia Paedagogica*, 18(4), pp. 93-113.

Under the precepts of cognitive theory, the classification of LLS brought about the development of models for LLS instruction as a way to assist those less successful learners. Oxford (1990) indicated that “learning strategies refer to the characteristics we want to stimulate in students to enable them to become more proficient language learners ” (p. 11). In the same way, Gass and Selinker (2008) argued that strategies that include preplanning and monitoring one’s language are crucial for explicit knowledge (knowledge about something that requires attention and awareness) to become implicit knowledge (knowledge acquired that does not require conscious attention). Continuous practice of language concepts or rules through the use language learning strategies has been found to be the key to automaticity in learners (Wenden, 1985, as cited in Brown, 2007).

Likewise, Ellis (1994) and Cohen (1998) suggested that language learning strategies should be divided into two major categories: those for L2 learning and those for L2 use (as cited in Eckstein, 2007). The former LLS are used by learners to improve their second language skills

and include rehearsal strategies and cover strategies, whereas the latter are those that learners employ while using their language in more contextualized or natural settings, which include communication strategies (Cohen, 1995). Given that in this study learners are employing the LLS to acquire more native-like pronunciation of Spanish rising diphthongs to prepare them for future language interactions, this study only focuses on the first category, that is, strategies for L2 learning.

To date, there are three common models for the instruction and use of language learning strategies: (a) The cognitive academic language learning approach (CALLA), (b) the strategy-based instruction (SBI) approach, and (c) the biography driven instruction (BDI) approach. Although all three models have the commonality of developing learners' metacognitive understanding and providing them with the opportunity to practice the language with the strategy in use, there are some features that differentiate them (Chamot, 2008). The CALLA model, for example, seems to be more constrained, as it relies more on the concept of integrating a strategy instruction to address a specific content area or topic that is strictly centered around meaningful and contextualized language practices (Gao, He, & Zeng, 2017).

The SBI approach is more flexible and easier to implement than CALLA and thus is more adaptable for experimental or nonexperimental strategies' training research on cognitive and metacognitive strategies (Liu, 2011). Furthermore, the SBI approach fosters strategy instruction that best suits learners' needs (Montaño-González, 2017). With respect to the BDI model, it differs from the other two in its approach as it considers learners' biographical background as a main aspect of instruction (Herrera, Holmes, & Kavimandan, 2012). The current study will broadly draw upon the central guiding principles of SBI to address the aspects of investigation considered under Research Question 1. The following section provides a

description of this model as part of the theoretical framework used to support the purpose of this study.

### **2.3.2 Strategy-based instruction (SBI).** Cohen (1995) defined the SBI approach as

explicit classroom instruction directed at learners regarding their language learning and use of strategies.... The goal of strategy-based instruction is to help second language students become more aware of the ways in which they learn most effectively, ways in which they can enhance their own comprehension and production of the target language, and ways in which they can continue learning after leaving the classroom. (p. 13)

The SBI approach is a learner-center model that includes both explicit and implicit integration of strategies into the language curricula (Çakıcı, 2006). The main principle of SBI is to help learners become experts in the strategy that most suits their learning needs. According to Nunan (1999), it is important to give learners the opportunity to gain greater awareness of what they are doing so that they can develop self-reflection, self-checking, monitoring, and evaluation skills, which consequently fosters their autonomy. With SBI, learners develop the following abilities:

1. Determine their strength and weakness in language learning.
2. Study and decide certain language strategies contributing them to learn easily and effectively.
3. Know how to implement and modify the strategy.
4. Practice the new language learning strategy.
5. Decide how to complete a language task.
6. Self-assess his or her performance.
7. Transfer the new strategy to different language situations. (Larsen-Freeman & Anderson, 2011, p. 185 as cited in Çakıcı, 2016)

In the current study, learners were trained to employ metacognitive and cognitive strategies, that is, critical listening, repetition, rehearsal, and annotation for pronunciation development. By doing so, it was hypothesized that learners would develop the abilities that are described under SBI to improve their pronunciation of the featured Spanish diphthongs in this

study. Additionally, the methodological approach implemented in the current study attempts to provide learners with an appropriate strategy model that will result in greater motivation and confidence to use their target language, namely, Spanish (Shi, 2017).

**2.3.3 Learner-centered approach.** The ideological shift in the role of the teacher and the learner in the classroom led to the emergence of the learner-centered approach to language teaching and learning. The learner-centered approach was designed to promote a collaborative effort between teachers and learners to make pedagogical decisions concerning the content of the curriculum (Nunan, 1999). In that respect, one of the goals of CLT is to develop learners' communicative competence by enhancing a learner-centered philosophy with the focus always being on the learner rather than on the teacher (Brown, 2007).

Although the learner-centered model is strongly rooted in the humanistic approach to teaching, the contribution of cognitive psychology research on human processes and learning strategies impact this model. The cognitivists believe that second language acquisition occurs most effectively with high degrees of learner involvement, which is one of the main premises of the learner-centered teaching approach. Aside from that, cognitivists believe that learners need to be given the opportunity to think about their learning, organize the information, and reflect on their learning efforts (O'Malley & Chamot, 1990).

Another precept of the learning-centered approach is the changing role of the teacher in the classroom. The learning-centered approach views teachers as facilitators of learning that guide learners to develop various strategic approaches to achieving learning goals, which is fundamental to learners' autonomy. Based on this notion, the current study has adopted a learner-centered approach to L2 pronunciation instruction by implementing a pronunciation strategy model. In addition, this study includes motivation and attitude as two of the main individual

characteristics of learners, which also makes reference to cognitive theory assumptions for second language teaching and learning. Related to the concept of autonomy in learners is the concept of self-monitoring or self-assessment. The following section provides a description of both monitoring and self-assessment, which are interrelated.

### **2.3.4 (Self) monitoring and assessment.**

**2.3.4.1 Krashen's monitor hypothesis.** The idea that language learning involves the monitoring of one's speech was first introduced in the field of SLA with Krashen's monitor hypothesis. Krashen (1982) claimed that learners undergo two different processes when learning a second language, that is, learning and acquisition. The implication of these two processes in Krashen's monitor hypothesis (1982) is that learning acts as a monitoring device that learners use to make changes to the language output, which subsequently allows acquisition to occur (Nitta, 2006). Krashen (1982) defined *learning* as a conscious process whereby learners refer to the learned rules of the language while trying to produce it. The acquisition process, on the other hand, refers to the subconscious or internalized language knowledge that results in more accurately produced language (Gass & Selinker, 2008).

Although Krashen (1982) alleged that learners engage in the process of monitoring their language to acquire oral competence, the conditions in which he suggested that learner monitoring occurs did not seem to align with the methods employed in the current research. According to Liu (2011), Krashen's learning concept is similar to the concept of post hoc monitoring proposed by Acton (1997), which is defined as a correcting strategy that learners use to depurate their language while speaking. The conscious monitoring that learners employed in this study, however, requires learners to engage in a covert rehearsal practice prior to using the language in public (e.g., in a conversation). In this sense, the language monitoring practiced by

learners in this study gave them the ability to suppress the urge to over-monitor their speech while speaking (Liu, 2011). The approach to learners' self-monitoring practice in this study is more in line with the precepts of the cognitive theory and its monitoring concept.

The cognitive view for language learning refutes the theorem described in Krashen's (1982) monitoring hypothesis. The prevailing notion of cognitive theory holds that learning involves conscious activities that allow learners to focus on understanding and remembering the rules of language formation, for example, rules of grammar, sound system, or vocabulary (Hadley, 1993). Cognitivists believe that learner monitoring is a deliberate effort to make sense of the language rules, giving them the opportunity to restructure or modified existing knowledge of the language prior to using it in context (O'Malley & Chamot, 1990). The monitoring notion in Krashen's (1982) hypothesis, however, exposes learners to the risk of generating their own language rules, if they have not been previously instructed, which may result in ineffective learning or incomplete long-term retention of the language forms, which could lead to fossilization (Liu, 2011).

Weinsten and Mayer (1986) suggested that one way to engage learners in that intentional monitoring is through the employment of language learning strategies (as cited in O'Malley & Chamot, 1990), specifically those that develop cognitive skills (e.g., metacognitive and cognitive strategies). Self-monitoring or the application of conscious language practice is related to the concept of metacognition and awareness. Metacognition involves the ability to self-monitor and self-assess or self-evaluate, understand, predict, plan, and manage one's performance (Roofi, Chan, Mukundan, & Rashid, 2014). Self-assessment involves self-judgment of one's performance, which subsequently develops awareness or the ability to identify discrepancies

between the current and desired performance that will result in the improvement of the skill practiced (McMillan & Hearn, 2008).

In this respect, Dickerson's (1987, 2000) covert rehearsal model (CRM), the model employed in this study, is designed to train learners the abovementioned higher order skills for L2 pronunciation improvement. Although Dickerson did not formally support the components of his model with a specific LLS type, he appeared to follow the general precepts of the self-assessment and self-monitoring model conceptualized in the cognitive theory.

#### **2.4 Language Learning Strategies (LLS) for L2 Pronunciation**

Research on the effect of instruction on L2 pronunciation has fallen short in providing clear-cut solutions to address learners' pronunciation issues, especially at the beginning levels of language. In view of that, the notion of implementing LLS under the learner-centered approach seems to have inspired scholars to use these as a methodological tool for teaching L2 pronunciation (Sardegna & McGregor 2012; Rokoszewka, 2012; Pawlak, 2010). Scholars started viewing the possibility of implementing pronunciation instruction through LLS primarily because the limited classroom time has made it difficult, if not impossible, to systematically focus on this aspect of the target language (Pawlak & Szyszka, 2018).

Certainly, learners who attempt to improve their pronunciation usually engage in self-monitoring and self-evaluating practices in their own time outside the classroom already, regardless of their individual goals (Dickerson, 2000; Ingels, 2011; Pawlak & Szyszka, 2018). Thus, as an attempt to collect a list of strategies that learners employ when engaging in pronunciation practices, Peterson (2000) initiated an era of studies that serve to create pronunciation learning strategy models that could be used to improve learners L2 pronunciation

skills (Eckstein, 2007). Peterson's seminal work paved the way for further empirical investigations on the teaching of L2 pronunciation through LLS.

Scholars agreed on two main definitions for PLS. The first is based on Oxford's definition of LLS: "specific actions taken by the learner to make pronunciation learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situation" (Oxford, 1990, as cited in Rokoszewska, 2012, p. 392). Pawlak (2010) provided a more recent definition in which she refers to language learning strategies for L2 pronunciation acquisition or PLS as "deliberate actions and thoughts that are consciously employed, often in a logical sequence, for learning and gaining greater control over the use of various aspects of pronunciation" (p. 191). Table 2 provides a synopsis of several studies that attempted to classify the most commonly employed language learning strategies that learners employed to practice their L2 pronunciation. The table also provides a short description of these studies and the strategies identified by each of the researchers.

Peterson (2000) investigated the language learning strategies that 11 L2 Spanish learners from three different Spanish courses used to practice their pronunciation. She collected diaries and interviews from the students that allowed her to create a taxonomy that consisted of 12 language learning strategies to practice their L2 pronunciation and 43 tactics or subsets of those strategies. These strategies were intended to correspond with Oxford's (1990) strategy taxonomy. Following Peterson's (2000) steps, Vitanova and Miller (2002) decided to investigate the perceptions of their students on pronunciation learning and the relationship of those perceptions to their applications of language learning strategies for L2 pronunciation practice. They found that learners favored both active listening and self-correction when attempting to

monitor their pronunciation when speaking. Based on their findings, the authors concluded that learners were more inclined to use metacognitive strategies than any other strategy.

Osburne (2003) asked 50 adults, English speakers of other languages learners (ESOL), to engage in retrospective elicitations of their prerecorded speech samples. Learners were asked to repeat specific parts of their speech, trying to produce their best possible pronunciation of English. The researcher asked the learners to describe what they were doing to improve their pronunciation each time they repeated the part of their speech selected. After analyzing and categorizing learners' responses, she was able to identify that learners employed eight categories of strategies. Osburne (2003), however, did not categorize the strategies by types but decided to categorize learners' tactics into eight different themes.

In another attempt to classify language learning strategies for L2 pronunciation practice, Pawlak (2006) employed a questionnaire with seven closed- and one open-ended item to identify the language learning strategies that 176 young adults (87 from high schools and 89 attending different programs at the university) used to practice their L2 pronunciation. The researcher found

Table 2

*Pronunciation Learning Strategies Identified in Previous Studies*

Author	Instrument(s)	Results
Peterson (2000)	Self-reports in the form of diaries and interviews	Collected 43 pronunciation learning tactics grouped into 12 PLS.
Osburne (2003)	Monitored interviews, followed by replaying the interviews, repetition of a selected segment, and providing an account of PLS	Global articulatory gesture, local articulatory gestures or single sound, individual syllables, clusters below syllable level, prosodic structure, individual words, paralinguistic, and memory or imitation.
Pawlak (2006b)	A questionnaire with closed- and open-ended items	Cognitive strategies of repeating words and sentences as well as learning and applying pronunciation rules. Most frequent PLS: self-evaluation and listening to one's own speech, practicing in front of a mirror.

Akyol (2013)	A questionnaire containing 5-point Likert-scale items, adapted from Berkil (2008)	Social, memory, and affective strategies used most frequently. Compensation, metacognitive, and cognitive PLS employed less often. Pronunciation training participants reported more frequent use of making up songs or rhymes in order to remember the pronunciation of words, making associations between English and Turkish pronunciation, recording their own voices, and reading reference materials about pronunciation.
Szyszkka (2014)	Semistructured interviews, diaries	Identified 36 orchestrated PLS chains; a prevalent pattern of strategy chains: a cognitive PLS followed by a memory PLS.
Erbay, Kayaoglu, and Önay (2016)	Problem-oriented vignettes for eliciting PLS	18 most frequently reported tactics classified into six categories of LLS (Oxford, 1990). High use of cognitive PLS and little reliance on affective, compensation, and social PLS.
Pawlak and Szyszkka (2018)	Open-ended questionnaires filled out immediately upon completing activities, and the learning styles survey (Cohen, Oxford, & Chi 2001)	Participants used a narrow range of PLS: similar across different phrases of the activities as well as entire tasks; disparate nature of the activities necessitates different foci of attention: controlled task enables more focus on pronunciation.

*Note.* PLS = pronunciation learning strategies; LLS = Language Learning Strategies. Adapted from “Researching Pronunciation Learning Strategies: An Overview and a Critical Look,” by M. Pawlak & M. Szyszkka, 2018. *Studies in Second Language Learning and Teaching*, 8(2), pp. 300-304.

that learners were more inclined to employ cognitive strategies for repeating words and sentences and metacognitive strategies to self-evaluate and listen to their own speech, and to practice in front of a mirror. In a different study conducted by Szyszkka (2014), she not only attempted to identify the language learning strategies that 31 trainee teachers of English as a foreign language used to practice their L2 pronunciation, but also to find out if there were specific chain sequences of these strategies. Szyszkka (2014) found that the learners employed strategy chains that included activities such as preparing a presentation, learning the pronunciation of a new word, improving pronunciation through watching films on television, listening, and reading. Based on her findings, she suggested that the strategy chains resemble cognitive language learning strategies and memory language learning strategies.

Recently, empirical investigations on language learning strategies for L2 pronunciation practice have moved on to examine the effect of the instruction of these strategies in the attainment of L2 pronunciation. With the shift in the role of language teachers in the CLT classrooms, the instruction of language learning strategies for L2 pronunciation practice and learning seems to be viewed as a practical approach to assist learners' pronunciation learning. As stated previously, the implementation of language-learning strategies for L2 pronunciation reinforces the notion of a learner-centered classroom in which the ultimate goal is to reflect autonomous learning (Dlaska & Krekeler, 2008). Because of this, teachers are viewed as coaches, training learners to become their own teachers who can improve their pronunciation on their own (Sardegna & McGregor, 2012). A synopsis of the studies on the instruction of language learning strategies for L2 pronunciation practice and learning is in Section 2.6.

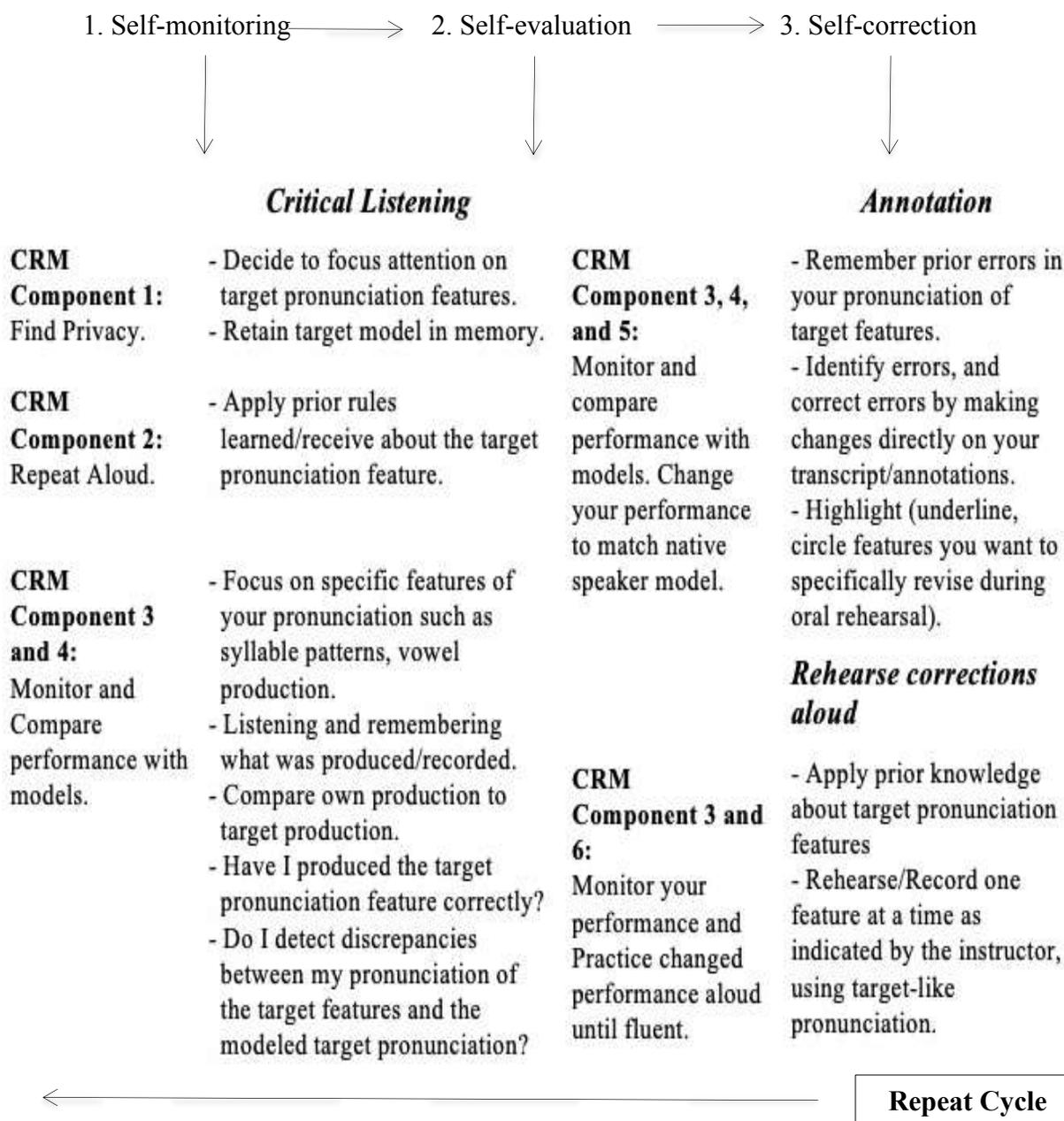
**2.4.1 Dickerson's covert rehearsal model (CRM).** The term *covert rehearsal* refers to the private activity in which learners consciously monitor their speech with the purpose of improving their pronunciation skills (Dickerson, 2000). According to Chang (2012), Dickerson's (1987, 2000) model is the only instructional model that serves as a manual with specific instructions on how to implement the learning strategies in the classroom. In this way, learners are trained to follow a set of six steps to monitor and modify their pronunciation. This training has the goal of empowering learners with the strategies to self-monitor and self-manage their learning process outside the classroom. The traditional view is that students learn to improve in class with the instruction they receive from their teacher. As claimed by Dickerson (2000), however, improvement in learners' pronunciation takes time and does not always happen in class. Instead, it is during learners' private practice that most of the pronunciation progress occurs.

According to Sardegna (2009), CRM has three main instructional goals: (a) to improve students' production of natural ... speech, (b) to improve students' perception of natural speech, and (c) to improve student's ability to predict the correct pronunciation of words and phrases (p.

60). Dickerson (2000) outlined six main components included in the CRM:

1. Find privacy: Learners are alone and completely focused without any distractions.
2. Perform aloud: repeating words, recognizing patterns and rules, identifying, grouping, retaining, storing, and manipulating target language structures, etc.
3. Monitor performance: Carefully listen to one's own production and identify the problematic places.
4. Compare your performance with models.
5. Change your performance to match the [native speaker] model
6. Practice changed performance aloud until fluent. (Adapted from Dickerson, 2000, p. 6-9)

Given that Dickerson (1987, 2000) has not specifically assigned a corresponding learning strategy categorization to the components of his model, in this study, the researcher has adopted Ingels' (2011) strategic plan to describe how learners should conduct each of the covert rehearsal steps. Figure 1 illustrates the strategic plan that includes the components of CRM and the cognitive and metacognitive strategies implemented in the current study. Moreover, Section 2.3.2 provides more detailed information about each of the language learning strategies that were combined with Dickerson's (1987, 2000) covert rehearsal model in this study.



*Figure 1.* Activities and strategy plan combined with the components of Dickerson’s covert rehearsal model. Adapted from “The Effects of Self-Monitoring Strategy Use on the Pronunciation of Learners of English” (Doctoral dissertation), by S. A. Ingels, 2011, p. 22.

**2.4.2 LLS for L2 pronunciation practice.** As previously stated, in this study there are two cognitive strategies (critical listening and annotation) and two metacognitive strategies (repeating and rehearsal) being implemented in this study. They are explained as follows: (1) Critical listening is a strategy that helps learners with (a) noticing what they are producing, (b)

identifying nontarget sounds, and (c) identifying changes to be made. Additionally, this strategy provides learners the opportunity to focus on their L2 pronunciation, which, according to Ingels (2011), facilitates bottom-up processing; (2) repetition and rehearsing is where the learner repeats the target words out loud. The idea of having to repeat the target words is not just to mechanically imitate what is being heard, but to self-evaluate and self-monitor the output. During and following each rehearsal, learners critically listen (think about their pronunciation), and think about how they could improve their L2 pronunciation; and (3) annotation is where learners annotate or mark (in a contrasting color) any corrections that need to be made on the script for any target word provided. This strategy helps learners to notice what they are producing by means of identifying their nontarget Spanish pronunciation/word syllabification, and reminds them of the pronunciation rules they should monitor each time they rehearse the words and make modifications as needed (Ingels, 2011, p. 6-8).

## **2.5 L2 Pronunciation Theories**

There are several theories that account for the acquisition of L2 pronunciation features. Among those theories are contrastive analysis hypothesis (CAH) (Lado, 1957), the markedness differential hypothesis (Eckman, 1977), the ontogeny and phylogeny model (OPM; Major, 1986, 2001), the perceptual assimilation model (Best, 1995), the similarity differential rate hypothesis (Major & Kim, 1996), the speech learning model (SLM; Flege, 1995) and more recently, the cognitive phonology model (Menke, 2010). For the purpose of this study, and to specifically address Research Questions 1 and 4, the only theories that will be used in this study are the speech learning model (SLM), the cognitive phonology model, and the contrastive analysis hypothesis.

**2.5.1 Contrastive analysis hypothesis (CAH).** In the late 1900s, Robert Lado introduced the contrastive analysis hypothesis (CAH) to the SLA field. In his hypothesis he suggested that L2 learners reflect on their LI to produce their L2. This dependence on learners' LI results in transfer, or cross-linguistic influence. The underlying claim of the CAH is that errors in L2 pronunciation can be predicted by identifying contrasting aspects or structures between the L1 and the L2. Consequently, the CAH suggests that similar structures will be easier for L2 learner to acquire, by that meaning more easily transferred from L1 to the L2 than structures that differ.

Numerous studies on the CAH led to the development of two separate positions in regard to this hypothesis: the strong and the weak. The strong version of CAH assumes that systematic contrastive analysis of the L1 and L2 will allow for prediction of the errors in the production of L2 learners. Contrastive analysis consisted of four steps: (1) taking two languages, L1 and L2, and writing formal descriptions of them (or choosing descriptions of them), (2) picking forms from the descriptions for contrast, (3) making a contrast of the chosen forms, and (4) making a prediction of difficulty through the contrast (Whitman, 1970, p. 191, as cited in Behfrouz & Joghataee, 2014). Researchers, however, started to realize that there were some issues with this version of CAH. Among these issues were that the CAH predicted errors that never occur and the errors that did occur did not seem to be explained by transfer of learners' L1. That is, errors could not be explained by differences between the two language systems (Lafford & Salaberry, 2003).

The weak version, on the other hand, seemed to have gained more credibility, mainly due to the inconsistencies that were found in the strong version of contrastive analysis. The weak CAH had a different approach to account for L2 errors. Under this version, examination started with the analysis of learners' L2 errors and subsequently attempted to account for those errors by

comparing the L1 with the L2 (Gass & Selinker, 2008). In the present study, the weak version of the CAH was used to explain the errors of L2 learners in their production of Spanish rising diphthongs that could be accounted for with respect to their L1 dialectal variation.

**2.5.2 Speech learning model (SLM).** Flege (1995) posited in SLM that learners have created phonetic categories or representations of sounds in their memory that could actually aid them with the acquisition of L2 sounds. In this account, the learnability of L2 sounds depends on learners' ability to form phonetic or sound categories for L2 sounds. Such categorical formation requires learners to attune their perception of the phonetic differences that exist between the L2 sounds and their analogous L1 counterparts (Cobb & Simonet, 2015). The phonetic dissimilarity of an L2 sound from the closest L1 sound will determine whether a new category will or will not be created for the L2 sound (Flege, 2005). Essentially, Flege's (1995) SLM assumes that L1 and L2 sounds are perceptually related at an allophonic level (as cited in Ingham, 2014).

The category formation is contingent to three equivalence sound categories: similar, different, and same. The first category states that phonetic sounds that are perceived as similar to an L2 counterpart will be more difficult to acquire, resulting in "merged" L1-L2 categorization. Such a merged category either leads to an L2 sound that resembles the L1 sound, or an L1 sound that begins to resemble the L2 sound, which is referred to as bilateral transfer (Flege, 2007, p. 368, as cited in Mooney, 2019). That is, learners will form a single category for the two sounds. The second category proposes that phonetic sounds that are perceived as different will be the easiest to acquire by L2 learners as they allow for a new categorization to form. Finally, the third category dictates that sounds that are perceived as identical sounds could be directly (and correctly) transferred from L1 to L2 (Morcillo-Berrueta, 2014).

Additionally, the SLM highlights the assumption that learning to discriminate is a gradient learning process (Diaz & Simonet, 2015); that is, it takes time and much language exposure. To this, Best and Tyler (2007) added that “not only is the amount of exposure important, but the phonetic properties of the language input” (p. 5). In other words, the quality of the exposure that learners receive is crucial to the development and attunement of perception skills. Takagi (1995) found that there are limits to extended naturalistic exposure (e.g., classroom exposure) on the perceptual level that learners acquire. Consequently, cognitive theory-driven researchers have emphasized the importance of perception training and phonetic instruction (Guion & Pederson, 2007; Simonet, 2012).

The implication of SLM in this study is related to the concept of the perception-production link. English-speaking Spanish learners are training to use metacognitive strategy, namely, critical listening or directed attention, to develop discriminatory skills that will allow them to create new categories for the new target sound, i.e., Spanish rising diphthongs, which consequently will lead to more native-like pronunciation. In this study, it is assumed that the learners who received explicit perception training are able to attune their discrimination skills, which may result in the following: (a) creation of new phonetic categories in long-term memory, and (b) generalization of the newly acquired phonetic knowledge from familiar to new lexical contexts (Saito & Hanzawa, 2016).

**2.5.3 Cognitive phonology.** As previously shown, research on L2 teaching and learning has shifted its focus from the behaviorist to cognitive approaches. Cognitive approaches to L2 learning refuted the existence of a language acquisition device (LAD), which is known as the innate tool that children make use of to learn language (Couper, 2015). Under this assumption, the LAD determined an age threshold for learning a language, in particular a second language.

Essentially, what this meant was that if a person was trying to learn a second language, he or she could not achieve high levels of native-like pronunciation because of the age constraint, specifically, the phonological features of the target language. This assumption gave rise to Lenneberg's (1967) critical age hypothesis, which was challenged by cognitivists and their cognitive phonology approach to teaching and learning L2 pronunciation.

The cognitive phonology approach views the acquisition of L2 phonology as a process that involves the same cognitive mechanisms that are used to learn other areas of study, including attention or noticing, awareness, perception, and categorization. In this respect, cognitive phonology approaches the learning of L2 pronunciation as the acquisition of cognitive skills rather than a motor skill (Volenc & Reiss, 2017). Moreover, cognitive phonology implies that production of accurate pronunciation depends on the ability to categorize and produce mental representations of the target sounds (Mompean, 2006). Therefore, under the notion that “phonology involves abstract categories such as sets of segments (phonemes), tones, intonation, and voice quality” (Shockey 2003, as cited in Couper, 2015, p. 418), teaching pronunciation should include the following concepts: phonemes, syllable formation, and stress, among others (Couper, 2011).

In addition to teaching these concepts, teachers need to also find ways to provide learners with effective pronunciation practice to assist them in learning awareness raising and critical listening and provide the metalinguistic language they need to “conceptualise the sounds appropriately—discriminate them, organise them in their minds, and manipulate them as required for the sound system of [the target language]” (Fraser, 2001, p. 20). Further, as Moyer (2007) declared, “From a cognitive point of view, dominance in the second language implies greater automaticity and more native-like intuitions of grammaticality—in this case, phonetic

and prosodic precision and knowledge of phonological rules” (p. 54). This study draws on the general principles of cognitive phonology in that learners are given instruction on the segmental aspects of Spanish pronunciation, that is, diphthongs, and the syllabification rules that are implied in the formation of these vowel sequences. Subsequently, learners are given the opportunity to practice their pronunciation of Spanish rising diphthongs through a set of meta- and cognitive strategies that include critical listening. Concurrently with the featured strategies, learners are instructed to follow the steps of Dickerson’s (1987, 2000) covert rehearsal model to guide them through their self-monitoring strategy-based pronunciation practice. As stated previously, with the conjunction of these two elements, learners will be able to systematically practice their pronunciation of Spanish rising diphthongs and engage in the following activities:

1. Monitoring their speech, that is, paying attention to their pronunciation to raise awareness of how their speech sounds in comparison to the native model.
2. Based on the rules they know, comparing their pronunciation with the native modeling, in turn giving the opportunity to create sound categories or mental representations of the target sound in their memory by using the rules of language as a template against the native model to measure and judge their covert utterances.
3. Making changes in their production to match the model, and by this implying that learners should make modifications to accommodate to the model when giving the utterance concerted attention.
4. Making changes out loud, meaning that any adjustment in their speech should be repeated with their mouth, until new gestures or articulatory movements replace the old ones and the production feels more comfortable and natural. (adapted from Dickerson, 2000, p. 4-9 )

## **2.6 Description of L2 Spanish Vowels and Diphthongs**

According to Krause (2013), “Contrastive analyses have long pointed to vowels as a potential source of difficulty in the L2 Spanish pronunciation of English speakers” (p. 3).

Previous studies on L2 Spanish diphthong pronunciation have found that English speakers are intuitively influenced by the L1 and, as a result, are more prompt to separate diphthong syllables that favor hiatus over diphthong production (MacLeod, 2008; Zárate-Sánchez, 2011). The main

issue or challenge in the pronunciation of Spanish diphthongs by L2 English-speakers is attributed to the differences that exist between the Spanish and English vowel systems.

In contrast with the General American English (GAE) vowel system, which is comprised of approximately 14 vocalic phonemes with five [-back] (front) vowels: /i/, /ɪ/, /e/, /ɛ/, and /æ/; and six [+back] vowels: /u/, /ʊ/, /o/, /ɔ/, /ʌ/, and /ɑ/, Spanish has a simpler vowel system that consists of the following phonemes: /i/, /u/ (high vowels); /e/, /o/ (mid-low vowels); and /a/ (low vowel) (Hualde, 2005). According to Hammond (2001), there are three very important characteristics of Spanish vowels that native English speakers must remember when learning Spanish as a second/foreign language:

1. Spanish vowels are always tense;
2. Spanish vowels are never diphthongized;
3. Spanish vowels do not vary in their length or duration as much as they do in English, whether they are found in stressed or unstressed syllables. (p. 85)

In General American English, only a subset of vowels are allowed in unstressed syllables, and reduction to a neutral vowel [ə] (schwa) in unstressed position is widespread. This is reflected in alternations such as: *t[ɛ]l[ə]gr[æ]ph*, *t[ə]l[ɛ]gr[æ]pher*; *object* (noun) ['abɔ̃dʒɪkt] versus *object* (verb) [əb'dʒɛkt] (Kenyon & Knott 1953, as cited in Hualde, 2005, p. 126). In Spanish, however, there are only very slight differences in quality between stressed and unstressed vowels, as stated by Quilis and Esgueva (1983); as such, they found that, for example, the words *número* [número] 'number,' *numero* [numéro] 'I number,' and *numeró* [numeró] 's/he numbered' had essentially the same vowel qualities (as cited in Hualde, 2005, p. 127) .

As far as diphthongization is concerned, Spanish diphthongs result from the gliding of the high vowels /i/, /u/. In general, the Spanish rules for syllabification are more straightforward than

are those in English. Spanish phonotactics—specific sound patterns—predict a combination of two vowels, one of which is a glided high vowel /i/ or /u/, which can be syllabified as a diphthong (monosyllabic glide + vowel sequence), such as [ja] or [we], or as a hiatus (disyllabic sequence of two vowels) such as [i.a.] or [u.e] (MacLeod, 2012). The “gliding rule,” as Hualde (2005) called it, predicts two types of sequence combinations in Spanish (p. 80): when the high vowel (/i/ or /u/) is the first vocoid in the diphthong (henceforth V1), it then forms a sequence of rising sonority (Zárate-Sánchez, 2011). Stated differently, rising sequences are those that move from a closer to a more open position (glide + vowel; Hualde, 2005). The opposite occurs when the high vowel is the second in the sequence and it moves from a more open to a closed position (vowel + glide) (henceforth V2), resulting in a sequence of falling sonority (Hammond, 2001). There are eight rising diphthongs and seven falling diphthongs in Spanish. Rising diphthongs include /ia/, /ie/, /io/, /iu/, /ua/, /ue/, /uo/, and /ui/. Falling diphthongs include, /ai/, /ei/, /oi/, /au/, /eu/, and /ou/ (Hualde, 2005, p. 79). In this study, the notation [j] and [w] will be used to represent the palatal and labio-velar glides, respectively, in prevocalic and postvocalic positions.

In English, the diphthongal sequences are more constrained than are those found in Spanish, in that English has both phonetic (e.g., /aɪ/, /aʊ/, /ɔɪ/) and phonemic diphthongs when midvowels /e/ and /o/ are realized as diphthongs (/eɪ/ and /oʊ/), respectively (Krause, 2013). In that respect, there are more phonotactic restrictions, in terms of what constitutes a diphthong in English, than in Spanish. In General American English (GAE), there are both phonemic and phonetic diphthongs (Krause, 2013). The three phonemic diphthongs in GAE are /aj/ (buy = by, lie = lye, hi = high, eye = I), /ɔɪ/ (boy, noise) and /aʊ/ (now, loud). Whenever the tense vowels /e i o u/ occur in a stressed syllable, they are always diphthongized to [ej ij ow ʌw]; if, on the other hand, they occur in any unstressed (weak) syllable, they must be reduced to [ə] or [ɪ] (Hammond,

2001).

Moreover, MacLeod (2012) stated that phonologically speaking, English is typically described as having falling diphthongs such as in *time* [tʰaɪm] or *boy* [bɔɪ], but not rising diphthongs; however, there are phonetic sequences that allow for the formation of a glide plus a vowel such as in [wɪ] *twist* [ˈtwɪst] or [jɛ] in *yell* [ˈjɛl]. Spanish /i/, /u/, /e/ and /o/, on the contrary, are considered to be pure vowels; that is to say, they consist solely of a vowel sound, without the addition of any on-glide or off-glide element (Hualde, 2005).

## **2.7 Dialectal Variation in the Production of Spanish Diphthongs**

There are few dialectal differences in the pronunciation of Spanish vowels among monolingual native speakers due to the stability of its vowel system. There are more dialectal differences related to consonant pronunciation. However, there are some situations where the vocalic sequence or gliding rule is altered, such as when a word with a vocalic sequence that is expected to be pronounced as a diphthong, particularly a rising diphthong, is instead pronounced as a hiatus (Face & Alvord, 2004; Krause, 2013). Such instances are referred to as “exceptional hiatus” (Hualde, 2005, p. 80).

There are three main hypotheses that account for the occurrence of exceptional hiatus. The first hypothesis is from Hualde (2005), who stated that the number of words with exceptional hiatus pronunciation is very limited, so although the hiatus pronunciation is exceptional, it is not unpredictable. He also stated that, in many cases the antidiphthong tendency has a morphological or paradigmatic explanation. These patterns are summarized as follows:

1. Vowel sequences of rising sonority and of falling sonority may have hiatus when a morphologically related word has a lexically accented high vowel.

- Rising:

– *porfiaban* ‘they disputed’ > [por.fj.'a.βan] versus *porfían* ‘they dispute’ > [por.'fi.an] or *viable* ‘viable’ > [bi.'a.βle] versus *vía* ‘way’ ['bi.a]

– *riendo* ‘laughing’ [ri.'en.do] versus *ríe* ‘laugh’ ['ri.e]

(from Hualde, 1999, p. 190; Souza, 2010, p. 19)

• Falling: (which are very rare according to Hualde, 1999)

– *oiré* ‘I will hear’ > [o.i.'re] versus *oír* ‘to hear’ > [o.ir]

2. Hiatus can occur with an unstressed high vowel if the vowels are separated by a morphological boundary such as in the suffixes *-oso*, *-al*, *-ario* as in *virtuoso* ‘virtuous’ > [bir.tu.'o.so]; *manual* ‘manual’ [ma.nu.'al]; *santuario* ‘sanctuary’ > [san.tu.'a.rjo]

3. Hiatus can also occur in a few other examples with nonmorphologically motivated hiatus, but it is always in vowel sequences of /i.a/ or /i.o/ as in *dialogo* ‘I have a conversation’ > [di.a.'lo.ɣo] (adapted from Hualde 1999, p. 190, and Souza 2010, p. 19)

4. Hiatus are derived through prefixation and compounding: Prefixed forms such as *semiexperto* > [se.mi.eks.'per.to] and *pluriempleado* > [plu.ri.em.ple.'a.ðo]

• Compounds such as *boquiabierto* > [bo.ki.a.βjer.to]

5. There are hiatus words that cannot be accounted for by any of the previous mechanisms. Hualde (1999) said that these exceptional hiatus sequences occur almost always word initially. *Diablo* > [di.'a.βlo]; *piara* > [pi.'a.ra]; *piojo* > [pi.'o.xo]; *Eduardo* > [e.ðu.'ar.ðo]; *Suiza* > [su.'i.sa]

The second hypothesis is that of Navarro Tomás (1980), who offered a different account for the examples in number 5 above. He stated that the production of exceptional hiatus as found in these examples is the result of etymology competing with glide formation (as cited in Colina, 1999). Examples include *suave* ‘soft’ > [su.'a.β.e], *annual*, ‘annual’ > [a.nu.'a.l]) and analogical

pressures (e.g., *diario* ‘diary’ > [di. 'a.rjo], *diurno* ‘during the day’ > [di. 'ur.no], *piano* ‘piano’ [pi. 'a.no], *biólogo* ‘biologist’ > [bi. 'o.lo.ɣo]).

Colina (1999) postulated the third hypothesis, which includes two theories. First, Colina claimed that a correspondence-based optimality theory (OT/CT) analysis of the examples found in number 5 (previous list) could actually offer a more adequate account for the occurrence of these exceptions. The OT/CT analysis claims that unexpected hiatus in words such as the ones found in number 5 are the result of trying to maintain syllabic structure/roles among correspondents by violating the onset rule of diphthongization. For Hualde (1999), the examples in number 5 do not have any morphological or lexical explanation of occurrences because these vary across speakers and dialects. Colina (1999), on the other hand, argued that there were indeed analogical factors that could explain the unexpected hiatus and the variation across speakers and dialects.

Additionally, she pointed out that the reason for the exceptional hiatus production among speakers of different dialects or within the same dialect is because speakers pose different analogical correspondences, which are in fact considered to be idiosyncratic. Further, she proposed that this is a behavior that could have not been established on the basis of Hualde’s (1999) morphological or lexical principles because it is a matter of understanding idiolectal variation, which is always at play. An example of this idiosyncratic correspondence, according to Colina (1999), is found between the words *maicero* ‘maize’ > [ma.i. 'se.ro] and *maiz* ‘corn’ > [ma. 'is] but is not present between the words *paisano* ‘compatriot’ [paj. 'sa.no] and *páis* ‘country’ > [pa. 'is]. One other example of exceptional hiatus occurrence that could not be thoroughly explained by Hualde (1999) is that of words such as *biólogo* ‘biologist.’ Colina (1999) explained that there is a corresponding relationship between the sequence /bi/ in *biólogo*

and the form [bi], possibly analogically with the suffix that means ‘two,’ for example, *bi-polar* ‘*bipolar*,’ which causes speakers to prefer a hiatus pronunciation versus a diphthong pronunciation as optimal form for a word such as *biólogo* ‘biologist’ > [bi.'o.lo.ʝo].

According to Colina (1999), there is another way to explain the exceptional pronunciation for some of the words listed in number 5 above, which has to do with bilingual interference. She claimed that bilingual speakers base their preferences about which forms allow a hiatus and which ones do not on their geographical background, thus posing different corresponding relationships. Specifically, Colina addressed the examples of exceptional hiatus that come from Catalán-Spanish speakers, who prefer hiatus pronunciation in words like *piano* ‘piano’ > [pi.'a.no], *liana* ‘liana’ > [li.'a.na] and *biólogo* ‘biologist’ > [bi.'o.lo.ʝo] versus diphthong pronunciation, which suggests a strong influence from the Catalan language. In relation to this, Martínez-Paricio (2013) affirmed “the productivity of the gliding rule is also observed in the adaptation of loanwords and foreign names” (p. 168). That is to say that when borrowings and foreign names with a sequence of vowels are adapted into Spanish, there are a few that are subject to variation and can present exceptional hiatus. For the designer name *Dior*, both [ˈdjoɾ] and [di.'oɾ] are allowed, although the most common pattern in borrowings, as in native vocabulary, is to undergo gliding.

To conclude, whether the appearance of exceptional hiatus is conditioned by morphological, lexical, prosodic, or even linguistic principles, this topic is still a gray area of investigation. First, most of the studies that have provided evidence on the production of exceptional hiatus have focused on descriptions of Northern-Central Peninsular Spanish (Cabré & Prieto, 2006; Face & Alvord, 2004; Hualde, 1999), which suggests that diphthong pronunciation is still the preferred structure in all other Spanish dialects (Hualde, 2005). As it

happens, recent comparative studies in Spanish (e.g., Chitoran & Hualde, 2007) have shown that although Peninsular Spanish varieties can be placed along a continuum ranging from quasi-categorical preference for hiatuses, other Latin American varieties favor diphthongs (as cited in Colantoni & Limanni, 2010). Moreover, most of the existing studies on exceptional hiatus production only describe the results of speakers' intuitions and perceptions on diphthong versus hiatus pronunciation. Therefore, it cannot be assumed that it is possible to rely on perception data only. There is a need for more experimental research that includes both perception and production data that describe diphthong versus hiatus distribution. Third, it has been found that even between speakers of the same Spanish dialect there are idiolectal variations at play that do not allow for clear-cut justifications of the exceptions (Cabr e & Prieto, 2006). Finally, as Hualde and Prieto (2002) stated, studies have not been able to provide evidence of true hiatus exceptionality, as it has been found that when these are analyzed acoustically, there is an overlap in durational values for diphthongs and exceptional hiatus, such that there is not a threshold at which vowel sequences cease to be a diphthong and become a true hiatus (as cited in Face & Alvord, 2004). Considering this, the current position on the exceptionality of diphthongs indicates that change is in progress, and that there seems to be a more pervasive tendency to prefer diphthongization to hiatus pronunciation, thus conforming to the expected norm (Hualde, Simonet, & Torreira, 2008 as cited in Z arate-S andez, 2011).

As far as expected influence from the L1 that would either favor or disfavor exceptional hiatuses, the fact is that because Spanish has less phonotactic constraints on the distribution of glide + vowel sequences and a wider distribution after consonants than English (Krause, 2013), English L2 Spanish learners are expected to encounter difficulties in their pronunciation of Spanish rising diphthongs examined in the present study, particularly in words that contain the

/ju/ Spanish diphthong such as in the word *ciudad* ‘city.’ According to Krause (2013) and Lord (2005), it should be expected that Spanish rising diphthongs pronounced by English speakers should have a glide with a longer duration and lower endpoint than in Spanish, which in theory results in a more marked hiatus pronunciation.

Krause (2013) considered English speakers’ tendency for hiatus pronunciation to be similar to that of native Spanish speakers when producing exceptional hiatus. However, as has been explained previously, the contexts where exceptional hiatuses are found in Spanish speakers are conditioned by different factors, which in any case are very limited. Furthermore, as described before, some of the cases in which the gliding rule does not apply, that is, when exceptional hiatus occur, are not random. On the contrary, they seem to be found in specific places that by means of morphological, lexical, prosodic, or even linguistic variations block the “productivity of the gliding rule” (Martínez-Paricio, 2013, p. 168).

On the basis of these facts, it cannot be assumed that the use of hiatus in place of diphthongs by English learners resembles that of native Spanish speakers producing exceptional hiatus, because it seems to be a matter of preference among some Spanish speakers. The reason for English-speaking learners’ tendency to choose hiatus over diphthong has more to do with the syllabification rules and/or the phonotactic principles governing the English language, which differ from those of Spanish. To this, MacLeod (2012) added that although English speakers have a tendency to favor hiatus pronunciation over diphthong pronunciation, true hiatus does not seem to be found in English. Further, what may seem to be a hiatus pronunciation in their Spanish pronunciation of diphthongs may just be the result of learners encountering a glide segment that is not frequently found in English, such as in the case of consonant + y + vowel, for

example, *piano* ‘piano’ > [pi. 'jæ.no] or consonant + [w] + vowel, e.g., *dueto* ‘duet’ > [du. 'wɛ.to] (Hammond, 2001, p. 110; MacLeod, 2012, p. 106).

Therefore, it can be stated that the exceptional hiatus tendency in native Spanish speakers and what seems to be a hiatus pronunciation of Spanish diphthongs in English speakers are two different aspects of investigation marked by different conditioning factors. Moreover, this study will not address the issue of exceptional hiatus in the English-speaking learners’ pronunciation of Spanish rising diphthongs directly. Based on the aforementioned descriptions, it is hypothesized that the variation that exists between the English and Spanish vowel systems, as well as the phonotactic constraints, will be the primary reason of difficulty in native English speakers’ perception and production of Spanish vocalic sequences, namely, diphthongs (MacLeod, 2012; Menke & Face, 2010). In that sense, it is expected that the major challenge for English speakers when learning the featured Spanish rising diphthongs (/ia/, /ie/, /io/, /iu/, /ua/, /ue/, /uo/, and /ui/) in this study is to learn to pronounce them in Spanish syllable positions where they would never occur in general American English (Hammond, 2001).

## **2.8 Dialectal Variation Involving English Vowels**

Thus far, the differences that exist between the vowel inventory of both the General American English and Spanish have been described. Nevertheless, this is not the only challenge that English-speaking learners of Spanish may encounter with the acquisition of Spanish vowels and diphthongs. The following is a discussion of other factors that could represent important caveats for English-speaking learner of Spanish when trying to acquire Spanish diphthongs.

Aside from differences in vowel inventory and the reduction of vowels in unstressed syllables in English, another very important difference between Spanish and English pertains to the dialectal differences that are found across geographical and social varieties of both languages

(Hualde, 2005; Hammond, 2001). In general, English dialectal differences tend to reflect in the vowel pronunciation depending on the speakers' geographical region. According to Labov (2011), there are three major chain shifts that account for differences in the vowel pronunciation of English speakers from different regions in the United States: The Northern Cities Shift (NCS), Southern vowel shift (SVS), and the California, or Canadian, vowel shift (CVS). Pertaining to the purposes of this study is the SVS chain, which is the larger dialectal chain represented in the origin of the English-speaking participants including the states of Georgia, Florida, Texas, and Tennessee. Hence, for the purposes of this study, the researcher will only consider the SVS to examine whether differences in learners' vowel productions may have an effect on the production of SRD in learners.

**2.8.1 The Southern English dialectal variety.** According to Sankoff (1986), the Southern Vowel Shift (SVS) is a one of the most well-documented and long-standing featured American English dialect and it is characterized by the persistent “accentedness” or “drawl” and “breaking” of its dialect region. The major boundary around the Southern region ranges from northern Virginia to Georgia, Alabama, and Mississippi. However, elements of the Southern Shift can stretch to northern Florida, westward across much of Texas, and northward to roughly the Ohio River.

In spite of being the most studied English dialect, Allbritten (2011) believed that it has not been possible to define the features of the Southern English variety entirely. This is attributed to the following factors: (a) most of the speech samples used to describe the Southern dialect have been obtained from speakers who are not always exclusive to one or even a few dialects of English, (b) researchers have different interpretations of what actually constitutes an occurrence of a Southern feature, (c) all features of language that could potentially be categorized as

Southern features are not always used by every speaker who has been labeled as using a Southern dialect accent (Allbritten, 2011). According to Allbritten, there is no complete consensus of what particular features represent the Southern English legitimately. For the purpose of this study, the researcher has adopted some of the most characteristic vowel features of the Southern English dialect as described in Labov, Ash, and Boberg (2005). The following are the linguistic vowel deviations in the Southern English dialect adopted in this study:

1. Southern glides: (a) upgliding and raising of /æ/ to [æɪ] or [æ.ə] in initial word syllable before sibilants and nasals such in brass, ashes, aunt, bang; (b) front-glide /ɪ/ in /u:/ after coronal onsets such in dew, tune, Tuesday, and (c) monophthongal [aɪ] before voiced segments and word-finally such as in high, side, wise, time, and so forth.
2. Conditioned mergers and oppositions: (a) merger of /ɪ/ and /ɛ/ before nasals in pin and pen, him and hem; (b) merger of /u/ and /ʊ/ before /l/ in fool and full, pool and pull; (c) merger of /i/ and /ɪ/ before /l/ in feel and fill, heel and hill, and (d) merger of /eɪ/ and /e/ before /l/ in fail and fell, sail and sell. (adapted from Labov, Ash, & Boberg, 2005, p. 239)

In general, the Southern region has been contributing to ongoing explorations of the processes by which Southerners seem to add syllables via inserting gliding and amplitude variations into vowels (Nagle & Sanders, 2003). The Southern “drawl” —tendency to break short front pure vowel into gliding vowels—such as in “*pat* [pæɪət], *pet* [peɪət], *pit* [pɪət],” or “the breaking” (glide weakening, monophthongization), such as in /aɪ/, as in tide, /oɪ/, as in boy, and /aw/ caught, which are, as explained before, two main characteristic features of this dialect, do not seem to affect the production of rising diphthongs directly. Even when no significant

difficulties are anticipated in learners who present Southern vowel dialectal features, the following research question has been included to account for any possible ramifications that the Southern English variations may have in the results of the learners' pronunciation of Spanish rising diphthongs: To what extent does learners' English dialect variety influence the level of target-like pronunciation of Spanish rising diphthongs acquired in both noncontextualized and contextualized elicited spoken tasks?

In that sense, it is expected that the major obstacle for learners will be related to “phonological conflicts between the English and Spanish vowel systems [that] depend [mostly] upon the phonetic realizations of the English phonemes which are incorrectly substituted for Spanish phonemes” (Stockwell & Bowen, 1965, as cited in Krause, 2013, p. 50), which can vary from individual to individual. As far as exceptional hiatus is concerned, in order to account for all of the specific cases where exceptional hiatus is expected to occur, a careful selection of the tokens for the data elicitation will be considered. In the case of exceptional hiatus that occurs with vowel sequences as described by Hualde (1999), the following will be avoided: (a) words in rising sonority, such as *porfiaban* ‘they disputed,’ *viable* ‘viable’ and *riendo* ‘laughing’; (b) hiatus that can occur with an unstressed high vowel separated by a morphological boundary, as in words like *virtuoso* ‘virtuous,’ *manual* ‘manual,’ and *santuario* ‘sanctuary’; and (c) hiatus that can also occur with non-morphologically motivated hiatus, such as in *dialogo* ‘I have a conversation.’

Additionally, to account for instances where exceptional hiatuses occur in situations as described by Navarro Tomás (1980) and Colina (1999), words that as a result of etymology competing with glide formation prompt for the pronunciation of an exceptional hiatus such as *annual*, ‘annual,’ *diario* ‘diary,’ *diurno* ‘during the day,’ *piano* ‘piano,’ and *biólogo* ‘biologist’

will also be avoided. The use of nonce words, all containing a sequence of two vowels in rising sonority, as following the model of Krause (2013), who examined the pronunciation of diphthongs in English-speaking learners of Spanish, will be highly considered.

## **2.9 Individual Social Factors in L2 Pronunciation**

A common belief among behaviorists, constructivists, educational psychologists as well as cognitivists, in other words, the different fields that have shed light on the SLA field, is that there are individual learner factors that account for differences in the acquisition of their L2. Among those factors are age, gender, aptitude, identity, the extent of L1 and L2 use, target language variety, and attitude and motivation. The current study focuses on the last two factors and how these may affect the acquisition of more native-like pronunciation of Spanish rising diphthongs.

One of the most influential constructs that accounts for external factors affecting the process of L2 acquisition is Krashen's (1985) affective filter hypothesis. The affective filter is defined as "an innate processing system, which subconsciously impedes the learners' absorption of the target language" (Dulay, 1977, as cited in Yang, 2012, p. 41). Krashen (1985) proposed that learners' inappropriate levels of affect, in other words, affective emotions, prevent language input from passing through before it is acquired (Gass & Selinker, 2008). From a social-cognitive theory perspective, there are three elements that interact in the way social factors influence second language learning: (a) the value learners place on the learning material, (b) the level of expectation for success in performing the learning material, and (c) the extent to which they attribute responsibility for learning the material to internal rather than external factors (Bandura, 1986, as cited in Hadley, 1993). Further, the sociopsychological approach to social factors in the field of second language acquisition (SLA) proposes that "the extent to which

socio-psychological factors become more influential also varies depending on the learners, learning goals, the setting, and overall instructional design” (Polat, 2006, p. 8).

The fact is that regardless of the building theory in which social factors are considered, there is no doubt of the influential role that they play in the L2 learning process. Although some researchers may strongly suggest that a learner’s individual cognitive factors (e.g., aptitude, intelligence, etc.) are significant variables that correlate with foreign and second language achievement, the social factors have been found to contribute as much as the cognitive factors (Stern, 2003, as cited in Otwinowska-Kasztelanic, 2013). Research related to social factors and L2 pronunciation acquisition has focused mainly on topics that include acculturation, identity, and factors that influence pronunciation acquisition (Levis & LeVelle, 2012).

The current study approaches the affective factors as they are referred to or emotions or feelings that English-speaking learners may have toward the acquisition of Spanish pronunciation. This study emphasizes the relationship between the level of native-like pronunciation of Spanish rising diphthongs that learners will achieve and the extent to which a specific motivation or attitude type may influence this process. The following section provides a synopsis of the theories that will help elucidate the role that learners’ emotional drives and beliefs play in their acquisition of L2 pronunciation.

**2.9.1 Motivation.** Learners’ motivation is perhaps the most researched sociolinguistic factor in the field of SLA. The groundbreaking work of Gardner and Lambert (1972) served as a template to a plethora of research that examine the ramifications of the language learner's motivation and its role in the acquisition of the target language process. Gardner and Lambert’s socioeducational model of learners’ motivation proposes that “learning a new language is not simply a matter of learning new information (vocabulary, grammar, pronunciation, etc.), but it is

a matter of acquiring symbolic elements of a different ethnolinguistic community” (Gardner 1979, as cited in Nitta, 2006). Although both Krashen’s (1985) monitor model and the socioeducational model include attitudes and motivation, they differ in that the former views these factors as having a facilitating function, and in the latter, motivation is viewed as an instigator of an action. Both models, however, predict that attitudes and motivation have a significant effect on L2 language proficiency.

Motivation is considered the second strongest predictor for success in second language learning but has been considered in different ways (Gass & Selinker, 2008). The behaviorist concept of motivation is quite simply the anticipation of reward. From a cognitive perspective, motivation is placed on the individual’s choices of what experiences or goals they will approach or avoid and the level of effort they will exert in them. And finally, the constructivist approach to motivation assumes that each person is motivated differently and will then act on his or her environment in ways that are unique. Moreover, constructivists believe that motivation is very much related to peoples’ interactions with each other more that it is from one’s self-determination (Brown, 2007).

According to Gardner (1985), motivation is “the extent to which an individual works or strives to learn the language because of a desire to do so and the satisfaction experienced in this activity” (Dörnyei, 1994, p. 516). The study will also use the socioeducational motivation construct heralded by Gardner and Lambert (1972) to shed light on the impact that learners’ motivation has on their pronunciation of Spanish. In their theory, the authors proposed two types of motivation: integrative, which refers to motivation that comes from a desire to integrate with the target language’s community, and instrumental, which is referred to as the motivation that

learners derive from practical reasons or individual interest or rewards that they might gain from learning (e.g., higher job salary, grades, etc.).

Based on the motivation construct employed in Sardegna et al. (2014), of the two motivation orientations proposed in Gardner and Lambert's (1972) sociopsychological construct, only integrative will be used for the investigation in this study. Instrumental motivation will be included as part of an extrinsic motivation construct Deci and Ryan (1985) included in their self-determination theory, which includes two types of motivation factors: intrinsic and extrinsic. The former is associated with the desire to learn a language for personal satisfaction or fulfillment, and the latter relates to the desire to learn a language that is driven by external pressure or rewards such as grades, imposed rules, or job improvement.

**2.9.2 Attitude.** Learner's attitude is another major social factor that has garnered plenty of attention in the SLA field. Earlier efforts in trying to find a relationship between learners' attitudes and the acquisition of an L2 were initiated by Gardner and Lambert (1972). Through their research, Gardner and Lambert discovered that there was a strong connection between learners' attitudinal orientations and motivation. In addition, Gardner and Lambert suggested that motivation was a construct that included an array of attitude scales, the most important of all being the attitude toward the target language community or culture. Their findings were consolidated in the socioeducational motivation construct.

Former studies in SLA that relate to L2 attitude seemed to be more global in the way they assess learners' attitudinal tendencies and focus more on the general evaluations of learners' beliefs of favor or disfavor about the target language and the culture. In the L2 pronunciation domain, most of the research that pertains to L2 learners' attitude has particularly focused on learners' attitudes and emotional reactions toward native and non-native accents of English

pronunciation. Similarly, the dearth of investigations on L2 Spanish pronunciation have followed the same trend. In this study, learners' attitudinal factor is not examined as a monolithic or holistic entity but as a composite construct that considers several cognitive, emotive, and or conative factors.

There are four attitude variables considered in this research: (a) the affective attitude, (b) the cognitive attitude, (c) the conative attitude, and (d) the self-efficacy attitude. The affective attitude considers the feelings that learners have toward pronunciation learning (i.e., *I worry about making mistakes in class*). The cognitive attitude refers to the evaluative beliefs and outcome evaluations with regards to their pronunciation (i.e., *If I learn to pronounce like a native speaker, I will have better job offers*). The conative attitude considers the behavioral intentions and readiness toward pronunciation learning and practice (i.e., *I believe more emphasis should be given to proper pronunciation in class*). The self-efficacy attitude accounts for learners' beliefs in their own ability to complete the tasks and attain their pronunciation goals (i.e., *I am satisfied with my pronunciation progress so far*). It is to be noted, however, that in this study the affective attitude component only included negative affect assessment items such as those describing discomfort and nervousness. Following Sardegna et al. (2014), the positive affective factors were included in the intrinsic motivation component, which included items such as *I enjoy imitating Spanish words and phrases*, or *I enjoy listening to myself as I try out or say sounds/words/sentences*.

## **2.10 L1 Dialectal Variety and L2 Pronunciation**

The role of the native language (L1) in the acquisition of a second language (L2) is one of the most researched topics in the field of SLA. Selinker (1969, 1972) proposed the idea that there was a provisional system that learners develop in their process of learning their L2 that

strongly reflects features of the L1, which he referred to as *interlanguage* (as cited in Keys, 2011). With this reasoning in mind, researchers have argued that there is a major influence or interference of learner's L1 with the acquisition of L2 learners' speech, which is evident in the form of learners' interlanguage (Gass & Selinker, 2008). In view of this, researchers have claimed that in most cases the difficulties that learners encounter in their L2 phonological learning process is caused by interference or transfer from their L1 (Major, 2008).

However, although many scholars have built their theories under this notion, there seems to be a shortcoming in their research. Most researchers, namely those who have investigated L2 acquisition, have failed to provide an account of the variability of L2 acquisition that may be attributed to learners' L1 dialectal variety. To date, an extensive number of studies have emphasized the ramifications of learners' L1 transfer, assuming that learners come with a homogeneous native language. In other words, "Researchers have simply grouped subjects according to their first language without further separating the subjects according to their L1 regional dialect" (O'Brien & Smith, 2010, p. 298). In this study, learners will be separated according to their dialectal features, and based on their pronunciation, it will be determined if indeed the native variety of English interferes at all with the acquisition of the featured Spanish rising diphthongs.

### **2.11 Studies on L2 Pronunciation**

Most of the research on the instruction of L2 pronunciation has been conducted to investigate issues in second language learners of English as a second language (ESL) or English as a foreign language (EFL). According to Thompson and Derwing (2014), 74% of the existing research material on pronunciation instruction has examined English as a foreign or English as a second language learners. Only 13% of the studies found investigated L2 learners of Spanish, 7%

have been on second language learners of French, and the remaining 6% are studies conducted on L2 learners of Arabic, Dutch, Japanese, and Mandarin.

Although some of these studies have provided empirical evidence that pronunciation instruction does improve pronunciation skills in L2 learners, some have claimed that these reports are not very useful (Pennigton & Richards, 1986; Lord, 2005; Lord & Fionda (2014); Martin, 2013). As Derwing and Munro (2005) declared, there is a two-sided problem: “There [is] little published research on pronunciation teaching and very little reliance on the research that does exist” (p. 383). Correspondingly, as Echelberger (2013) and Lord (2005) affirmed, the problem is that these studies have been carried out in an unsystematic manner, that is to say, that all of them focused on different aspects of research.

As a result, programs often use materials based on their own perceptions or intuitions without really referring to any research findings or reliable empirical evidence (Breitkreutz, Derwing, & Rossiter, 2001). As stated in a previous chapter, according to Lord and Fionda (2014), the ACTFL 2012 Guidelines for Speaking Proficiency repeatedly talk about fluency and accuracy “but fail to define those constructs in any particular terms” (p. 214). In the coming years, it is hoped that researchers and practitioners work in collaboration with teachers to provide appropriate research methodologies and meaningful conclusions (Derwing & Munro, 2005). The following are some of the studies that have been conducted on pronunciation instruction.

**2.11.1 Studies on L2 Spanish pronunciation instruction.** Elliot (1995) is one of the first studies that provided preliminary information on the effects of pronunciation instruction in 43 intermediate L2 Spanish learners. The instruction consisted of the following: (a) linguistic description of target segments, that is the place and manner of articulation; (b) a presentation of Spanish segments in different manners, which Elliot did in order to consider learning style

differences; (c) the use of inductive and deductive methods; (d) the use of drills and practice exercises; and (e) immediate feedback to prevent fossilization. Elliot's data collection included a pretest, a posttest, and an instructional session of 21 classes. The instructional session was for the experimental group only. He tested the learner's ability to mimic sounds at a word level and a sentence level, and their ability to pronounce written words and words in spontaneous speech. The results for the experimental group reported that learners improved their pronunciation skills after their treatment of instruction.

In a similar study, González-Bueno (1997) examined the outcomes of specific instruction on the Spanish pronunciation of voiced and voiceless stops, namely, /p, t, k, b, d, g/ in intermediate learners of Spanish. González-Bueno specifically looked for the ability to produce Spanish-like voice onset time (VOT) of 20 American English female learners of Spanish. She administered an oral proficiency interview (OPI) to the experimental group in Spanish, and rated proficiency levels in Spanish, according to ACTFL guidelines. Her treatment consisted of giving instruction on articulation of the sounds followed by sound discrimination and oral practice at the beginning of each class period. Participants in the experimental group received daily pronunciation instruction over the course of a semester in conjunction with the regular language classroom instruction. The control group only received regular language instruction. The average values obtained from the participants were compared to those of 18 monolingual Spanish speakers from Spain. The results demonstrate that the participants who received the treatment improved significantly in their production of voice onset time values of all sounds, which means that they pronounced the consonants in a more native-like manner. With this study, González-Bueno demonstrated that instruction is beneficial for L2 Spanish pronunciation.

In a more recent study, Lord (2005) investigated the effects of pronunciation instruction and self-analysis on the acquisition of nine primary Spanish sounds, the Spanish multiple vibrant /r/ and Spanish diphthongs within and between words, in 17 undergraduate students enrolled in an advanced level Spanish phonetics class. The featured sounds investigated in the study were the voiceless unaspirated [p, t, k] and voiced approximants [β, ð, γ]. Lord included an experimental group and a control group. Both of the groups had a pretreatment test and a posttreatment test. The experimental group was given instruction on the articulation of the featured sounds, a contrastive analysis of Spanish and English, and oral and transcription practice. The results demonstrate that the experimental group members, who received instruction, training and visualization of exercises in pronunciation, were able to make significant gains in their production of unaspirated [p, t, k] in tonic syllables. However, the results for the production of the trilled [r], of diphthongs within and between words, and the approximants [β, ð, γ] were inconclusive. In any case, Lord (2005) stated that “as a preliminary step in investigating L2 pronunciation, the results of this study show us that instruction can be an effective tool in the acquisition process” (p. 565).

The following studies described the effect of pronunciation instruction on the acquisition of L2 Spanish vowels. In a study on vowel acquisition, Hodges (2006) investigated the effects of formal instruction on the production of unstressed word-final /a/, /e/, and /o/ vowels due to their tendency to be either reduced or lengthened in the Spanish of native English speakers. The population of the study consisted of beginning learners of Spanish. This is one of the first studies that examined beginning-level L2 learners and emphasizes the importance of including phonetics instruction in the first-year Spanish curriculum. A total of 24 native speakers of English who were students at a U.S. university enrolled in three different beginning-level classes participated

in this study. Sixteen were part of the experimental group and eight were in the control group. The treatment for this study consisted of 15-minute periods of instruction and practice of the unstressed Spanish vowels in which the participants repeated the Spanish vowels after the researcher. Three native Spanish speakers were selected to judge the data collected from the feature sounds using a 4-point scale. All the participants were given a pretest and a posttest. The results indicate that formal instruction was effective for improving /e/ and /a/. An interesting finding was the differences among vowels in the experimental group in the free-speech task. On the pretest, both /e/ and /o/ were rated as statistically more accurate than /a/; however, in the posttest there was no difference among the three vowels. Therefore, it seems that /a/ started off at a lower point but was able to increase the mean level of accuracy with the instruction provided.

In a more multimodal study, Counselman (2010) attempted to improve pronunciation, in particular diphthongization. In this study, Counselman conducted an investigation on the learning of pronunciation of the Spanish vowels /e/ and /o/ by directing Spanish learners' attention to the differences in phonetic sounds between English and Spanish. Thirty-six native speakers of English enrolled in two intermediate Spanish conversation courses participated in this study. The treatment consisted of in-class instruction, in-class activity, out-of-class assignments, and out-of-class explanations and readings. The participants were divided into two groups: the perception group (perception assignments plus regular classroom curricula), and the production group (production assignments, which was the regular course content). Both groups of students were recorded reading single words at the beginning (pretest) and end (posttest) of the semester. The perception group was assigned to evaluate the recordings of the other participants, point out nontarget-like articulation in the recordings, and give explanations as to why each deviation was nontarget-like. An acoustic analysis was performed in order to calculate

the level of vowel diphthongization of the featured vowels. The results provided evidence of improvement in those students who received the perception-based treatment on the mid-vowels /e/ and /o/. Students who received both the perception and the production assignment improved significantly in reducing the level of diphthongization of the /e/ vowel. This study supports previous findings that pedagogical techniques can lead to improvement in pronunciation. In the same way, the study reports that attention to phonetic features contributes to an improvement of L2 pronunciation.

Through the aforementioned studies, it can be seen that pronunciation instruction plays an important role in the learning of L2 pronunciation. However, the majority of these studies focused on advanced L2 learners, most of whom are required to take an L2 phonetics course, and as such, there are inconsistencies between the application of these strategies to beginning level learners. As a result, “By allowing pronunciation to emerge without benefit of training [at the beginning levels of language instruction], there is a danger of fossilization of poor pronunciation habits, habits that are later stubbornly resistant to change” (Alley, 1991, p. 1091). The present study aims to implement pronunciation instruction at the beginning levels of Spanish to avoid the possibility of this solidification process.

**2.11.2 Studies on L2 Spanish vowels and diphthong production.** Lately, investigations on the acquisition of L2 Spanish vowel and/or diphthongs have gained a lot of interest within the field of second language acquisition. Research that includes specific aspects of pronunciation of vowel and vowel sequences in English-speaking learners of Spanish have focused on different areas: (a) effects of formal instruction on pronunciation of vowels; (b) effects of study abroad on the pronunciation of vowel sequences; and (c) contrastive acoustic analysis studies, among others. The following are some of the studies that have examined the acquisition of Spanish

vowels and vowels sequences in English-speaking learners.

Reeder (1999) examined the acquisition of Spanish vowels in 70 adult English-speaking L2 Spanish learners at four different proficiency levels. All five Spanish vowels were measured in two contexts, 10 in stressed syllables, and 10 in unstressed syllables. Measurements of formants 1, 2, and 3 (i.e., F1, F2, and F3, respectively) were taken from each learner's reading task data and picture identification task data. The production accuracy for each vowel was determined on a yes/no basis according to whether the mean value for a given level lies within the coordinates that enclose the range of variation for the same vowel among the Spanish native speakers' speech samples. The precision was determined for each level by establishing a precision index for production of each vowel in stressed and unstressed contexts. Only the very advanced learners in Level 4 demonstrated that they had acquired native-like values for any of the vowels in both stressed and unstressed contexts, although Level 3 learners' production of /o/ and /i/ closely approached native-like levels.

In another cross-sectional acoustic study conducted by Cobb and Simonet (2015), the researchers also examined the production of the five Spanish phonemic monophthongs /i e a o u/ in two prosodic contexts: stressed and unstressed. The chosen words controlled for the following three phonological characteristics: (1) the timbre of the target vowel (five values /i e a o u/); (2) the lexical stress configuration of the word (target vowel in stressed syllable vs. target vowel in the syllable preceding lexically stressed syllable, such as the prestressed syllable); and (3) the place of articulation of the consonant preceding the target vowel. Although factors (1) and (2) were systematically manipulated, factor (3) was simply controlled for and not manipulated. The first (F1) and second formant (F2) values were extracted from each vowel token using Praat's (speech analysis software) built-in function to transform Hz values into Bark units, a logarithmic

scale. Median formant values were statistically calculated for each of the 20 data observations (10 = F1 and 10 = F2) from each of the participants. These statistical tests on median formant values suggest that stressed and unstressed vowels differ acoustically, and that vowel category and speaker group modulate this difference. The acoustics of vowels differ across groups with respect to fronting but not height, and the effects of stress are dependent on vowel category in fronting.

In a different study that involved pronunciation instruction, Hodges (2006) examined the effects of pronunciation instruction on the acquisition of Spanish vowels in 16 English-speaking learners of Spanish. Hodges particularly addressed the effects of formal instruction on the production of the /a/, /e/, and /o/ vowels in unstressed word-final position. The instruments for elicitation of data consisted of two tasks: (a) a read-aloud word list, and (b) a free speech elicitation task. The data were rated by native Spanish speakers from Colombia, Puerto Rico, and Spain based on a 4-point rating scale, and were broken down as follows: 1 = a non-target-like vowel, sounds more like English; 2 = closer to an English vowel than to a Spanish vowel; 3 = closer to a Spanish vowel than to an English vowel; and 4 = a target-like vowel, could be considered indistinguishable from a vowel produced by a native speaker of Spanish. The judges rated the /a/, /e/, and /o/ on each of the 15 target words along with the three vowels considered from the free speech tasks on each test. The results indicate that formal instruction was effective for improving the pronunciation of /e/ and /a/. On the pretest both /e/ and /o/ were rated as statistically more accurate than /a/; however, in the posttest there was no difference among the three vowels.

In an experimental study conducted by Krause (2013), the researcher investigated the acquisition of Spanish diphthongs by 55 adult native speakers of English. The instruments used

for data collection included two tasks, which were recorded using a digital voice recorder: (a) a reading-aloud word task, either in isolation or as part of a sentence that contained a sequence of two vowels; and (b) a semispontaneous speech task. The read-aloud word task contained a set of 25 nonsense words, all of which had a vowel sequence. Data were analyzed using Praat.

Formants F1, F2, and F3 were measured in Hertz at five points of the vowel sequence: 0.0, 0.25, 0.5, 0.75, 1.0. The standard deviation and the slope of F2 were calculated between each of the points measured, and the highest slope was isolated. The results show that participants at the beginning level produced the most monophthongs, followed by the intermediate level participants. In sequences of two high vowels (/iu/, /ui/), the first vowel was deleted most frequently. In sequences of two non-high vowels, the second vowel was deleted most frequently, regardless of the vowel quality. The results for the Nonsense Words task do not show great change between the levels of acquisition.

In another study that incorporated the analysis of diphthongs, Colantoni and Limanni (2010) compared the realization of vocalic sequences in Spanish contact (Corrientes, Argentina) and non-contact varieties (San Juan, Argentina). The researchers analyzed the speech of eight native speakers of two different Argentine Spanish varieties; namely a contact (Corrientes), and a non-contact (San Juan) variety. The target words contained sequences of two vowels (Vowel 1 = /i/ and /e/; Vowel 2 = /a/ /e/ /o/, and /u/), which were extracted from the interviews and labeled for the following variables: underlying form and surface realization, etymological origin of sequence, following vowel and the presence/absence of stress. Different acoustic measurements were taken: (a) duration of the three parts of the sequence; that is, Vowel 1 (V1), Vowel 2 (V2), and transition (TR: normalized as % of total duration); (b) F1-F3 values of each portion; (c) rate of change of F2 at the transition. The results showed that diphthongization tends to be

widespread in contact varieties, and that in spite of that, the frequency of hiatus is still higher in contact than in noncontact varieties. Furthermore, the vocalic sequences across dialects differed only in the transition duration, which was significantly shorter in contact than in noncontact varieties.

In general, it has been demonstrated that studies on the Spanish vowel acquisition differ in their analysis of phonetic features and their rating system. Those that did not include acoustic analysis of the studied features seemed to have fallen short in their analysis. Those that included acoustic and statistical analysis seemed to have demonstrated more validity and reliability. As Heigham and Croker (2009) pointed out, it is important to use multiple measurements of analysis to provide well-validated and substantiated findings.

As stated previously, this study introduces L2 Spanish learners to a combination of self-monitoring strategies (critical listening, repetition, rehearsal, and annotation) and Dickerson's (1987, 2000) covert rehearsal model. Evidence on the use of self-monitoring strategies and CRM has demonstrated their effectiveness in improving the English pronunciation of second language learners of English. As far as is known, this study is the first study to incorporate a self-monitoring strategy model to improve the pronunciation of L2 Spanish. Therefore, it is anticipated that the findings of this study will provide, first, an alternative approach for developing L2 Spanish pronunciation, and second, pronunciation learning strategies that will allow learners not only to improve their oral skills outside of classroom instruction but also to become autonomous learners who take control of their own pronunciation learning.

## **2.12 Studies on LLS and L2 Pronunciation**

Morley (1994) emphasized that pronunciation teaching should be on designing "new-wave instructional programs" that not only considered language forms and functions but also

strategies that develop self-monitoring skills in L2 learners that allow them to take a decisive role in their learning (as cited in Vitanova & Miller, 2002, para. 2). To be in line with this notion, second language researchers and scholars have been encouraged to develop studies that focus on the use of pronunciation strategies to improve L2 learners' pronunciation. However, the studies in this area are very limited. To the researcher's knowledge, there is only one study that emphasizes the strategies that students use to learn Spanish pronunciation. This study examines the use of pronunciation strategies within the field of Spanish as a second language (Peterson, 2000). In her study, Peterson proposed the idea of using language-learning strategies in order to improve the pronunciation of native speakers of English who were learning Spanish. Her study investigated the kinds of learning strategies adult students of Spanish use to learn or improve their L2 pronunciation. The participants included three 100-level Spanish students, five 200-level students, and three advanced 600-level students. The students ranged in age from 18 to 36 years old, and nine of them were females. The data consisted of retrospective, self-report methods in the form of diaries and interviews. The interviews were tape recorded, then transcribed and coded. The first six students participated in the diary-keeping phase of the study, and the other five were involved in the interview phase.

The results of the study uncovered language learning strategies that learners use to practice their pronunciation: representing sounds in memory (e.g., making songs or rhythms to remember how to pronounce words), practicing naturalistically (e.g., listening to authentic material), formally practicing with sounds (e.g., repetition of a difficult word), analyzing the sound system (e.g., noticing contrasts between the native language and the target language), using proximal articulations (e.g., replacing a difficult sound for another sound), finding out about target language pronunciation, setting goals and objectives (e.g., deciding to focus on one

particular sound), planning for a language task (e.g., preparing for an oral presentation), self-evaluating (e.g., recording themselves), using humor to lower anxiety, asking for help, and cooperating with peers. The beginning level and the intermediate level students reported common pronunciation strategies such as talking aloud to oneself, recording oneself, and using flash cards. The first two of these strategies are metacognitive and the last one is cognitive.

Later, Sardegna (2009) conducted a study where she explored the effects of training English language learners to use pronunciation strategies from Dickerson's CRM (1984, 2000). Specifically, Sardegna sought to evaluate the long-term effectiveness of CRM on phrase stress when reading English, construction stress, and word stress in 39 ESL learners enrolled in a one semester pronunciation course. The participants were from different backgrounds, including China, Vietnam, Korea, Thailand, Portugal, France, Japan, and Spain. Their age range was 22 to 47 years old. There were 16 females and 23 males. The students were assessed four times: Time 1, Time 2, Time 3, Time 4; at the beginning of the semester, at the end of the semester, and again through tests administered 9 months apart (Time 3 and Time 4). All 39 students took the first three tests, but only 23 took the final fourth test. The pronunciation course the students were taking was based on the CRM, and the strategies were taught in every class. The results of Sardegna's study demonstrate that intensive instruction of CRM strategies was effective for improving students' reading stress, construction stress, and word stress. Despite a decrease in accuracy after intensive instruction, students maintained a significant improvement over time. Also, although low proficiency students scored consistently lower than those students who entered the class as high proficiency, half of the low proficiency level students had the same absolute accuracy as the high proficiency students when tested at Time 3.

In another study, Ingels (2011) examined the role of strategy use in second language pronunciation learning. Ingels investigated the effectiveness of training future international teaching assistants (ITAs) to critically listen to, transcribe, annotate (write corrections), and orally rehearse English suprasegmental features in their own speech. The suprasegmental features investigated were message unit boundaries, primary phrase stress, intonation, vowel reduction in content and function words, linking, word stress, and multiword construction stress. The participants included 15 graduate-level learners of English (14 Mandarin speakers, 1 Korean speaker) from an ESL pronunciation class at a U.S. university. The students were asked to participate in a repeated-measures design, in which the independent variables were 3 levels of self-monitoring (listening only [L], listening + transcription [LT], and listening + transcription + annotation [LTA]) and rehearsal (R). The strategies were examined in the following combinations: LR-LR-LR, LT-RRR, and LTA-RRR. The dependent variable was the change in suprasegmental accuracy following self-monitoring and rehearsal. Speech data resulting from strategy use was gathered at the beginning and at the end of the semester in order to determine the extent to which strategy use corresponded to improved suprasegmental accuracy. The findings reported that all participants made meaningful improvements in suprasegmental accuracy for at least some of the targets following self-monitoring. While the LT- RRR combination was most effective for lower proficiency learners, the LTA-RRR was most effective for higher proficiency learners. The self-monitoring strategies had differential effects on accuracy for the suprasegmental features, with message units, linking, and function words showing the greatest improvement. The observation of individual task performance provided useful insights into how adult L2 learners utilize self-monitoring strategies effectively.

In a more recent study, Londoño-Díaz (2014) investigated the effects of training language

learners or future teachers to monitor their L2 pronunciation learning. Londoño-Díaz's study was carried out at a Language Teaching Program at a public university in Pereira, Colombia. The participants included 40 students who were enrolled in a Pronunciation II course. The preservice native Spanish-speaking teachers were instructed on the use and application of four pronunciation learning strategies (PLS): critical listening, transcription, annotation (correcting a transcript), and rehearsing corrections aloud. This followed Dickerson's (1987, 2000) covert rehearsal model of self-monitoring strategies. First, the participants were divided into 10 groups of four students each. Second, in order to implement the pronunciation learning strategies, participants met on a weekly basis. A reading was previously assigned to each group with the purpose of giving the learners the opportunity to read it before gathering in the group session.

The results of his study indicate that, first, the use of phonological transcriptions to mispronounced words was beneficial to the learners in terms of developing their critical and analytical listening aptitudes to self-correct and to face the future readings. Second, the fact that the participants were exposed to the collaborative groups helped them to reflect on their own mistakes given the fact that other members of the groups, in some cases, had more accurate pronunciation. Annotation helped learners identify the nontarget pronunciation features in their speech and annotate (mark) corrections directly in their transcription. Furthermore, data revealed that phonological awareness was enhanced, and monitoring strategies were adopted throughout the application of the PLS.

### **2.13 Studies on L2 Pronunciation and Social Factors: Motivation and Attitude**

Vitanova and Miller (2002) pointed out that it is important to have “understanding not only of our learners' cognitive needs but also of their socio-affective characteristics” such as motivation and attitude toward the target language (Conclusion, para. 25). They also stated that

although evidence has supported the idea that students' sociopsychological factors play a significant role in the acquisition of pronunciation, there is a gap between cognitive and affective factors in pronunciation research and pedagogy.

Some of the studies that have been conducted on attitude toward pronunciation and the role that this plays in improving L2 pronunciation proficiency level are detailed here. One of the first studies that examined the role of attitude toward pronunciation was Elliot (1995). Elliott investigated the effects of pronunciation instruction on intermediate level university students enrolled in Spanish courses. In addition, attitude toward pronunciation accuracy was examined in relation to improvement of the participants' pronunciation. Sixty-six graduate students (32 males and 34 females) participated in the study, of which 43 were in the experimental group. The instruction for the experimental group differed from their counterparts in terms of the methodology provided. The students met 3 days a week for a period of 50 minutes each throughout the semester. Of those 50 minutes, 15 minutes were devoted to pronunciation instruction. To analyze the effect that students' attitude had on their pronunciation improvement, Elliott provided a Likert-type scale test, the Pronunciation Attitude Inventory (PAI) consisting of nine positive statements and three negative statements about the acquisition of native or near-native pronunciation. This was given to both groups of students one time only at the beginning of the semester.

The results of the study suggest that attitude toward pronunciation was not an effective predictor of improvement in pronunciation. The methodology of instruction appeared to have contributed more significantly to improvement in pronunciation than did attitude toward pronunciation as measured by the PAI at the beginning of the semester. Although no specific measurement was taken of students' attitude at the end of the semester, positive changes in

attitude for subjects in the experimental group were reflected on the students' final course evaluation comments. Particularly, the experimental group students reflected a positive attitude toward the instruction of pronunciation they received.

In a very similar study in terms of procedure, Hodges (2006) examined the effects of formal instruction on the acquisition of the Spanish vowels /a/, /e/, and /o/. In addition, Hodges investigated attitude as it relates to pronunciation accuracy by analyzing the result of the PAI. The participants for this study consisted of 24 native English speakers enrolled at beginning-level Spanish courses. Sixteen comprised the experimental group, and eight were the control group. With the goal of investigating possible correlations between the students' attitude and background with their performance on the pronunciation test, Hodges used two instruments: a background questionnaire, and the PAI. Both groups completed a pretest and a posttest. Only the experimental group received specialized pronunciation instruction. Also, all of the participants from both groups completed a PAI on the third day of the experiment and after taking the posttest. This inventory was modeled on Elliott (1995) and was adapted to include two extra questions as well as two free-response questions with the goal of obtaining feedback from the experimental group on the pronunciation instruction provided to them.

The results of the effects of attitude toward pronunciation and toward the pronunciation instruction revealed that there was a moderate correlation in the word list section and a moderately strong correlation in the free speech section between the scores on the PAI and the pronunciation posttest for the experimental group, but not for the control group. There was a 100% positive feedback with regard to the helpfulness of the instruction and whether it would influence their future pronunciation. In conclusion, the results for the PAI demonstrated that students felt that it was important to discuss pronunciation in their language classes.

Sardegna, Lee, and Kusey (2014) also conducted a study that focused solely on investigating learners' motivation and attitude toward pronunciation. They discussed the development and validation of the use of the Learner Attitudes and Motivations for Pronunciation (LAMP) inventory. The researchers administered the LAMP to 704 Korean adolescents (347 males and 357 females) studying English in South Korea at the end of their academic year. The LAMP consisted of two parts. Part I elicited background information, such as participants' gender, age, and length of studying English, living in an English-speaking country, and receiving pronunciation instruction. Part II had two sections. Each contained randomly ordered 5-point Likert scale items. In section I, 25 items elicited participants' motivations for improving their English pronunciation skills and for achieving native-like pronunciation. In section II, 18 items elicited participants' attitudes towards learning and practicing English pronunciation for accuracy improvement.

The results of the study revealed four motivation factors for acquiring native-like pronunciation: integrative, intrinsic, extrinsic, and curiosity. Moreover, the reports of the study found that learners' attitudes towards acquiring a native-like pronunciation were based on the following factors: cognitive, conative, negative affect, and self-efficacy. In summary, as far as the implication that these results have for L2 pronunciation pedagogical practices, this study sheds light on the need for considering these factors when designing language curricula for L2 pronunciation. Researchers could use LAMP items as a tool to conduct investigations into similar or different sociocultural factors that may or may not have an effect on the learning of L2 pronunciation.

As stated previously, the list of studies that investigate the effects of learners' affective factors such as motivation and attitude towards the acquisition of L2 pronunciation is very

limited. Therefore, the present study attempts to expand on the investigations concerning the relationship between these two factors and L2 pronunciation. Specifically, this study explores the relationship between the pronunciation of Spanish rising diphthongs learners achieved at the end of the study and learners' motivation and attitude.

### **3. METHODOLOGY**

#### **3.1 Introduction**

This chapter outlines the methods and procedures used to conduct the present study. The chapter begins with a brief discussion of the course and the level of the L2 Spanish course in which learners who participated in the study were enrolled. Then, the researcher provides a report of the procedures used to recruit the participants in the study, which included (a) native English-speaking L2 Spanish learners, and (b) native Spanish speakers. Next is a description of the research design and the type of instruments used to collect data from the participants. Additionally, this section provides evidence of the validity of these instruments based on previous research. Following this, the researcher discloses the timeline of events and the procedures used to carry out of the activities during the intervention phase. Furthermore, in this chapter the researcher provides an explanation of the methods used to carry out all acoustic measures that preceded the statistical examination of the data.

#### **3.2 Description of the Language Course**

Participants in the native English-speaking group consisted of learners who were enrolled in Spanish 102 courses at a Southeastern university. Introductory Spanish 102 is a beginning level course that the university's Basic Spanish Program offers as part of a two-semester sequence of Introductory Spanish courses: Spanish 101 and Spanish 102. Spanish 102 focuses on developing learners' basic Spanish communicative skills and general knowledge about Spanish-speaking culture.

This course incorporates instructional methods that reflect the American Council on the Teaching of Foreign Languages (ACTFL) 2012 guidelines and align with the 5 Cs of the Standards of Foreign Language Learning: communication, cultures, connections, comparisons, and communities. The Spanish 102 course is designed as a hybrid in that learners are required to meet in traditional face-to-face classes for 50 minutes, three times a week and complete online homework on the days that they do not meet. The textbook used in the course is *Protagonistas* (Underwood, Cuadrado, Melero, & Sacristan, 2012). This book offers a communicative approach to language instruction. Thus, the main goal of this textbook is to develop learners' linguistic and communicative competence in all four areas of the Spanish language: listening, reading, writing, and speaking. The textbook *Protagonistas* presents the material in a contextualized manner by means of engaging learners in a variety of interactive lessons drawn from cultural themes that simulate real-life situations. In this way, learners are encouraged to produce and communicate in the language they are learning.

However, this textbook, like many other language textbooks, does not emphasize pronunciation instruction in the language curricula (Arteaga, 2000). The textbook's descriptions of Spanish pronunciation are limited in the amount of information provided and lack instructions on when or how to incorporate such descriptions into the classroom. Consequently, pronunciation is being marginalized or "trea[ted] as a subpart of speaking and listening and [...] usually taught implicitly [by the instructors]" (Adrián, 2014, p. 96). The difficulty in acquiring appropriate L2 Spanish pronunciation is evident in learners from SP 102 courses. This hinders their ability to interact and communicate comfortably in the target language. Bearing this in mind, this study is intended to provide learners with the supplementary pronunciation practice they need to aid in the process of communication.

**3.2.1 Description of the learners in Spanish 102 courses.** Typically, there is a maximum of 25 students enrolled in a Spanish 102 course. It includes learners who have either taken one semester of college-level Spanish or have taken 2 years of high school Spanish 4 years prior to their enrollment in the course. Thus, according to the ACTFL 2012 Guidelines for Speaking Proficiency, these students are categorized as novice learners. Their “pronunciation ... [is still] strongly influenced by [their] first language” and “because of their pronunciation, [they] may be unintelligible” (p. 9). Therefore, there are two reasons for choosing to run this study with beginning level language learners. First, they have rarely been exposed to pronunciation instruction. As suggested by Maldonado (1994), it is the less advanced learners who are more likely to benefit from the kind of pronunciation training employed in this study “since they are still in a position to make improvement” (p. 80), namely, before learners’ L2 phonological features become fossilized.

Second, several scholars have highlighted the need for providing pronunciation instruction early in the language learning process in order to ease the challenge that beginning L2 learners face regarding their L2 pronunciation (e.g., Counselman, 2010; Darcy, 2018; Lord & Fionda, 2014). Therefore, it is the goal of the present study to instruct the SP 102 learners in this study to perceive the target language sounds, which the speech learning model (SLM) claims to be the first step in acquiring L2 pronunciation (Kissling, 2014), and to develop their production of the target language sounds, which leads to the level of intelligibility and comprehensibility learners need to communicate in their target language (Counselman, 2010; Olson, 2014).

### **3.3 Recruitment Phase**

**3.3.1 Recruitment procedure of native English speakers (L2 Spanish learners).** The researcher selected a cross-sectional sample of 16 native English-speakers, enrolled in Spanish

102 courses at a Southeastern university, to participate in this study. In order to recruit potential participants, instructors of all nine face-to-face Spanish 102 courses offered in the Spring 2016 semester were contacted by email requesting permission to come to their classes and recruit subjects. Once the instructors agreed, the researcher visited the Spanish 102 courses to invite potential participants for the study. Although participation in this study was completely voluntary, learners who agreed to participate were granted 15% extra credit toward their course online homework. However, in order for learners to be included in the study, they needed to meet the following criteria:

1. Learners must be native speakers of English.
2. Learners must not have exposure to another language during childhood (in this case, Spanish).
3. Learners must be between 18 and 25 years old.
4. Learners must not have learned any other languages prior to this study, because it has been shown that experience with additional languages can alter the way sounds in Spanish are acquired and produced (adapted from Counselman, 2010).

In order to determine whether or not students met the required criteria for inclusion, they completed a background questionnaire (see Appendix A) on the day of their recruitment. This questionnaire included 23 questions (adapted from Krause, 2013), and this researcher collected 60 questionnaires on the day of the recruitment. After scrutiny of the completed background questionnaires, 35 learners matched the criteria required for inclusion in the sample. The researcher notified learners via email of their acceptance and asked them to meet in person to sign the consent documents. Of the 35 who qualified, 30 consented to their audio recordings being used in this study. Of the 15 control group participants, 10 completed all portions of the

study, that is, background questionnaires, pretest and posttest recordings, grammar and reading exercises sheets, and the motivation and attitude questionnaire; eight were selected to describe the results of the analysis.

The decision to choose only eight native English-speaking L2 Spanish learners to participate in the control group was mainly because of issues encountered with the recording samples, including sound, noise, or lack of enough individual data tokens to be included in the analysis sample. On that account, only learners with a higher number of tokens were chosen. Of the 15 experimental group participants who completed all the required tasks in the study, only eight were selected to be part of the data analysis of the study. In order to obtain an equal number of participants in each group, the same selection used for the control group learners was followed for the experimental group learners. From this point on, learners from the experimental group will be referred to as the L2 experimental group. Similarly, learners from the control group will be referred to as the L2 control group in this study. Additionally, when addressing issues of the English-speaking L2 Spanish learners as a group, they will be also referred to as L2 Spanish learners.

**3.3.2 Recruitment of native Spanish speakers.** In order to provide baseline pronunciation data, native Spanish speakers were also recruited. The researcher visited the English Language Institute (ELI) during the last week of the study and invited different native Spanish speakers to take part in the study. The ELI is an intensive year-round, six-level English program located at the university. It enrolls an average of 100 students per year from 18 different countries. From this recruitment, only 10 native Spanish speakers, all from Colombia, South America, agreed to participate in the study. Of those 10, eight were selected to be part of the data analysis of the study. Similar to the recordings of the English-speaking group, the recordings of

the native Spanish-speaking group presented issues with noise. All native Spanish-speaking participants had at least one university degree and had come to study English at the ELI for professional reasons (e.g., improving their job opportunities or preparing to enroll in an American university). The level of English course in which they were enrolled was different as well as the amount of time that they had resided in the city where the study took place.

Bearing in mind the origin of the native Spanish speakers, it is relevant that Colombian Spanish often has the reputation for being the “purest” Spanish in Latin America, especially among educated speakers such as those participating in this study (Lipski, 1996; Cano, 1994, as cited in Orozco, 2004). Although there is not a complete consensus on that estimation, it is expected that the spoken language or phonological features of these participants will have less variety with respect to the sound-symbol correspondence for Spanish vowels and diphthongs. Similar to the L2 Spanish learners, the native Spanish speakers also completed a background questionnaire on the day of recruitment (see Appendix B).

### **3.4 Research Design**

**3.4.1 Description of pilot study.** The researcher designed this study to have a pretest and a posttest. Given that this is an experimental study, all English-speaking L2 Spanish learners in the pilot study were randomly assigned to the L2 experimental group (+ self-monitoring strategies pronunciation practice, L2 experimental group) and the L2 control group (– self-monitoring strategies pronunciation practice, L2 control group). Prior to the current study, in the summer of 2015, the researcher conducted a 3-week pilot study to test the instruments and methods that would comprise the main study. Unlike the L2 Spanish learners in the current study, those in the pilot study did not have to meet any background criteria. Moreover, due to the availability of students in the summer, only eight English-speaking L2 Spanish learners were

recruited. These learners happened to be enrolled in one of the Spanish 102 courses offered during the summer for which the researcher was the primary instructor.

Immediately after their recruitment, learners were randomly divided into two groups: L2 experimental and L2 control. Of the eight native English-speaking L2 Spanish learners that were recruited for the pilot study, only four (L2 experimental group = 3; L2 control group = 1) completed all portions of the study. After completing the pilot study, the researcher made changes to the instruments and methods to have a more accurate analysis of the data for the current study. During the pilot study, learners were audio-recorded using Audacity ® (2.1.0 version) using the researcher's personal laptop. For the current study, however, using a sound booth helped to avoid issues with background noise, improved the quality of the acoustics, and better captured the learners' speech with the professional microphone.

The target words included in Task 1 of the pilot study, which are described in the subsequent section, were not embedded in any carrier phrase, nor did they include any distractors. Additionally, the participants in the pilot study read a 16-sentence paragraph designed by the researcher specifically for the study. However, not all participants produced all the target words. Therefore, there were not enough tokens to run a thorough analysis, causing unreliability in the statistical analysis. In view of this, more target words were added to Task 1 for the current study. Also, for Task 2, the 16-sentence paragraph was changed to a longer text, in this case, a poem, for the current study. Furthermore, the pronunciation and attitude inventory (PAI) that the English-speaking L2 Spanish learners completed in the pilot study did not seem to provide a comprehensive analysis of these two factors. Learner Attitude and Motivation for Pronunciation (LAMP) inventory implemented in the current study turned out to be more useful. The LAMP inventory includes a greater array of aspects that allowed for a more accurate

examination of the role that attitude and motivation have on the acquisition of Spanish rising diphthongs (SRD).

Finally, the results obtained in the pilot study were compared to the examples of the native Spanish speakers found in Borzone de Marique (1979). In the current study, the results of the Spanish recordings from all L2 Spanish learners are compared to the L1 Spanish speaker group from Colombia, which serve as an L1 Spanish pronunciation model. Additionally, the reason for choosing an L1 Spanish speaker group is to ensure more current baseline data, as it may be the case that values presented in Borzone de Marique (1979) may have shifted over time.

### **3.5. Description of Current Study: Data Elicitation Instruments**

**3.5.1 Background questionnaires.** Background questionnaires are a very common tool to use in L2 research to collect both biographical and linguistic information about participants (Dörnyei, 2014). Two background questionnaires were administered in this study: the L2 Spanish learners' questionnaire and the L1 Spanish speakers' questionnaire (see Appendices A & B). The L2 Spanish learners' background questionnaire provided the following: (a) information that would allow the researcher to determine whether learners met the criteria required for inclusion in the data sample, based on Questions 1 to 8 in the questionnaire; and (b) information regarding learners' regional English dialect, which would be later triangulated with their English recording samples. The L1 Spanish speakers' questionnaire mainly collected biographical data. Table 3 and Table 4 summarize the background information obtained from both groups of L2 Spanish learners, namely L2 experimental and L2 control groups, respectively. Table 5 summarizes the biographical information collected from the L1 Spanish speakers.

Table 3

*Demographics of English-Speaking Participants in the L2 Experimental Group*

Spk	Age	Originally from	Gender	Places lived (Time of residence)	Time resided locally	Previous Spanish taken (including high school)
L2 Experimental Group						
P1	19	Southwest	Female	Southeast	7 months	1 year HS 1 semester at study university
P2	20	Southeast	Female	Southeast	1.5 years	1 semester at study university
P3	19	South	Female	Southeast (17 yrs.)	2.5 years	1 year HS 1 semester at study university
P4	19	Southeast	Female	Southeast (19 yrs.)	7 months	1 semester at study university
P5	19	Southeast	Female	Southeast (19 yrs.)	1 month	2 years HS 1 semester at another college
P6	19	Southeast	Female	Southeast (7 yrs.) Southwest (11 yrs.)	5 months	2 years HS 1 semester at study university
P7	18	Southeast	Female	South (2 months)	2.5 years	1 semester at study university
P8	19	Southeast	Female	None	19 years	2 years HS 1 semester at study university

*Note.* Spk = speaker. Study university = location of the present study.

Table 4

*Demographics of English-Speaking Participants in the L2 Control Group*

Spk	Age	Originally from	Gender	Places lived (Time of residence)	Time resided locally	Previous Spanish taken (including high school)
P1	23	Southeast	Female	None	3.5 years	1.5 years HS 1 semester at study university
P2	18	Southeast	Female	Southeast <i>(time of residence not specified)</i>	1 year	2 years HS 1 semester at study university
P3	18	Southeast	Female	Southeast (18 yrs.)	7 months	2 years HS 1 semester at study university
P4	19	Southeast	Female	None	1.5 years	1 semester at study university
P5	18	Southeast	Female	None	5 months	1 year HS
P6	20	Southeast	Female	None	2 years	1 semester at study university
P7	18	Southeast	Female	None	18 years	1 semester at study university
P8	21	Southeast	Female	Southeast (18 years)	5 months	2 years HS 1 semester at study university

*Note.* Spk = Speaker. Study university = location of the present study.

Table 5

*Demographics of L1 Spanish Speaker Group*

Spk	Age	Gender	City of birth in Colombia	Highest level of education	Job status at time of study	Time resided locally	Other languages studied (starting age)
P1	23	Male	Bogotá	High School	None	4 months	None
P2	37	Male	Bogotá	MA	Salesman	1 month	English (10 yrs old)
P3	20	Male	Antioquia	High School	Business	3 months	English (17 yrs old)
P4	18	Female	Cali	High School	None	1 month	English (10 yrs old)
P5	23	Female	Neiva	BA	Marketing	8 months	None
P6	36	Male	Bogotá	MA	Business	3 weeks	None
P7	29	Female	Cali	MA	Environmental	3 weeks	English (11 yrs old)
P8	26	Female	Bogotá	BA	Computer Science	3 weeks	English (11 yrs old)

*Note.* Spk = Speaker.

**3.5.2 Spoken tasks.** This section provides a description of the tasks that were used to collect data from all the participants in the study, L2 Spanish learners ( $n = 16$ ) and L1 Spanish speakers ( $n = 8$ ). All 24 participants completed two elicitation tasks in Spanish: (a) a word list, and (b) a Spanish text (i.e., a poem). In addition, all L2 Spanish learners completed a third elicitation task in English in which they read a list of sentences. All participants were recorded in Audacity® version 2.1.2 at the recording studio located in the university's library using a cardioid condenser microphone (BLUE Blueberry). All L2 Spanish learners' recordings for the pretest were conducted at Week 1 of the semester and Week 11 for their posttest. The L1 Spanish speakers were recorded once during the final weeks of the study. The recording samples from the pretest and the posttest of the L2 experimental group and the L2 control group were compared to

those of the L1 Spanish-speaking group to evaluate the pronunciation of the L2 Spanish learners at the end of the study.

Although this type of control speech task is not considered the most natural instrument for data collection, there were two reasons for choosing these types of elicitation tasks: (a) the ability to control the phonological environment in which the Spanish rising diphthongs were placed within the word, thus avoiding words with SRD that fell into the exceptional hiatus category; and (b) the ability to minimize the anxiety that beginning level learners may experience when asked to produce more difficult tasks, therefore allowing them to concentrate more on their pronunciation of the vowel sequences in context (Kissling, 2014).

**3.5.2.1 Spanish word list (Task 1).** All participants (i.e., L2 Spanish learners and L1 Spanish speakers) were asked to read a total of 55 randomly presented target words from a series of index cards embedded in the carrier phrase *Yo digo \_\_\_\_\_ para ti (I say \_\_\_\_\_ for you)*. Of these target words, 50 words contained a Spanish rising diphthong, and five target words served as distractors. The researcher designed this task so that all L2 Spanish learners produced at least five tokens of each of the Spanish rising diphthongs ( $8 \times 5 = 40$ ). L2 Spanish learners were told to pronounce each word as well as they could, based on their knowledge of Spanish. They were also told to take as much time as they needed to produce the words on the card, and that they could be asked to repeat the complete task a second time if that was necessary. Not all L2 Spanish learners were able to meet the expectation of producing all 40 SRD words. There were still some issues with learners not knowing exactly how to produce the SRD. A more detailed description of the number of tokens that were discarded is presented in Chapter 4. The task instructions as well as the list of words for Task 1 are provided in Tables 6 and 7 for front-glide diphthongs (/ia/, /ie/, /io/, /iu/) and back-glide diphthongs (/ua/, /ue/, /uo/,

/ui/), respectively. Distractor token words included: *trabajo* ‘work,’ *tarea* ‘homework,’ *casa* ‘house,’ *papel* ‘paper,’ and *lápiz* ‘pencil.’ The decision to use the terms front-glide and back-glide to categorize the SRD diphthongs by glide type was based on previous studies by MacLeod, 2008, and MacLeod, 2012. The instructions that the researcher read to the participants for Task 1 were as follows:

You will be presented with a series of cards, each containing a Spanish word. Please pronounce each word as well as you can, based on your knowledge of Spanish. You may take as much time as you need to produce the word on the note card.

Table 6

*List of Token Words with Front-Glide Diphthong in Task 1*

/ia/	/ie/	/io/	/iu/
Pretest tokens			
<i>tapia</i> (last name)	<i>cierto</i> ‘true’	<i>nacional</i> ‘national’	<i>ciudad</i> ‘city’
<i>ansiado</i> ‘long-desired’	<i>tiento</i> ‘tack’	* <i>apiola</i>	<i>katiuska</i> ‘person’s name’
<i>Tiatira</i> (city’s name)	<i>desierto</i> ‘desert’	<i>ocioso</i> ‘idle’	<i>piulo</i> ‘I chirp’
<i>fiado</i> ‘trustworthy’	<i>atiene</i>	<i>piojoso</i> ‘lousy’	<i>reciura</i> ‘with strength’
<i>cristiano</i> ‘christian’	‘s/he abides’	<i>delicioso</i> ‘delicious’	* <i>kelsius</i>
* <i>casiado</i>	<i>siesta</i> ‘nap’		
<i>diana</i> (person’s name)	<i>pudiera</i> ‘to be allowed to’		
Posttest tokens			
<i>viaje</i> ‘trip’	<i>fiel</i> ‘faithful’	<i>diosma</i> ‘flower plant’	<i>ciudad</i> ‘city’
<i>ansiado</i> ‘long-desired’	<i>cierto</i> ‘true’	<i>bioma</i> ‘bioma’	<i>katiuska</i> ‘person’s name’
<i>tiatira</i> (city’s name)	<i>tiento</i> ‘tack’	<i>ocioso</i> ‘idle’	<i>piulo</i> ‘to chirp’
<i>fiado</i> ‘trustworthy’	<i>atiene</i>	<i>piojoso</i> ‘lousy’	<i>reciura</i> ‘with strength’
<i>fianza</i> ‘bail’	‘s/he abides’	<i>preciosas</i> ‘precious’	* <i>diucate</i>
<i>apiado</i> ‘take pity on’	<i>siesta</i> ‘nap’		
* <i>casiado</i>			

Note. \* = nonsense word.

Table 7

*List of Token Words with Back-Glide Diphthong in Task 1*

/ua/	/ue/	/uo/	/ui/
Pretest tokens			
<i>cuaderno</i> ‘notebook’	<i>tuerca</i> ‘true’	<i>cuota</i> ‘fee’	<i>cuidado</i> ‘careful’
<i>vestuario</i> ‘clothing’	<i>apuesta</i> ‘bet’	<i>fastuoso</i> ‘ostentatious’	<i>buino</i> ‘person’s name’
<i>suave</i> ‘soft’	<i>nuevo</i> ‘new’	<i>mutuo</i> ‘mutual’	<i>acuite</i> ‘to cause grief’
<i>cuatro</i> ‘four’	<i>puerta</i> ‘door’	<i>ingenuo</i> ‘naive’	<i>pituita</i> ‘mucus secretion’
<i>acuario</i> ‘aquarium’	<i>dueño</i> ‘owner’	<i>acuoso</i> ‘aqueous’	<i>fuimos</i> ‘we went’
<i>guapo</i> ‘handsome’	<i>fuego</i> ‘fire’		* <i>duina</i>
Posttest tokens			
<i>vestuario</i> ‘clothing’	<i>tuerca</i> ‘true’	<i>cuota</i> ‘fee’	<i>cuidado</i> ‘careful’
<i>suave</i> ‘soft’	<i>suecia</i> ‘Sweden’	<i>mutuo</i> ‘mutual’	<i>buino</i> ‘person’s name’
<i>cuatro</i> ‘four’	<i>denuedo</i> ‘boldness’	<i>ingenuo</i> ‘naïve’	<i>acuite</i> ‘to cause grief’
<i>acuario</i> ‘aquarium’	<i>luego</i> ‘then’	<i>afectuoso</i> ‘affectionate’	<i>pituita</i> ‘mucus secretion’
<i>guanaco</i> (wild animal)	<i>juego</i> ‘game’	<i>acuoso</i> ‘aqueous’	<i>prejuicio</i> ‘prejudice’
	<i>fuego</i> ‘fire’	* <i>fuoco</i>	<i>buitre</i> ‘vulture’

*Note.* \* = nonsense word.

**3.5.2.2 Spanish text (Task 2).** Read-aloud speech has been used quite frequently in studies that relate to the acquisition of L2 pronunciation. Using a read-aloud text not only allowed the researcher to elicit target words in more controlled phonological environments, but also to elicit target words in more conscious production of the same in context (Krause, 2013). Thus, according to Cobb and Simonet (2015), this procedure allows the investigator to obtain a more reliable quantitative examination of the target sequences. The participants were asked to read the researcher’s adaptation of the poem “Mientras Duermo” by Liana Castello (n.d.; see Appendix C), which is a children’s poem used to instruct elementary school students about diphthongs.

The participants were given a total of 40 SRD target words to produce. The L2 Spanish learners were told to pronounce each word as well as they could, based on their knowledge of Spanish. They were also told to take as much time as they needed to produce the words in the sentences, and that they could be asked to repeat some sections of the task if it was considered necessary. Nevertheless, not all learners were able to meet the expectation of producing all 40 SRD target words. As in Task 1, there were still some issues with learners not knowing exactly how to produce the SRD or had creaky voice recordings of the SRD sequences. The number of tokens that were discarded is described later in the subsequent chapter. The task instructions are provided as well as all the target words in Task 2 in Table 8 and Table 9 for front-glide diphthongs (/ia/, /ie/, /io/, /iu/) and back-glide diphthongs (/ua/, /ue/, /uo/, /ui/), respectively. The instructions that the researcher read to the participants for Task 2 were as follows:

You will be given a paragraph in Spanish. Please read it as fluently as you can. You may take as much time as you need to produce the word on the sheet.

Table 8

*List of Token Words with Front-Glide Diphthong in Task 2*

/ia/	/ie/	/io/	/iu/
<i>tiatira</i> (city's name)	<i>cielo</i> 'sky'	<i>ansiosa</i> 'anxious'	<i>ciudad</i> 'city'
<i>inicia</i> 'initiate'	<i>tiempo</i> 'time'	<i>tiovivo</i> 'carousel'	<i>reciura</i> 'with strength'
<i>acaricia</i> 'caress'	<i>siento</i> ** 'I feel'	<i>preciosa</i> 'precious'	
	<i>mientras</i> ** 'while'		
	<i>despierto</i> 'awake'		
	<i>piecitos</i> 'little feet'		
	<i>miedo</i> 'fear'		
	<i>divierto</i> 'I have fun'		
	<i>quiere</i> 's/he wants'		
	<i>viento</i> 'wind'		

*Note.* \*\* = two occurrences of the same token.

Table 9

*List of Token Words with Back-Glide Diphthong in Task 2*

/ua/	/ue/	/uo/	/ui/
<i>cuando</i> ‘when’	<i>piruetas</i> ‘pirouette’	<i>fastuoso</i>	<i>fortuito</i>
<i>vestuarios</i> ‘clothing’	<i>juegan</i> ‘they play’	‘ostentatios’	‘coincidental’
<i>cuatitos</i> ‘siblings’	<i>sueño</i> ‘dream’	<i>majestuoso</i>	<i>ruiseñores</i>
<i>arduamente</i> ‘with great effort’	<i>duermo</i> ‘to sleep’	‘majestic’	‘nightingales’
<i>estuarios</i> ‘tidal outlet’	<i>vueltas</i> ** ‘turns’	<i>sinuoso</i>	
	<i>puedo</i> ‘I can’	‘winding path’	
	<i>acuerdo</i> ‘I remember’	<i>acuosas</i> ‘watery’	
	<i>suelto</i> ‘I release’		

*Note.* \*\* = two occurrences of the same token.

**3.5.2.3 English sentence list (Task 3).** An extensive amount of research in SLA has been conducted to provide evidence that a learner’s native language has a strong influence on the acquisition of L2 pronunciation. Despite there being only a few studies on the topic, limited research has found that a learner’s L1 dialectal variation may also play a role in the perception and production of L2 sounds (Chládková & Podlipsky, 2011; Mayr & Escudero, 2010). The 2017 demographic report found on the university’s main website stated that 56% of the university’s undergraduate student population was out-of-state students, whereas 41% were in-state students.

Furthermore, an article from the university’s newspaper indicated that most of the students attending this university surprisingly were out-of-state students who come from five regions of the United States (from highest population to lowest population of students: (a) Georgia, (b) Florida, (c) Texas, (d) Tennessee, and (e) California. Therefore, broadly speaking, there are two English dialectal regions represented in the student population at this Southeastern university: The Southeastern English and Western Californian English.

Based on the assumption that there is variation in the pronunciation of English vowels among the English-speaking participants in this study, the researcher decided to collect an English speech sample from each of the English-speaking L2 Spanish learners as part of their Task 3. All English-speaking L2 Spanish learners were asked to read 44 sentences in English with words that featured the linguistic vowel deviations that are characteristic of the English Southern dialect as described in the *Atlas of North American English* (ANAE) by Labov, Ash, and Boberg (2005). After listening to the recording, the seven most salient Southeastern vowel characteristics were selected for the analysis, which accounted for half of the sentences listed in the task.

The results obtained from the recording samples of the English-speaking L2 Spanish learners in Task 3 and the information from their background questionnaires were used to cross-validate any outcomes that determine if indeed the L1 variety of English in the English-speaking L2 Spanish learners that participated in this study carried over into problematic acquisition of the featured L2 Spanish rising diphthongs (SRDs). The reason for making a dialectal diagnosis based on a single English dialectal variation, namely the Southeastern region, arose from the information drawn from the English-speaking participants' background questionnaires.

After reviewing all their background questionnaires, it appeared that most of the English-speaking L2 Spanish learners in this study claimed to be Southern born and raised. This was as an opportunity to consider not only the interdialectal but also the intradialectal variation in the production of SRDs in the English-speaking L2 Spanish learners. Because of this, it is possible to have divergence in the speech features of the speakers from the South depending on the dialectal subdivision, that is, Southeast and Southwest.

### **3.5.3 Learners' attitude and motivation for pronunciation (LAMP) inventory.**

Previous research has claimed that there are factors other than age that affect the acquisition of L2 pronunciation, such as motivation and attitude (Montero, Chaves, & Alvarado, 2014). The present study employs a Likert-scale LAMP inventory as an instrument to explore the English-speaking L2 Spanish learners' motivations and attitudes toward the practice and learning of Spanish pronunciation. The LAMP inventory was adapted from Sardegna, Lee, and Kusey (2014) to include items that would elicit questions about the practice and learning of Spanish pronunciation. Moreover, the LAMP questionnaire is designed to explore three motivation variables: (a) integrative, four eliciting items; (b) intrinsic, thirteen eliciting items; and (c) extrinsic, eight eliciting items. The LAMP inventory also explores four attitude variables: (a) affective, five eliciting items; (b) cognitive, five eliciting items; (c) conative, four eliciting items; and (d) self-efficacy, four eliciting items.

All English-speaking L2 Spanish learners completed the questionnaire and uploaded it into Blackboard during the final week of the study. To date, many of the FL courses include face-to-face instruction that is enhanced by learning management systems (LMS) such as Blackboard. Blackboard is the online teaching and learning management system that teachers and learners used for the Spanish 102 courses in the study. Tables 10 and 11 provide a short definition for each of the motivation and attitude variables (respectively) and the items for each of the corresponding motivation and attitude categories examined.

Table 10

*Elicited Items for the Motivation Component in LAMP Inventory*

Motivation component	Item
Integrative Motivation: the individual's openness, that is, their willingness or ability to acquire features of another community or accept foreign behavior patterns (Gardner & Lalonde, 1985, as cited in Taie & Afshari, 2015)	<p>23. I would like to lose my foreign accent and be able to speak with a native accent.</p> <p>24. My goal is for people not to recognize my nationality because of my accent.</p> <p>26. I would like to achieve good pronunciation and belong to a group of people that has good pronunciation.</p> <p>27. I would like to improve my Spanish pronunciation to be able to speak to Spanish-speaking people.</p>
Intrinsic Motivation: the individual's interest in engaging in an activity because he/she highly values and identifies with the behavior and sees its usefulness. It involves voluntary behavior to learn for the pleasure or satisfaction, coping with challenges and accomplishing or creating something that is fully assimilated with the individual's other values (Dörnyei, 1988)	<p>1. I am interested in achieving near native-like pronunciation.</p> <p>3. I always try to improve my Spanish pronunciation.</p> <p>4. When I have difficulty pronouncing a sound or words I can't wait to find information about how it is pronounced.</p> <p>6. I like activities and materials that require me to practice my Spanish pronunciation.</p> <p>7. I practice my Spanish pronunciation even when it is not required by the teacher or when I have oral assignments.</p> <p>9. I am curious about how to pronounce new words in Spanish.</p> <p>10. I would like to have more pronunciation activities to practice my Spanish pronunciation in class.</p> <p>11. I enjoy imitating Spanish words and phrases that I hear around me (e.g., from native speakers, instructor, radio, TV, etc.).</p> <p>12. If there were an elective pronunciation class at my institution, I would take it.</p> <p>15. I make sure that I have enough time to practice my pronunciation.</p> <p>16. I enjoy practicing challenging words even if their pronunciation is difficult.</p> <p>17. I stop practicing a sound or another aspect of my pronunciation only when I feel satisfied with my improvement.</p> <p>18. I enjoy listening to myself as I try out or say sounds/words/ sentences in Spanish.</p>
Extrinsic Motivation: the propensity of an individual to take part in activities because of reasons that are not linked to the activity. These reasons can be the anticipation of reward or punishment, like being successful in the exam or getting a good mark (Vansteenkiste, Lens, & Deci, 2006, as cited in Jafari & Mahadi, 2012).	<p>2. By improving my pronunciation, I hope to be able to communicate more effectively in Spanish.</p> <p>5. I practice my Spanish pronunciation when it is required by my instructor.</p> <p>8. I try hard to improve my Spanish pronunciation because in today's global society it is very important to have a good accent.</p> <p>13. I practice my Spanish pronunciation only to get good grades in my Spanish class.</p> <p>14. I would only practice my pronunciation if I had a teacher that provided me with feedback on my pronunciation during or after and oral assignment.</p> <p>19. I practice my Spanish pronunciation because it is needed for my class.</p> <p>20. I try to improve my pronunciation because I (will) need good pronunciation skills to get good grades.</p> <p>21. I only practice my pronunciation when a teacher has provided me with feedback on my pronunciation.</p> <p>22. I work on my Spanish pronunciation because I want a good/better job salary.</p> <p>25. I only think about practicing pronunciation when a teacher has given me feedback on my pronunciation.</p>

*Note.* LAMP = Learners Attitude and Motivation for Pronunciation inventory. Adapted from "Development and Validation of the Learner Attitudes and Motivations for Pronunciation (LAMP) Inventory," by V. G. Sardegna, J. Lee, and C. Kusey, 2014. *System*, 47, pp. 172-173.

Table 11

*Elicited Items for the Attitude Component in LAMP Inventory*

Attitude component	Items
Affective attitude: learners' feelings and emotions toward learning a subject (Sardegna et al., 2014)	<p>27. I start to panic when I have to read or speak in front of others without having rehearsed before.</p> <p>32. Focusing on my Spanish pronunciation when I speak is distracting.</p> <p>33. It is a pain to correct my pronunciation in Spanish.</p> <p>39. I worry about making pronunciation mistakes in class.</p> <p>47. I get nervous when someone corrects my Spanish pronunciation mistakes.</p>
Cognitive attitude: This type of attitude involves the beliefs of the language learners about the knowledge that they receive and their understanding in the process of language learning (Al-Musnad, 2018).	<p>30. If I could, I'd travel as much as possible to Spanish-speaking countries. I know that it would help me improve my Spanish pronunciation.</p> <p>31. If I learn to pronounce like a Spanish native speaker, I will have better job offers.</p> <p>36. I like to participate in the group activities with the other Spanish language learners because that helps improve my pronunciation skills.</p> <p>40. I would communicate better if I practiced Spanish pronunciation.</p> <p>41. I believe more emphasis should be given to proper pronunciation in class.</p> <p>46. Learning to pronounce Spanish well is the most important part of learning a language.</p>
Cognitive or behavioral attitude: refers to an individual's willingness to perform activities to improve and learn the subject (Khodakova, 2015; Yu, 2010)	<p>35. If I knew how to correct my Spanish pronunciation, I would spend at least 30 minutes a day practicing it.</p> <p>37. If I knew of a good pronunciation textbook, I would try to get it even if it is rather expensive.</p> <p>38. If I knew of a good pronunciation computer program, I would try to get it even if it is rather expensive.</p> <p>42. If I knew of a good pronunciation practice class, I would try to enroll.</p> <p>45. I look for useful materials to practice Spanish pronunciation on the internet.</p>
Self-efficacy attitude: refers to learners' beliefs in their ability to execute the courses of action required to attain a goal (Bandura, 1997, as cited in Raoofi, Tan, & Chan, 2012)	<p>28. I know I can acquire accurate Spanish pronunciation if I practice.</p> <p>34. I am satisfied with my pronunciation progress so far.</p> <p>43. I think that I can improve my pronunciation on my own using online materials.</p> <p>44. I feel confident that people understand me when I talk in Spanish.</p>

*Note.* LAMP = Learners Attitude and Motivation for Pronunciation inventory. Adapted from "Development and Validation of the Learner Attitudes and Motivations for Pronunciation (LAMP) Inventory," by V. G. Sardegna, J. Lee, and C. Kusey, 2014. *System*, 47, pp. 172-173.

**3.5.4 Feedback of learners on self-monitoring strategies.** The LAMP inventory was also adapted to include a set of five additional items/questions for the L2 experimental group (three Likert-like scale and two open-ended questions) and two additional questions for the L2 control group (1 Likert-type scale and 1 open-ended question). These questions served as an instrument to elicit learners' opinions and experiences with the self-monitoring strategies prior to starting the study and after completing the experimental portions of the study. Additionally, these questions allow space for any other comments related to learners' willingness to practice their Spanish pronunciation following the study (See Appendices D and E for LAMP inventories).

### **3.6 Recruitment Week**

All Spanish 102 courses were visited to recruit English-speaking L2 Spanish learners after the deadline passed for adding and dropping classes. On the day of the recruitment, the researcher used a script to briefly describe the purpose of the study and invited learners to participate (see Appendix F). Following that, the researcher administered the background questionnaire to those learners who wanted to participate, which they completed in approximately 10-15 minutes. Once all learners' questionnaires were collected, learners were told that the information they had provided was going to be reviewed, and that based on that, those who had met the criteria were going to be notified via email. In that email, the researchers asked learners to select a time slot via [www.doodle.com](http://www.doodle.com) (a scheduling website) so that they could conduct an individual consent form meeting with the researcher. After all learners had signed the consent forms, the researcher scanned the forms and sent a copy to all the English-speaking L2 Spanish learners via email. Finally, all the questionnaires of those learners who had not met the selection criteria were destroyed.

### **3.7 Pretest/Posttest Phase**

All L2 Spanish learners were required to participate in a pretest and posttest recording session. This session started the week after all learners had signed their consent documents, which included a document that specifically requested their permission to be audio-recorded. Each group of L2 Spanish learners (L2 experimental and L2 control groups) took the pronunciation pretest in the recording studio located at one of the university's libraries. As stated previously, the participants were recorded in Audacity ® version 2.1.2 at the recording studio using a cardioid condenser microphone (BLUE Blueberry). All L2 Spanish learners completed their pretest recording session during Week 1 of the study. As part of their pretest session, learners were recorded performing three tasks: (a) reading a Spanish word list, (b) reading a Spanish text (the poem "Mientras Duermo"), and (c) reading a list of sentences in English.

Similarly, both groups completed their posttest recording session during Week 12, the last week of the study. The pretest and posttest sessions were similar in format, except for the following factors. The L2 experimental and L2 control groups only recorded Tasks 1 and 2. Task 1 tokens at posttest differed in that they included different SRD target words for some of the rising diphthongs in order to test the learners' ability to perform similarly across different versions of the same test.

### **3.8 Timeline of Procedures for L2 Experimental Group**

**3.8.1 Treatment phase.** Following the pretest, all English-speaking L2 Spanish learners started the 10-week treatment phase. In addition to attending their regular classes and carrying out normally scheduled class activities, learners in the L2 experimental group completed the following: (a) three 1-hour instructional sessions, and (b) weekly pronunciation assignments as instructed during the self-monitoring strategies practice training. The instructional sessions were

divided into three topics: Pronunciation of Spanish vowels, formation and pronunciation of Spanish diphthongs and syllabification, and training in the use of self-monitoring strategies and Dickerson's CRM for pronunciation practice. The sessions took place at different computer laboratories located on the university campus.

**3.8.1.1 Instructional Session 1.** The main objective of this session was to provide learners in the L2 experimental group with the basic knowledge of the articulatory and phonological processes that occur in the oral cavity when producing a vowel sound or vowel sequence, specifically Spanish rising diphthongs. In this session, the researcher described the different articulatory qualities of the vowel and provided a description of the differences between the English and Spanish vowel systems in terms of length and orthography. Then, learners were asked to practice the pronunciation of Spanish vowels using the University of Iowa's *Sounds of Speech* website. This practice took place in one of the laboratories located at different university buildings. Learners were using headphones and speaking aloud following the native speaker's model provided on the website (<https://soundsofspeech.uiowa.edu/main/spanish>). At the end of their pronunciation practice session, learners were provided feedback and asked to reflect on what they had learned and to share their experiences with their pronunciation practice.

**3.8.1.2 Instructional Session 2.** The main objective of this session was to briefly introduce learners to the concept of glides and their formation in Spanish and in English. Additionally, the researchers provided a lesson on the different Spanish diphthongs, including the Spanish rising and falling diphthongs. The researcher also provided an explanation of how knowing the rules for syllabification of Spanish words could help them learn to identify and pronounce the Spanish diphthongs. The researcher explained how semivowels ([j] and [w]) could combine with vowels to form one syllable that, in the case of Spanish, would be pronounced as a

diphthong. Moreover, the researcher explained how various English vowels undergo a different process for the construction of diphthongs and that English diphthongs do not need to have these kinds of combined vowel sounds to produce a diphthong.

The researcher pointed out that although in English there can be diphthongized vowels when found in stressed syllable positions, in Spanish, there would have to be two written vowels in order for them to be pronounced as a diphthong. Learners were provided concrete examples of this idea such as in the English word *tide*, which is pronounced as [tʌjd], with the diphthong [aj], and as in the Spanish *taita* ‘dear father,’ which is also pronounced with the same diphthong [taj.ta]. Other contrasting examples of words with the same diphthong in English and Spanish are the English word *mice* and the Spanish word, *maizal* ‘cornfield,’ which are pronounced with the diphthong [aj], but with different orthography.

Then, the researcher highlighted the difference between the pronunciation of the Spanish word *música* ‘music’ in English and the English word *music*. In Spanish orthography, the stressed vowel /u/ found in the word *música* ‘music’ would have to have the two vowels adjacently written, that is, /iu/ to be pronounced as a diphthong. The same with the word *tide*, for which orthography will have to include the combination of the two vowel sounds, which in this case are /a/ and /i/ as /ai/ to be pronounced as a diphthong. Therefore, learners were taught to avoid diphthongization of Spanish stressed vowels including /i/, /u/, /e/, and /o/. In this way they learned to contrast the correct and incorrect pronunciations of these vowels when they occur in stressed syllables. In other words, learners were taught that there are no diphthongized vowels in Spanish.

**3.8.1.3 Instructional Session 3.** The purpose of this session was to train learners how to use the self-monitoring strategies (i.e., critical listening, repetition, rehearsal, and annotation) and

to apply the components of Dickerson's CRM to practice their pronunciation of the features of Spanish rising diphthongs. Basically, learners were instructed to conduct the following steps: (a) critically listen and repeat the Spanish target words in a target-like manner; (b) identify difficult pronunciation features of those target words and discuss any inconsistencies in their pronunciation of those features based on the information provided in Instructional Sessions 1 and 2; and (c) self-evaluate their speech and make corrections by practicing audio recording rehearsals during which the student self-corrected non-target-like productions. In this way, learners were adopting a bottom-up approach that provided them with scaffolding pronunciation practice that facilitated their speech improvement. At the end of the session, learners practiced this process step-by-step for 10 minutes with the researcher as the L1 Spanish-speaking model.

**3.8.1.4 Weekly pronunciation assignments.** Once learners had completed all the instructional sessions, learners started completing their weekly pronunciation assignments. With the assistance of the university's Faculty Resource Center, the researcher created a course specifically designed so that learners could have access to these assignments via their Blackboard platform. Each week the researcher would upload instruction prompts in Blackboard for the L2 experimental group learners on how to audio-record themselves following Dickerson's CRM components, which had been previously provided to them during their training session. Learners spent one hour a day recording themselves practicing their pronunciation of all SRD, three times a week for 9 weeks.

Because the main objective of completing these oral assignments was to cultivate self-monitoring pronunciation learning and practice, learners recorded themselves during their own private time. Also, because these recordings were not going to be included in the acoustic analysis dataset, this allowed learners to use the recording application or device of their

preference. The researcher uploaded voice-recorded prompts (see example in Appendix G) to facilitate learners' practice and guide them through their self-monitoring strategies (pronunciation practice) process. The researcher also provided learners with a sheet of questions where they could make annotations or mark corrections that they needed to make on the script for any SRD prompt word provided.

Learners practiced a list of eight words containing one of the SRD per week for 8 weeks. Learners started with the front-glide diphthongs and finished with the back-glide diphthongs. That is, from Week 3 of the study to Week 6 learners practiced target words that included /ia/, /ie/, /io/, and /iu/ each in a different week, and from Week 7 to Week 10 learners practiced target words that included /ua/, /ue/, /uo/, and /ui/ each in a different week. For Week 11 learners reviewed all SRD (/ia/, /ie/, /io/, /iu/, /ua/, /ue/, /uo/, /ui/) target words together. Throughout this period, learners submitted their recordings every week; this way, learners were held accountable for the completion of their weekly assignments throughout the 9-week intervention phase.

### **3.9 Timeline of Procedures for L2 Control Group**

**3.9.1 Treatment phase.** As stated previously, all English-speaking L2 Spanish learners started their treatment phase after they had completed their pretest recording session. Learners in the L2 control group attended their regular classes and carried out the normally scheduled class activities while participating in a 10-week treatment phase as part of this study. Unlike learners in the L2 experimental group, learners in the L2 control group completed the following: (a) a 30-minute instructional session; and (b) weekly Spanish grammar, reading, and writing exercise worksheets. The instructional session took place at a computer laboratory located at one of the university's buildings.

**3.9.1.1 Instructional session.** The goal of this session was to instruct learners on how to access their weekly Spanish grammar, reading, and writing worksheets. The researcher allowed learners to navigate through the Blackboard platform and had them locate the course that the researcher created with the help of the Faculty Resource Center specifically for the study. The researcher gave learners in the L2 control group instructions on how to download and upload their weekly assignments sheets.

**3.9.1.2 Weekly assignments.** Once learners had completed the instructional session, learners started completing their 9-week grammar assignments phase. As with the L2 experimental group, with the assistance of the university's Faculty Resource Center, the researcher created a course specifically designed for the study in Blackboard where learners could have access to their weekly grammar assignments sheets. Each week, the researcher uploaded a worksheet that contained grammar, reading, or written grammar exercises, each of which correlated with the content of their Spanish 102 classes. Additionally, the researcher provided instructions on how to download their assigned worksheets, as well as on how to upload them into Blackboard. Then, learners would spend at least one hour a day (in their own private time) three times per week completing their required written assignments.

Learners in the L2 control group were not given speaking or listening assignments; they were only given reading and writing assignments. Because the main focus of this group was not on their pronunciation, there was not a pronunciation component included in their assignments. Pronunciation was not even brought into class or reinforced in the course's textbook, *Protagonistas* (2012). This textbook is designed to only explicitly discuss pronunciation in the first six units of the textbook, which at the time of the study were assigned to the first semester Introductory Spanish course (SP 101). Units seven through 12 were assigned for the second

semester Introductory Spanish course (SP 102), which is the course targeted in this study. Learners had to submit their assignment worksheets weekly; that way the researcher held learners accountable for the completion of their assignments throughout the 9-week intervention phase.

### **3.10 Acoustic Analysis of the Data**

**3.10.1 Preparation for the acoustic analysis.** As indicated previously in this chapter, all English-speaking participants came to the recording studio one at a time to complete the pretest and posttest Spanish Tasks 1, 2, and 3. The L1 Spanish-speaking participants only recorded the first two tasks, which were used as the L1 Spanish pronunciation baseline. All participants' recordings were saved in different Audacity (version 2.1.2) files (.aup), then converted into audio-files (.wav) using LAME (version v3.98.2), a software encoder. By doing so, the researcher could open the audio-files in the acoustic analysis program, Praat. For issues of confidentiality, pseudo names were used to save all .wav files. For example, the files of participants who were part of the L2 experimental group were saved as Exp1, Exp2 and so forth.

In the same manner, the files of participants who were part of the L2 control group were saved as Ctr1, Ctr2, and so forth. Correspondingly, the same pseudo names were used to codify all L2 Spanish learners' background and LAMP questionnaires. Following that, text grids were created in Praat (version 6.0.16) (Boersman & Weenink, 2016) for each of the sound files and saved using the same pseudo name that they were originally assigned. Next, interval tiers were created for the individual text grid files. After that, all target words were separated from the connected speech samples and labeled on an interval tier. Then, each of the SRD tokens was isolated from all labeled target words in preparation for the subsequent acoustic analysis.

The segmentation of all SRD tokens was carried out as follows: first, an examination of the waveforms and the spectrogram images on the text grid; second an observation of the way the vowel formant 1 (F1) and formant 2 (F2) were displayed on the spectrogram; third, a demarcation on a point tier of the onsets of the sequence at a point where an increase was observed on the F1 and F2 formants or a release of the first consonant (when in the case of plosives (/p/, /t/, /k/)); and fourth, a demarcation of the offsets of the sequence at a point where a drop of the F1 and F2 formants or at the final transition from the vowel target to the next consonant was observed (Gay, 1968; Lehiste & Peterson, 1961; MacLeod, 2008).

At the completion of this process, the researcher carefully listened to all SRD segments created to corroborate that they had been labeled correctly. Figure 2 shows an example of a segmented SRD token. All acoustic measures of the samples that were obtained from the Spanish Tasks 1 and 2 of the 3 groups (L2 experimental, L2 control, and L1 Spanish-speaking group) were analyzed separately. All values were exported to an Excel file for subsequent statistical analysis in which all English-speaking L2 Spanish learners' values were compared to those of the L1 Spanish-speaking group to determine if their pronunciation of SRDs approached the pronunciation of the L1 Spanish speakers that participated in this study.

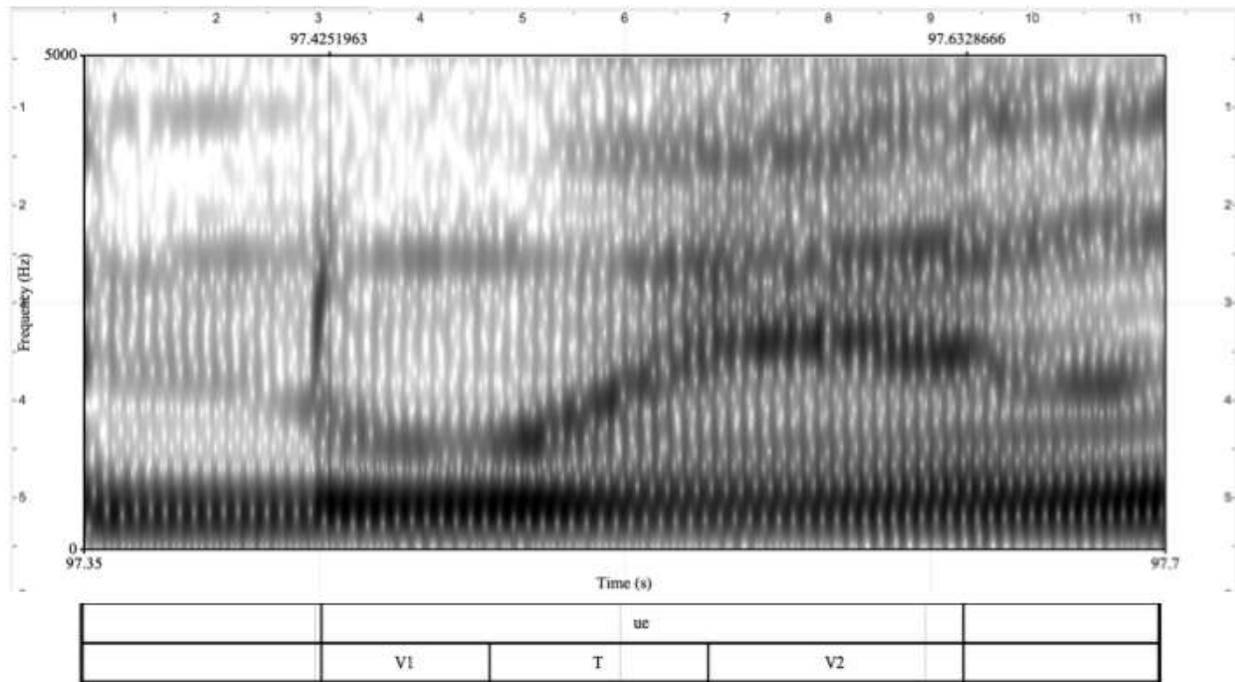


Figure 2. Segmentation of the word *denuedo* ‘boldness’ with the Spanish diphthong /ue/.

**3.10.2 Acoustic analysis of Spanish recordings.** Once the SRD tokens were isolated on the text grid, the researcher started the segmentation of the three parts of the vocalic sequence: Vowel 1, transition, and Vowel 2 (V1, TR, V2, respectively). The decision to divide the vowel sequence into three sections came from previous studies (e.g., Limanni & Colantoni, 2008; MacLeod, 2012). Both the isolation and the segmentation of the SRD sequences were conducted manually. The steady states and transitions were measured with the aid of Formant 1 (F1) and Formant 2 (F2) trajectories, visual inspection of the waveforms, and auditory judgment. The researcher adapted this approach from a mixture of previous methodologies used in the analysis of diphthongs in a variety of languages (Chitoran, 2002; Colantoni & Limanni, 2008; Gay, 1968; Lehiste & Peterson, 1961; MacLeod, 2012). For example, segments within the vowel sequence where the formants were parallel to the time axis were demarcated as the steady states of the vowel targets.

The transition was demarcated from the end of the V1 steady state to the beginning of the steady state of V2. More specifically, the V1 onset was determined from the beginning of the sequence to the highest F2 value detectable. The first regular pulse was also used as an onset point for the V1 target, particularly after a stop burst or at a frication point. The transition (TR) was demarcated from the end of V1 steady state to the beginning of the V2 steady state or at a falling point of F2 for front-glide SRD (/ia/, /ie/, /io/, and /iu/) or at a rising point for F2 for back-glide SRD (/ua/, /ue/, /uo/, and /ui/). The V2 onset was demarcated from the beginning of the transition to a point before a following stop closure or before the smaller periods of a nasal or liquid. The demarcation of the vowel targets resulted in a strenuous procedure, with the /uo/ vowel sequence being the most problematic in the English-speaking L2 Spanish learners, as there were instances where unclear vowel targets appeared.

Conversely, most L1 Spanish speakers' productions of the same SRD sequence were produced very clearly and as expected, except when encountering issues of fast speech rate. However, this issue did not seem to significantly affect the general pattern of SRD values obtained from this group. Lastly, the durations of the individual components of the SRD sequence (V1, TR, and V2) were measured along with the total duration of SRD sequence. Duration has been cited in many studies to be the most important acoustic measure that accounts for diphthongization (MacLeod, 2012). Essentially, it has become a defining indicator of diphthongs versus hiatus. For the purpose of this study, the average durations of the L1 Spanish-speaking participants (who are originally from Colombia, South America) are used as baseline values to contrast with the diphthong productions of the English-speaking L2 Spanish learners. Different SRD sequences present different duration values. Correspondingly, different duration times in SRD sequences will also be affected by the type of the task due to the difference in the

rate of speech. Durations for all three sections of SRD sequences were measured using a vowel analyzer script (by Mietta Lennes but modified by John Riebold) in Praat, which was originally designed to calculate the formant values. The duration of the entire SRD sequences was calculated using the SUM function in Excel.

**3.10.3 Acoustic analysis of English recordings.** As stated previously in this chapter, the university presents a large degree of demographic diversity within the student population. Therefore, the assumption in this study is that the English-speaking L2 Spanish learners' population would encounter interference from their English vowel pronunciation, which would potentially affect the acquisition the L2 Spanish rising diphthongs. In order to identify any ramifications that this had on the results of this study, an English sample from all learners was collected to account for differences in the production of SRDs.

The recording samples collected were examined for Southern dialectal features, as it was the larger region represented in the learners' data sampling. All English-speaking L2 Spanish learners recorded the English sample on the day of their pretest recording session using the program Audacity® (2.1.0 version). All Audacity (.aup) files were converted to audio (.wav) files in order to facilitate the analysis of the data. Text grids in Praat were created from all learners' sample files. Then, all target words were isolated and labeled on an interval tier. Once that was completed, an external rater was contacted to assist with the English profiling of all learners' samples. The profiling procedure was conducted based on Foulkes, Docherty, and Jones (2011).

With regard to human raters, it has been stated that “selecting appropriate type of raters in terms of backgrounds and experience [is] an important task” (Camus-Oyarzún, 2016, p. 69).

The rater in this study was a 32-year-old female, native speaker of English pursuing a PhD in Spanish Linguistics with an emphasis in phonetics. In her background questionnaire, she indicated that she was born in San Diego, CA, At the time of the study, the rater had been residing in the city where the study took place since January of 2014. She also reported to have a near-native proficiency of Spanish and that she had studied abroad in Barcelona, Spain. The reason for selecting the rater was because, as she reported in her background questionnaire, she had training in English linguistics. Given that she had English linguistics training and a Californian English background, this would facilitate the process of identifying the seven Southern dialectal features, thus providing more substantiating judgments on the vowel productions of the English-speaking L2 Spanish learners from the other English dialectal variety areas.

Both the researcher and the rater used auditory cues as well as waveforms and spectrogram images in Praat to rate the productions of the target vowel sounds. By these means, the researcher and the rater together were able to create a dialect profile for each of the English-speaking L2 Spanish learners. The profiling of learners' English was constrained to only three aspects of Southern vowel production, which are considered the most characteristic aspects of the Southern English dialectal variety, according to Labov, Ash, and Boberg's (2006) description. These aspects included a total of seven vowel sound variations:

1. Upgliding and rising of /æ/ to [æɪ] or [æ.ə]
2. Front glide insertion /ɪ/ in [u:]
3. monophthongization of the [ɑ]
4. Mergers, which included
  - a. merger of /ɪ/ and /ε/ before nasals
  - b. merger of /u/ and /ʊ/ before /l/

- c. merger of /i/ and /ɪ/
- d. merger of /eɪ/ and /ɛ/ before /l/

A total of three vowel tokens were analyzed for raised /æ/; three for front-glided [u:]; six for monophthongized /aɪ/, and two pairs of tokens for each of the merger features. Table 12 provides the vowel tokens for each of the seven Southern English vowel features analyzed. Each of the Southern English vowel tokens produced was turned into the numerical value *1*. In other words, learners were given one point per each of the Southern vowel tokens that they produced. At the end of the analysis, the number of points that each learner received was counted separately using the SUM operational function in Excel to create a score. Learners were given a linguistic profile based on the score they received.

More specifically, learners whose score was 0 to 2 (inclusive) were profiled as *not southern*; learners whose score was 3 to 5 were profiled as *slightly southern*; learners whose score was 6 to 8 were profiled as *moderately southern*; learners whose score was 9 to 14 were profiled as *mostly southern*; and learners whose score was 15 to 19 were profiled as *highly southern*. In the end, each linguistic profile was converted into a numerical value based on a 5-point Likert scale as follows: 1 = *not southern*, 2 = *slightly southern*, 3 = *moderately southern*, 4 = *mostly southern*, and 5 = *highly southern*.

Table 12

*Vowel Tokens for Each of the Southern Vowel Features Analyzed*

Vowel Feature	Vowel Tokens
Upgliding and Raising of /æ/ to [æɪ] or [æ.ə] (3 individual tokens)	ant [ænt] ashes ['æʃəz] brass [bræs]
Fronting glide /ɪ/ in [u:] (3 individual tokens)	dew ['du:] tuesday ['tu:zdeɪ] tune ['tu:n]
Mononthongization of [aɪ] (6 individual tokens)	tired ['taɪərd] time [taɪm] wise [waɪz] side [saɪd] high [haɪ] hide [haɪd]
merger of /ɪ/ and /ɛ/ before nasals (1 pair of tokens)	pin [pɪn] versus pen [pɛn]
merger of /u/ and /ʊ/ before /l/ (2 pair of tokens)	fool [ful] versus full [fʊl] pool [pul] versus pull [pʊl]
merger of /i/ and /ɪ/ before /l/ (2 pair of tokens)	feel [fil] versus fill [fɪl] heel [hil] versus hill [hɪl]
merger of /eɪ/ and /ɛ/ before /l/ (2 pair of tokens)	fail [feɪl] versus fell [fɛl] sail [seɪl] versus sell [sɛl]

*Note.* Adapted from “The Atlas of North American English: Phonetics, Phonology and Sound Change: a multimedia reference tool” by W. Labov, S. Ash, and C. Boberg, 2006, Berlin: Mouton de Gruyter, p. 239-40.

### 3.11 Statistical Analysis

Different statistical tests in SPSS (version 24.0) were conducted to analyze the results of all acoustic measures taken: (a) total duration of the sequence, and (b) the duration of the three sections of the vowel sequence (V1, TR, V2) in all SRD tokens from Task 1 and Task 2 of all

groups of speakers (L2 experimental, L2 control, L1 Spanish speakers). Research Question 1 addresses the extent to which the employment of the self-monitoring strategies and Dickerson's Covert Rehearsal Model help learners acquire target-like pronunciation of SRDs in both noncontextualized and contextualized elicited tasks. In other words, the question asks to what extent learners would approximate the pronunciation of the group of native Spanish speakers who participated in the study. This question accounts for the comparison of the L2 Spanish learners versus the L1 Spanish-speaking participants. First, separate multivariate analysis of variance (MANOVA) tests were conducted. The reason for using this type of test was to examine statistical differences on the independent variable grouping by taking into account multiple dependents. In other words, the multivariate analysis was conducted to account for the comparison of the results of all duration variables (i.e., acoustic measures taken) for the different groups of speakers (L2 experimental, L2 control, L1 Spanish-speakers). Then, through accompanying post hoc Tukey's tests a more meticulous testing treatment was carried out to single out the most significant differences between all groups.

Research Questions 2 and 3 asked whether there is a correlation between learners' motivation and attitude to acquire target-like pronunciation and the pronunciation of SRDs that learners achieve in both noncontextualized and contextualized elicited tasks. In order to examine the relationship between motivation and attitude and the pronunciation of SRDs, the average duration values of all dependent variables (i.e., all acoustic measures taken) and the average values of all motivation and attitude scores for each of the learners were subjected to separate one-tailed Pearson's Correlation analysis in SPSS.

Research Question 4, to what extent does learners' English dialect variety influence the level of target-like pronunciation of SRDs that learners acquire in both noncontextualized and

contextualized elicited spoken tasks? To address this question, a one-way analysis of covariance (ANCOVA) was run to examine the effect of the L1 learners' dialectal variation in their ability to acquire target-like pronunciation of SRDs. The ANCOVA allowed the researcher to control for the effect of the individual learner's English dialectal variety. Further analysis was conducted with separate one-way analyses of variance (ANOVA). This test will allow the researcher to determine whether there are any statistically significant differences between the means of the three independent groups when taking into consideration one single dependent variable, namely the results of Task 1 and Task 2 posttest SRD duration in learners. In other words, this test will allow for the examination of the effects of a specific L1 dialectal variety on the pronunciation of SRD achieved by the English-speaking L2 Spanish learners at the end of the study.

Comparisons of all group average duration values for all the variables considered (that is, the acoustic measures taken, in both the pretest and posttest) are visually depicted in separate bar graphs in the following chapter. In the same manner, the results of the most significant correlations between the group average duration of all SRD variables and the motivation and attitude mean scores are visually represented using scatterplot graphs in the results chapter that follows.

## 4. RESULTS

### 4.1 Introduction

This chapter presents the findings of the quantitative analysis conducted to address the four research questions of the current study. The findings are organized in sections by research question. Section 4.3 addresses Research Question 1 by comparing the Spanish rising diphthongs' (SRD) production of the two groups of English-speaking L2 Spanish learners (L2 experimental and L2 control) to the production of the L1 Spanish speakers group, with respect to three acoustic measures: (a) group average duration of all vowel sequences; (b) group average duration of each of the different vowel sequences; and (c) group average duration of the three parts of the sequence: Vowel 1 (V1), transition (TR), and Vowel 2 (V2). Section 4.4 and Section 4.5 report on learners' responses to the LAMP inventory in terms of how these factors correlate to the level of target-like pronunciation of SRD that learners acquire in both noncontextualized and contextualized elicited tasks (Research Questions 2 and 3, respectively). In Section 4.6 the researcher presents the results of the analysis of learners' L1 dialect and its effect on the pronunciation of SRDs that learners acquire in both noncontextualized and contextualized elicited tasks (Research Question 4).

As previously stated, learners' target-like pronunciation is measured with respect to the pronunciation of the L1 Spanish speakers' group in this study. In that sense, the notion of target likeness is used to describe how closely the English-speaking L2 Spanish learners (from now on referred to as L2 Spanish learners) approximate the pronunciation of the L1 Spanish speakers

who served as the L1 Spanish pronunciation baseline of SRD in this study. The following are the four research questions that the quantitative analysis aims to address:

**Research Question 1:** To what extent does the employment of self-monitoring strategies and Dickerson's covert rehearsal model help learners acquire more target-like pronunciation of Spanish rising diphthongs in both noncontextualized and contextualized elicited tasks?

**Research Question 2:** Is there a correlation between learners' motivation to acquire more target-like pronunciation and the pronunciation of Spanish rising diphthongs that learners achieve in both noncontextualized and contextualized elicited tasks?

**Research Question 3:** Is there a correlation between learners' attitude towards acquiring more target-like pronunciation and the pronunciation of Spanish rising diphthongs that learners achieve in both noncontextualized and contextualized elicited tasks?

**Research Question 4:** To what extent does learners' English dialect variety influence the level of target-like pronunciation of Spanish rising diphthongs achieved in both noncontextualized and contextualized elicited spoken tasks?

#### **4.2 Description of the SRD Tokens Analyzed**

The researcher analyzed a total of 3,600 productions of Spanish rising diphthongs from all participants. The L2 Spanish learners produced 2,880 diphthong tokens. The L1 Spanish speakers produced 720 diphthong tokens. The researcher analyzed the diphthong tokens according to group, test, task, and diphthong type. Although the researcher designed the elicitation procedures to elicit equal numbers of diphthong tokens in all L2 Spanish learners, productions were unpredictable, and not all learners produced the anticipated tokens.

Analysis included 2,316 diphthong tokens from the L2 Spanish learners. The researcher excluded from the sample any productions that lacked formant structure or that were produced with a creaky voice. The researcher encountered other L2 Spanish learners' phonological processes in the productions of SRD, including (a) monophthongization, (b) insertion of high front vowel /i/, (c) metathesis, and replacement of unfamiliar words with other Spanish words or nonsense words, and (d) production of different vowels in the sequence. Insertion of high front vowel /i/ accounted for 38% of the discarded tokens, and monophthongization accounted for 25% of the discarded SRD tokens. Also, replacement of unfamiliar or difficult words for other Spanish-like nonexistent words accounted for 18% of discarded tokens. Finally, metathesis, which is transposition of the vowels in the sequence, accounted for 5% of discarded tokens.

There was a higher percentage of unexpected SRD pronunciations of L2 Spanish learners at pretest, which accounted for 56% of the total unexpected pronunciations of diphthongs. Also, at pretest, both the L2 experimental and L2 control group produced a similar number of unexpected pronunciations of SRD. At posttest, however, the L2 experimental group only accounted for 3.3% of the unexpected pronunciations of SRD, whereas the L2 control group accounted for 30%. Of the 30% of unexpected pronunciation in the L2 control group, 19% of the tokens exhibited insertions of the high front vowel /i/, and 6% exhibited monophthongization. In all, productions of learners in the L2 experimental group showed a reduction of unexpected pronunciations of SRD at posttest. On the other hand, posttest SRD productions of L2 control group learners persisted in their deviations of diphthong pronunciation.

Monophthong production of Spanish diphthongs is considered one of the most common strategies employed by L2 Spanish learners when producing Spanish diphthongs in their attempt to give the glide of a diphthong full vowel status (Krause, 2013; MacLeod, 2008). In this study,

monophthongization of SRD resulted mostly from deletion of the high vowel in the sequence, in particular the high front vowel /i/, deletion of the non-high vowel in the diphthong, and reduction or coalescence of the two vowels in the sequence. SRD tokens that underwent the process of high vowel deletion included, *divierto* ‘I have fun,’ which was pronounced as [di.'vɜɾ.to], *despierto* ‘I wake up,’ which was pronounced as [des.'pɜɾ.to], *vestuarios* ‘clothing,’ which was pronounced as [ves.'tə.ri.os]. Additionally, words such as *miedo* ‘fear,’ which was pronounced as ['mɜ.ðo], *piruetas* ‘pirouettes,’ which was pronounced as [pi.'ɾɜ.tas], *mientras* ‘while,’ which was pronounced as ['mɜn.tras], *fortuito* ‘coincidental,’ which was produced as [for.'ti.to], *reciura* ‘with strength,’ which was pronounced as [re.'su.ra], and *cuota* ‘fee,’ which was pronounced as ['kɔ.ta]. Cases when the two high vowels (/i/ and /u/) were in contact, with the front vowel (/i/) being placed before the back vowel (/u/) such as in the word *ciudad* ‘city,’ learners tended to pronounce this sequence as [su.'ðad] or [si.'ðad].

Moreover, deletions of non-high vowels were encountered in tokens such as *miedo* ‘fear’ pronounced as ['mi.ðo], *cielo* ‘sky’ pronounced as ['si.lo], *viento* ‘wind’ pronounced as ['viŋ.to] *fastuoso* ‘ostentatious’ pronounced as [fas.'tu.so], *sinuoso* ‘winding path’ pronounced as [si.'ɲu.so], *mutuo* ‘mutual’ pronounced as ['mu.to], *cuota* ‘fee’ pronounced as ['ku.ta], *piruetas* ‘pirouettes’ pronounced as [pi.'ru.tas], *reciura* ‘with strength’ pronounced as [re.'su.ra], and *denuedo* ‘boldness’ pronounced as [dɜ.'ɲu.ðo]. According to Krause (2013) deletion processes are very common in native English speakers who (a) choose to avoid onset-less syllables, (b) are looking to create the best nucleus in the syllable, and (c) prefer low and mid as syllable nuclei over high vowels because they are more sonorous.

Likewise monophthong production of SRD that occurred by reduction or coalescence of the two vowel sounds in the sequence was very common. Many of these coalescences were a

result of what seemed to be a reduced form of the vowel left after deletion, which in many cases, according to Burzio (2007), L2 Spanish learners tend to replace with a sound that is more articulatorily neutral, namely, the schwa /ə/ (as cited in Krause, 2013). Examples of coalesced vowel sequences of SRD tokens included words such as *muerto* ‘dead’ > [ˈmʌɾ.to], *puerta* ‘door’ > [ˈpʌɾ.ta], *suelto* ‘I release’ > [ˈsʌl.to], *cuaderno* ‘notebook’ > [kə.ˈdʒɾ.no], *acuerdo* ‘I remember’ > [a.ˈkʌɾ.do], *cuatro* ‘four’ > [ˈkʌ.tro], and *cuatitos* ‘siblings’ > [kə.ˈti.tos].

Additionally, learners tended to produce what in Spanish would sound as a triphthong by inserting the high front vowel (/i/) between the two vowels in the sequence. Examples of these phonological realizations of SRD are *fastuoso* ‘ostentatious’ pronounced as [fas.ˈtjwu.so] *fortuito* ‘coincidental’ pronounced as [for.ˈtju.i.to] *majestuoso* ‘majestic’ pronounced as [ma.jes.ˈtjwu.so], *sinuoso* ‘winding path’ pronounced as [si.ˈnjwu.so], and *mutuo* ‘mutual’ pronounced as [ˈmu.tjuw] or [ˈmju.tjuw]. Other pronunciations of SRD occurred with insertions of the back vowel /a/ in words such as *fiel* ‘faithful’ pronounced as [fa.ˈjel], and *bioma* ‘bioma’ pronounced as [ba.ˈjo.ma]. One assumption in this study for this tendency is that participants were relying on their intuition. More specifically, learners tended to avoid the illicit English CjV cluster in L2 Spanish because of the restricted phonetic contexts in which this glide appears in English (MacLeod, 2008).

Another strategy that learners employed when producing words with SRD was replacement of unfamiliar words with other Spanish words. Occurrences of this strategy were very common in words such as *reciura* ‘with strength,’ which was pronounced as *requiere* ‘it is required,’ *divierto* ‘I have fun,’ which was pronounced as *divertido* ‘funny,’ and *acuosas* ‘watery,’ which was pronounced as *acuestas* ‘bedded down.’ Productions of nonexistent words were also very common, in *despierto* ‘I wake up’ pronounced as [des.pe.ˈri.to], *sinuoso* ‘winding

path' pronounced as [si.'ɲo.so], *fortuito* 'coincidental' pronounced as [fo.'ri.to], *reciura* 'with strength' pronounced as [re.'kja.ra], *mutuo* 'mutual' pronounced as ['mi.tjo] or [mi.'tu.jo], *ingenuo* 'naive' pronounced as [inj.'gwe.ɲo] or [ijn.'ge.ɲo] *fastuoso* 'ostentatious' pronounced as [faɲ.'tu.so] or [faɲ.'tu.sjo], and *tiovivo* 'carousel' pronounced as [ti.'vo.vo] or [ti.'vi.ɲo]. Note: a labiodental [v] is being used to transcribe this word since learners were not producing the expected bilabial [β].

Pronunciations of SRD tokens undergoing the process of metathesis included *ciudad* 'city' pronounced as [sui.'ðad], *cuidado* 'careful' pronounced as [siu.'ða.ðo] or [kiu.'ða.ðo], *miedo* 'fear' pronounced as [me.i.ðo], and *fiado* 'trustworthy' pronounced as [fa.i.ðo]. To conclude, learners' difficulty in producing these vocalic sequences seems to align with the assumption that English speakers would be likely to ignore the rising sonority when there are not similar diphthongs in English, as there are more phonotactic constraints against C+glide productions in English than there are in Spanish (Zárate-Sánchez, 2011). As a result, it was expected that learners would produce a rising vowel sequence either as a hiatus or by deleting one of the vowels (Krause, 2013). This might be the result of learners preferring to produce the unmarked forms that are part of their interlanguage phonology (Zárate-Sánchez, 2011).

Table 13

*Total Number of SRD Tokens Considered in the Analysis Sample per Participant*

Group	# Pretest Tokens		# Posttest Tokens	
	Task 1	Task 2	Task 1	Task 2
L2 Experimental				
Participant 1	14	14	45	40
Participant 2	30	26	45	40
Participant 3	36	22	50	40
Participant 4	31	26	43	38
Participant 5	39	37	50	40
Participant 6	39	20	50	40
Participant 7	40	25	50	40
Participant 8	40	25	50	40
Total	269	195	383	318
L2 Control				
Participant 1	33	25	45	40
Participant 2	35	23	45	40
Participant 3	38	25	45	40
Participant 4	30	25	43	39
Participant 5	33	25	45	40
Participant 6	34	22	45	40
Participant 7	40	19	45	40
Participant 8	40	25	45	40
Total	283	189	360	319
L1 Spanish Speakers				
Participant 1	50	40		
Participant 2	50	40		
Participant 3	50	40		
Participant 4	50	40		
Participant 5	50	40		
Participant 6	50	40		
Participant 7	50	40		
Participant 8	50	40		
Total	400	320		
Grand Total	952	704	743	637

### **4.3 Effectiveness of Self-Monitoring Strategies and CRM on the Pronunciation of SRD**

This section presents results from the productions of SRD for each of the three groups (L2 experimental, L2 control, and L1 Spanish speakers) to consider the question of whether the employment of the self-monitoring practice model, which included four self-monitoring strategies (critical listening, repetition, rehearsal, and annotation), and Dickerson's CRM helped learners to approach more target-like pronunciation of SRD. The researcher presents whether and how the productions of SRD in the L2 Spanish learners' groups differ from those of the L1 Spanish speakers' group (Research Question 1), according to each of the three acoustic measures taken and reported within three subsections: pretest versus posttest. The SRD productions of 24 speakers, that is, 16 L2 Spanish learners (eight L2 experimental, eight L2 control) and eight L1 Spanish speakers were considered for the analysis sample in this study.

A descriptive analysis that included a target-like pronunciation percentage calculation preceded all inferential analysis tests. The percentage values were considered a more useful method to quantify learners' pronunciation change over time. This method seemed more useful than comparing the raw SRD's average duration values from all groups. In this way, the results become more readable understandable.

**4.3.1 Results of group average duration of SRD.** Section 4.3.1.1 is a discussion of the results of group average vowel sequence duration of all SRD from pretest versus posttest Task 1. Section 4.3.1.2 is a discussion of the results of group average duration of the total vowel sequence of all SRD from pretest versus posttest Task 2. Section 4.3.1.3 comprises a discussion of the results of group average duration of each vowel sequence from pretest versus posttest Task 1. Section 4.3.1.4 comprises a discussion of the results of group average duration of each Spanish rising vowel sequence (i.e., each SRDs) from pretest versus posttest Task 2.

**4.3.1.1 Word list (Task 1): Results of group average duration of SRD.** The answer to Research Question 1 as to whether the self-monitoring strategies and CRM pronunciation practice helped learners to approach more target-like pronunciation of SRD for the word-list (Task 1) was affirmative. Learners who practiced the SRD employing the self-monitoring strategies and CRM model produced shorter vowel sequences that approached those of the L1 Spanish speakers' group. The results of pretest versus posttest of average group SRD duration for Task 1 indicates that the L2 experimental group decreased their non-target-like vowel sequence duration, from 24% to 3%. That is, overall, learners' target-like SRD duration increased from 76% to 97% following self-monitoring and CRM practice model.

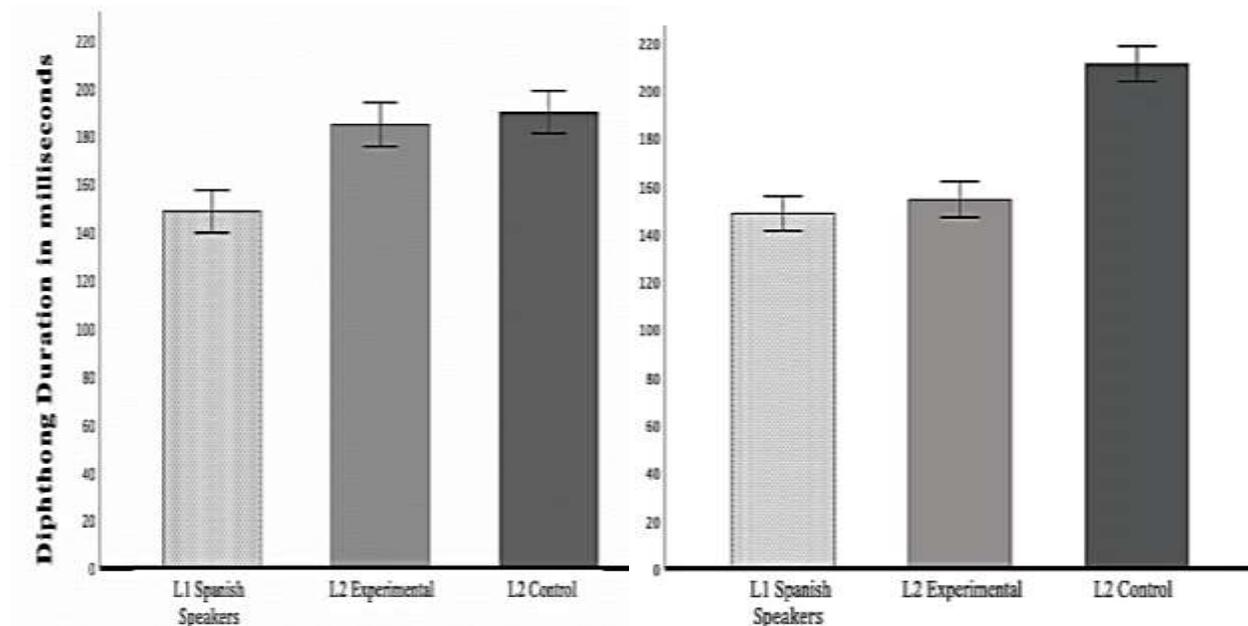
Unlike learners in the L2 experimental group, learners in the L2 control group increased their duration of SRD from 28% to 42%, meaning that, learners who did not employ the self-monitoring strategies and CRM practice model deviated even more in their non-target-like pronunciation when compared to the group average SRD duration of the L1 Spanish speakers' group. Table 14 illustrates the production of SRD duration averages across all three groups for the pretest and the posttest. A bar chart is also provided in Figure 3 to facilitate comparisons. Just to clarify, the SRD duration values of the L1 Spanish speakers group were only collected once.

Table 14

*Average Duration of SRD for Pretest Versus Posttest Task 1 by Group*

Group of Speakers	Group Average Duration of SRD in Milliseconds	
	Pretest <i>M</i> (Mean difference)	Posttest <i>M</i> (Mean difference)
L2 Experimental	Number of tokens = 269 185 ms (36 ms)	Number of tokens = 383 154 ms (6 ms)
L2 Control	Number of tokens = 283 190 ms (42 ms)	Number of tokens = 360 211 ms (63 ms)
L1 Spanish Speakers	Number of tokens = 400 148 ms (0)	

*Note.* ms = milliseconds. Mean difference with respect to the total group average of SRD of the L1 Spanish speakers group appears in parenthesis below. The group average SRD duration obtained from both pretest and posttest in Task 1 of the L2 Spanish learners were compared to the one-time group average SRD duration value of the L1 Spanish speakers group.



*Figure 3.* Group average duration of all SRD in Task 1: (left) pretest versus (right) posttest average diphthong duration by group.

The researcher conducted a one-way MANOVA to examine the effect of group (L2 experimental, L2 control, L1 Spanish speakers) on the pretest and posttest average duration of all SRD. The multivariate analysis is illustrated in Table 15 reveals a significant effect of group on the production of SRD average duration before and after the self-monitoring pronunciation practice between the three language groups,  $F(4, 370) = 55.23, p < .001, \text{partial } \eta^2 = .374$ . Approximately 37% of the variability in the DVs is associated with group, as indicated by the partial eta squared value (partial  $\eta^2 = .374$ ). Table 16 shows the results of post hoc tests Tukey HSD of the pretest versus posttest Task 1 SRD average duration across all groups.

Table 15

*Multivariate Analysis of Variance of Group Average SRD Duration in Task 1*

Effect	Wilk's Lambda Value	<i>F</i>	Hypothesis <i>df</i>	Error <i>df</i>	Sig.	<i>Partial Eta Squared</i>
Intercept	.026	3409.15	2.000	185.0	.001	.974
Group	.392	64.12	4.000	370.0	.001*	.374

\*  $p < .05$

Table 16

*Tukey HSD Multiple Comparisons for SRD Duration in Pretest and Posttest Task 1*

Dependent Variable	(I) Group	(J) Group	95% Confidence Interval				
			Mean Diff. (I-J)	Std. Error	Sig.	Upper Bound	Lower Bound
Pretest SRD Duration	L2 Experimental	L2 Control	-5.65	6.46	6.521	-20.77	9.47
		L1 Spanish Speakers	35.53	6.43	.001*	20.31	50.56
	L2 Control	L2 Experimental	5.65	6.46	6.521	-9.47	20.77
		L1 Spanish Speakers	41.09	6.36	.001*	26.14	56.03
Posttest SRD Duration	L2 Experimental	L2 Control	-57.04	5.24	.001*	-69.45	-44.64
		L1 Spanish Speakers	-5.64	5.24	.531	-6.75	18.04
	L2 Control	L2 Experimental	57.04	5.24	.001*	44.64	69.45
		L1 Spanish Speakers	62.69	5.18	.001*	50.43	74.94

\*  $p < .05$ .

The findings demonstrate that both the L2 experimental group and the L2 control group produced a statistically significant difference in average group duration of SRD when compared to that of the L1 Spanish speakers group at pretest. However, multiple comparisons of the group average SRD duration across all groups for posttest Task 1 reveal statistically significant differences between the L2 control group and the L1 Spanish speakers' group but not between the L2 experimental group and the L1 Spanish speakers group. These results suggest that

speakers in the L2 experimental group were the only ones to have approached target-like duration of SRD for Task 1 following the self-monitoring strategies and CRM practice.

**4.3.1.2 Spanish text (Task 2): Results of group average duration of SRD.** Average production of all SRD duration across all three groups (L2 experimental, L2 control, L1 Spanish speakers) presented in Table 17 indicate that employment of the self-monitoring pronunciation practice helped learners to approach target-like pronunciation of SRD with respect to the group average duration of the total vowel sequence for words in Task 2. A combined bar chart of the three groups is provided in Figure 4 to facilitate the comparisons of pretest versus posttest Task 2 group average duration of SRD.

Table 17

*Average Duration of SRD for Pretest Versus Posttest Task 2 by Group*

Group Average Duration of SRD in Milliseconds		
Group of Speakers	Pretest <i>M</i> (Mean difference)	Posttest <i>M</i> (Mean difference)
L2 Experimental	Number of tokens = 195 182 ms (60 ms)	Number of tokens = 318 150 ms (28 ms)
	Number of tokens = 189 179 ms (57 ms)	Number of tokens = 319 200 ms (80 ms)
L2 Control	Number of tokens = 320 122 ms (0 ms)	
L1 Spanish Speakers		

*Note.* ms = milliseconds. Mean difference with respect to the total group average of SRD of the L1 Spanish speakers group appears in parenthesis below the group average SRD duration obtained from both pretest and posttest of Task 2 of the L2 Spanish learners.

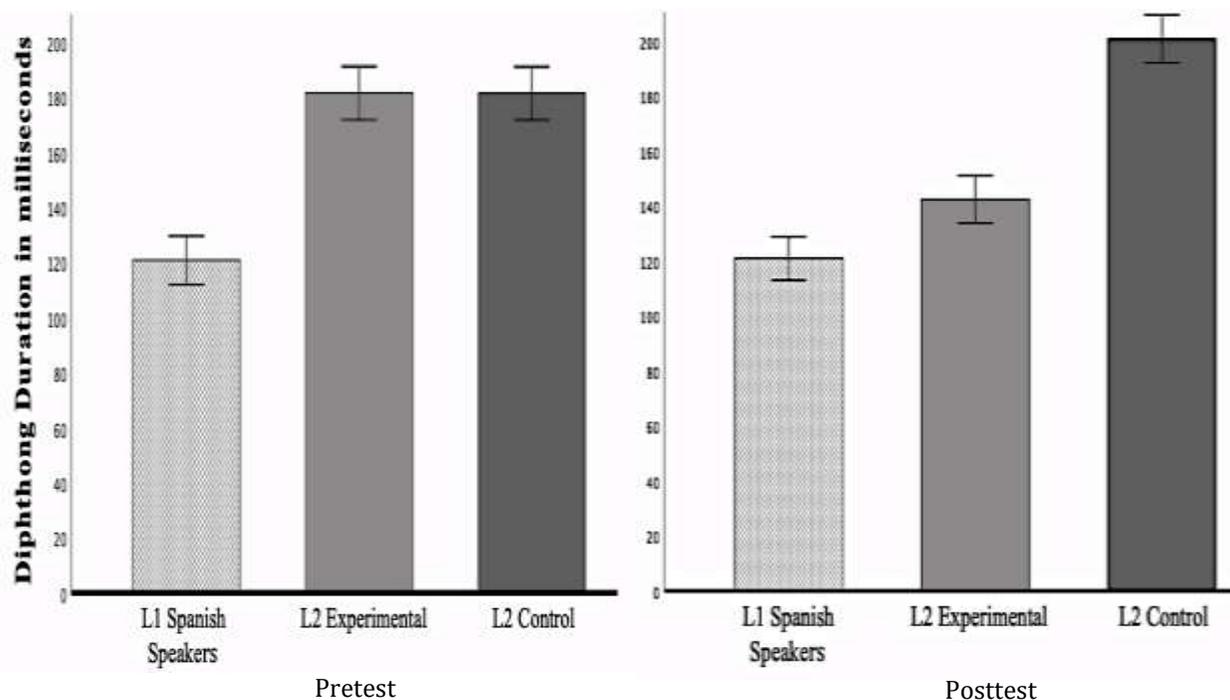


Figure 4. Group average duration of all SRD in Task 2: pretest average diphthong duration by group versus posttest average diphthong duration by group.

The group comparisons indicated that the production of average duration of SRD in the L2 experimental group decreased their non-target-like pronunciation of SRD with respect to the total vowel sequence duration. from 51% to 23% following the self-monitoring strategies and CRM practice. Unlike learners in the L2 experimental group, learners in the L2 control group increased their non-target like duration of SRD from 48% to 65%, meaning that overall learners who did not employ the self-monitoring model deviated even more in their pronunciation of SRD duration when compared to that of the L1 Spanish speakers group.

Inferential analysis, however, does not confirm that learners in the L2 experimental group improved significantly in the group average SRD from their pretest to their posttest for Task 2. Table 18 shows the results of a one-way MANOVA for group (L2 experimental, L2 control, L1 Spanish speakers) and pretest group average duration of SRD diphthongs and posttest group

average duration of SRD diphthongs for Task 2. This analysis indicates that the group average SRD duration values of the two groups of L2 Spanish learners (L2 experimental and L2 control) were statistically different from those of the L1 Spanish speakers at both pretest and posttest,  $F(4, 332) = 64.1, p < .001, \text{partial } \eta^2 = .436$ . The partial eta squared value of .436 suggests that approximately 44% of the variance is accounted for by group.

Table 18

*Multivariate Analysis of Variance of Group Average SRD Duration in Task 2*

Effect	Wilk's Lambda Value	<i>F</i>	Hypothesis <i>df</i>	Error <i>df</i>	Sig.	Partial Eta Squared
Intercept	.034	2343.78	2.000	166.0	.001*	.966
Group	.318	64.12	4.000	332.0	.001*	.436

\*  $p < .05$ .

Tukey HSD pair comparisons (Table 19) suggest that the L2 experimental group did not statistically significantly approach target-like pronunciation in their group average duration of SRD in Task 2, but that their SRD average duration significantly differed from those of the L2 control group, who actually increased in their production of SRD duration, thus moving toward a more non-target-like pronunciation of SRD.

Table 19

*Tukey HSD Multiple Comparisons for SRD Duration in Pretest and Posttest Task 2*

Dependent Variable	(I) Group	(J) Group	95% Confidence Interval				
			Mean Diff. (I-J)	Std. Error	Sig.	Upper Bound	Lower Bound
Pretest SRD Duration	L2 Experimental	L2 Control	.059	6.46	1.000	-16.37	16.49
		L1 Spanish Speakers	60.75	6.43	.001*	45.04	76.46
	L2 Control	L2 Experimental	5.65	6.46	1.000	-16.49	16.37
		L1 Spanish Speakers	41.09	6.36	.001*	44.98	76.40
Posttest SRD Duration	L2 Experimental	L2 Control	-58.33	6.22	.001*	-73.04	-43.62
		L1 Spanish Speaking	21.51	5.94	.001*	-7.44	35.57
	L2 Control	L2 Experimental	58.33	6.22	.001*	43.62	73.04
		L1 Spanish Speakers	79.84	5.94	.001*	65.77	93.90

Note. SRD = Spanish rising diphthong.

\*  $p < .05$ .

**4.3.2 Results of individual diphthongs' duration.** Observations of group average SRD duration discussed in Section 4.3 indicates that the employment of the self-monitoring strategies and CRM resulted in more target-like SRD duration. The following sections discuss the findings of the comparison between the group average duration of each individual SRDs (i.e., /ia/, /ie/, /io/, /iu/, /ua/, /ue/, /uo/, and /ui/) in Task 1 (section 4.3.2.1) and Task 2 (section 4.3.2.2) for the L2 experimental and L2 control groups versus the results of the L1 Spanish speakers group. The

results of average duration of each individual SRD for Task 1 and 2 for each of the groups are presented in Table 20 and Table 21, respectively, and depicted in Figure 5 and 6, respectively.

#### ***4.3.2.1 Word list (Task 1): Results of group average duration of individual diphthongs.***

Comparisons of pretest and posttest productions of the group average duration of individual diphthongs for Task 1 indicate that learners in the L2 experimental group produced shorter duration average values at the posttest that more closely resembled those of the L1 Spanish speakers' group. In particular, group average duration values for diphthongs /ia/, /io/, /iu/, /uo/, and /ui/, which exhibited a high percentage of non-target-like deviation at pretest, reached average duration values that resemble those of the L1 Spanish speakers group at posttest. The rest of the SRDs, including /ie/, /ua/, and /ue/, were exceptions to this trend.

The most striking finding was that of the group average SRD duration in the L2 experimental group, which achieved almost 100% target-like diphthong duration in the following SRDs: /iu/, /io/, and /uo/. First, the duration of /iu/ decreased from 52% non-target-like average duration to 0%; second, productions of /io/ decreased from 32% non-target-like diphthong average duration to 0%; and third, the productions of /uo/ decreased from 28% non-target-like average duration to 0%. Although most of the productions of group average duration for individual SRD in the L2 experimental group were more target-like at the posttest, a different behavior was observed with the production of the SRD /ue/. The group average duration for this diphthong resembled more that of the L1 Spanish speakers group at pretest than at posttest. The difference in its production, however, only indicated a slight deviation of 4% at pretest to 7% at posttest.

The L2 control group produced greater group average duration in each of the SRDs at posttest than at pretest, which differed from those of the L2 experimental group. In other words,

learners in the L2 control group exhibited a greater non-target-like pronunciation at posttest than at pretest in each of the individual SRDs. In particular, the group average duration for diphthong /ue/ exhibited a non-target-like duration of 0.6% at pretest, but 29% at the posttest. For diphthong /ie/, the results indicate a 20% non-target-like duration at pretest, but an increase of 38% at posttest. Last, for diphthong /ia/, the results revealed a 35% non-target-like duration at pretest, but a 48% at posttest. Table 20 and Figure 5 present the results of pretest versus posttest group average SRD duration values by diphthong and by group for Task 1.

Table 20

*Group Average Duration Values of Individual SRDs at Pretest and Posttest Task 1*

		Diphthong Duration in milliseconds			
		<i>M</i>			
L1 Spanish Speakers		L2 Experimental Group		L2 Control Group	
		Pretest	Posttest	Pretest	Posttest
/ia/	165 ms	209 ms	181 ms	222 ms	245 ms
/ie/	152 ms	186 ms	159 ms	183 ms	209 ms
/io/	154 ms	204 ms	152 ms	203 ms	215 ms
/iu/	151 ms	230 ms	152 ms	223 ms	241 ms
/ua/	145 ms	166 ms	156 ms	159 ms	185 ms
/ue/	149 ms	155 ms	160 ms	150 ms	194 ms
/uo/	148 ms	199 ms	146 ms	192 ms	208 ms
/ui/	125 ms	169 ms	137 ms	179 ms	193 ms

*Note.* ms = milliseconds.

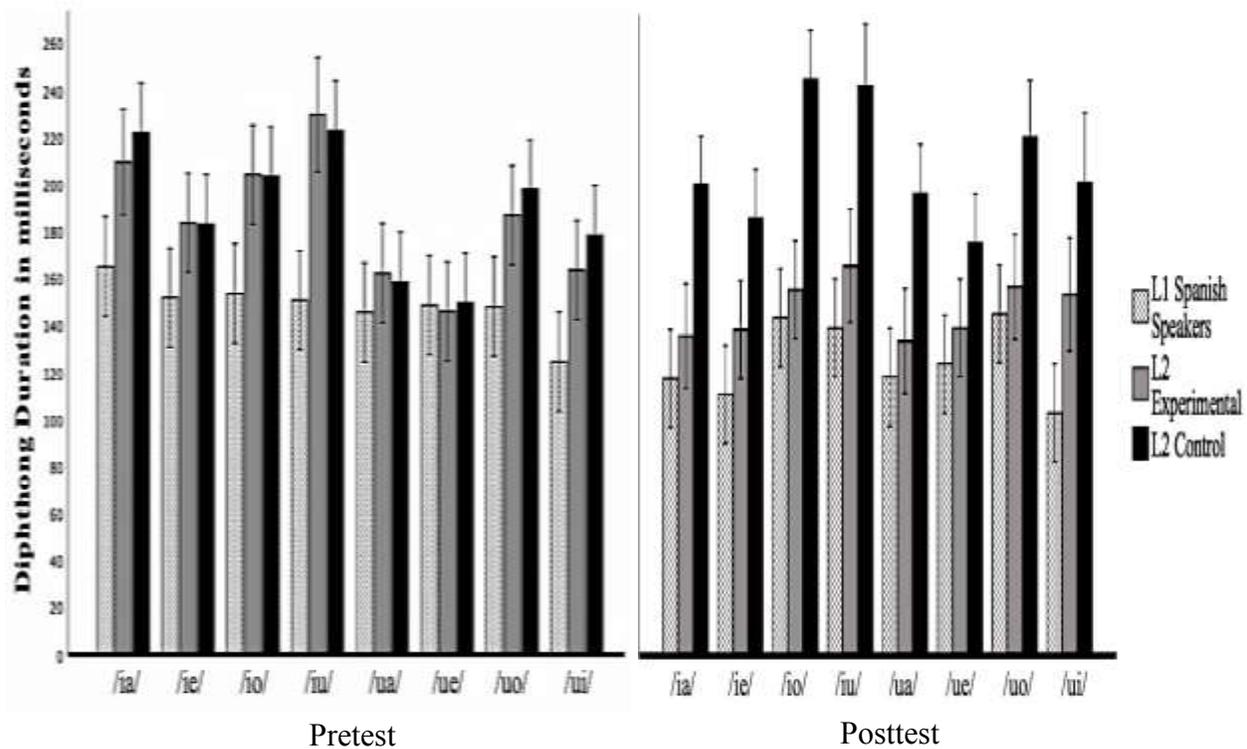


Figure 5. Group average duration of individual SRDs in Task 1: pretest average values by group, by diphthong, and posttest average values by group, by diphthong.

The researcher conducted two separate MANOVA)s to examine the interaction between groups (L2 experimental, L2 control, L1 Spanish speakers) and the 16 dependent variables that accounted for each of the individual SRDs. The first multivariate test accounted for the comparison of the group average duration of individual front-glide (i.e., [j]) SRDs (/ia/, /ie/, /io/, and /iu/) at Task 1 pretest and posttest. The second MANOVA accounted for the comparison of the group average duration of back-glide (i.e., [w]) SRDs (/ua/, /ue/, /uo/, and /ui/) at Task 1 pretest and posttest. Note: the decision to use the terms front glide [j] and back glide [w] to refer to the two groups of rising diphthongs was based on previous studies by MacLeod (2008, 2012).

The first MANOVA indicates that group (L2 experimental, L2 control, L1 Spanish speakers) had a significant effect on the group average duration of the four front-glide SRDs

(/ia/, /ie/, /io/, and /iu/) for pretest and posttest Task 1,  $F(16, 22.0) = 10.95$ ,  $p < .001$ , partial  $\eta^2 = .888$ , when considered jointly with all eight dependent variables. With respect to what percentage of the variability in the dependent variables is accounted for by group, the results indicate that approximately 89% of the variance in the combination of the group average duration values of all eight dependent variables (pretest vs. posttest group average duration of each of the front glide SRDs) is accounted for by the variability of the group factor.

A post hoc Tukey test indicates that the L2 experimental group outperformed the L2 control group in achieving more target-like duration of front-glide SRDs following the self-monitoring practice model. Group average duration values for the four front-glide SRDs in the L2 experimental group at posttest resembled those of the L1 Spanish speakers group, as their interaction manifested a very high nonsignificant  $p$  value; in particular, for diphthongs such as /ie/ ( $p = .969$ ), /io/ ( $p = .998$ ), and /iu/ ( $p = .997$ ). Contrary to the L2 experimental group results, the average duration of individual SRDs in the L2 the control group did not reveal any improvement in any of the front-glide SRDs. The results of the L2 control group revealed that learners either maintained or increased significantly different duration values from the L1 Spanish speakers' in each of the front-glide SRDs at both pretest and posttest.

The results of the second MANOVA indicates that group (L2 experimental, L2 control, L1 Spanish speakers) had a significant effect on the combination of the group average duration of the four back-glide SRDs (/ua/, /ue/, /uo/, and /ui/) at Task 1 pretest and posttest,  $F(18, 22) = 7.287$ ,  $p = .001$ , partial  $\eta^2 = .868$ , when considered jointly with all eight dependent variables. The results indicate that approximately 87% of the variance in the combination of all eight dependent variables (pretest vs. posttest group average duration of each of the back glide SRDs) is accounted for by the variability of the levels in the group factor.

A post hoc Tukey test indicates that learners in the L2 experimental group outperformed their L2 control counterparts in the production of each of the back-glide SRDs following the self-monitoring practice model. L2 experimental group average duration values for each of the back-glide SRDs at posttest resembled those of the L1 Spanish speakers group, as they manifested a very high nonsignificant difference in  $p$  values; in particular for diphthongs such as /uo/ ( $p = .988$ ), /ue/ ( $p = .969$ ), and /ua/ ( $p = .681$ ). There was an interesting result observed in the comparison of the group average duration of the diphthong /ua/ between the L2 experimental group and the L1 Spanish speakers group. The post hoc comparison indicates a nonsignificant difference value increase of  $p = .594$  at pretest to  $p = .681$  at posttest. The L2 control group did not reveal any improvement in their group average duration of back-glide SRDs, because they either maintained or increased their significantly different duration from the L1 Spanish speakers group at both pretest and posttest.

**4.3.2.2 Spanish text (Task 2): Results of group average duration of individual diphthongs.** Descriptive analysis of group average SRD duration discussed in Section 4.3.1.2 indicates that the employment of self-monitoring strategies combined with the CRM helped learners achieve more target-like pronunciation of SRD in the Spanish text (Task 2). Inferential analysis of the data, however, did not show significant evidence that supports these observations. Therefore, it is the goal of this section to provide a more exhaustive analysis by examining the productions of each of the SRDs in all groups (L2 experimental, L2 control, L1 Spanish speakers). The following section discusses the findings of the comparison between the group average duration of each SRD (/ia/, /ie/, /io/, /iu/, /ua/, /ue/, /uo/, and /ui/) in pretest and posttest Task 2 for L2 experimental and L2 control versus the L1 Spanish speakers group.

Contrasting observations of group average duration of individual SRDs in both pretest and posttest Task 2 for the L2 Spanish learners' groups indicate that learners in the L2 experimental group approached more individual target-like SRD duration values following the self-monitoring practice model. Learners in the L2 control group, in contrast, exhibited even greater posttest group average duration values in all SRDs, therefore producing longer individual diphthong durations than the L1 Spanish speakers group. Comparisons of group average durations of individual SRDs in Task 2 for the L2 experimental group versus the L1 Spanish speakers group revealed the greatest improvement in the productions of front-glide diphthongs /io/ and /ia/. Average duration values of /io/ of learners in the L2 experimental group, for example, decreased in duration from 52% at pretest to 9% at posttest. For the group average duration results for diphthong /ia/, learners in the L2 experimental group decreased their non-target-like duration from 90% at pretest to 16% at posttest.

The results of the L2 experimental group average duration of the different back-glide SRDs showed target-like pronunciation achievement in three diphthongs, that is, /ua/, /ui/, and /uo/. For the diphthong /ua/, for example, learners in the L2 experimental group decreased their non-target-like duration from 43% at pretest to 18% at posttest, resulting in a target-like pronunciation achievement of 25%. The L2 experimental group's average duration results for /ui/ showed a non-target-like pronunciation that decreased from 69% at pretest to 37% at posttest. Finally the productions of diphthong /uo/ revealed a non-target-like pronunciation decrease from 22% at pretest to 7% at posttest. Diphthong productions of /ue/ did not show great improvement in this group. No improvement was found in the productions of back-glide SRDs in the L2 control group. Table 21 and Figure 6 illustrate the contrasting results of group average duration values of each of the SRDs produced by the three groups in Task 2.

Table 21

*Group Average Duration Values for Individual SRDs for Pretest and Posttest Task 2*

Diphthong Duration in milliseconds					
<i>M</i>					
L1 Spanish Speakers		L2 Experimental Group		L2 Control Group	
		Pretest	Posttest	Pretest	Posttest
/ia/	114 ms	217 ms	132 ms	183 ms	186 ms
/ie/	107 ms	168 ms	137 ms	189 ms	196 ms
/io/	139 ms	211 ms	152 ms	238 ms	247 ms
/iu/	135 ms	214 ms	171 ms	188 ms	225 ms
/ua/	114 ms	163 ms	135 ms	175 ms	198 ms
/ue/	120 ms	142 ms	139ms	163 ms	179 ms
/uo/	140 ms	170 ms	151 ms	190 ms	218 ms
/ui/	100 ms	169 ms	137 ms	177 ms	213 ms

*Note.* ms = milliseconds.

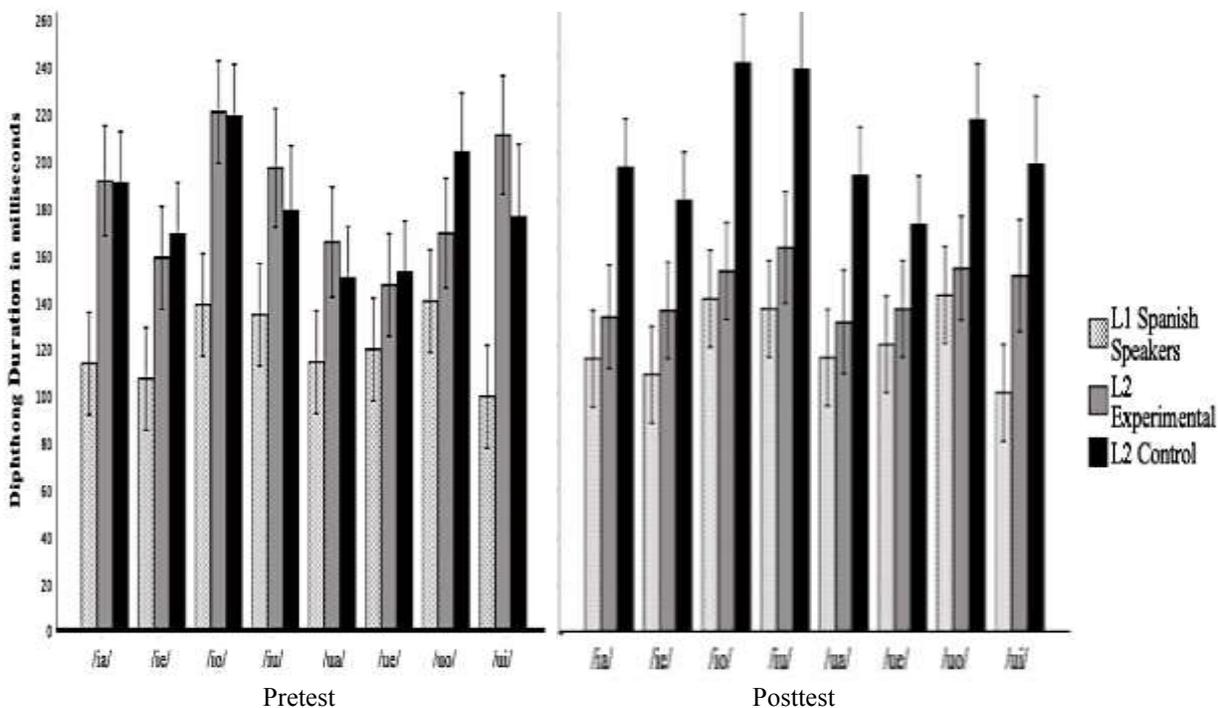


Figure 6. Group average duration of individual SRDs in Task 2: pretest average values by group, by diphthong, versus posttest average values by group, by diphthong.

The researcher conducted two separate one-way MANOVA tests to examine the interaction between group (L2 experimental, L2 control, L1 Spanish speakers) and the 16 dependent variables that accounted for each of the individual SRDs. The first multivariate analysis test accounted for the comparison of the group average duration of individual front-glide SRD (/ia/, /ie/, /io/, and /iu/) in Test 2 pretest and posttest. The second one-way MANOVA accounted for the comparison of the group average duration of back glide SRDs (/ua/, /ue/, /uo/, and /ui/) in Task 2 at pretest and posttest.

The first MANOVA test indicates that the independent variable group (L2 experimental, L2 control, L1 Spanish speakers) had a significant effect on the group average duration of the four front-glide SRDs (/ia/, /ie/, /io/, and /iu/) for pretest and posttest Task 2,  $F(16, 10) = 8.61, p < .001, \text{partial } \eta^2 = .956$ ). Approximately 96% of the variability in the DVs is associated with group, as indicated by the partial eta squared value. A post hoc Tukey test revealed that learners

in the L2 experimental group approached a nonsignificant level of target-like diphthong duration for at least three of the front-glide SRD at posttest: /io/ ( $p = .626$ ), /ia/ ( $p = .443$ ), and /iu/ ( $p = .411$ ). The results confirm the observations of the descriptive analysis. Comparisons of group average duration of individual SRDs in the L2 control group did not manifest any improvement in either of the front-glide diphthongs at posttest. On the contrary, the results of the L2 control group versus the L1 Spanish speakers group showed that the group average duration of some front-glide diphthongs at posttest maintained their significant difference level of non-target-like duration. For instance, the group average duration of diphthongs /ia/, /ie/, and /io/ did not show any difference in their duration results from pretest to posttest. One interesting finding in the L2 control group was seen in the group average duration of diphthong /iu/. The results of this diphthong at pretest ( $p = .318$ ) indicated nonsignificant difference in the group average duration when compared to the productions of the L1 Spanish speakers group. The results of the group average duration of /iu/ at posttest ( $p = .010$ ), however, exhibited the opposite trend. In summary, these results suggest greater pronunciation achievement in learners of the L2 experimental group than in the L2 control group. In other words, the results of the L2 experimental group provided evidence in support of the self-monitoring strategy pronunciation practice.

**4.3.3 Duration of diphthong sections: Vowel 1 (V1), transition (TR), and Vowel 2 (V2).** Descriptive analysis of the group average diphthong section (V1, TR, and V2) duration for all SRD for elicitation Task 1 suggests that learners who employed the self-monitoring strategies and the CRM approached more target-like pronunciation of SRD. Group average duration values of V1, TR, and V2 for pretest and posttest Task 1 are presented in Table 22 and visually depicted in Figure 7. Group average duration values of V1, TR, and V2 for pretest and posttest Task 2 are presented in Table 23 and visually depicted in Figure 8.

#### ***4.3.3.1 Word list (Task 1): Results of group average duration for V1, TR, and V2.***

Group comparisons of the average duration values of each of the diphthong sections (V1, TR, and V2) for pretest and posttest Task 1 indicate that learners in the L2 experimental group decreased their duration of V1 at posttest, with an average duration difference of 36% at pretest in their V1 durations, but a mean duration difference of 11% at posttest when compared to their L1 Spanish speakers' counterparts. By producing shorter V1s the L2 experimental group learners approached the group average duration value of the L1 Spanish speakers' group. The L2 control group learners, however, increased their non-target-like duration of V1 section moving from a non-target-like duration of 49% at pretest to 59% at posttest.

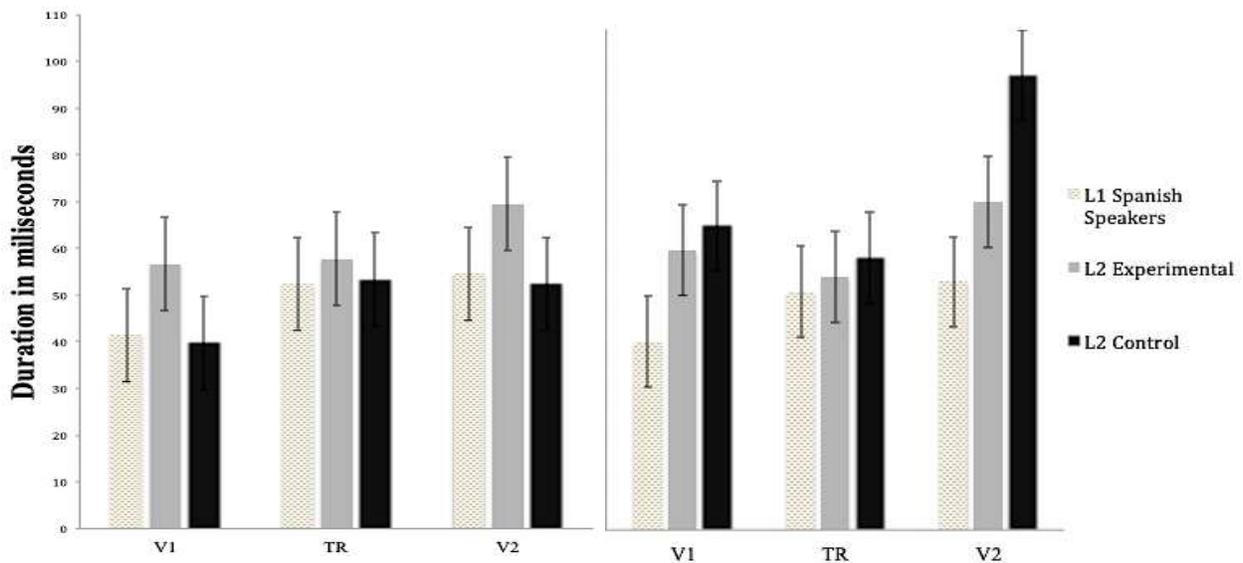
Additionally, group comparisons of average group duration values of the TR section revealed that L2 experimental group learners produced shorter transitions at the posttest, decreasing their non-target-like TR duration from 10% to 2%, thus, approaching the TR section duration of the L1 Spanish speakers group. Learners in the L2 control group, on the contrary, increased their non-target-like duration of the TR section from 6% at pretest to 14% at posttest. Lastly, group comparisons reveal that group average duration in the L2 experimental group learners approached more target-like V2 average duration following the self-monitoring strategies and CRM pronunciation practice by decreasing their V2 section duration from 27% to 1%. Contrary to the L2 experimental group learners, the L2 control group learners increased their average V2 section duration from 32% at pretest to 56% at posttest Task 1. These results indicate even more non-target-like duration of the V2 section at posttest than at pretest. Table 22 presents the results of group average duration values for each of the diphthong sections and Figure 7 illustrates the same results in a chart.

Table 22

*Group Average Duration of Diphthong Sections in Pretest and Posttest Task 1*

Average Duration of Diphthong Sections in milliseconds (mean difference)					
SRD Sections	L1 Spanish Speakers	L2 Experimental Group		L2 Control Group	
		Pretest	Posttest	Pretest	Posttest
V1	41.4 ms	56.6 ms (-5.2 ms)	39.1 ms (+2.4 ms)	61.6 ms (-20.2 ms)	65.8 ms (-24.4 ms)
TR	52.4 ms	57.7 ms (-5.3 ms)	53.3 ms (-0.9 ms)	55.6 ms (-3.2 ms)	59.9 (-7.5 ms)
V2	54.5 ms	69.4 ms (-14.9 ms)	53.3 ms (+ 1.2 ms)	72.1 ms (-17.6 ms)	100.1 ms (-45.5 ms)

*Note.* ms = milliseconds; V1 = vowel target 1; TR = transition; V2 = vowel target 2. Mean difference with respect to the L1 Spanish speakers average section duration is provided in parenthesis.



*Figure 7.* Group average SRD section (V1, TR, and V2) duration for Task 1: (left) L2 Spanish learners' groups versus L1 Spanish speakers at pretest, and (right) L2 Spanish learners' groups versus L1 Spanish speakers at posttest.

The researcher conducted three one-way MANOVA tests to examine the production of SRD with respect to the three vowel sequence sections (i.e., V1, TR, and V2) in Task 1. The first test examined the effect of group (L2 experimental, L2 control, L1 Spanish speakers) on the dependent variables pretest group average V1 section duration and posttest group average V1 section duration in Task 1. The MANOVA indicates that the effect of group was significant in the combination of the two dependent variables, namely,  $F(4, 370) = 49, p < .001$ ; partial  $\eta^2 = 0.345$ . Approximately 35% of the variability in the DVs is associated with the factor group, as indicated by the partial eta squared value.

Post hoc Tukey HSD group comparisons indicate that the L2 experimental group learners produced a significantly different group average in the V1 section duration from the L1 Spanish speaking group at pretest, but not at posttest. However, the results of the L2 control group learners differed from those of the L2 experimental group learners, whose average group V1 section duration significantly deviated from those of the L1 Spanish speakers group at both pretest and posttest. The results of the MANOVA test conducted attested to the findings discussed in the descriptive analysis section by revealing a significant difference among all language groups in both pretest and posttest. Further, these findings suggest that the employment of self-monitoring strategies and CRM resulted in more target-like pronunciation of SRD with respect to the V1 section duration.

The second multivariate analysis MANOVA was performed on the TR section duration to examine the effect of the independent variable group (L2 experimental, L2 control, L1 Spanish speaking) and the dependent variables pretest group average TR section duration and posttest group average TR section duration. The results of the multivariate analysis show that the effect of group on the group average TR section duration was significant for the two dependent

variables,  $F(4, 370) = 13.47, p < .001$ , partial  $\eta^2 = .127$ . The test also indicates that at least 13% of the variance in the dependent variables accounted for the effect of the independent variable group.

The post hoc Tukey HSD group comparisons for group demonstrates that learners in the L2 experimental group approached more target-like TR section duration at posttest, supporting the employment of self-monitoring strategies and CRM. The results revealed no significant difference between the group productions of the TR section duration of L2 experimental learners and that of the L1 Spanish speakers group. However, learners in the L2 control group whose average TR section duration revealed a nonsignificant difference from that of the L1 Spanish speakers group at the pretest, exhibited a significant difference at the posttest.

Finally, the third one-way MANOVA examined the effect of the independent variable group (L2 experimental, L2 control, L1 Spanish speakers) and the dependent variables pretest group average V2 section duration and posttest group average V2 section duration in Task 1. The results of this test show a main effect of group on the dependent variables,  $F(4, 370) = 14.13, p < .001$ , partial  $\eta^2 = .133$ . The partial eta squared value of 0.133 suggests a variance of 13% in the dependent variable that is accounted for by the group factor.

Post hoc Tukey HSD group comparisons indicated a significant difference between the group average V2 section duration for pretest Task 1 in the L2 experimental and the L2 control versus L1 Spanish speakers group. Results for posttest Task 1 group average V2 section duration revealed a statistically significant difference between the group average V2 section duration of the L2 control group versus the L1 Spanish speakers group, but not for the L2 experimental group ( $p = .856$ ). These results provide evidence in support of the employment of the self-

monitoring strategies and CRM, which helped the L2 experimental group learners approach more target-like pronunciation of SRD with respect to the V2 section duration.

#### ***4.3.3.2 Spanish text (Task 2): results of group average duration for V1, TR, and V2.***

The results for group average duration of V1 section in Task 2 for the L2 experimental group learners indicated a reduction in the duration of this section of the diphthong. Learners in this group decreased their non-target-like V1 section duration from 70% at pretest to 19% at posttest. The results of the L2 control group, however, revealed an increase in their non-target-like duration of V1 section at posttest. Their results indicate a percentage increase of non-target-like V1 section duration from 75% at pretest to 96% at posttest.

The results of the group average productions of the TR section showed a decrease in the duration of the learners in the L2 experimental group, but an increase in the duration of the L2 control group learners from pretest to posttest. The L2 experimental group learners decreased their percentage of non-target-like duration of TR section from 29% at pretest to 15% at posttest. The results of the group average TR section duration in the L2 control group learners, on the contrary, showed an increase in their percentage of non-target-like duration of the TR section from 20% at pretest to 32% at posttest.

Group average duration of the V2 section indicates that learners in the L2 experimental group outperformed the learners in the L2 control group by producing shorter section durations that resembled those of the Spanish speakers group. The results of learners in the L2 experimental group indicate a decrease in the percentage of non-target-like duration of the V2 section from 47% at pretest to 31% at posttest. Results of the L2 control group indicated an increase in their non-target-like percentage value from 50% at pretest to 68% at posttest. Overall, these results suggest that learners who employed the self-monitoring strategies and CRM were

able to achieve more target-like pronunciation of SRD with respect to the three sections of the sequences in comparison to the L2 control group learners.

Comparisons of group average duration of the three vowel sequence sections (i.e., V1, TR, and V2) for the elicitation Task 2 are illustrated in Table 23. Moreover, Figure 8 illustrates a bar chart comparing the group average duration values for each of the diphthong sections by group.

Table 23

*Group Average Duration of Diphthong Sections in Pretest and Posttest Task 2*

Average Duration of Diphthong Sections in milliseconds (mean difference)					
SRD Sections	L1 Spanish Speakers	L2 Experimental Group		L2 Control Group	
		Pretest	Posttest	Pretest	Posttest
V1	33.3 ms	56.6 ms (-23.3 ms)	39.7 ms (-6.4 ms)	58.4 ms (-25.1 ms)	65.1 ms (-31.8 ms)
TR	43.5 ms	56.2 ms (-12.6 ms)	50.2 ms (-6.6 ms)	52.3 ms (-8.7 ms)	57.5 (-13.9 ms)
V2	45.68 ms	66.9 ms (-21.2 ms)	59.6 ms (-13.9 ms)	68.6 ms (-22.9 ms)	76.8 ms (-31.1 ms)

*Note.* ms = milliseconds; V1 = vowel target 1, TR = transition, V2 = vowel target 2. Mean difference with respect to the L1 Spanish speakers average section duration is provided in parenthesis.

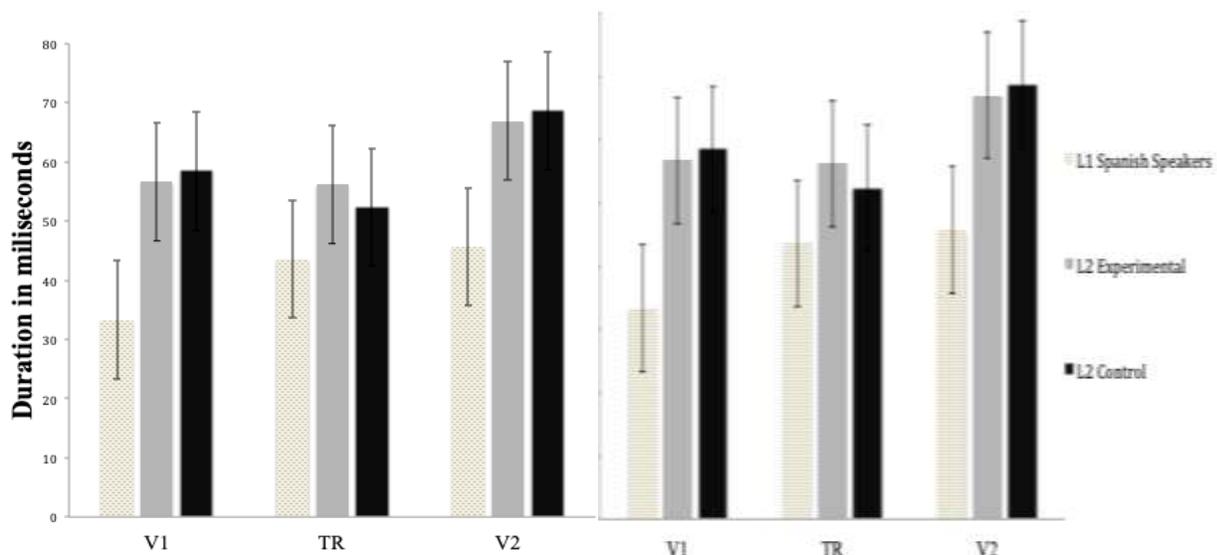


Figure 8. Group average SRD section (V1, TR, and V2) duration for Task 2: (left) L2 Spanish learners' groups versus L1 Spanish speakers at pretest, and (right) L2 Spanish learners' groups versus L1 Spanish speakers at posttest.

The multivariate analysis tests conducted do not seem to provide evidence in support of significant improvement in the group average durations of V1, TR, and V2 from pretest to posttest in Task 2. The first one-way MANOVA examined the effect of the independent variable group (L2 experimental, L2 control, L1 Spanish speakers) and the dependent variables pretest group average V1 section duration and posttest group average V1 section duration in Task 2. The MANOVA test indicated that the effect of group was significant in the combination of the two dependent variables,  $F(4, 344) = 46.90, p < .001$ , partial  $\eta^2 = .353$ . Approximately 35% of the variance in the dependent variables is associated with the factor group as indicated by the partial eta square value of .353.

Group comparisons of a post hoc Tukey HSD test indicate a significant difference between group average V1 section duration of the L2 experimental group versus the L1 Spanish speakers group at pretest ( $p = .001$ ) and posttest ( $p = .009$ ). In the same way, the analysis indicates a significant difference between group average V1 section duration of the L2 control group versus the L1 Spanish speakers group at both pretest and posttest ( $p = .001$ ). These results

suggest no significant improvement in the pronunciation of the V1 section in either of the groups. Further, although the descriptive analysis of the V1 section duration provides evidence in support of the employment of the self-monitoring strategies and CRM in learners of the L2 experimental group, the inferential statistical analysis does not corroborate these findings.

The second MANOVA, on TR section duration, examined the effect of the independent variable group (L2 experimental, L2 control, L1 Spanish speakers) and the dependent variables' pretest and posttest group average TR section durations in Task 2. The results of the multivariate analysis showed that the effect of group was significant for the two dependent variables,  $F(4, 344) = 23.79, p < .001, \text{partial } \eta^2 = .217$ . The partial eta squared value of .217 indicates that 22% of the variability is accounted for by dependent factor group. Moreover, the results of the post hoc Tukey HSD comparison test revealed no statistically significant difference between the group average duration of TR section at neither the pretest nor posttest for the L2 experimental group versus the L1 Spanish speakers group or the L2 control group versus the L1 Spanish speakers group. These results suggest no significant target-like improvement in the production of the TR section seen in either of the L2 Spanish learners groups with respect to Task 2.

A third multivariate MANOVA, performed with the independent variable group (L2 experimental, L2 control, L1 Spanish speakers) and two dependent variables pretest and posttest group average V2 section duration. The results indicate statistically significant effect of group on the dependent variables ( $F(4, 344) = 27.35, p < .001, \text{partial } \eta^2 = .241$ ), with approximately 24% of the variance in the dependent variables associated with the factor group as indicated by the partial eta squared value of .241. The results of the post hoc Tukey HSD group comparisons indicate a statistical difference between V2 group average duration of the L1 Spanish speakers group and both the L2 experimental and L2 control groups at pretest and

posttest. The results suggest no significant improvement in the pronunciation of V2 sections in either of the L2 Spanish learner group.

In conclusion, the results of the tests conducted for each of the diphthong sections for Task 2 suggest that although the L2 experimental learners decreased their group average duration for V1, TR, and V2 sections at posttest, the inferential tests did not show that learners significantly approached a more target-like pronunciation in any of the sections following the self-monitoring strategies and CRM pronunciation practice. However, the group average section durations of this group revealed a significant difference from those of the L2 control group who actually moved toward a more deviated pronunciation of each of the sections of the diphthong.

#### **4.4 Learners' Motivation and Spanish Rising Diphthong Pronunciation**

In the following section the researcher reports the results of the two groups of L2 Spanish learners (L2 experimental and L2 control) with respect to how the three motivation variables included in the LAMP inventory—intrinsic, extrinsic, and integrative—correlate with their pronunciation of SRD in both Task 1 and Task 2; that is, Research Question 2. Different Pearson correlation tests explored the relationship between the percentage of learners' target likeness achieved in the total duration of all vowel sequences (i.e., SRD) and the TR section duration at posttest Task 1 and learners' average score of each of the motivation types obtained from the LAMP questionnaire. Section 4.4.1 explores the relationship between the results of posttest Task 1 and the three types of motivation, and Section 4.4.2 explores the relationship between the results of posttest Task 2 and the three types of motivation.

##### **4.4.1 Word list (Task 1): Results of learners' motivation and pronunciation of SRD.**

Four separate Pearson correlation tests (2 per L2 Spanish learners' group) examined the connection between learner's average score of each of the different types of motivation (i.e.,

intrinsic, extrinsic, and integrative) and the percentage of learners' target-like duration achieved in the SRD and the TR section. Figure 9 illustrates the calculation to obtain the achieved target-like percentage for each of the L2 Spanish learners.

<p><b>Step 1</b></p> $\frac{\text{Learners' average duration value} - \text{L1 Spanish-speaking average duration value}}{(\text{L1 Spanish-speaking average duration value}) \times 100}$ <p><b>Step 2</b></p> <p>100% – the result of Step 1</p> <p><i>Example:</i></p> <p><b>Step 1</b></p> $\frac{159 \text{ milliseconds} - 148 \text{ milliseconds}}{(148 \text{ milliseconds}) \times 100} = 7.4\%$ <p><b>Step 2</b></p> $100\% - 7.4\% = 92.5\%$
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Figure 9. Calculation of L2 Spanish learners' target-like percentage.

**4.4.1.1 Wordlist (Task 1): Results of learners' motivation and average SRD duration.**

The results of the correlation test conducted indicated nonsignificant relationships between either of the different types of motivation and the percentage of target-like SRD duration achieved by learners in the L2 experimental group. The results of the Pearson correlation between the intrinsic ( $r = -.032, n = 8, p = .940$ ), extrinsic ( $r = -.038, n = 8, p = .929$ ), integrative ( $r = -.153, n = 8, p = .718$ ) and the percentage of learners' target likeness achieved in the L2 experimental group manifested very small correlation coefficients, indicating a weak negative relationship between these variables. Similar results emanated from the Pearson correlation test conducted for the L2 control learners that included the same variables, showing nonsignificant relationships between the intrinsic ( $r = -.301, n = 8, p = .469$ ), extrinsic ( $r = -.252, n = 8, p = .547$ ), and integrative ( $r = -.224, n = 8, p = .594$ ) motivation types and the percentage of target likeness

achieved by the L2 control group learners in Task 2. The correlation coefficients for all motivation variables were low, indicating weak negative relationships between these variables.

#### ***4.4.1.2 Word list (Task 1): Results of learners' motivation and TR section duration.***

The results of the Pearson correlation test conducted to examine the relationship between the target-like percentage of TR section duration and the motivation variables in learners of the L2 experimental group indicated a nonsignificant correlation between the intrinsic ( $r = -.251, n = 8, p = .549$ ), the extrinsic ( $r = .263, n = 8, p = .530$ ), and the integrative ( $r = -.107, n = 8, p = .801$ ) motivation. The correlation coefficients were found to be between -0.1 and -0.25 for the intrinsic and the integrative motivation, implying a weak negative relationship between the percentage of learners' target likeness achieved for the TR section duration and these two motivation types. The extrinsic motivation relationship, however, indicated a positive, but still weak relationship between this type of motivation and the percentage of learners' target likeness achieved.

Similar results resulted from the Pearson correlation test conducted to examine the relationship of learners' target-like percentage of TR section duration and the mean score of each of the motivation types in the L2 control group. The correlation test for this group indicated nonsignificant relationships between these variables. Moderately weak negative correlations were found between the intrinsic ( $r = -.583, n = 8, p = .129$ ), the integrative ( $r = -.512, n = 8, p = .195$ ) and the percentage of target likeness of TR section duration achieved by learners in the L2 control learners. Extrinsic motivation ( $r = .324, n = 8, p = .434$ ) indicated a weak positive interaction between the variables included in the test.

**4.4.2 Spanish text (Task 2): Results of learners' motivation and pronunciation of SRD.** In order to continue addressing Research Question 2, the following section attempts to report the results of the Pearson correlation test conducted for Task 2. Four separate Pearson

correlation tests (two per L2 Spanish learners' group) explored the relationship between the three motivation variables included in the LAMP inventory—intrinsic, extrinsic, and integrative variables—and the individual L2 Spanish learners' average SRD and TR section duration. The calculation for learners' target-like percentage value for both duration variables (i.e., average SRD and TR section duration) is explained previously in Section 4.4.1.

**4.4.2.1 Spanish text (Task 2): Results of learners' motivation and SRD duration.** The Pearson moment correlation tests conducted in the L2 experimental group did not reach statistical significance for either of the variables tested. The results indicate that neither the intrinsic ( $r = -.037, n = 8, p = .931$ ) the extrinsic ( $r = -.326, n = 8, p = .430$ ) or the integrative ( $r = -.061, n = 8, p = .886$ ) had a significant relationship between the percentage of learners' target-likeness achieved by learners in their average SRD duration. All correlation coefficients revealed weak negative linear relationships between the variables tested.

Similarly, the correlation test results for learners in the L2 control group indicated no significant relationships between either of the three motivation variables and the percentage of target likeness achieved by learners in their average SRD duration for Task 2. The correlation coefficients for intrinsic ( $r = .361, n = 8, p = .379$ ) and integrative ( $r = .238, n = 8, p = .570$ ) motivation were found to be between .2 and .3, meaning that there was a weak positive relationship between the variables examined. Correlation results for the extrinsic motivation ( $r = -.593, n = 8, p = .121$ ) indicated a moderate negative relationship between the variables examined.

**4.4.2.2 Spanish text (Task 2): Results of learners' motivation and TR section duration.** This section continues to address Research Question 2 with respect to whether there is a correlation between learners' motivation and the percentage of learners' target-likeness achieved

in the average TR section duration at posttest Task 2 in both L2 Spanish learners' groups (L2 experimental and L2 control). In order to explore this relationship between the three motivation types included—intrinsic, extrinsic, and integrative and learners' target-like percentage achieved in the TR section duration—the researcher conducted two separate Pearson moment correlation tests (1 per L2 Spanish learners' group).

The first Pearson's correlation test conducted for learners in the L2 experimental group indicated a significantly strong negative correlation with extrinsic motivation ( $r = -.736, n = 8, p = .019$ ). The results for the intrinsic motivation ( $r = -.115, n = 8, p = .786$ ) and the integrative motivation ( $r = -.339, n = 8, p = .412$ ), however, indicated a nonsignificant relationship between these motivation types and learners' target-like percentage achieved for TR section duration. Correlation coefficients for both intrinsic and integrative motivations were between  $-.1$  and  $-.3$ , which implies that there was a weak negative association between the variables tested. Figure 10 shows the relationship obtained between the target-like percentage of TR section duration and the extrinsic motivation of learners in the L2 experimental group.

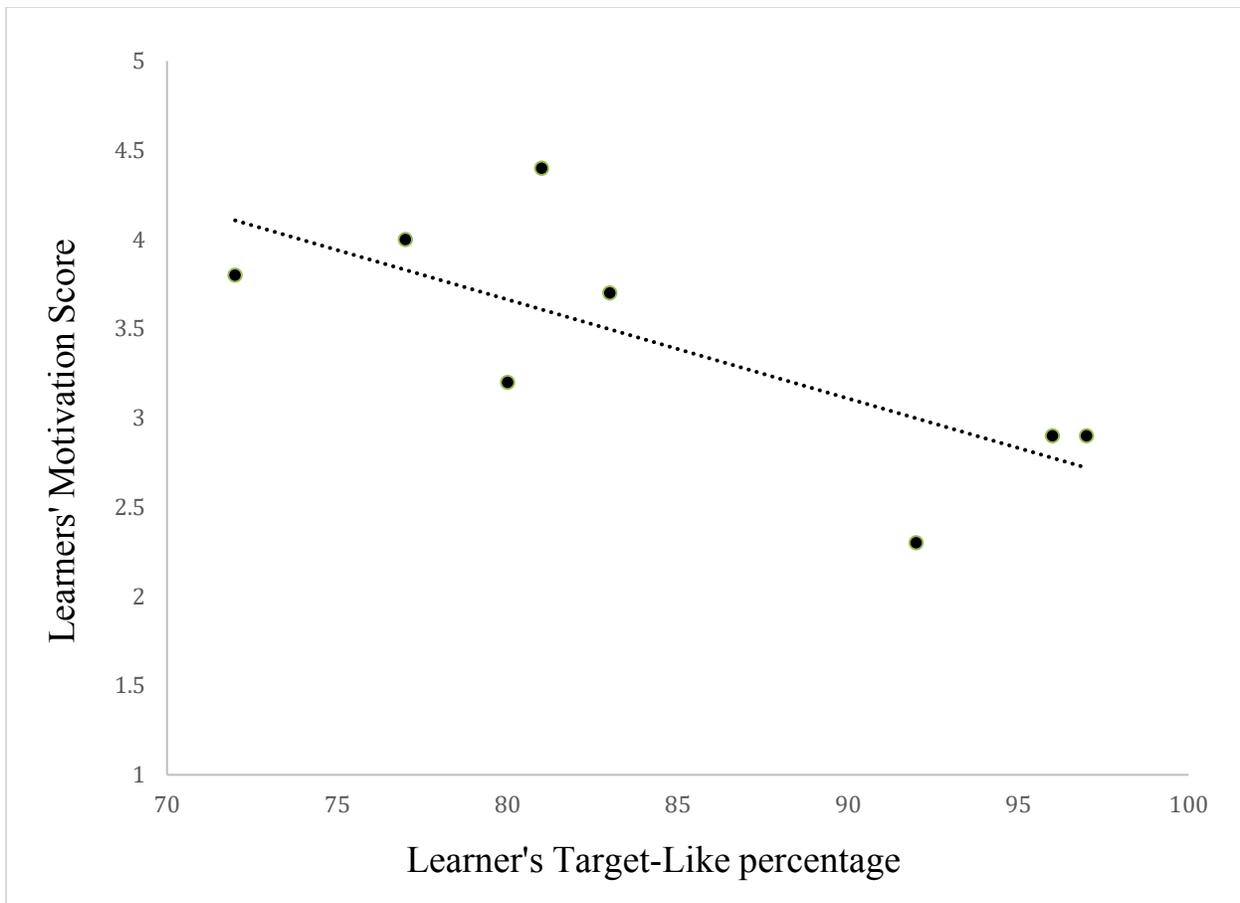
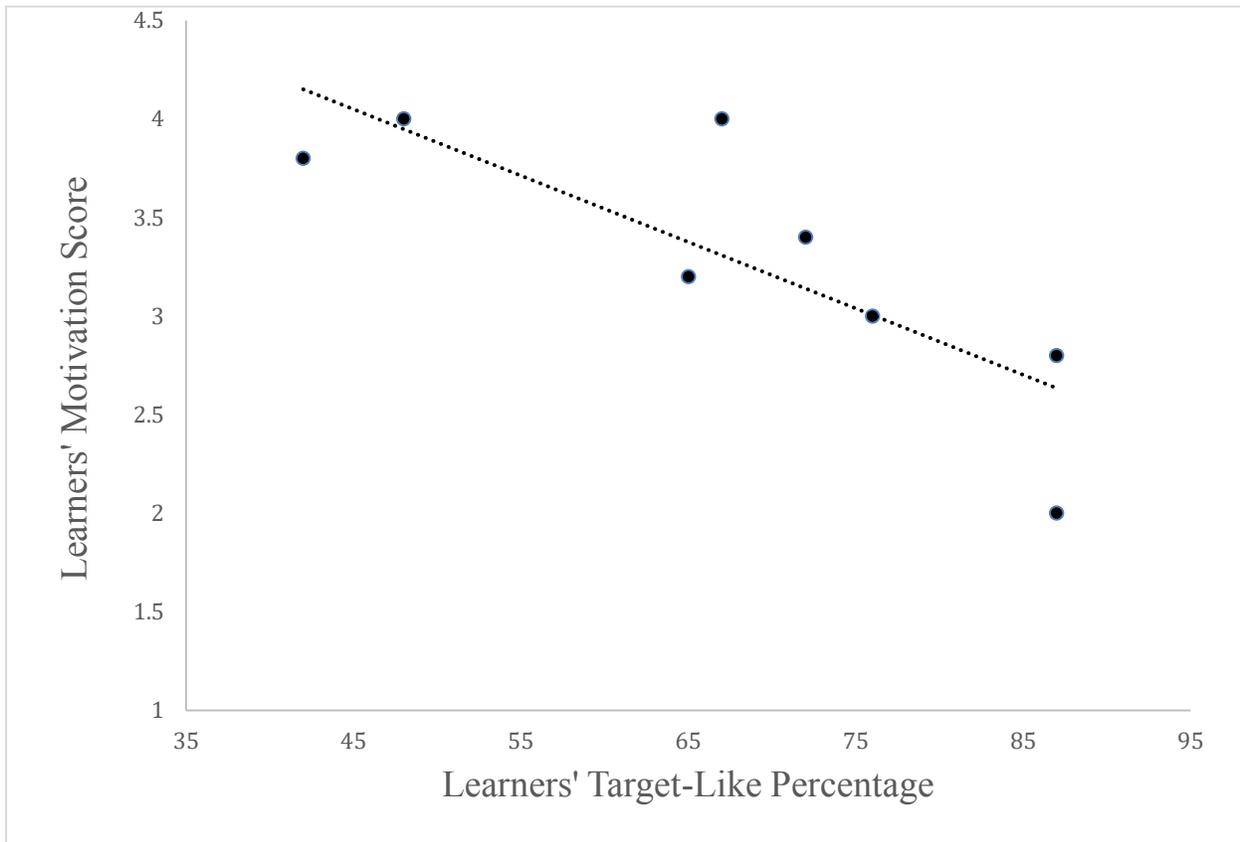


Figure 10. Relationship between learners' extrinsic motivation and the target-like percentage achieved in TR section duration Task 2 in the L2 experimental group.

The Pearson's correlation run to explore the association between the percentage of target likeness achieved in the TR section duration by learners in the L2 control group did not reach significance for the intrinsic ( $r = -.407, n = 8, p = .379$ ) or the integrative ( $r = -.381, n = 8, p = .570$ ), but it did for extrinsic motivation ( $r = -.729, n = 8, p = .020$ ). The correlation coefficient for the extrinsic motivation is  $-0.7$ , which means that there was a strong negative relationship between learners' extrinsic motivation and learners' target-like percentage of TR section duration. Figure 11 illustrates the relationship obtained between learners' target-like percentage of TR section duration and the extrinsic motivation of learners in the L2 control group.



*Figure 11.* Relationship between learners' extrinsic motivation and the target-like percentage achieved in TR section duration Task 2 in the L2 control group.

Correlation coefficients for the intrinsic and the integrative variables fell between  $-.3$  and  $-.4$ , which indicates a moderate negative relationship between these two variables and the percentage of target-like TR section duration achieved by the L2 control learners at posttest Task 2. Overall, the results of the correlation test that examined the relationship between learners' target-like percentage achieved in both duration variables (i.e., total duration of the SRD and the TR section duration) and the three motivation types suggest that extrinsic motivation is a potent factor affecting the pronunciation of SRD in Task 2. Nevertheless, the results reveal different outcomes in both the L2 experimental and the L2 control groups. Although the high levels of extrinsic motivation do not result in more target-like pronunciation of SRD in the L2 experimental group, in the L2 control group, however, the results indicate the opposite trend.

## **4.5 Learners' Attitude and Spanish Rising Diphthongs Pronunciation**

The following section reports the results of the relationship between the four attitude variables included in the LAMP inventory— affective, cognitive, conative, self-efficacy—and the target-like pronunciation achieved by the L2 Spanish learners in both Task 1 and Task 2 at the end of the study; that is, Research Question 3. Section 4.5.1 reports the analysis of the relationship between the four attitude types and the percentage of learners' target-likeness achieved in the total duration of all vowel sequences (or SRD duration from now on) and the TR section duration at posttest Task 1. Section 4.5.2 explores the relationship between the four attitude types and the percentage of learners' target likeness achieved in the total duration of all vowel sequences (SRD duration from now on) and TR section duration at posttest Task 2.

### **4.5.1 Word list (Task 1): Results of learners' attitude and pronunciation of SRD.**

Two separate Pearson moment product correlation tests (two per L2 Spanish learners' group) examined the relationship between learners' SRD and TR section duration achieved at the end of the study and the different attitude types. The first correlation test examined the relationship between the percentage of target likeness achieved by the L2 Spanish learners in the SRD duration and learner's attitude types (i.e., affective, cognitive, conative, and self-efficacy). The second correlation test examined the relationship between the percentage of target likeness achieved by the L2 Spanish learners in the TR section duration, and learner's attitude types (i.e., affective, cognitive, conative, and self-efficacy).

#### ***4.5.1.1 Word list (Task 1): Results of learners' attitude and SRD duration. A***

correlation test conducted between the different types of attitude and the percentage of target-like SRD duration achieved by learners in the L2 experimental group indicated a significant relationship between the affective attitude ( $r = .687, n = 8, p = .050$ ). The correlation coefficient

obtained from the correlation test revealed a strong positive connection between these two variables. Additionally, there seems to be a marginally significant positive relationship between the conative attitude and learners' target-like SRD duration ( $r = .559, n = 8, p = .075$ ). No significant relationship was found for either the cognitive ( $r = -.389, n = 8, p = .329$ ) or the self-efficacy attitude ( $r = -.385, n = 8, p = .346$ ). When  $p$  values are between .05 and .1 the term marginally significant imply that these values are approaching significance.

Overall, these results suggest that learners' affective attitude is a potent predictor for higher target-like SRD pronunciation. The results suggest that an increase in learners' affective emotions led to an increase in target-like SRD percentage. Furthermore, the results indicate a moderate inverse relationship between learners' cognitive and self-efficacy in the L2 experimental group and the percentage of target-like SRD duration. In that respect, the results suggest that there is a strong association between learners' emotions toward Spanish pronunciation and their acquisition of SRD pronunciation.

The correlation analysis conducted to examine the relationship between the four attitude variables and percentage of target-like SRD duration achieved by learners in the L2 control group did not reach significance for either the affective ( $r = -.450, n = 8, p = .263$ ), the cognitive ( $r = -.381, n = 8, p = .351$ ), the conative ( $r = -.119, n = 8, p = .779$ ), or the self-efficacy ( $r = -.527, n = 8, p = .092$ ) attitudes. The results, however, revealed a marginally significant negative relationship between the self-efficacy attitude and the percentage of target-like SRD duration achieved by L2 control group learners as seen in the  $p$  value of .092. Further, the results indicate a nonsignificant moderately negative relationship between the affective and the cognitive attitude types, and a nonsignificant weak negative relationship between the conative

attitude type and the percentage of target-like SRD duration achievement in the L2 control group learners.

These results suggest that as the affective emotions in learners increase, the percentage of learners' non-target-like SRD duration decreases. In that respect, the affective attitude is a potent factor affecting the pronunciation of SRD in Task 1 with respect to the total duration of the vowel sequence. The results also highlight the possibility of learners' conative attitude affecting their SRD pronunciation in Task 1 at posttest. In a similar fashion, an increase in learners' behavioral intentions to practice pronunciation results in a decrease in learners' non-standard pronunciation.

**4.5.1.2 Word list (Task 1): Results of learners' attitude and TR section duration.** The correlation test for L2 experimental group learners indicates a significant positive relationship between the affective motivation and the percentage of learners' target-like TR section duration ( $r = .768, n = 8, p = .026$ ). Neither the cognitive ( $r = -.338, n = 8, p = .412$ ), the conative ( $r = .557, n = 8, p = .076$ ) nor the self-efficacy ( $r = -.335, n = 8, p = .416$ ) reached statistical significance. However, the results for the conative attitude suggest a marginally significant relationship between the learners' target-like percentage of TR section duration with a  $p$  value of .076. In conclusion, it was again the affective attitude that had a strong influence in the target-like production of the TR section duration in the L2 experimental learners.

The correlation test run to explore the relationship between the four attitude variables and learners' target-like percentage of TR section duration in the L2 control group did not show any significant relationships between either of the attitude factors. For the cognitive attitude, however, the results indicate a marginally significant, positive, strong correlation between the percentage of learners' target-like TR duration achieved and this attitude type ( $r = .568, n = 8, p$

= .071). In the same way, the results for the self-efficacy attitude suggest a marginally significant negative relationship ( $r = -.523, n = 8, p = .090$ ). Specifically, the results indicate a moderate negative, but nonsignificant correlation between this variable and the percentage of target-like TR section duration in these learners. The results of the affective attitude exhibit a negative weak, but nonsignificant relationship between the learners' target-like percentage of TR section duration ( $r = -.084, n = 8, p = .844$ ). The conative attitude results showed a weak negative, but nonsignificant correlation between this variable and the target-like percentage of TR section duration achieved by learners in the L2 control group ( $r = -.436, n = 8, p = .280$ ).

#### **4.5.2 Spanish text (Task 2): Results of learners' attitude and pronunciation of SRD.**

In order to continue addressing Research Question 3, the following section reports how the responses of L2 Spanish learners in the LAMP inventory for the four attitude types correlate with the learners' target-like SRD and TR section duration at posttest Task 2. Two separate Pearson correlation tests (one per L2 Spanish learners' group) helped to analyze the connection between learners' mean score on each of the different types of attitude variables and the results of the duration measures variables taken (i.e., average of total vowel sequence SRD duration, and average of TR section duration). As stated before, the level of target-like achievement is explained by calculating a target-like percentage value. Section 4.4.1 provides the procedure that the researcher followed to conduct this operation.

Thus, Section 4.5.2.1 explores the relationship between the four attitude variables and the results of learners' target-like percentage of SRD duration achieved by learners at posttest Task 2. Section 4.5.2.2 explores the relationship between the four attitude variables and the percentage of target-like TR section duration achieved by learners at posttest Task 2.

**4.5.2.1 Spanish text (Task 2): Results of learners' attitude and SRD duration.** The Pearson correlations conducted to assess the relationship between all the attitude variables and the percentage of target-like SRD duration achieved by learners in the L2 experimental group did not reach statistical significance for either the affective ( $r = -.059, n = 8, p = .890$ ), the cognitive ( $r = -.223, n = 8, p = .595$ ), the conative ( $r = -.205, n = 8, p = .627$ ), nor the self-efficacy ( $r = -.224, n = 8, p = .594$ ) attitudes. The results show weak negative correlations between the percentage of target-like SRD duration achieved by learners in the L2 experimental group and all attitude types. These results suggest the possibility of an inverse relationship between all the attitude types and the level of target-like production of the two duration variables tested, which leads to the assumption that low attitude scores result in higher levels of target-like SRD duration in learners of this group.

Pearson correlation results between the four attitude variables and the percentage of target-like of SRD duration in learners from the L2 control group indicate a significant correlation for the self-efficacy attitude ( $r = -.799, n = 8, p = .017$ ), but not for the affective ( $r = .136, n = 8, p = .748$ ), the cognitive ( $r = -.397, n = 8, p = .330$ ) or the conative ( $r = -.233, n = 8, p = .578$ ). The results between the self-efficacy attitude and learners' percentage of target-like SRD duration achieved by learners revealed a strong, negative relationship between these variables. These results suggest that high level of learners' self-efficacy or self-confidence attitude results in low target-like SRD duration achieved.

**4.5.2.2 Spanish text (Task 2): Results of learners' attitude and TR section duration.** The outcome of the Pearson correlation conducted between the affective ( $r = -.242, n = 8, p = .564$ ), the self-efficacy ( $r = -.299, n = 8, p = .472$ ) attitude types and the percentage of target-like TR section duration achieved by learners in the L2 experimental group exhibits a nonsignificant

weak, negative association between these variables. Correlation analysis between the cognitive ( $r = -.499, n = 8, p = .209$ ), the conative ( $r = -.530, n = 8, p = .177$ ) attitudes, and the percentage of target-like TR section duration by learners in the L2 experimental group indicate that there is a nonsignificant moderate positive relationship between these variables. In essence, although the correlation results for learners in the L2 experimental group did not reach statistical significance, they highlight the possibility of a correlation in which the greater the scores of learners' affective and self-efficacy attitudes, the lower the target-like percentage of TR section duration achieved by learners.

The correlation analysis conducted in the L2 control group revealed a statistically significant strong negative correlation between the self-efficacy attitude ( $r = -.773, n = 8, p = .024$ ) and the percentage of target-like TR section duration achieved by learners. Additionally, the results of the correlation test performed indicate a nonsignificant weak negative relationship for the affective attitude ( $r = -.196, n = 8, p = .641$ ), and a nonsignificant moderate positive relationship for the cognitive ( $r = .381, n = 8, p = .351$ ) and conative attitudes ( $r = .429, n = 8, p = .289$ ). These results reveal a strong association between learners' self-efficacy attitude scores and the percentage of target-like TR section duration that L2 control group learners achieved. That is, an increase in learners' self-confidence results in an increase in learners' non-target-like pronunciation.

#### **4.6 Learners' L1 Dialectal Variety and Pronunciation of SRD**

The following section provides the results that address Research Question 4: To what extent does learners' English dialect variety influence the level of target-like pronunciation of Spanish rising diphthongs achieved in both noncontextualized and contextualized elicited spoken tasks? As stated in Chapter 3, each participant recorded an English sample to account for

differences in the production of SRD following the self-monitoring strategies and CRM pronunciation practice model. The researcher examined the recorded samples to create a Southern dialect profile based on four aspects of Southern vowel pronunciation (see Section 3.10.3). Tokens of each of the Southern vowel features per participant were counted and scored by means of adding each of the Southern vowel tokens produced. The score of each of the L2 Spanish learners was arranged into 5 ranges that determined the linguistic profile of the learners. These profiles were then categorized using a 5-point Likert scale as follows: 1 = *not southern*, 2 = *slightly southern*, 3 = *moderately southern*, 4 = *mostly southern*, and 5 = *highly southern*. A one-way ANCOVA controlled for the effect of learners' dialectal variation on the productions of the group average duration of SRD at posttest Task 1 and Task 2. Tables 23 and 24 provide the list of tokens that learners in the L2 experimental and the L2 control group produced per vowel featured and per participant and the results of learners' profiles.

Therefore, Section 4.6.1 reports the results of the ANCOVA and ANOVA conducted to examine the effect of the L2 Spanish learners' dialectal variety on the production of SRD duration at posttest Task 1. Similarly, Section 4.6.2 reports the results of the one-way ANCOVA and ANOVA conducted to examine the effect of the L2 Spanish learners' dialectal variation on the production of SRD duration at posttest Task 2.

Table 24

*Vowel Tokens Produced for Each of the Southern Vowel Features per L2 Experimental Group Learner*

Southern Vowel Features Analyzed ( <i>n</i> )	Number of Tokens Produced Per Learner							
	P1	P2	P3	P4	P5	P6	P7	P8
Upliding and Raising of /æ/ ( <i>n</i> = 3)	2	3	1	1	2	2	0	3
Fronting glide /ɪ/ in /u/ ( <i>n</i> = 3)	1	2	0	1	3	1	1	3
Monophthongization of [aɪ/ ( <i>n</i> = 6)	0	6	5	6	6	4	1	6
merger of /ɪ/ and /ɛ/ before nasals ( <i>n</i> = 1)	1	1	1	1	1	0	0	1
merger of /u/ and /ʊ/ before /l/ ( <i>n</i> = 2)	1	0	1	0	0	0	0	2
merger of /i/ and /ɪ/ before /l/ ( <i>n</i> = 2)	1	2	1	1	2	0	0	2
merger of /eɪ/ and /ɛ/ before /l/ ( <i>n</i> = 2)	0	1	0	1	1	0	0	1
Total # of Tokens	7	15	9	11	15	7	2	18
Linguistic Profile	MDS	HGS	MSS	MSS	HGS	MDS	NOS	HGS

*Note.* HGS = Highly Southern; MSS = Mostly Southern; MDS = Moderately Southern; SLS = Slightly Southern; NOS = Not Southern.

Table 25

*Vowel Tokens Produced for Each of the Southern Vowel Features per L2 Control Group Learner*

Southern Vowel Features Analyzed ( <i>n</i> )	Number of Tokens Produced Per Learner							
	P1	P2	P3	P4	P5	P6	P7	P8
Upliding and Raising of /æ/ ( <i>n</i> = 3)	2	3	2	0	0	3	0	3
Fronting glide /ɪ/ in /u/ ( <i>n</i> = 3)	0	1	3	0	0	2	0	2
Monophthongization of [aɪ/ ( <i>n</i> = 6)	5	6	6	2	1	2	0	6
merger of /ɪ/ and /ε/ before nasals ( <i>n</i> = 1)	1	1	1	1	1	1	1	0
merger of /u/ and /ʊ/ before /l/ ( <i>n</i> = 2)	0	1	0	0	2	0	0	1
merger of /i/ and /ɪ/ before /l/ ( <i>n</i> = 2)	0	0	1	1	1	1	0	2
merger of /eɪ/ and /ε/ before /l/ ( <i>n</i> = 2)	0	0	0	0	2	1	0	0
Total # of Tokens	8	12	14	4	7	10	1	14
Linguistic Profile	MDS	MSS	MSS	SLS	MDS	MSS	NOS	MSS

*Note.* HGS = Highly Southern; MSS = Mostly SLS; MDS = Moderately Southern; SLS = Slightly Southern; NOS = Not Southern.

#### 4.6.1 Word list (Task 1): Results of learners' L1 dialectal variety and SRD duration.

Descriptive statistical analysis of the results of average SRD duration in each of learners in the L2 experimental group indicates that learners with a Southern dialectal profile did not present high levels of non-target-like deviation on their SRD duration produced at posttest Task 1. Except for one of the participants (i.e., Exp4) in this group, who had a non-target-like SRD

duration of 31% at posttest, all other southern-rated learners in the L2 experimental group had very small percentage of non-target-like SRD average duration ranging from 1% to 4%. Learners who were rated as *slightly southern* or *not southern* exhibited 0% non-target-like average SRD duration at posttest in Task 1. The results of individual learners' average SRD duration in the L2 control group revealed a different outcome than those of the L2 experimental group.

As explained in Section 4.3.1, observations of group average duration of SRD in Task 1 for the L2 control group manifested an increase from pretest to posttest. These observations were confirmed after looking at the average SRD duration of individual learners. However, the results of the descriptive analysis do not substantiate the claim of a strong association between a particular learner's dialect profile and the level of non-target-like average duration of SRD produced by learners in Task 1. The L2 control group learners presenting high levels of non-target-like average SRD duration fell into different dialectal profile categories. Three of the most salient non-target-like learners' productions of SRD durations are those of the Ctr4 speaker, rated as *slightly southern*, with a 67% non-target-like SRD duration. Next, the production of the Ctr2 speaker, with a 56% non-target-like SRD duration, who was rated as *mostly southern*. Last, the Ctr7 speaker, with a 56% non-target-like SRD, who was rated as *not southern*.

A one-way ANCOVA examined the effect of the independent variable group (L2 experimental, L2 control, L1 Spanish speakers) and the dependent variable posttest Task 1 group average duration of all SRD controlling for individual learner's dialect variety (i.e., the covariate factor). The results of the test indicate a significant effect of group on the dependent variable after controlling for individual learner's dialect variety,  $F(2, 188) = 74.96, p < .001$ , meaning that there are significant differences between the three language groups when the effect of individual learners' dialect variety has been removed. The contrasting analysis between the L2

experimental group, the L2 control group, and the L1 Spanish speakers' group, with the adjusted values of the group means, reveals that there is a significant difference between the productions of group average SRD duration in the L2 control group and the L1 Spanish speakers' group ( $p = .001$ ), but not between the L2 experimental group and the L1 Spanish speakers' group ( $p = .911$ ).

Similar results resulted from the two-way MANOVA conducted in Section 4.3.1.1. However, the results of the ANCOVA test conducted in this section, which examined the interaction between the independent variable group and the dependent variable group average SRD duration in posttest Task 1, controlling for the covariate factor learners' dialectal variety, exhibited a different significant level value for the interaction between the L2 experimental group versus the L1 Spanish group. The one-way MANOVA performed in section 4.3.1.1 generated a nonsignificant alpha value of .531, whereas the ANCOVA test in this section indicated a greater nonsignificant value of .911, which implies greater target-like pronunciation of SRD in learners. Comparisons of L2 experimental versus L1 Spanish speakers on the ANCOVA conducted in this section indicate an even greater target-like achievement of SRD duration in the L2 experimental group when eliminating the effect of the covariate factor, that is, learners' dialectal variety.

To further investigate the effect of the independent variable learners' dialectal variety in the pronunciation of SRD in learners, a one-way ANOVA examined the effect of learners' L1 dialectal profile (i.e., *not southern*, *slightly southern*, *moderately southern*, *mostly southern*, *highly southern*, *hybrid southern*, and *no-dialect*) on the dependent variable average SRD duration at posttest Task 1. As stated previously, the L2 experimental group learner, Exp4, was the only participant presenting higher levels of non-target-like SRD duration at posttest Task 1. The linguistic profiling for this learner seems to exhibit additional linguistic features that

resemble those of the AAVE (African American Vernacular English) as described by Edwards (2004), Pollock and Meredith (2001), Thomas (2007), and Wolfram, Thomas, and Green (2000). Due to this fact, the researcher decided to create a new profiling category to further study this learner's pronunciation, namely, *hybrid southern*. The hybrid profile assumes the concept of two different dialectal varieties observed. Additionally, a *no-dialect* profile was added for the L1 Spanish speakers' group because they were not profiled for any dialectal variety given that English was not their first language.

The results of the one-way ANOVA reveal a significant difference effect of learners' dialectal profile on the dependent variable average SRD duration at posttest Task 1,  $F(9, 399) = 53.64, p = .001, \text{partial } \eta^2 = 0.726$ . The partial eta squared value of .726 implies that 76% of the variability in the dependent variable accounts for learners' dialectal profile factor. The results of post hoc Tukey HSD comparing the average SRD duration at posttest Task 1 results for the different levels of the dialectal profiles factor indicate a statistically significant difference between the *hybrid southern profile and the no-dialect* profile (i.e., L1 Spanish speakers' group). In other words, the results indicate a significant non-target-like pronunciation difference between the L2 experimental group learner Exp4 and that of the L1 Spanish speakers' group. This finding corroborated the results of the descriptive analysis obtained for this learner, highlighting the possibility of non-target-like pronunciation of the SRD at posttest Task 1 that accounted for the dialectal features that this learner presented.

The results of the one-way ANOVA for the L2 control group learners indicate statistically significant differences between all dialectal profiles and the productions of the average group SRD duration of the L1 Spanish speakers. Therefore, no robust evidence has been

obtained that accounts for the effect of a learners' L1 dialectal variety on the non-target-likeness achieved by learners in this group.

Overall, these results do not completely answer whether a specific dialectal variety has a strong effect on the level of target-like SRD duration that learners achieved at the end of the study. However, the results suggest that learners who had southern dialectal profiles were the most likely to encounter issues in their process of achieving more target-like pronunciation than others with a different dialectal profile, including those learners who received the pronunciation intervention in this study (i.e., L2 experimental group).

**4.6.2 Spanish text (Task 2): Results of learners' L1 dialectal variety and SRD duration.** Descriptive analysis of group average SRD duration at posttest Task 2 exhibit a different outcome than those of posttest Task 1 for the L2 experimental and L2 control group versus the L1 Spanish speakers when considering learner's L1 dialectal variety. Group comparisons between the average SRD duration in the L2 experimental group versus the L1 Spanish speakers group revealed the highest non-target-like average of SRD duration in three learners of southern dialectal profile. These include Exp4, with 26% non-target-like SRD average duration, Exp2, with 24% non-target-like SRD average duration, and the Exp8 with 23% non-target-like SRD average duration.

Group comparisons between the SRD duration in L2 control group learners versus the L1 Spanish learners, however, reveal that learners in this group performed quite differently. Of all learners in the L2 control group, there were three learners showing higher non-target-like SRD average duration including Ctr4, with a slightly southern profile, Ctr7, with a not southern profile, and Ctr3, with a mostly southern profile.

Therefore, more variability is found in the non-target-like SRD production in learners in the L2 control group than in learners in the L2 experimental group if individual learner's L1 dialect variety is considered. Considering these results, it can be concluded that a learner's L1 dialect variety is a potent factor influencing the productions of SRD duration at posttest Task 2 in L2 experimental group learners, but not in learners in the L2 control group.

An ANCOVA examined the effect of group (L2 experimental, L2 control, L1 Spanish speakers) on the dependent variable posttest Task 2 SRD average duration while controlling for learner's L1 dialectal variety covariate factor demonstrated a significant difference between the L2 experimental and the L2 control group versus the L1 Spanish speaker group,  $F(2, 184) = 75.20, p = .001$ . These results do not substantiate the observations of the individual NES productions discussed in the descriptive analysis section. A contrasting analysis from the ANCOVA reports that there is a significant effect of group on the posttest Task 2 SRD average duration. This finding is in line with the results of statistical analysis reported earlier in section 4.3.2.2, in which the one-way MANOVA indicated that there was significant difference between the SRD average duration values of both the L2 experimental and the L2 control group when compared to those of the L1 Spanish speakers' group.

A separate one-way ANOVA further investigated the effect of the learners' L1 dialectal variety on the SRD average duration at posttest Task 2. Specifically, the researcher ran this test to examine the effect of learners' L1 dialectal profile (i.e., *not southern, slightly southern, moderately southern, mostly southern, highly southern, hybrid southern, and no-dialect*) on the dependent variable average SRD duration at posttest Task 2. The results of the ANOVA indicate a statistically significant main effect of learners' L1 dialectal profile and the average SRD duration,  $F(8, 179) = 43.24, p = .001, \text{partial } \eta^2 = 0.659$ . The partial eta squared value of .659

implies that approximately 70% of the variability in the dependent variable accounts for the learners' L1 dialectal profile factor.

Pairwise comparisons using a post hoc Tukey HSD procedure indicate a statistically significant difference in the productions of average SRD duration in four dialectal profiles in the L2 experimental group, namely, *moderately southern*, *mostly southern*, *highly southern*, and *hybrid southern*. For the *not southern* variation, however, the results revealed a nonsignificant difference between their average SRD duration values and those of the L1 Spanish speakers. These results suggest an achievement of more target-like production of average SRD duration at posttest Task 2. Pairwise comparisons of average SRD duration in the L2 control group indicate statistically significant different average SRD duration values for all dialectal profiles when compared to those of the L1 Spanish speakers. In sum, no robust conclusion can be made on the basis of these results.

## 5. DISCUSSION

### 5.1 Introduction

To date, few studies have emphasized the use of language learning strategies in the acquisition of L2 pronunciation, specifically those classified as cognitive and metacognitive strategies. Yet, there is a significant gap in the literature that this study attempts to fill, namely, the lack of descriptions of the acquisition of L2 Spanish diphthongs. Aside from Lord (2005), who employed self-reporting in one of her studies, and Trofimovich and Gatbonton (2006), who employed repetition in their study, no previous study has examined the effects of pronunciation instruction in conjunction with cognitive and metacognitive strategies in the acquisition of L2 Spanish vowels and diphthongs.

As cited previously, most studies on the acquisition of L2 Spanish pronunciation have particularly focused on the effects of pronunciation instruction in the acquisition of consonants. So far and to the knowledge of the researcher, there is no other study that has focused on addressing the effects of the following elements combined: (a) L2 pronunciation instruction, (b) training and use of cognitive and metacognitive strategies (referred to as self-monitoring strategies in this study), and (c) Dickerson's (1987, 2000) covert rehearsal model (CRM).

Drawing upon various approaches, namely, cognitivist, constructivist, and sociopsychological, this study has implications for the principles of Krashen's monitor hypothesis (1985), cognitive theory, the learner-centered approach, the strategy-based instruction approach (SBI), the self-assessment approach, Flege's (1995) speech learning model (SLM), and cognitive phonology. The main purpose of this study was to explore the effect of training L2

learners to employ the featured self-monitoring strategies (i.e., critical listening, repetition, rehearsal, and annotation) and Dickerson's (1987, 2000) CRM in the pronunciation of L2 Spanish rising diphthongs (SRD).

In order to provide further validation of previous findings, this chapter discusses the results of the current study as a way to address the general question of whether the implementation of the self-monitoring strategies together with the components of CRM results in the achievement of more target-like pronunciation of L2 Spanish rising diphthongs in beginning L2 Spanish learners. As previously stated, the target-like notion in this study is described with respect to how closely the L2 Spanish learners approximate the pronunciation of the native Spanish speaker group, who served as the L1 Spanish pronunciation baseline of SRD in this study. This chapter provides a review of the findings that relate to each of the four research questions, restated as follows:

**Research Question 1:** To what extent does the employment of self-monitoring strategies and Dickerson's covert rehearsal model help learners acquire more target-like pronunciation of Spanish rising diphthongs in both noncontextualized and contextualized elicited tasks?

**Research Question 2:** Is there a correlation between learners' motivation to acquire more target-like pronunciation and the pronunciation of Spanish rising diphthongs that learners achieve in both noncontextualized and contextualized elicited tasks?

**Research Question 3:** Is there a correlation between learners' attitude towards acquiring more target-like pronunciation and the pronunciation of Spanish rising diphthongs that learners achieve in both noncontextualized and contextualized elicited tasks?

**Research Question 4:** To what extent does learners' English dialectal variety influence

the level of target-like pronunciation of Spanish rising diphthongs achieved in both noncontextualized and contextualized elicited spoken tasks?

## **5.2 Learners' Report on the Employment of Self-Monitoring Strategies Prior to the Current Study**

As stated previously, the LAMP inventory included a set of five items/questions for the L2 experimental group (three Likert-like scales and two open-ended questions) and two additional questions for the L2 control group (1 Likert-type scale and 1 open-ended question) to serve as an instrument to elicit learners' opinions and experiences with self-monitoring strategies prior to starting the study and after completing the experimental portions of the study. The reports on this section reveal that there were some learners who had already developed some sort of strategy system as an attempt to practice and improve their Spanish pronunciation. This characteristic is very typically found, according to Brown (2004), in the "most successful learners" (p. 270).

Based on learners' comments, one commonality found about the way they would engage in their self-monitoring pronunciation practices was that they seemed to merely rely on their intuitions. In addition, learners expressed that even when they practiced their Spanish pronunciation on their own, they were still unsure if the sounds that they were producing were correct. One student expressed the following, "I would like to point out that it was difficult to practice pronunciation on our own when we are not fluent in this language because what sounds right to me, may not be right to a native Spanish speaker." In this sense, it is very likely then that despite learners' efforts, they were not able to produce the language correctly.

This resonates with the Neufeld's (1977) claim that "inappropriate learning situations can cause learners to form inaccurate acoustic images of the target sound patterns," which consequently could hinder learners' ability to perceive, therefore articulate accurate target

language sounds (as cited in Ryu, 2002, p. 15). Along these lines, Selinker (1979) claimed that inadequate phonetic input along with ignorance of rule restrictions puts learners at risk of fossilizing structures, in this case phonological forms, by creating sound images that would be subsequently difficult to alter (as cited in Maghrabi, 2016, p. 40). Therefore, one could suggest that it was the lack of explicit phonological knowledge that did not allow learners to either produce accurate target language sounds or understand their own challenges with their pronunciation.

In this respect, given that learners are very often unable to identify their own pronunciation errors if they are not specifically trained in this respect (Dettori & Lupi, 2013), one could assume, then, that learners needed appropriate instruction and teacher-scaffolded pronunciation practice that would guide them and teach them how to self-evaluate, self-reflect, and self-direct their pronunciation. Therefore, it was the main goal of this study to provide learners with a teacher-intervention approach to facilitate their pronunciation learning process by helping them develop the perceptual and cognitive skills needed to acquire a more target-like L2 pronunciation. Learners were given explicit instruction on the pronunciation of Spanish vowels and diphthongs as well trained on how to properly use cognitive and metacognitive strategies and CRM to assist them with their self-monitoring practice of their own pronunciation, specifically their pronunciation of SRD, thereby helping learners to become “good [and autonomous] pronunciation users” (Szyszka, 2015, p. 93).

Thus, the reports of learners substantiated the need to implement L2 pronunciation practices in the L2 language classrooms. Many of the L2 experimental group learners expressed having learned more about their Spanish pronunciation in the present study than ever before in a short period of time. Additionally, they expressed that the self-monitoring strategies and CRM

helped them improve their pronunciation of Spanish diphthongs, which was a phonological feature that they had not learned before. As learners stated, they did not have much knowledge about the general rules of Spanish syllabification nor about the diphthongization process involved in the pronunciation of Spanish diphthongs. Although they had previously engaged in pronunciation practices similar to those implemented in this study, they did not seem to have been able to reach their goal of developing more accurate Spanish pronunciation. Furthermore, according to Warsi (2001), a major problem with learners engaging in strategic pronunciation practice on their own is that it is not just about the practice of sounds. Rather, it is about learners acquiring appropriate informed practice by which they can improve their productive phonology skills with the help of target-language modeling.

Additionally, there were learners who specifically indicated that they benefited from the native-speaker modeling. For example, one learner stated, “I feel that the most effective strategy was when the researcher herself gave the verbal break-down of each word rather than a computer-generated one.” Another learner expressed that “the researcher’s voice helped me a lot, even in the posttest I could hear her voice in my head and it helped.” In addition, over half of the learners in the L2 experimental group found it extremely useful to listen to their own voice recordings to correct their errors. One student made the following remark, “Listening to my voice recordings helped critique myself and correct my errors. Even when I don’t have the ear for native sound yet, I found that listening to the prompts recorded was very useful.”

In this respect, previous studies have suggested that audio recordings along with teacher-guided audio prompts allow learners to raise awareness and conduct self-analysis of their pronunciation, which eventually helps improve their L2 pronunciation skills. Ultimately, it was learners who suggested that the pronunciation practice they were exposed to be included in their

regular Spanish classroom because they believed it to be a resourceful tool to help them improve their Spanish pronunciation. Based on learner comments at the end of the study, learners certainly recognized the benefits of the self-monitoring strategies employed. Moreover, when asked to evaluate the pronunciation practice implemented in the study, many learners indicated that they benefited from the self-recordings and the researcher-guided practice prompts.

### **5.3 Effect of Self-Monitoring Strategies and CRM on the Pronunciation of SRD**

In order to answer Research Question 1, which investigated whether self-monitoring strategies and CRM practice help learners achieve more target-like pronunciation of SRD, the design of this study involved two different types of analyses: acoustic and statistical. The results of these analyses extend the findings of previous empirical studies, which focused separately on the effects of pronunciation instruction, and the use of self-monitoring strategies and CRM for L2 pronunciation improvement. However, when comparing the results of the current study to those of previous studies, there are several areas in which those studies differ from the current study. As opposed to most of the studies emphasizing the effect of pronunciation instruction, this study has included beginning, instead of intermediate or advanced, L2 learners. In addition, this study has taken acoustic measures to assess learners' pronunciation of the Spanish diphthongs, instead of using native Spanish-speaker raters, thus making the current study more reliable and less prone to research bias.

Moreover, different from previous studies, this study emphasizes production of the phonological forms, namely, SRD, instead of only focusing on perception. Further, this study addresses individual learner's factors such as motivation, attitude, and the effect that these factors have on the L2 Spanish learners' pronunciation achievement, that is, Research Questions

2 and 3. Additionally, learners' L1 dialectal variety is considered to account for possible pronunciation differences in learners' SRD, referring to Research Question 4.

**5.3.1 Theoretical implications of the employment of self-monitoring strategies and CRM in L2 pronunciation.** The results of this study have implications for cognitive theory, learner-centered approach, strategies-based instruction (SBI), self-assessment approach, Flege's (1995) speech learning model (SLM), and cognitive phonology. The type of self-evaluation practice in this study is in line with the principles emphasized in cognitive theory. Cognitive theory endorses the idea that learners' conscious monitoring is the means to second language acquisition. In other words, cognitivists assume that most language learning occurs when learners are actively engaged in conscious and reasoned thinking, involving the deliberate use of learning strategies, namely, metacognitive and cognitive strategies. Moreover, cognitivists posit that once the use of these strategies becomes automatic or unconscious with practice, so will the aspects of the language practiced in learners' production of the SRD.

Further, according to Chamot and O'Malley (1994), "Second-language acquisition will occur most effectively with high degrees of learners involvement" (p. 97). In this study, learners were trained to use self-monitoring strategies that required them to analyze what they were doing, think about what they were learning, describe the mechanisms that they followed, plan and anticipate the challenges of their learning process, and organize the information that they had previously received through pronunciation instruction and apply it to their production of Spanish rising diphthongs. In that respect, learners were actively engaged in an intentional type of learning or explicit learning, which differentiates it from an incidental type or implicit learning. In this way, learners were encouraged to engage in constructing their own knowledge through explicit analysis and explanations of the linguistic systems, in this case the phonological Spanish

vowel system. Ellis (2015) argued that providing learners with declarative pedagogical, that is, explicit learning, can guide the conscious building of novel linguistic forms whose subsequent usage promotes implicit learning and proceduralization.

Following the use of self-monitoring strategy intervention, the results of learners' group average SRD duration obtained were able to substantiate the theoretical precepts of the cognitivist theory. The results of the statistical analyses revealed a positive effect of the pronunciation treatment upon the achievement of more target-like pronunciation of SRD with respect to all three acoustic measures taken for Task 1 and Task 2 in the L2 experimental group learners. The productions of average group SRD duration in Task 1 demonstrated significant improvement in the pronunciation of SRD when compared to those of the L2 control group learners. This finding leads to the assumption that learners in the L2 experimental group developed the perceptual and cognitive skills needed to acquire more target-like L2 pronunciation of SRD. Aside from this, it was learners' intentional learning that allowed them to improve their Spanish pronunciation. Therefore, learners were able to develop understanding of their own challenges with specific phonological aspects in the pronunciation and use the strategies appropriate to the nature of the task (Vann & Abraham, 1989, as cited in Chang, 2012). Specifically, learners were able to improve their pronunciation of Spanish rising diphthongs through the self-monitoring practice, thus becoming more autonomous with respect to their pronunciation learning and practice (Szyszka, 2015).

Moreover, that learners who employed the self-monitoring strategies and CRM achieved more target-like SRD group average duration corroborates the findings of other studies that focus on the strategy-based instruction (SBI) approach. The central component of the SBI approach is the explicit instruction of language learning strategies for language learning. Under this model,

students are explicitly taught how, when, and why strategies can be used to facilitate language learning and language use through task materials (Sarafianou & Gavriilidou, 2015). The findings of this study also confirm Dickerson's (1994) argument that strategic competence empowers learners with explicit pronunciation rules that they can use to self-correct and self-monitor their speech, making them able to produce more accurate pronunciation in context (as cited in Sardegna, 2011).

Further, the overall results of this study that account for the achievement of learners' target-like average SRD duration in the L2 experimental group provide evidence in support of the constructivist approach: the learner-centered classroom. This approach emphasizes that students learn more when given the opportunity to be actively engaged in constructing and practicing their own knowledge. In a learner-centered classroom, teachers act as coaches, encouraging learners to become aware of the learning process and fostering their autonomy, which will allow them to take control of their learning. Put differently, Kumarvadivelu's (2006) language-centered approach endorses the idea that providing learners with a repertoire of preselected, presequenced linguistic forms that they can practice will eventually allow them to effortlessly produce, and master, their target language (as cited in Massouleh & Jooneghani, 2012, p. 54). In the present study, learners in the experimental group were instructed to use self-monitoring strategies and covert rehearsal components for pronunciation practice of Spanish rising diphthongs. In this way, learners were given the opportunity to acknowledge and embrace the idea of using self-monitoring strategies as a means to develop their independence as active thinkers to become "good pronouncers," as claimed by Szyszka (2015, p. 93).

Furthermore, the results of this study have significant implications for the broader domain of Flege's (1995) SLM phonological theory and the cognitive phonology theory. Being

two of the most prominent models for L2 speech production, both theories agree on the assumption that accurate perception results in accurate L2 pronunciation. Specifically, SLM assumes a perception-production link that supports that the first step to acquiring target-like L2 is to learn to discern phonetic differences between the L2 and L1 sound systems (Kissling, 2014). Similarly, cognitive theory sees pronunciation more as a cognitive phenomenon that depends on the ability of humans to perceive the linguistic sounds, which subsequently allows them to form a mental representation of the same (Couper, 2011).

Along these lines, research has found that phonetic instruction and exposure to the phonological features of the target language along with discriminatory practice appear to be expedient in order to attune learners' perception (Simonet, 2012). The main findings of this study demonstrated that even brief instruction in Spanish phonetics with respect to the contrasting acoustic and articulatory characteristics of the vowels and diphthongs in English and Spanish could result in more target-like production of L2 Spanish rising diphthongs. The fact that learners in the L2 experimental group were able to approximate the target-like pronunciation of the L1 Spanish speakers suggest that the employment of the featured self-monitoring strategies helped learners develop the ability to discriminate and identify the appropriate phonological patterns relevant to the production of Spanish rising diphthongs. In that sense, the explicit phonetics instruction served as an attention/awareness-device for learners, which appeals to the principle of perception and attention of the SLM model and the cognitive phonology theory.

The results of group average duration of each rising diphthong and the TR section are consistent with the reports of previous research that describe the perception and production of L2 Spanish diphthongs by L1 English-speaking learners (Krause, 2013; MacLeod, 2008; MacLeod, 2012; Reeder, 1999). In that respect, the findings are also consistent with studies that explain the

challenges that L1 English speakers encounter when learning to pronounce L2 Spanish diphthongs (e.g., Díaz & Simonet, 2015; Macleod, 2012). The results highlight the benefits of L2 pronunciation instruction and the use of self-monitoring strategies and covert rehearsal models to overcome the expected L2 pronunciation difficulties (Ingels, 2011; Londoño-Díaz, 2014; Sardegna, 2011).

Additionally, the results of the group average duration of individual rising diphthongs and the TR section have important implications for two of the most prominent phonological theories: the SLM and cognitive phonology theory. First, the SLM claims the idea that learners have an attunement mechanism by which they assimilate and establish categories for the L2 sounds and that, in addition, learners filter out audible L2 phonetic sounds as either similar or different, which accounts for differences in the learnability of phonetic segments in the L2. In this sense, L2 sounds that are assimilated as similar are more difficult to acquire than the L2 sounds that are assimilated as different. What the SLM proposes is that the greater the perceived dissimilarity of an L2 sound from the closest sound of the L1, the more likely a new category will be formed for the L2 sound.

Second, cognitive phonology theory states that pronunciation is more than a motor skill; it is a cognitive skill. Along these lines, cognitive phonology theory holds that accurate L2 pronunciation depends on learner's ability to perceive and categorize L2 sounds, which subsequently allows them to create mental representations of the L2 sound. However, this is a skill that takes time and can only be achieved by learners through instruction of the L2 phonological concepts and practice, which is precisely what learners were given in this study.

In this respect, most researchers have agreed that aside from the articulatory differences that exist between the Spanish and English vowel system, the differences in the phonotactic

constraints, that is, the rules for syllable structure at end of word are also a factor that account for difficulties in the pronunciation of L2 SRD in English speakers. According to Hammond (2001), MacLeod (2012), and Krause (2013), among others, the articulation of Spanish glides [j] and [w] is similar enough to their English counterparts as to not present major difficulties in the pronunciation of Spanish diphthongs. However, the regular rules for syllable formation, which dictate the syllable positions where the Spanish glides occur, do not always coincide with the syllable distribution of glides in English. This is precisely what happens with the pronunciation of L2 Spanish rising diphthongs. Specifically, SRD are found in initial position {consonant + [j] + vowel} or {consonant + [w] + vowel} which include alveolar consonants /t/ (e.g., *tienda* ‘store’), /d/ (e.g., *duermo* ‘I sleep’), /s/ (e.g., *cianuro* ‘cyanide’ or *suelto* ‘I release’), and velar /k/ in initial syllable sequences of the [w] glide (e.g., *cuerva* ‘string’).

Regarding the similarity of Spanish rising diphthongs to English, the SLM-based hypothesis is that most of the Spanish rising diphthongs would be perceived as novel L2 sounds because in English rising diphthongs are very uncommon. The phonotactic rules for diphthong formation in English are found to be fairly constrained in terms of the position where they are allowed to occur in a word when compared to the rules for Spanish diphthong formation. In that regard, the results of individual SRD duration in the L2 experimental group for Task 1 indicate that learners were able to accurately form new categories for the novel phonetic forms, that is, the SRD. Comparisons of pretest versus posttest average group duration of individual SRD for Task 1 revealed significant improvement in the production of all Spanish rising diphthongs.

The most striking improvement was found in diphthongs /ie/ (with a nonsignificant *p* value of .969), /io/ (with a nonsignificant *p* value of .898), /iu/ (with a nonsignificant *p* value of

.997), /uo/ (with a nonsignificant  $p$  value of .988), /ue/ (with a nonsignificant  $p$  value of .969), and /ua/ (with a nonsignificant  $p$  value of .681). The fact that these  $p$  values are not statistically significantly different from the L1 Spanish speakers' values indicates that learners in the L2 experimental group ended the study with more target-like pronunciation of the SRD. In line with cognitive theory, learners' productions of individual diphthong durations demonstrated that the knowledge of Spanish diphthong and syllable formation they acquired through the pronunciation instruction in this study helped them develop their cognitive skills, which consequently allowed them to raise their awareness of the L2 sounds (i.e., the Spanish rising sequences) and to form mental representations of the same.

With respect to Task 2, learners in the L2 experimental group demonstrated the ability to discern accurately and to form new categories for some of the individual SRD sequences. However, very minimal improvement was seen in their pronunciation of SRD words when elicited in a more contextualized task (i.e., Spanish text) following the treatment. Statistical analysis revealed that learners in the L2 experimental group achieved a nonsignificant level of significance in three of the diphthongs, including /io/ (with a nonsignificant  $p$  value of .626), /ia/ (with a nonsignificant  $p$  value of .443), and /iu/ (with a nonsignificant  $p$  value of .411). As previously explained, nonsignificant values indicate nonsignificant difference between learners' productions of individual SRD diphthong duration and that of the L1 Spanish speakers. In other words, learners were able to approach a significant level of target-like pronunciation in diphthongs /io/, /ia/, and /iu/.

Despite the nonsignificance, the results for Task 2 were somewhat surprising, in that they correlate favorably with the SLM assumption that a greater amount of exposure to the linguistic forms or sounds accompanied by pronunciation instruction is needed for learners to develop the

ability to perceive L1-L2 phonetic differences. In this regard, one of the major drawbacks in the elicited words in the Spanish text Task 2 was the limited exposure that learners had to some of the SRD tokens included in the task. In order for learners to accurately perceive the L2 sounds and thus accurately produce more target-like pronunciation of low frequency words, they needed more time to fully understand the rules of syllabification and familiarize themselves with phonotactic patterns for SRD formation.

In the same way, the results of Task 2 in L2 experimental and L2 control group learners suggest that learners are interpreting their pronunciation of the target language through the L1 orthography. More specifically, learners seem to be using a “repair strategy” known as “over-reliance on orthography” (Szalkowska-Kim, 2014, p. 153). Given that the L2 Spanish learners in this study are beginning learners, they tend to still rely on their L1 orthography or phonotactic patterns to produce the Spanish diphthongs. The broad implication of the results in the L2 control group, who did not exhibit any significant improvement in any of the assessment tasks, led to similar conclusions. The results in the L2 control group suggest that the exposure to the language in the classroom is not enough for learners to develop accurate perception routines that lead to more accurate production of L2 sounds.

Another cause (and perhaps the foremost cause) of discrepancy in the results of Task 2 in L2 experimental group learners is the formality of the task or task style. The assumption that less formal or more natural speech would lead to more phonological errors appears to agree with Major’s ontogeny model (1986). Major’s (1986) claimed that there are more errors produced in less formal speech than in formal speech tasks. As the task becomes more formal, errors become less frequent.

Lastly, low levels of target-like SRD pronunciation in Task 2 could be a result of the interlinguistic (developmental) process known as hypercorrection. The hypercorrection errors are manifested in Task 2 in the form of overshooting the duration of the SRD diphthongs (MacLeod, 2012). It has been found in other studies that learners' tendency to exaggerate the pronunciation of L2 phonological forms results in the overproduction the L2 forms. In conformity with the results of this study, this tendency has been particularly found in less formal speech tasks such as conversation tasks than in a word list task in their effort to accurately produce the L1-L2 contrast (Major, 2008). Given that there are several possible explanations for the results of learners' productions of SRD in Task 2, the reason for this somewhat unexpected outcome is still not entirely clear. However, there is certainly room for improvement. Further data collection would be needed to determine exactly how these factors played a part in learners' pronunciation of SRD in Task 2.

Taken together, the findings of this study are consistent with the principles of cognitive theory, the learner-centered approach, the strategy-based instruction approach, the speech learning model, and the cognitive phonology theory. The employment of the self-monitoring strategies and CRM has provided learners with the opportunity to learn their target language pronunciation of SRD by engaging in conscious actions and reasoned thinking practice that involves the deliberate use of learning strategies. Moreover, the private pronunciation practice trains learners to develop their critical skills as they self-monitor and self-correct their speech. Learners think about the language rules and forms and focus on addressing the challenging areas of their pronunciation on their own. In the same vein, the findings seem to favorably correlate with the claims of the strategy-based instruction approach, which emphasizes the explicit description and modeling of the [pronunciation] learning strategies that activate higher order

skills that lead to the improvement of the L2 phonological structures or forms (Pawlak & Szyszka, 2018).

#### **5.4 Learners' Motivation and Attitude for L2 Pronunciation Learning and SRD**

The results of the analysis on motivation and attitude for L2 pronunciation learning are explained through the lens of three of the most prominent motivation theories: Krashen's affective theory (1985), Gardner and Lambert's (1972) socioeducational theory, and Deci and Ryan's (1985) self-determination theory. Krashen's affective Theory (1985) proposes that the reason why some people are able to learn a second language while others are not is because there are some affective variables or "filters" that prevent language acquisition from taking place. Krashen assumed that not only comprehensible input is necessary for acquisition, but also, a low or weak affective filter.

Apart from Krashen's theory, the theoretical underpinnings of the cognitive and social constructivist theories have also shed light on SLA research. Consequently, scholars have recently started to examine how individual learners' factors, including motivation and attitude, affect L2 pronunciation attainment. Motivation appears to be the second strongest predictor of success in the L2 acquisition process as, according to Gardner (2010), it is one of the main variables that has great influence in learners' success or failure while learning a second language. Studies on L2 pronunciation acquisition have found that not only motivation, but also attitude plays an important role in the use of strategies for pronunciation improvement purposes. In the present study, apart from what learners reported in their questionnaire about their prior pronunciation practice experience, very little was known about learners' drive to improve their Spanish pronunciation.

In consideration of the abovementioned, the current study sought to investigate whether differences in the L2 learners' motivation and attitude could account for differences in their pronunciation improvement of SRD following the self-monitoring strategies pronunciation practice (i.e., Research Questions 2 & 3). To find any association between these social factors and the pronunciation of the L2 Spanish learners, all learners were asked to complete a Likert-scale questionnaire for motivation and attitude toward L2 pronunciation learning (LAMP), which was adapted from the Sardegna, Lee, and Kusey (2014) study on English learners. Several correlation tests analyzed the mean scores of the motivation and attitude factors obtained from the questionnaires, as discussed in the following sections.

**5.4.1 Learners' motivation and the pronunciation of SRD.** Although motivation is one of the most prominent factors garnering ample attention in the field of second language acquisition, only a few studies have examined the effects of this variable on the attainment of L2 pronunciation, in particular, L2 Spanish pronunciation. The purpose of Research Question 2 was to investigate whether there is a correlation between learners' motivation for learning L2 Spanish pronunciation and the level of target-like pronunciation of Spanish rising diphthongs that learners acquired in both noncontextualized and contextualized tasks at the end of the study.

The main finding from the correlational analysis conducted points to extrinsic motivation as the potent factor interacting with the productions of the SRD pronunciation; specifically, with respect to the TR section average duration in Task 2 for both the L2 experimental and L2 control groups. The results for the L2 experimental group indicate a strong negative relationship between the TR section duration and the extrinsic motivation variable, that is, the higher the levels of extrinsic motivation in learners, the lower the target-like pronunciation achieved. Similarly, the results for the L2 control group revealed a strong negative correlation between learners' target-

like TR section duration and the extrinsic motivation, that is, the higher levels of extrinsic motivation in learners led to higher non-target-likeness.

These results have implications for the core work of Gardner and Lambert (1972), who put forward the socioeducational motivation paradigm, which included the instrumental and integrative motivation factors. The instrumental motivation from Gardner and Lambert's (1972) construct was not studied as a separate variable but instead incorporated into the extrinsic motivation component in this study. The fact that one of two of the highest scored items that pertained to the extrinsic motivation assessment in the questionnaire were, *I practice my Spanish pronunciation when it is required by my instructor* and *I try to improve my pronunciation because I will need good pronunciation skills to get good grades*, demonstrates that several of the L2 Spanish learners in this study were externally motivated to practice their pronunciation of Spanish. In this sense, this report fits into Deci and Ryan's (1985) self-determination theory. Deci and Ryan (1985) held that learners are driven by imposed rules or by an external pressure or reward.

At first glance, these findings seem to add to the findings of other researchers who have acknowledged that instrumental and extrinsic motivation are a significant factor that influences learners' desire to learn specific aspects of their target language, in this case, pronunciation. A few key issues arise, however, with a strong negative link between the results of the SRD TR section duration obtained for Task 2 and the extrinsic motivation factor. First, the results of posttest SRD TR section duration in Task 2 lack statistical significance for the target-like pronunciation improvement in all L2 Spanish learners. However, as an attempt to interpret this outcome, some assumptions have been made in relation to learners' extrinsic motivation results on the duration of SRD TR section in Task 2.

First, the aspect of having a negative, strong relationship between the extrinsic motivation variable and the target-like TR section duration achieved in the L2 experimental group and the L2 control group leads to the assumption that having external motives to learn Spanish pronunciation may not result in more target-like acquisition of second language pronunciation, or at least not at significant levels. In that regard, it may seem fruitless to provide pronunciation instruction and implement pronunciation practices if learners are only motivated to learn Spanish to earn good grades or get a good job. In other words, as Krashen (1985) claimed, learners' inappropriate levels of affect, in other words, affective emotions, prevent language input from passing through before it is acquired (as cited in Gass & Selinker, 2008).

Therefore, the results on the productions of SRD TR section in both the L2 experimental and the L2 control group may not be considered necessarily a positive finding and they must be interpreted with caution. It is important to consider that there may be other factors affecting the pronunciation improvement of the participants in Task 2 (Spanish text), including the type of task setting, the word type and length, learners' attitude (which will be discussed in the next section), and the lack of pronunciation instruction prior to the study, which may have affected in particular the results for the L2 control learners.

**5.4.2 Learners' attitude and the pronunciation of SRD.** In an attempt to further investigate the effect of individual learners' factors in the pronunciation of SRDs, the present study examined the question of whether there is a correlation between learners' attitude toward L2 Spanish pronunciation and the level of target-like pronunciation of Spanish rising diphthongs that learners attained in both noncontextualized and contextualized tasks at the end of the study (i.e., Research Question 3). Twenty statements from the LAMP questionnaire were used to elicit learners' attitudes toward learning and practicing Spanish pronunciation.

Earlier efforts to find a relationship between learners' attitudes and the acquisition of an L2 language were initiated by Gardner and Lambert (1972). In their research, they discovered that there was a strong connection between learners' attitudinal orientations and motivation. In addition, Gardner and Lambert suggested that motivation was a construct that included an array of attitude scales, the most important being attitude toward the target language community or culture. They consolidated their findings in the socioeducational motivation construct.

In the present study, however, learners' attitude was examined as a separate affective factor based on Krashen's affective factor theory. Previous studies in SLA have separately examined the role of this variable in the second language learning process. The studies that relate to L2 attitude seemed to be more global in the way they assess learners' attitudinal tendencies and focus more on the general evaluations of learners' beliefs of favor or disfavor about the target language and the culture. In the L2 pronunciation domain, most of the research that pertains to L2 learners' attitude has particularly focused on learners' attitudes and emotional reactions toward native and nonnative accents of English pronunciation. Similarly, the investigations on L2 Spanish pronunciation have followed the same trend. In this study, learners' attitudinal factor was not examined as a monolithic or holistic entity but as a composite construct that considers several cognitive, emotive, and/or conative factors.

As stated previously in Chapter 3, there are four attitude variables considered in this research: affective, cognitive, conative, and self-efficacy. The affective attitude considers the feelings that learners have toward pronunciation learning (e.g., *I worry about making mistakes in class*). The cognitive attitude refers to the evaluative beliefs and outcome evaluations with regard to their pronunciation (e.g., *If I learn to pronounce like a native speaker, I will have better job offers*). The conative attitude considers the behavioral intentions and readiness toward

pronunciation learning and practice (e.g., *I believe more emphasis should be given to proper pronunciation in class*). The self-efficacy attitude accounts for learners' beliefs in their own ability to complete the tasks and attain their pronunciation goals (e.g., *I am satisfied with my pronunciation progress so far*). It is to be noted, however, that in this study the affective attitude component only included negative affect assessment items such as those describing discomfort and nervousness. Following Sardegna et al. (2014), the positive affective factors were included in the intrinsic motivation component, which included items such as *I enjoy imitating Spanish words and phrases*, or *I enjoy listening to myself as I try out or say sounds/words/ sentences*.

As stated in Chapter 4, the results of the attitude correlation tests revealed some interesting information regarding the four-factor attitudinal assessment construct in the L2 experimental group learners. One of the most prominent findings in the L2 experimental group learners suggests that it was their feelings of nervousness and anxiety that mostly affected their pronunciation performance, specifically in Task 1. For Task 2, no significant results were obtained for any of the attitude factors in the correlation tests performed. The attitude correlation tests for Task 1 revealed that there was a significant strong, positive link between the affective attitude variable and the two pronunciation duration variables SRD average duration and the TR section average duration, with a stronger relationship between the TR section duration productions. An additional finding worth discussing for Task 1 is that of the correlation between the conative attitude and both the SRD average duration variables. The conative attitude's correlation results indicate a marginally significant relationship between this attitude type and SRD average duration and the TR section average duration. In that respect, it can be argued that both the affective and the conative have an effect on the production of SRD in learners of the L2 experimental group.

Affective attitude refers to the learners' emotional empathy toward a learning aspect or subject and the conative attitude refers to learner's willingness or volition to engage in regular or self-regulated practice. Studies exploring these two attitudinal components with respect to L2 pronunciation have found that there is an interconnection between the affective and the conative (e.g., Horwitz, Horwitz, & Cope, 1986; Sardegna, Lee, & Kusey, 2018). These findings have provided evidence in support of the theory of reasoned action from the sociopsychological approach. This theory predicts a path of attitudes and behaviors in individuals suggesting that affective components in learners (i.e., affective attitude) influence their intended or self-regulated behaviors (i.e., conative attitude).

In a similar way, the current study has demonstrated that negative affective factors, namely, anxiety and nervousness, are associated with conative attitude factors, which subsequently influence learners' employment of self-monitoring strategies and covert rehearsal practices for L2 pronunciation learning. This attitudinal conjunction can be substantiated with the reports of learners' responses obtained from the LAMP questionnaires. Learners' highest affective item scored was *I get nervous when someone corrects my Spanish pronunciation mistakes*, and the highest conative item scored was *I look for useful materials to practice Spanish pronunciation on the internet*.

These reports coincide with the reports of Sardegna, Lee, and Kusey (2018), whose participants also indicated feeling worried about making pronunciation mistakes or being corrected when speaking in English, resulting in being willing to engage in pronunciation practices and search for learning materials outside their classroom. In Sardegna et al.'s study, learners also indicated that they were more likely to panic if they had to speak English without having previously practiced their speech. This notion is in line with the findings of other studies

reporting anxiety as a culprit for learners' lack of participation or oral engagement in their classroom. Interestingly, although these reports suggest that negative emotions such as anxiety or nervousness hinder learners' eagerness to speak, these emotions do not seem to hinder learners' willingness to improve their pronunciation skills. On the contrary, it appears that negative emotions work as a trigger that stimulates learners' volition to study more and engage in pronunciation practices outside the classroom. Comparable to the reports of learners in Sardegna, et al.'s (2018) study, the L2 experimental group learners in this study indicated feeling anxious about speaking Spanish. Consequently, they were more willing to take actions such as finding the time to practice their pronunciation or seeking learning materials on the Internet to improve their oral skills outside the classroom.

Along with that, six out of eight learners indicated that they would be willing to continue using the pronunciation strategy practice introduced to them in this study in the future, as they considered that it had helped them learn more about their pronunciation skills than any other practice that they had employed before. Based on this notion, training learners to use self-monitoring strategies and covert rehearsal pronunciation practices to refine their pronunciation skills for more fluent target language interactions seems a great pedagogical tool for learners to address future pronunciation challenges. Not only that, but learners would be less likely to become anxious when speaking in Spanish because they already had the opportunity to privately practice and rehearse their pronunciation prior to engaging in a target language interaction.

In view of the aforementioned, the researcher proposes numerous implications for the outcome of this study in terms of the effect of the attitude factor in L2 experimental group learners. First, the results indicate that there is indeed a close relationship between the affective, the conative, and the use of self-monitoring strategies and covert rehearsal practices for L2

pronunciation learning. Second, the findings seem to be in line with other research findings showing that anxiety contributes to learning effort, which subsequently contributes to greater pronunciation learning and achievement. Finally, the results seem to imply that the more anxious and worried learners are the more likely they are to take action and make an effort to refine their pronunciation skills. In this way, learners also avoid negative emotions when trying to orally produce Spanish in future interactions. In conclusion, these results suggest that engaging in the appropriate use of self-monitoring strategies boosts self-efficacy or self-confidence in learners, subsequently contributing to reduce anxiety, which leads to better pronunciation outcomes (Szyszka, 2017).

The correlation tests conducted on the L2 control group learners did not exhibit significant relationships for either of the attitude types in Task 1. However, significance values obtained between the cognitive attitude and the TR section average duration values and between the self-efficacy and the SRD average duration suggest a marginally significant relationship between these variables. Specifically, the results revealed a strong positive relationship occurring between the cognitive and the TR section duration target-like achievement. That is, the higher the cognitive attitude, the higher the target-like pronunciation. Moreover, the results suggest a marginally significant, strong negative relationship occurring between self-efficacy and the target-like SRD duration achieved. That is, the higher the self-efficacy attitude or self-confidence, the higher the non-target-like pronunciation percentage value.

Average scores obtained from the LAMP inventory indicate that the highest cognitive item scored by L2 control group learners were *I would communicate better if I practice Spanish pronunciation* and *Learning to pronounce Spanish well is the most important part of learning a language*. Meanwhile, the average mean scores for self-efficacy revealed that learners highly

acknowledge their ability to *acquire accurate Spanish pronunciation if they practice*, and that they also believe that *they could improve their pronunciation on their own using online materials*. In conclusion, these results can be interpreted in two ways: (a) the higher learners' beliefs of acquiring good pronunciation and therefore engaging in pronunciation practices are the lower non-target-like pronunciation learners present, and (b) the higher learners' sense of self-efficacy, the more non-target-like their pronunciation. These findings do not support the reports of other studies that have explored the effects of self-confidence in the acquisition of an L2 language, especially L2 pronunciation (Sardegna et al., 2014).

With respect to the correlation tests conducted for Task 2 in the L2 control group with the same variables tested, the results reveal significant correlations between self-efficacy and both the SRD average duration and the TR section average duration. Both correlations predicted strong negative relationships between the four variables. What these results seem to suggest is that the higher the levels of self-confidence in learners, the more non-target-like the pronunciation of SRD learners present in Task 2. In addition to that, the more self-efficacious learners believe they are, the less likely they are to engage in self-regulatory pronunciation practices such as the ones introduced to the L2 experimental group learners in the study.

Although these data do not seem to be consistent with the general idea of the self-efficacy construct endorsed by other researchers who stated that self-efficacy, that is, self-confidence, is a key factor that affects learners' interest, persistence, and extent of effort students invest in learning as well as the goals they choose to pursue and their use of self-regulatory strategies in performing a task (Raoofti, Tan, & Chan, 2012). These results also call into question that learners' high self-efficacy beliefs result in higher commitment, and subsequently, higher learning achievement.

Different from the results of the work of previous researchers, the findings of this study suggest that high level of learners' self-efficacy can lead to low levels of effort or involvement, which then results in low levels of performance. The researcher hypothesized that learners who attributed greater value to engaging in practicing their Spanish pronunciation were those more likely to engage in pronunciation practices. The reports of learners' LAMP questionnaire responses substantiated this statement. Most of the learners in the L2 control group were very interested on engaging in extracurricular pronunciation practices. Six out of eight learners in this group indicated that they did not feel the need to try any type of oral task in the future to improve their Spanish pronunciation as they felt satisfied with the level of pronunciation performance they had achieved.

Nevertheless, because these findings only account for correlations between learners' attitude and their production of SRD in learners who did not receive pronunciation instruction, this is an issue that should not be overgeneralized. The lack of target-like SRD pronunciation achievement in the L2 control group learners cannot be attributed solely to their attitude toward the acquisition of Spanish pronunciation. In other words, the results of the correlations tested in this section of the study should not be taken as a conclusive factor affecting learners' pronunciation development. On the contrary, the absence of explicit pronunciation instruction and the implementation of clear learning targets and criteria as well as pronunciation learning materials or strategies could have affected learners' pronunciation learning process.

### **5.5 Learners' L1 Dialectal Variety and the Pronunciation of SRD**

It is well known that learners' L1 plays an important role in the acquisition of their L2. Yet, there is very little literature that addresses the question of whether learners' L1 dialectal differences affect their process of acquiring the L2 phonology. The few studies investigating the

effect of learners' L1 dialect on the acquisition of L2 pronunciation have indicated that a different L1 regional dialect results in different L2 pronunciation. In view of this, the present study explored the following question of the extent learners' English dialectal variety affected the level of target-like pronunciation of Spanish rising diphthongs that L2 Spanish learners acquire in a noncontextualized and contextualized elicited task (Research Question 4).

To date, an extensive amount of L2 research on L1 interference or L1 transfer has been framed in terms of one of the most salient interlanguage (phonology) theories: the contrastive analysis hypothesis (CAH). Therefore, the results of this section are explained through the lenses of the CAH, which assumes that difficulties in L2 learning stem from the differences that exist between the L1 and the L2 systems. To be more precise, the CAH claims that those linguistic forms that are similar to the learner's L1 will be easier to acquire than those linguistic forms that are different. Following this framework, the main factor that accounts for differences in the Spanish and English diphthong production is their vowel and syllabication system, which affects the way diphthongs are formed. In this respect, English has more phonotactic restrictions for what constitutes a diphthong. Moreover, English has been typically described as having falling but not rising diphthongs (MacLeod, 2008).

In general terms, the Spanish vowel system is simple and stable. As far as the pronunciation of the vowels is concerned, very little phonological variation is seen among monolingual native speakers (Hammond, 2001). The English vowel system, on the contrary, namely, the American English vowel system, is highly unstable, presenting common variations and changes in the pronunciation of vowels depending upon where they occur in the word. In addition, there are considerable differences in the vowel pronunciation among monolingual English speakers who are from different regions, which results in a divergence in diphthong

production, including rising diphthongs. In consideration of the principles of CAH, this study examined the question of whether learners' L1 dialectal variety—specifically, English Southern dialect—had an effect on the level of target-like pronunciation that learners achieved in the two assessment tasks considered: the word list (Task 1) and the Spanish text (Task 2).

The results of the productions of SRD for posttest for the three groups (L2 experimental, L2 control, L1 Spanish speakers) indicate that learners in the L2 experimental group were able to significantly achieve more target-like pronunciation of SRD in Task 1. Contrary to the expectations, there was not significance improvement shown for the productions of the same group for Task 2. The results of the L2 control group for posttest Task 1 and Task 2 indicate significant differences in their productions of average SRD duration when compared to those of the L1 Spanish speakers' group. L2 control group learners did not show an improvement in their pronunciation of SRD; on the contrary, they deviated even more in their pronunciation toward a more non-target-like pronunciation.

The results of the ANCOVA conducted to examine the effect of learners' L1 dialectal variety indicate even higher levels of significant target-like achievement when eliminating the effect of learners' dialectal variety. The ANCOVA test controls for the effect of an unwanted variance on the dependent variable caused by the covariate factor, in this case, learners' L1 dialectal variety. In other words, it eliminates the effect that learners' L1 dialect differences may have on the production of the SRD. Therefore, the fact that the significance value obtained for the ANCOVA ( $p = .911$ ) computed in Section 4.6.1 for Task 1 was higher than the one generated by the MANOVA ( $p = .531$ ) in Section 4.3.1.1, highlights the possibility that differences in learners' dialectal variety in the L2 experimental group may be preventing learners from acquiring higher levels of SRD pronunciation in Task 1. Regarding the results of Task 2, no

difference was found from the previous analysis in which learners' L1 dialectal variety was not considered a covariate factor. As for the results of the ANCOVA conducted in the L2 control group learners, these also did not reveal striking differences when compared to the MANOVA tests conducted in Sections 4.3.1.1 and 4.3.1.2 for Task 1 and Task 2, respectively.

When considering the general outcome in Tasks 1 and 2, it seems that overall neither significant negative effects in the ability of learners to achieve more target-like pronunciation of SRD average duration, nor evidence of errors resulting from L1 interference was found. In other words, the results do not seem to provide enough evidence to account for a clear-cut description of the data. Therefore, a more exhaustive analysis is necessary to examine whether a particular English dialectal variety would result in variety-specific pronunciation patterns that could lead to difficulties in acquiring target-like pronunciation of SRD. Additionally, the results of whether or not errors resulted from L1 interferences based on CAH are not concrete.

**5.5.1 Effect of learners' L1 dialectal variety and the pronunciation of SRD in Task 1.** To begin, the overall group description trend in the data for learners in the L2 experimental group suggests that learners who were *highly southern* did not seem to present significant difficulties acquiring a more target-like pronunciation of SRD in Task 1. The same results were obtained for those learners with *mostly southern* dialect profiling, except for one speaker. The speaker coded as Exp4 did not exhibit a significant target-like improvement. Despite the fact that this learner exhibited a non-target-like duration decrease on the total duration of the SRD sequence from 48% (at pretest) to 31% (at posttest), the learners did seem to reach a significant level of improvement according to the statistical results of the ANOVA conducted in section 4.6.1 for Task 1.

As stated previously, this learner presented higher levels of non-target-likeness for SRD at posttest Task 1 than any other learner in the L2 experimental group. Unlike some of the other L2 experimental group learners who were profiled as *mostly southern*, this learner exhibited some additional linguistic features that seem to be characteristic of the African-American Vernacular English (AAVE) English as described by Bailey and Thomas (1998) and Edwards (2008) or more commonly referred to as African American Language (AAL) by Bloomquist, Green, and Lanehart (2015). For this reason, the researcher decided to create a new profiling category to further study this learner's pronunciation, namely, *hybrid southern*.

According to Bailey and Thomas (1998) and Edwards (2008), the AAVE features include (a) the deletion or vocalization of [l] after a vowel such as in the word “fool,” which the speaker pronounced as [foo]; and (b) the merger of /ɛ/ and /ɪ/, which is also a common feature of the Southern English variety, but that in the case of this particular participant seems to have occurred differently due to his AAVE features. The most common behavior in the Southern speakers in this study with respect to these two vowels appears to indicate a merger always occurring from the short /ɛ/ vowel merging to short /ɪ/ vowel. In the case of the AAVE speaker these two vowels seem to be pronounced interchangeably in where “pen” is pronounced as [pɪn], and “pin” is pronounced as [pɛn]. A third feature of AAVE English present in the L2 experimental group speaker is the substitution of postvocalic and syllabic /l/ for the high back rounded vowel [ɔ] such as in the word fell [fɛl] as [fɛɔ]. A fourth feature observed was the pronunciation of the word *aunt* with the low fronted rounded vowel [ɒ], [ɒnt] instead of the upgliding Southern pronunciation [æənt] or the Standard English [ænt]. Last, the speaker exhibits an insertion of the schwa [ə] vowel and deletion of /l/ in postvocalic and syllabic positions in words such as “pool” being pronounced as [pʊə] (as described in Bailey & Thomas, 1998).

The results of the ANOVA reveal a statistical mean difference in the production of SRD duration in the *hybrid southern* dialect when compared to the other dialects, thus suggesting the possibility that the AAVE affected this particular learners' acquisition of L2 Spanish rising pronunciation. In particular, these results also suggest the possibility of an increase in the manifestation of errors in the pronunciation of Spanish vowels, more specifically, rising diphthongs due to differences in the English vowel production of learners with these dialectal features. This tentative observation needs to be corroborated with more learners that share this same linguistic profile.

These results seem to have implications for the CAH. The results are consistent with other studies that have examined L1 variety-specific patterns that could result in different difficulties in acquiring the L2 phonological system (e.g., O'Brien & Smith, 2010; Major, 2008). All other speakers in the L2 experimental group rated as *southern* or *mostly southern* did not seem to present problems achieving high levels of target-like pronunciation in their average SRD duration, which achieved 96% to 99% target-likeness. This finding was corroborated by the inferential analysis conducted as there was a nonsignificant difference between the productions of average SRD durations between these participants and the L1 Spanish speakers at posttest Task 1.

The results of speakers in the L2 control group, however, did not exhibit the same pattern. Not a single learner in this group manifested significant improvement in the pronunciation of SRD. On the contrary, learners increased their non-target-like levels of pronunciation at the end of the study. In terms of differences in their pronunciation that accounted for L1 dialectal variety, no clear L1-specific variation patterns were found that explain higher levels of non-target-like pronunciation produced. Learners with higher levels of non-

target-like pronunciation did not belong to any specific linguistic profile or demonstrate any striking linguistic variations.

### **5.5.2 Effect of learners' L1 dialectal variety and the pronunciation of SRD in**

**Task 2.** Although descriptive comparisons on the production of group average SRD duration suggest that learners in the L2 experimental group improved their pronunciation by producing 33% more target-like duration following the self-monitoring strategies and CRM pronunciation practice, surprisingly, no evidence of significant improvement was found in either of the L2 Spanish learners' groups. A contrasting descriptive pattern is seen in learners in the L2 control group who increased their non-target-like pronunciation of SRD duration from 48% to 65%. This means that, overall, learners who did not practice the self-monitoring strategies and the CRM deviated even more in their production of SRD duration when compared to that of the L1 Spanish speakers.

The ANCOVA for average SRD duration of all groups (L2 experimental, L2 control, L1 Spanish speakers) in Task 2, controlling for the effect of learners' L1 dialectal variety factor, did not point out any striking differences. The test did not reveal statistically significant evidence in support of the assumption that a learner's L1 dialectal variety affects the pronunciation of SRD of L2 Spanish learners in Task 2. In other words, the results are not conclusive.

The results of the ANOVA point to different conclusions. For learners in the L2 experimental group, the results revealed that learners with the following dialectal varieties, *moderately southern, mostly southern, highly southern, and hybrid southern*, produced statistically different SRD duration when compared with that of the native Spanish speakers. For the *not southern* variation, however, the results reveal a nonsignificant difference between their average SRD duration values and those of the L1 Spanish speakers. Although these results may

be difficult to explain within the context of this type of elicited task (Spanish text), it is important to highlight one common biographical factor that may help elucidate the linguistic behavior of these speakers. That is, most learners indicated that they had been born or lived for several years in the Southeastern region of the United States, including the city of the study.

Additionally, the one learner in the L2 experimental group who was profiled as *mostly southern* had the highest non-target-like deviation of 26% for Task 2. Incidentally, this participant was also the only speaker who presented non-target-like deviation for Task 1, presumably due to the additional AAVE phonological features. There is a reason to believe, then, that this L1 dialectal variety is affecting the learners' production of SRD in Task 2 as well. A different L2 experimental group learner who was profiled as *moderately southern* indicated to have been born in the Southwest but lived in the Southeast for many years. From this standpoint, although there are probably other factors such as attitude and motivation, as discussed earlier in this chapter, affecting learners' productions of SRD in Task 2, it seems that the Southern and the AAVE English dialects are a salient factor affecting the levels of target-like pronunciation achieved in the L2 experimental group.

When compared to the results of the L2 experimental group learners, the results of the L2 control group learners do not provide grounds for believing that a specific English dialectal variety significantly impacts the overall pronunciation of SRD in learners. One noticeable fact in this group is that all learners are natives of the Southeastern states. Another salient fact was found in the productions of two speakers with very high non-target-like productions of average SRD duration: (a) one profiled as *mostly southern*, and (b) one profiled as *not southern*. The *mostly southern* learner exhibited 99% non-target-like pronunciation, and the *not southern* learner exhibited 96% non-target-like pronunciation.

In conclusion, the extent to which it is possible to draw a conclusion in terms of whether a specific L1 dialectal variety affected L2 Spanish learners' pronunciation of SRD that shed light on the basis of the contrastive analysis hypothesis is unclear, and specifically the idea that L2 errors are derived from the differences that exist between the L1 and the L2. As stated previously, the main factor that accounts for differences in Spanish and English diphthong production is the differences that exist between the two vowel systems and the phonotactic restrictions for what constitutes a diphthong. Moreover, English has been typically described as having falling diphthongs, but not rising diphthongs (MacLeod, 2008).

The fact that, overall, learners in the L2 experimental group were able to achieved more target-like pronunciation of six out of eight diphthongs, including /ie/, /io/, /iu/, /uo/, /ue/, and /ua/ in the noncontextualized task suggests that providing learners with pronunciation instruction and pronunciation practices to improve their pronunciation helps learners overcome those challenges that they encountered due to the differences in the English versus Spanish vowel systems. As for the results of Task 2, however, the fact that the L2 experimental group approached a significant level of target-like individual diphthong duration in only three of the diphthongs, including /io/, /ia/, and /iu/, could simply mean that input alone is not enough for learners to improve their pronunciation of SRD, which has implications for the premise of Flege's (1995) speech learning model (SLM). The SLM predicts that exposure to the language over time will result in accurate production. Fundamentally, as explained earlier, it is important to note that the exposure to Spanish in the classroom is very limited.

In the case of the L2 experimental learners who exhibited higher levels of non-target-like pronunciation at posttest, in both assessment tasks (i.e., word list and Spanish text), suggests that such outcomes should be treated with considerable caution. Given that, there was only one

learner with additional linguistic features that resemble those of AAVE in this study. Moreover, the reason why L2 control group learners did not show any improvement in their pronunciation of SRD from pretest to posttest, instead deviating even more from the target-like pronunciation, may be attributed to the lack of direct pronunciation instruction and structured pronunciation practice.

In conclusion, the findings of this study have provided evidence in support of the use of meta- and cognitive strategies and covert rehearsal pronunciation practice that addressed Research Question 1. The evidence from the results at pretest and posttest for Task 1 and Task 2 suggests that participants clearly showed improvement in the pronunciation of Spanish rising diphthongs after employing the self-monitoring strategies and CRM, particularly for Task 1. Learners clearly showed short-term improvement after 9 weeks of engaging in self-monitoring and covert rehearsal practices to improve their pronunciation of SRD. Moreover, motivation and attitude were factors that affected the attainment of more target-like pronunciation, which support Krashen's (1985) affective filter hypothesis. In the same way, the results of this study provide evidence in support of Gardner and Lambert's (1972) socioeducational construct, and Deci and Ryan's (1985) self-determination paradigm, that is, Research Questions 2 and 3. Finally, the results of this study did not seem to provide strong evidence in support of the effect learners' L1 dialectal variety on the acquisition of Spanish rising diphthong pronunciation. Therefore, future work should incorporate larger sample sizes to provide more conclusive statistical results.

## **6. CONCLUSION**

### **6.1 Introduction**

The purpose of this study was to investigate the effects of pronunciation instruction, followed by the employment of cognitive and metacognitive strategies, combined with Dickerson's (1987, 2000) covert rehearsal model (CRM) on the acquisition of L2 Spanish pronunciation. Specifically, the main goal of this study was to contribute to the existing research on L2 pronunciation by training beginning L2 Spanish learners to use critical listening, rehearsal, repetition, and annotation, together with the components of the CRM for pronunciation practice to achieve more target-like pronunciation of L2 Spanish rising diphthongs. An additional element of investigation in this study was the role of individual social factors, that is, motivation and attitude, as well as linguistic factors, such as L1 dialectal variety. In doing so, the present study also aimed to provide a more comprehensive examination than what prior studies on the acquisition of L2 Spanish pronunciation of diphthongs have provided, with an emphasis on beginning learners.

### **6.2 Self-Monitoring Strategies and CRM for L2 Spanish Pronunciation: L2 Pedagogical Implications**

Based on the results of this study, the main contribution of this research to the field of Second Language Acquisition (SLA), and specifically to the L2 pronunciation teaching and learning domain, is that the conjunction of the three elements (i.e., pronunciation instruction, self-monitoring strategies, and Dickerson's CRM) lead to L2 pronunciation improvement. Despite previous studies in Spanish L2 pronunciation that have provided evidence in support of

L2 pronunciation instruction, “[m]ost researchers have agreed that methodological refinement is needed before jumping to robust conclusion”(Camus-Oyarzún, 2016, p. 1). This study offers a well-structured pronunciation method that instructors can use to help beginning L2 learners overcome their pronunciation challenges.

The present study also sheds light on some inconsistencies that have been seen in communicative-based L2 classrooms. The speaking guidelines of the National Council for Accreditation of Teacher Education (ACTFL/NCATE) place learners in this study as “novice-level” speakers whose L2 pronunciation is still strongly influenced by their first language and thus have no real linguistic functional ability because of their pronunciation. With the goal of providing learners with the instruction they need to develop their oral skills, the ACTFL/NCATE constructed a framework that specifically addressed the need for instructors to “describe the target language phonological features (phonemes and allophones) and diagnose their [students’] target language pronunciation problems,” on top of other features of the target language (as cited in Morin, 2007, p. 246).

Unfortunately, language instructors do not seem to be complying with these guidelines, leaving pronunciation instruction on the sidelines. To date, instructors are still “concentra[ting] so hard on teaching performance skills [for L2 language production]” (Dickerson, 1987, p. 13) that they forget to teach the rules that govern the sounds that are used in words: the system of rules for language pronunciation. The fact is that pronunciation instruction is the least of teachers’ priorities, rated as 10th out of the 14 most-important classroom goals, as found in Anderson and Souza (2012).

There are several factors causing teachers to feel hesitant about teaching pronunciation in their classrooms, including lack of time and preparation. In this respect, the pronunciation

strategy model implemented in this study could be the instructional tool L2 instructors need to start addressing the pronunciation issues in their students. If the goal for foreign language programs is to help learners achieve an advanced speaking level, the cognitive approach to teaching L2 pronunciation together with the learner-centered classroom approach included in this study has proven to be an effective way to facilitate L2 pronunciation development (Correa & Grim, 2014). In fact, there are at least four advantages to the pronunciation intervention implemented in this study.

First, given that studies have supported the claim of instructors that time is a constraining factor for pronunciation instruction, the self-monitoring approach in this study offers the out-of-class self-instruction referred to by Dickerson (2000) as *covert rehearsal*, which learners need to address their L2 pronunciation issues on their own. The constructivist approach, learner-centered classroom instruction, in this study, assumes that the role of the teacher is to strategically scaffold and train learners to make pedagogical decisions about their [L2 pronunciation] so that they can engage in self-guided pronunciation practice (Nunan, 1999).

Second, if the concern of instructors is their lack of preparation, beginning-level learners do not need in-depth phonetic instruction to practice their pronunciation. What learners need is the basic phonological knowledge, which includes information on the L2 sound system, articulatory rules, intonation patterns, and syllable construction. Learners in this study only received two 45-minute pronunciation instructional sessions. In other words, learners did not necessarily have to be enrolled in a phonetic course to gain the information they needed to manage their own pronunciation difficulties. The pronunciation instruction learners received in this study, which is apropos of the principles of SLM and the cognitive phonology theory, allowed learners to pay attention to the L1-L2 differences. In this way, learners were able to

develop the discrimination and perception skills they needed to make judgments of their own pronunciation and compare it to the expected target-like model.

Third, the pronunciation instruction learners received in this study provided them with prediction skills. It has been found that instruction of L2 sound articulation and rules of syllabification or spelling improve learners' oral prediction skills, which subsequently lead to the improvement of L2 reading skills (Arteaga, 2000; Dickerson, 2000). In this study learners received articulatory instruction on SRD as well syllabification rules for Spanish diphthong formation, which as previously stated, are different from English. This was particularly evident in learners who during the posttest recordings of the Spanish text did not recognize the word in the text, and therefore were unable to read it. These learners were given the option by the researcher to recall the syllabification rules for Spanish pronunciation and divide the word into syllables. Once they had done that, they were able to produce the word correctly.

The findings of this study, as well as the comments made by some of the L2 experimental group learners, have provided evidence in support of the need for learners to know how to divide and articulate the L2 sounds. One of the comments made by a student when asked to rate the strategies employed in the study was, "I feel like the most effective strategy was when the researcher herself gave the verbal break-down of the word." Another comment during one of the instructional sessions was, "Listening and watching how my tongue moves inside my mouth when I say the vowels helps me create an image of the sounds in my head." Then, a different student replied, "Yes, now I actually know what I am saying."

Fourth, the sense of knowing how to pronounce an L2 word as a result of their private pronunciation practice increases learners' motivation to produce the language in public. Along these lines, the willingness to communicate (WTC) construct highlights the concept of

“readiness to enter into discourse at a particular time” (MacIntyre, Clement, Dörnyei, & Noels, 1998, p. 547). The most frequent cause for anxiety experienced by L2 learners in the classroom is “great embarrassment” due to the belief that they have a “terrible accent” (Price, 1991, p. 105, as cited in Baran-Łucarz, 2014, p. 37). In the LAMP questionnaire, one of the comments of an L2 control learner (no pronunciation intervention) when asked if she was willing to try oral tasks on her own that included the type of self-monitoring strategies implemented in the L2 experimental group to improve her pronunciation of Spanish was, “Yes, accents are a part of the language. So, I think in order to be truly fluent in Spanish you need to learn the Spanish accent.” Another student wrote, “Yes, it helps to get the correct pronunciation if I want to be fluent and not sound like a gringo.”

It seems, then, that not only the self-monitoring strategies and CRM for pronunciation practice help learners continue to make progress in their areas of difficulty outside the classroom, but these strategies could also reduce their anxiety of speaking in public. It could give them the confidence that they are being understood by both native and nonnative speakers of the target language (Correa & Grim, 2014). In the same way, learners’ self-assessment has been found to develop students’ intrinsic motivation and conative attitude toward L2 pronunciation acquisition, which enhances willingness to engage in L2 practices and persist in difficult tasks on their own (Millan & Hearn, 2008). A sample instructional session preceding learners’ pronunciation practice is listed below in Table 26.

Table 26

*Sample Pronunciation Lesson Prior to Pronunciation Practice*

Lesson components	Activity description	Scaffolding components
<b>Component 1</b>		
Lecture on target pronunciation forms	Researcher describes and illustrates target pronunciation features	Giving Explicit Instruction
Practice	Researcher provides a recorded speech and a shortened transcript to practice sounds in words.	Facilitating Learning Illustrating the Use of Self-monitoring Strategies
<b>Component 2</b>		
a. Critical Listening Identification, Analysis, and Application of Strategy	Students listen to a recording to target pronunciation of featured sounds: script provided. Instructor models featured sounds, and students imitate and identify non-target features on their pronunciation.	Raising Awareness Modeling Feature/ Providing Opportunities for Guided Output Speech and Guided Self-Assessment
b. Annotation	Students mark corrections on the script in a contrasting color (color pencil provided if necessary).	Providing opportunities for Self-monitoring and Self-assessment
c. Repetition	Students record their own speech using an audio recorder. Then they compare and contrast their own with native recorded version and receive instructor feedback.	Providing Opportunities for Instructor Feedback Facilitating and/or Providing Opportunities for Guided Self-assessment
d. Rehearsal	Students repeat what they have been modeled on their own three times.	

*Note.* Adapted from “Scaffolding Students’ Self-Regulated Efforts for Effective Pronunciation Practice,” by V. G. Sardegna and A. McGregor. 2012. *Proceedings of the 4th Pronunciation in Second Language Learning and Teaching Conference*, pp. 182-193.

Last, the pronunciation strategy model in this study can easily be implemented in different foreign language levels and courses. To date, many of the FL courses include face-to-face instruction that is enhanced by learning management systems (LMS) such as Blackboard, Moodle, iLearn, Canvas, and so forth. Following the design of this study, the pronunciation practice could be assigned by the instructors as modules via the course management systems.

The pronunciation instructions could be given to the students face-to-face in a similar manner as in the study or could be uploaded as narrated slideshows or videos in the course's online platform. Learners can then submit the recordings of their self-monitoring pronunciation practice for instructor feedback.

### **6.3 Limitations of the Study**

Although the importance of this study lies in providing an instructional model for L2 pronunciation teaching and learning, there are a number of potential limitations to be considered. First, the L2 Spanish learners' population size in this study was small. The study would have been potentially more generalizable if there were more participants included in the sample. Therefore, caution must be applied when interpreting the results. Aside from having a small population sample, all L2 Spanish speakers were females. In general, it has been claimed that females process language differently than males do, and this has been attributed to their bilateral mental processing (Moyer, 2016).

Moreover, evidence of a female advantage in pronunciation has been found in previous studies in regard to having better perception and being more sensitive to phonemic contrast (Flege, Munro, & Mackey, 1995; Moyer, 2016). In a study conducted by Díaz-Campos (2004), he compared the levels of phonological accuracy in learners who were exposed to regular classroom linguistic input and learners who were immersed in a study abroad program. He discovered that female learners had acquired more target-like levels of pronunciation than males irrespective of their immersion context. In another study, Jahandar, Khodabandehlou, Seyedi, and Abadi Meza (2012) found that females outperformed males in producing more accurate consonants, but not vowels. Additionally, it has been suggested that females have different

motivational orientations than males and have different attitudes or approaches to tasks (Moyer, 2016).

Another limitation of this study is related to the difference in learners' level of Spanish due to differing prior language exposure and classroom settings. As noted previously, the study population consisted of undergraduate learners enrolled in Spanish 102 courses. All Spanish 102 courses at this university included learners who had taken one semester of college-level Spanish at the same university or at another institution or had taken 2 years of high school Spanish prior to their enrollment in the course. Given that not all learners had had the same classroom setting background, the possibility of learners having different language skills cannot be ignored. Parallel to this, the cross-sectional L2 Spanish learners' recruitment may have brought about inconsistencies in the results that are attributed to differences in learners' classroom background and the type of naturalistic language input that they received during the study. Pedagogical style as well as native Spanish versus nonnative Spanish instruction should be considered in similar studies.

An additional limitation of the study resulted from the choice of assessment tasks. The results of the study reveal significant pronunciation improvement of SRD in Task 1 but not in Task 2. The reason for this outcome is still not clear. However, it has been found in previous L2 pronunciation research that controlled setting tasks such as a read aloud word list or text may have limited implications (Camus-Oyarzún, 2016; Kissling, 2013;). Therefore, studies on L2 pronunciation should include a variety of assessment tasks so that L2 pronunciation accuracy achievement is measured and examined from different angles. In other words, "the ways in which laboratory research is valid on the one hand and insufficient on the other will be better understood" (Counselman, 2015, p. 44).

One other area to address in this study derives from the acoustic analysis. The need for more acoustic measurements that could provide a more in-depth examination of learners' productions is recognized. Acoustic measurements, such as rate of change (ROC), allow for a closer examination of the trajectory of the glide in diphthongs (MacLeod, 2008). Formant values of the vowels in the diphthong are also a great source for identifying whether learners have acquired a more target-like vowel quality. Additionally, an acoustic analysis that considers the difference in the pronunciation of words with different numbers of syllables and the consonants that surround the vowel sequence needs to be addressed for similar research. Furthermore, although some acoustic analysis was conducted to profile learners' L1 dialectal features, a more thorough acoustic analysis of the featured English vowels is needed for more accurate profiling descriptions.

One last limitation of this study is related to the timing of the elicitation instruments. A recording sample from all L2 Spanish learners at mid-study could have added some relevant information about the developmental process of learners' pronunciation. The reason for the outcome for the L2 control group learners in both assessment tasks and even for Task 2 in the L2 experimental group learners is still not concrete. In the same way, motivation and attitude questionnaires should have been administered not only at the end of study, but also at the beginning of the study to provide a more complete view of the dynamic nature of this factor. It has been found that motivation is not a fixed factor and that it could change over time (e.g., Ushioda, 2011). In view of that, it is recommended that future studies consider implementing the abovementioned. In conclusion, the investigations into this area are still ongoing. Therefore, some future research considerations are discussed below.

#### **6.4 Considerations for Future Study**

Further research should aim to examine the effect of the combination of pronunciation instruction, self-monitoring strategies, and CRM on larger sample sizes. In addition, more individual learners' variables should be considered such as gender and previous (and present) classroom setting. Aside from examining the effect of the three elements together as implemented in this study, it would be worthwhile to explore the effects of the elements separately. An even more scrutinized analysis could be the implementation of the different combination of the self-monitoring strategies featured in this study, namely, critical listening, repetition, rehearsal, and annotation. In a study conducted by Ingels (2011), he examined the effects of different self-monitoring strategy combinations (listening only [L], listening + transcription [LT], listening + transcription + annotation [LTA]), and rehearsal (R). Ingels (2011) found that different combinations of strategies resulted in more pronunciation accuracy than others.

As previously indicated, future investigations should include more acoustic measurements to assess L2 Spanish learners' pronunciation of SRD. In the same fashion, the analysis of learners' L1 dialectal features should not be constrained to one linguistic variation. Future studies should study learners from different dialectal backgrounds including AAVE or AAL. To the knowledge of the researcher, no other study has investigated the acquisition of L2 Spanish pronunciation on learners with these dialectal features. Given that the sample size for AAVE or AAL learners in this study was limited, the researcher would like to continue investigating the extent to which this AAVE or AAL English dialectal variety affects the acquisition of L2 Spanish pronunciation in general.

In conclusion, the strength of this study lies in the importance of incorporating pronunciation instruction inside and outside the L2 classrooms. Specifically, the implementation of self-monitoring strategies and CRM has important implications for solving learners' issues regarding the pronunciation of Spanish diphthongs at the beginning levels of language study. This study provides a new way to approach the teaching of pronunciation for second and foreign language teachers who do not know how to help learners address their L2 pronunciation issues. In addition, it gives learners a practical tool to improve students' perception skills that subsequently allows them to identify and correctly address the problematic areas of their L2 pronunciation. In conclusion, the results of the study are promising and should be added to the growing body of literature on L2 pronunciation teaching and learning.

Additionally, it is important to highlight that this model can be employed to address different learners' issues with Spanish pronunciation. Although this study emphasized the acquisition of segmental features, namely, vowels and diphthongs, further investigations should include the effect of the featured self-monitoring strategies and CRM on suprasegmental features of Spanish pronunciation, including intonation, stress, and connected speech. Further, this model presents the advantage of being easily incorporated into different second and foreign language courses.

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**APPENDIX A**

**L2 SPANISH LEARNERS' BACKGROUND QUESTIONNAIRE**

**Participant code-name** (to be filled in by researcher) \_\_\_\_\_

Please fill out the following questionnaire to describe your background in Spanish. All information is confidential.

1) Name: \_\_\_\_\_  
                    First                                    MI                                    Last

2) DOB: \_\_\_\_\_ Age: \_\_\_\_\_ Gender: Male      Female

3) Email \_\_\_\_\_

4) Where were you born? \_\_\_\_\_  
  City  State

5) What language(s) did you speak at home before age 5? Yes \_\_\_\_\_ No \_\_\_\_\_

***If yes***, with whom?

\_\_\_\_\_

6) If you were born in another place, how long have you lived in Tuscaloosa (e.g., 2.5 years, 1 month, etc.)?

7) Have you lived in another place other than Tuscaloosa? Where? How long?  
(example: Hattiesburg, MS, 2 years)?

8) Where are you parents from?

Mother \_\_\_\_\_  
                    city                                    state                                    country

Father \_\_\_\_\_  
                    city                                    state                                    country

9) What Spanish courses have you taken or are you currently enrolled in at the University of Alabama?

10) Have you taken Spanish classes at another university? Yes \_\_\_\_\_ No \_\_\_\_\_ ***If yes***, list the courses and levels (e.g., SP 100, SP 099, etc.)

11) Did you take Spanish in High School? Yes \_\_\_\_\_ No \_\_\_\_\_ How many years/months?

12) How long (total) have you been studying Spanish (e.g., 1 year, 2 months, etc.)?

13) Other languages studied in college or High School? How many years/months ago?

14) Are language(s) other than English spoken at home? Yes \_\_\_\_\_ No \_\_\_\_\_

**If yes**, by whom? \_\_\_\_\_

15) Have you ever traveled to a Spanish-speaking country? Yes \_\_\_\_\_ No \_\_\_\_\_

**If yes**, Where (city and country)? \_\_\_\_\_

Duration of stay (years, months, week or days)? \_\_\_\_\_

16) Did you speak Spanish there? **If yes**, how often (e.g., daily, when needed, etc.)?

17) Do you have any friends whose native language is Spanish? Yes \_\_\_\_\_ No \_\_\_\_\_ **If yes**, what city and country are they from? How often do you speak to them?

18) Do you listen to music or other media (videos, movies) in Spanish? Yes \_\_\_\_\_ No \_\_\_\_\_ **If yes**, how often? (e.g., daily, weekly, etc.)

19) Do you speak or hear Spanish in any place other than home or school? Yes \_\_\_\_\_ No \_\_\_\_\_ Where?

20) Do you think that you speak with an accent in English? Yes \_\_\_\_\_ No \_\_\_\_\_ **if Yes**, what kind of accent?

Northern \_\_\_\_\_ Western \_\_\_\_\_ Southern \_\_\_\_\_ Other \_\_\_\_\_ (explain)

21) Why do you think you have an accent in English?

22) Have you been told that you speak with an accent in English? Yes \_\_\_\_\_ No \_\_\_\_\_ **if Yes**, what kind of accent?

Northern \_\_\_\_\_ Western \_\_\_\_\_ Southern \_\_\_\_\_ Other \_\_\_\_\_ (explain)

23) Why do you think people tell you that you have an accent in English?

**APPENDIX B**

**L1 SPANISH SPEAKERS' BACKGROUND QUESTIONNAIRE**

Participant code-name (to be filled in by researcher) \_\_\_\_\_

### Background Questionnaire

Please fill out the following questionnaire. All information is confidential.

- 1) Name: \_\_\_\_\_ Email: \_\_\_\_\_
- 2) DOB: \_\_\_\_\_ Age \_\_\_\_\_
- 3) Level of Education \_\_\_\_\_
- 4) Profession \_\_\_\_\_
- 5) Native language \_\_\_\_\_
- 6) What city and country were you born? \_\_\_\_\_  
City \_\_\_\_\_ Country \_\_\_\_\_
- 7) Have you lived in another city or country other than the one that you were born? Yes \_\_\_\_\_ No \_\_\_\_\_  
If yes, where? \_\_\_\_\_  
City \_\_\_\_\_ Country \_\_\_\_\_  
for how long? \_\_\_\_\_ (ex: 2 years and 3 months, 2 months, etc)
- 8) Where are your parents from? (list city and country) \_\_\_\_\_
- 9) Where are your grandparents from? (list city and country) \_\_\_\_\_
- 10) How long have you lived in the United States? \_\_\_\_\_
- 11) What city do you currently live? \_\_\_\_\_
- 12) How long have you lived in the city you currently live? \_\_\_\_\_
- 13) Have you lived in another city in the U.S. other than the city you currently live? \_\_\_\_\_
- 14) Are you currently enrolled at a local U.S. university? Yes \_\_\_\_\_ No \_\_\_\_\_  
If yes, what is your major and level of study? \_\_\_\_\_  
If not, what is the reason for living in the United States? \_\_\_\_\_
- 15) Do you speak any other languages besides Spanish and/or English? Yes \_\_\_\_\_ No \_\_\_\_\_  
If yes, list those: \_\_\_\_\_

**APPENDIX C**

**ADAPTED VERSION OF THE POEM “MIENTRAS DUERMO”  
BY LIANA CASTELLO**

Mientras duermo y sueño  
todo lo puedo  
me tomo de un globo  
y llego hasta el cielo.

No siento peligro, no siento miedo  
pues mis dos piecitos bien puestos  
tengo en el suelo.  
En el aire hago piruetas  
como tiovivo doy vueltas y vueltas.

Juego como si nadie me conociera  
a los ruiseñores canto por dondequiera  
Juegan contentos los lindos cuatitos  
al oír mi canto fastuoso y fortuito

Con las nubes preciosas yo me divierto  
cuando me acuerdo de aquel tiempo  
y de los estuarios en ciudad Tiatira,  
y del viento majestuoso que arduamente  
gira y gira..

Más que dormidito, parezco despierto.  
viendo vestuarios de techos y campanarios  
suelto para que coman a mis canarios  
semillas acuosas y así hacen sus plenaries.

El alba ansiosa con mucha recitura  
termina mi sueño y la luz apura  
como la brisa ella mi cara acaricia  
sinouso es el día que pronto inicia.

**APPENDIX D**

**L2 EXPERIMENTAL GROUP LAMP QUESTIONNAIRE**

Name: \_\_\_\_\_

**Please answer the questions using the numbers below, circle the number that fits your feelings best:**

- 1) I am interested in achieving near native-like fluency.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

- 2) By improving my pronunciation, I hope to be able to communicate more effectively in Spanish.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neutral</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

- 3) I always try to improve my Spanish pronunciation.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

- 4) When I have difficulty pronouncing a sound or words I can't wait to find information about how it is pronounced.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

- 5) I practice my Spanish pronunciation when it is required by my instructor or when I have oral assignments.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

- 6) I like activities and materials that require for me to practice my Spanish pronunciation.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

- 7) I practice my Spanish pronunciation even when it is not required by the teacher or when I do not have oral assignments.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

8) I try hard to improve my Spanish pronunciation because in today's global society it is very important to have a good accent.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

9) I am curious about how to pronounce new words in Spanish.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

9) I'd like to have more pronunciation activities to practice my Spanish pronunciation in class.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

10) I enjoy imitating Spanish words and phrases that I hear around me (e.g., from native speakers, instructor, radio, TV, etc.).

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

11) If there were an elective pronunciation class at my institution, I would take it.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

12) I practice my Spanish pronunciation only to get good grades in my Spanish class.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

13) I would only practice my Spanish pronunciation if I had a teacher that provides me with feedback on my pronunciation **during or after** oral assignments.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

14) I make sure that I have enough time to practice my pronunciation.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

15) I enjoy practicing challenging words even if their pronunciation is difficult.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

16) I stop practicing a sound or another aspect of my pronunciation only when I feel satisfied with my improvement.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

17) I enjoy listening to myself as I try out or say sounds/words/sentences in Spanish

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

18) I practice my Spanish pronunciation because it is needed for my class.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

19) I try to improve my Spanish pronunciation because I (will) need good pronunciation skills to get good grades.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

20) I only practice my pronunciation when a teacher had provided me with feedback on my pronunciation.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

21) I work on my Spanish pronunciation because I want a good/better job salary.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

22) I'd like to lose my foreign accent and be able to speak with a native accent.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

23) My goal is for people not to recognize my nationality because of my accent.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

24) I only think about practicing pronunciation when a teacher has given feedback on my pronunciation

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

25) I would like to achieve good pronunciation and belong to the group of people that has good pronunciation.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

26) I would like to improve my Spanish pronunciation to be able to speak to Spanish-speaking people.

27) I know I can acquire accurate Spanish pronunciation if I practice.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

28) I start to panic when I have to read aloud or speak in front of others without having rehearsed before.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

29) If I could, I'd travel as much as possible to Spanish-speaking countries. I know that it will help me improve my Spanish pronunciation.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

30) If I learn to pronounce like a Spanish native speaker, I will have better job offers.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

31) Focusing on my Spanish pronunciation when I speak is distracting.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

32) It is a pain to correct my pronunciation in Spanish.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

33) I am satisfied with my pronunciation progress so far.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

- 34) If I knew how to correct my Spanish pronunciation, I would spend at least 30 min a day practicing it.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 35) I like to participate in the group activities with the other Spanish language learners because that helps improve my pronunciation skills.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 36) If I knew of a good pronunciation textbook or computer program, I would try to get it even if it is rather expensive.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 37) If I knew of a good pronunciation textbook or computer program, I would try to get it even if it is rather expensive.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 38) I worry about making pronunciation mistakes in class.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 39) I would communicate better if I practice Spanish pronunciation.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 40) I believe more emphasis should be given to proper pronunciation in class.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 41) If I hear of a good pronunciation textbook or computer program, I will try to get it even if it is rather expensive.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 42) I think I can improve my pronunciation on my own using online materials.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 43) I feel confident that people understand me when I talk in Spanish.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
-

44) I look for useful materials to practice Spanish pronunciation on the Internet.

*Very true of me*      *somewhat true of me*      *neither*      *somewhat untrue of me*      *untrue of me*  
**5**                      **4**                      **3**                      **2**                      **1**

45) Learning to pronounce Spanish well is the most important part of learning a language.

*Very true of me*      *somewhat true of me*      *neither*      *somewhat untrue of me*      *untrue of me*  
**5**                      **4**                      **3**                      **2**                      **1**

46) I get nervous when someone corrects my Spanish pronunciation mistakes

*Very true of me*      *somewhat true of me*      *neither*      *somewhat untrue of me*      *untrue of me*  
**5**                      **4**                      **3**                      **2**                      **1**

47) **Before your participation in this study**, have you used any of the strategies that are in the following page for improving your Spanish pronunciation in general? Please indicate how often and when you used each strategy.

Strategies	If yes, when did you use this strategy?
Listening to a recording of my voice to identify errors: <input type="checkbox"/> Never <input type="checkbox"/> 1 to 5 times <input type="checkbox"/> More than 5 times	
Orally rehearsing/repeating to correct my errors: <input type="checkbox"/> Never <input type="checkbox"/> 1 to 5 times <input type="checkbox"/> More than 5 times	

48) Rate each of the following regarding its role in helping you improve your pronunciation of Spanish diphthongs **during the study**.

	<i>Not useful</i>	<i>slightly useful</i>	<i>fairly useful</i>	<i>useful</i>	<i>very useful</i>
Listening to the voice prompts recorded by the researcher	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Listening to your own voice recording	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Orally rehearsing/repeating to correct your errors:	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

\*\*\* Please write any additional comments below ( if you have any):

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49) Rate each of the following regarding its role in helping you improve your Spanish pronunciation in general **during this study**.

	<i>Not useful</i>	<i>slightly useful</i>	<i>fairly useful</i>	<i>useful</i>	<i>very useful</i>
Listening to the voice prompts recorded by the researcher	1	2	3	4	5
Listening to your own voice recording	1	2	3	4	5
Orally rehearsing/repeating to correct your errors:	1	2	3	4	5

\*\*\* Please write any additional comments below ( if you have any):

---

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50) Do you have any other comments about the listening and oral tasks you have completed **during this study**?

51) Would you be willing to try the same or similar task on your own (that is, tasks that include listening, recording and repetition of your own voice) in the future as a tool to improve your Spanish pronunciation in general? Yes or No. Explain

**APPENDIX E**

**L2 CONTROL GROUP LAMP QUESTIONNAIRE**

Name: \_\_\_\_\_

**Please answer the questions using the numbers below, circle the number that fits your feelings best:**

- 1) I am interested in achieving near native-like fluency.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

- 2) By improving my pronunciation, I hope to be able to communicate more effectively in Spanish.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neutral</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

- 3) I always try to improve my Spanish pronunciation.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

- 4) When I have difficulty pronouncing a sound or words I can't wait to find information about how it is pronounced.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

- 5) I practice my Spanish pronunciation when it is required by my instructor or when I have oral assignments.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

- 6) I like activities and materials that require for me to practice my Spanish pronunciation.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

- 7) I practice my Spanish pronunciation even when it is not required by the teacher or when I do not have oral assignments.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

8) I try hard to improve my Spanish pronunciation because in today's global society it is very important to have a good accent.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

9) I am curious about how to pronounce new words in Spanish.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

9) I'd like to have more pronunciation activities to practice my Spanish pronunciation in class.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

10) I enjoy imitating Spanish words and phrases that I hear around me (e.g., from native speakers, instructor, radio, TV, etc.).

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

11) If there were an elective pronunciation class at my institution, I would take it.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

12) I practice my Spanish pronunciation only to get good grades in my Spanish class.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

13) I would only practice my Spanish pronunciation if I had a teacher that provides me with feedback on my pronunciation **during or after** oral assignments.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

14) I make sure that I have enough time to practice my pronunciation.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

15) I enjoy practicing challenging words even if their pronunciation is difficult.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

16) I stop practicing a sound or another aspect of my pronunciation only when I feel satisfied with my improvement.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

17) I enjoy listening to myself as I try out or say sounds/words/sentences in Spanish

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

18) I practice my Spanish pronunciation because it is needed for my class.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

19) I try to improve my Spanish pronunciation because I (will) need good pronunciation skills to get good grades.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

20) I only practice my pronunciation when a teacher had provided me with feedback on my pronunciation.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

21) I work on my Spanish pronunciation because I want a good/better job salary.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

22) I'd like to lose my foreign accent and be able to speak with a native accent.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

23) My goal is for people not to recognize my nationality because of my accent.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

24) I only think about practicing pronunciation when a teacher has given feedback on my pronunciation

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

25) I would like to achieve good pronunciation and belong to the group of people that has good pronunciation.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

26) I would like to improve my Spanish pronunciation to be able to speak to Spanish-speaking people.

27) I know I can acquire accurate Spanish pronunciation if I practice.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

28) I start to panic when I have to read aloud or speak in front of others without having rehearsed before.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

29) If I could, I'd travel as much as possible to Spanish-speaking countries. I know that it will help me improve my Spanish pronunciation.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

30) If I learn to pronounce like a Spanish native speaker, I will have better job offers.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

31) Focusing on my Spanish pronunciation when I speak is distracting.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

32) It is a pain to correct my pronunciation in Spanish.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

33) I am satisfied with my pronunciation progress so far.

<i>Very true of me</i>	<i>somewhat true of me</i>	<i>neither</i>	<i>somewhat untrue of me</i>	<i>untrue of me</i>
<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

- 34) If I knew how to correct my Spanish pronunciation, I would spend at least 30 min a day practicing it.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 35) I like to participate in the group activities with the other Spanish language learners because that helps improve my pronunciation skills.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 36) If I knew of a good pronunciation textbook or computer program, I would try to get it even if it is rather expensive.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 37) If I knew of a good pronunciation textbook or computer program, I would try to get it even if it is rather expensive.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 38) I worry about making pronunciation mistakes in class.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 39) I would communicate better if I practice Spanish pronunciation.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 40) I believe more emphasis should be given to proper pronunciation in class.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 41) If I hear of a good pronunciation textbook or computer program, I will try to get it even if it is rather expensive.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 42) I think I can improve my pronunciation on my own using online materials.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |
- 43) I feel confident that people understand me when I talk in Spanish.
- |                        |                            |                |                              |                     |
|------------------------|----------------------------|----------------|------------------------------|---------------------|
| <i>Very true of me</i> | <i>somewhat true of me</i> | <i>neither</i> | <i>somewhat untrue of me</i> | <i>untrue of me</i> |
| <b>5</b>               | <b>4</b>                   | <b>3</b>       | <b>2</b>                     | <b>1</b>            |

44) I look for useful materials to practice Spanish pronunciation on the Internet.

*Very true of me*      *somewhat true of me*      *neither*      *somewhat untrue of me*      *untrue of me*  
**5**                      **4**                      **3**                      **2**                      **1**

45) Learning to pronounce Spanish well is the most important part of learning a language.

*Very true of me*      *somewhat true of me*      *neither*      *somewhat untrue of me*      *untrue of me*  
**5**                      **4**                      **3**                      **2**                      **1**

46) I get nervous when someone corrects my Spanish pronunciation mistakes

*Very true of me*      *somewhat true of me*      *neither*      *somewhat untrue of me*      *untrue of me*  
**5**                      **4**                      **3**                      **2**                      **1**

47) **Before your participation in this study**, have you used any of the strategies that are in the following page for improving your Spanish pronunciation in general? Please indicate how often and when you used each strategy.

Strategies	If yes, when did you use this strategy?
Listening to a recording of my voice to identify errors: <input type="checkbox"/> Never <input type="checkbox"/> 1 to 5 times <input type="checkbox"/> More than 5 times	
Orally rehearsing/repeating to correct my errors: <input type="checkbox"/> Never <input type="checkbox"/> 1 to 5 times <input type="checkbox"/> More than 5 times	

48) Rate each of the following regarding its role in helping you improve your pronunciation of Spanish diphthongs **during the study**.

	<i>Not useful</i>	<i>Slightly useful</i>	<i>fairly useful</i>	<i>useful</i>	<i>very useful</i>
Listening to the voice prompts recorded by the researcher	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Listening to your own voice recording	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Orally rehearsing/repeating to correct your errors:	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

**APPENDIX F**  
**SCRIPT TO RECRUIT L2 SPANISH LEARNERS**

### **Script for Recruitment of Subjects (to be read when coming to the SP 102 classes)**

"Dear students,

I am a doctoral student in the department of Modern Languages and Classics, and as part of my degree at the university, I am conducting a study on Spanish pronunciation of students taking Spanish as a foreign language. Since you are currently enrolled in a Spanish as foreign language class, I am coming here today to ask you if you would be willing to participate in my study. If you decide that you would like to participate in this study, you will be asked to complete a brief background questionnaire today, which will take you approximately 10-15 minutes. This questionnaire will serve as a screening instrument to determine if you match the criteria required to participate in the study. I, the researcher, will notify you by email whether or not you were selected to participate. The questionnaires of those students who do not qualify will be destroyed/threaded. "

After going through this verbal script with students, Mrs. Martinez (PI) will then hand out a background questionnaire to those students who have agreed to participate. After the potential participants have completed the background questionnaire Mrs. Martinez will announce the following:

"Thank you to those who have agreed to participate in my study. I really appreciate your collaboration. I will be contacting you in the next day to let you know whether you were selected to participate in the study or not. Thank you! "

**APPENDIX G**

**WEEKLY PROMPT FOR L2 EXPERIMENTAL GROUP PRONUNCIATION  
ASSIGNMENTS**

**Purpose of the assignment:**

1. Identify the difficult features of your recorded speech, giving attention to pronunciation of vowel sequences, more specifically the *Spanish Rising Diphthongs*, which were covered previously with the researcher.
2. **Make annotations** of your self-corrected non-Spanish-like productions of the Spanish rising diphthongs that are included in within each word.

**Instructions**

***Weekly Recording Assignments***

**Step 1:** Open the prompt file that you downloaded from Blackboard.

**Note:** Do not start the mp3 file until you are ready to record

**Step 2:** Open your voice-recorder program

Step 3: Start your recording by saying:

- 1) Your **name**, week # recoding assignment #

**Example:**

*Claudia Martinez Week 1 recording assignment 1.1*

- 2) **Pause** your recording.
- 3) **Play the prompt file** that you have previously downloaded.
- 4) Follow the instructions provided in the prompt.
- 5) You will be asked to repeat each word aloud three times total.
- 6) All of your repetitions should be recorded.

**REMEMBER:**

1. LISTEN to your recording, before you record the next one.
2. MAKE annotations (*on the Word Sheet that I provided for you*) of any *non-Spanish-like* pronunciation of the vowel sequences (*rising diphthongs*) when you practice and rehearse the word.
3. Use a **colored pen preferably** to make the annotations.
4. Try to make each repetition more accurate than the previous one.
5. When you have concluded the task, save **the recoding** using the following format:  
FirstName-LastNameInitial\_Week#\_Recording Assignment #

**Example:** ClaudiaM\_Wk1\_Assign1.1

6. Match the file's name with the assignment's name
7. Scan a copy of the Word Sheet that you printed out with your annotations and your answers.

**Final Step 4: Upload to Blackboard:**

1. The word file with the annotations (Word sheet with annotations).
2. Your recoding file in either *.mp3* or *.wav* format.

**APPENDIX H**  
**IRB LETTER OF APPROVAL**

December 7, 2015



Claudia B. Martinez  
Department of Modern Languages & Classics  
College of Arts & Sciences  
The University of Alabama  
Box 870246

Re: IRB # 15-OR-383 "Socio-Cognitive Approach to Teaching L2 Pronunciation:  
An Acoustic Analysis of Spanish Diphthongs"

Dear Ms. Martinez:

The University of Alabama Institutional Review Board has granted approval for your proposed research. Approval has been given under expedited review category 7 as outlined below:

*(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.*

Your application will expire on December 6, 2016. If your research will continue beyond this date, complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, complete the Modification of an Approved Protocol Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, complete the appropriate portions of the IRB Study Closure Form.

Please use reproductions of the IRB approved informed consent form to obtain consent from your participants.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,



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Director & Research Compliance Officer  
Office for Research Compliance