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# A Correlation of Pronunciation Learning Strategies with Spontaneous English Pronunciation of Adult ESL Learners

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A CORRELATION OF PRONUNCIATION LEARNING
STRATEGIES WITH SPONTANEOUS ENGLISH
PRONUNCIATION OF ADULT ESL LEARNERS

by

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ABSTRACT


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In the last thirty years, language learning strategies have been used in the field of

English as a Second Language (ESL) to help learners autonomously improve their

English listening, speaking, reading, and writing.  However, language learning

strategies have not been applied to pronunciation learning in a large scale manner.

This study attempted to bridge this gap by investigating the usage of pronunciation

learning strategies among adult ESL learners.

A strategic pronunciation learning scale (SPLS) was administered to 183 adult

ESL learners in an Intensive English Program.  Their scores on the SPLS were

compared with their scores of spontaneous pronunciation on a program-end speaking

assignment.  A stepwise regression analysis showed that frequently noticing other's

English mistakes, asking for pronunciation help, and adjusting facial muscles all correlated significantly with higher spontaneous pronunciation skill. Other analyses suggested that strong pronunciation learners used pronunciation learning strategies more frequently than poorer learners.

Finally, a taxonomy is proposed that categorizes pronunciation learning strategies into pedagogically-founded groups based on Kolb's (1984) learning construct and four stages of pronunciation acquisition: input/practice, noticing/feedback, hypothesis forming, and hypothesis testing. This taxonomy connects language learning strategies to pronunciation acquisition research.

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# Table of Contents

## List of Tables

**Chapter One**

**Introduction**

Strategic learning and pronunciation learning are both areas of study that have

recently received wide-spread attention in second language research (Brown, 2001;

Bruen, 2001a; Celce-Murcia, Brinton, & Goodwin, 1996; Dornyei & Skehan, 2003;

Fan, 2003; Norton & Toohey, 2001). Strategic learning research has sought to advance

the understanding of how students tackle difficult language learning tasks using

learning strategies (Chamot, 2004; Chamot & El-Dinary, 1999; El-Dib, 2004). On the

other hand, the field of pronunciation learning research has attempted to discover which

areas of pronunciation are most beneficial for instructors to teach (Celce-Murcia,

Brinton, & Goodwin, 1996; Derwing, Munro & Carbonaro, 2000; Florez, 1998; Riney

& Flege, 1998; Riney, Takada, & Ota, 2000). Little crossover between these two fields

has taken place, so second language researchers have yet to discover how second

language learners tackle difficult pronunciation learning tasks through the use of

learning strategies.

This study is meant to help bridge the existing gap between strategic learning

research and pronunciation learning in a Communicative Language Teaching (CLT)

context. The gap is currently very large for several reasons. First, language learning

strategies have only recently been examined in light of pronunciation learning and

much research is still required to determine what pronunciation learning strategies exist

(Peterson, 2000). Second, no categorization scheme exists whereby pronunciation

strategies can be organized into pedagogically founded groupings. Third, no overall

theoretical construct currently ties pronunciation learning strategies to pronunciation

acquisition theory. Finally, no study has examined to what extent students' ability to develop and use pronunciation learning strategies correlates with actual pronunciation skill.

With so many unexplored factors in the new domain of pronunciation learning strategies, the field is both overwhelming and ripe for research. One way to investigate the effect of strategic learning on pronunciation learning is to examine the use of pronunciation learning strategies used intuitively by language learners. Learning strategies have had their greatest impact in language learning on the four major skill areas of second language learning: speaking, listening, reading, and writing. Only a limited number of studies have requested students to reflect on their pronunciation learning techniques and report the strategies they use (Peterson, 2000). This is extremely unfortunate since second language research has begun to show that pronunciation learning is an essential element of second language acquisition (SLA) (e.g. Celce-Murcia, Brinton, & Goodwin, 1996; Hinofotis & Bailey, 1980; Derwing & Rossiter, 2001; Vitanova & Miller, 2002).

Another way to investigate the effect of strategic learning on pronunciation learning is to ascertain the degree to which pronunciation students use personal pronunciation learning strategies in the major areas of pronunciation learning: input, noticing, practice, and feedback. It is, after all, not the number of learning strategies a student uses, rather the ability students have of developing a set of personal learning strategies, which determines good language learners (Chamot & Rubin, 1994). Therefore, a student who reports the ability to successfully develop and implement

theoretically informed pronunciation learning strategies will likely be a good

pronunciation learner.

This study will use elements of both of these investigative techniques to look at

what strategies adult English as a second language (ESL) learners use to improve their

pronunciation. Furthermore, this study will investigate to what degree pronunciation

strategy usage correlates with spontaneous pronunciation skill.

*Definitions of Key Terms*

Below are listed several definitions of key terms that will help the reader in

understanding how these words will be used in and interpreted in this study.

1. *Adult ESL learner:* learners over the age of 18 who participated in this study.

2. *CLT (Communicative Language Teaching):* a teaching method that places the

   learner's interactions with others as the means to and goal of second or foreign

   language acquisition.

3. *Communicative competence:* ability to accomplish communication goals

   through correct use of language.

4. *Feedback:* a function of an interlocutor's ability to understand and cognitively

   process the pronunciation of a speaker.

5. *Hypothesis forming:* the mental process that attempts to bridge the gap between

   actual pronunciation and target pronunciation based on feedback from others or

   learner-noticed discrepancies.

6. *Hypothesis testing:* implementing changes in pronunciation according to new

   hypotheses.

7. *Input:* any stimulus whereby learners encounter language.

8. *Noticing:* to take note—both intentionally and unintentionally—of the rules and patterns of language.

9. *Pausing:* a brief suspension of the voice to indicate the limits and relations of sounds, words, and sentences (adapted from Webster's Collegiate Dictionary, 1975).

10. *Practicing:* the act of producing sounds either in isolation or in communicative contexts.

11. *Segmentals:* discrete units of speech that can be identified physically or auditorily.

12. *SPLS (Strategic Pronunciation Learning Survey):* a tool designed by the researcher to obtain frequency counts of pronunciation learning strategies.

13. *SLA (Second Language Acquisition):* the compilation of theories and processes surrounding how people learn a language after learning their native tongue.

14. *Supersegmentals:* elements of stress, rhythm, and intonation of native speech.

*Research Questions*

The major purpose of this study is to examine the strategic learning of pronunciation through the use of pronunciation learning strategies that are linked to pronunciation acquisition theory. One of the main issues is whether pronunciation learning strategies affect the spontaneous pronunciation skill of adult ESL learners in an intensive English program as measured by pronunciation scores on a level

achievement test. This study will also elicit information about the nature of pronunciation learning strategies used by adult ESL learners.

The review of literature will examine the role of strategic learning and language learning strategies in the CLT context. It will also discuss the importance of pronunciation in current language acquisition research and then review what little research has been done where language learning strategies and pronunciation learning converge. A review of previously identified pronunciation learning strategies found in pronunciation literature will be presented followed by a discussion of currently available taxonomies for categorizing learning strategies. Finally, a construct is presented which accounts for the major areas of pronunciation acquisition theory and synthesizes the pronunciation learning strategies found in the literature in a pedagogically sound manner and forms the basis of the subsequent study.

**Chapter Two**

**Review of Literature**

The review of literature will discuss the role of pronunciation strategies in a Communicative Language Teaching (CLT) context and examine the existent, though limited, literature on pronunciation learning strategies. Next, categorization schemes for learning strategies will be evaluated. Finally, a model for bridging pronunciation acquisition theory with pronunciation learning strategies will be presented.

*Strategic Learning: Language Learning Strategies in the CLT Context*

A prevailing trend among current language teaching professionals in the ESL field is CLT (Chaudron, 2001). This approach to teaching English seeks to place the language learner at the center of his or her education by focusing on communicative competence and language use in authentic situations, rather than rote memorization or mechanical drilling. The communicative approach to language learning was developed in the 1980s; it stresses negotiation of meaning as a primary tool for language learning (Nattinger, 1984). Students are encouraged to interact with one another and with successful users of English. Communicative competence in reading, writing, speaking, listening, grammar, vocabulary, and pronunciation are supposedly developed as students receive guidance from their teacher and experience meaningful communication.

CLT is difficult to define succinctly because of its broad base and multitudinous facets. Many definitions are available for the approach, but Brown (2001) provides an excellent distillation of the many elements of CLT as outlined in Table 1.

> 1. Classroom goals are focused on all the components of communicative competence.
> 2. Language techniques are designed to engage learners in the pragmatic, authentic, functional use of language for meaningful purposes.
> 3. Fluency and accuracy are seen as complementary principles underlying communicative techniques.
> 4. Students ultimately have to use the language, productively and receptively, in unrehearsed contexts outside the classroom. Classroom activities should prepare students for these contexts.
> 5. Students are given opportunities to focus on their own learning process through an understanding of their own styles of learning and through the development of appropriate strategies for autonomous learning.
> 6. The role of the teacher is that of facilitator and guide, not an all-knowing bestower of knowledge.

**Table 1: Characteristics of CLT (from Brown 2001, p. 43)**

An important tenet of CLT is an emphasis on learner roles—what the learner must do personally to facilitate language learning (Brown, 2001). Because CLT focuses on communication above learning specific language forms, the learner is required to take on a more central role in his or her learning when compared to previous teaching methods and approaches. The learner is required to negotiate among himself or herself, the actual process of learning, and the language (Breen and Candlin, 1980). As the learner negotiates meaning, he or she should develop communicative competence. Previous instructional methods such as grammar-translation and audiolingualism assumed that the teacher was the receptacle of linguistic knowledge and that students had little understanding or control of their learning processes. CLT, on the other hand, assumes that learners have specific preconceptions of what and how

a teacher should teach as well as an understanding of what and how a learner should learn (Richards & Rodgers, 2001).

An example of CLT teaching and learning might be a student who enters a speaking class with the expectation that the presentation of words, phrases, and dialogues by the teacher will be the mode of instruction. With such an expectation, a student would likely find a class centered on group discussion and negotiation about themed topics to be extremely foreign. In this situation, a CLT teacher would find ways to incorporate the student's desires for memorized scripts into the instruction while continuing to push students to go beyond memorization by exploring learning styles, balancing fluency with accuracy, making authentic communication a priority, and helping learners to take control of their speaking education.

It is this line of reasoning that has led language researchers, teachers, and materials developers to theorize on what elements of the language learning task learners could control and possibly modify. This theory of learners being directly involved with their learning process is called strategic learning. A main element of strategic learning is the development and usage of language learning strategies (e.g. Anderson, 2005; Bialystok, 1983, 1990; Dörnyei & Scott, 1995; Faerch & Kasper, 1983; Kasper & Kellerman, 1997; MacIntyre, 1994; O'Malley & Chamot, 1990; Oxford, 1990; Paribakht, 1985; Poulisse, 1993; Stern, 1975; Wenden & Rubin, 1987; Wenden, 1991).

Language learning strategies started to make an impact in SLA research thirty years ago when Rubin (1975) and Stern (1975) both began to investigate which language learning strategies were used by good language learners. Rebecca Oxford began research in this field in the 1980s and hers has been the most influential work in

bringing the concept of learning strategies to a prominent position in CLT.  She

describes strategies as "specific actions taken by the learner to make learning easier,

faster, more enjoyable, more self-directed, more effective, and more transferable to new

situations" (1990, p. 8).

This definition covers much ground by defining learning strategies as seemingly

anything—cognitive or behavioral—that helps a learner figure language out.  Yet

Oxford implies certain delimitations on learning strategies in her definition and in how

that definition fits into a CLT context.  For instance, Oxford's definition of learning

strategies asserts that they are personal and specific and that each learner has a set of

them.  It also presents learning strategies in terms of shortcuts—learners should use

them to reduce the cognitive load of language learning, not complicate it.  Lastly, the

definition makes it clear that the language learner should move toward autonomy and

that learning strategies allow the learner to grow more independent of formal

instruction.

An example of a strategy that would cover many of these criteria in a

pronunciation context might be learning the Latin prefix *in-* and its morphological

variants, ie:  *n* changes to *m* before *m* and *p*, etc.  Thus, when a learner chooses to use

the opposites of such words as *conspicuous, precise, rational,* and *mobile*, he or she

could apply the prefix strategy to correctly produce *inconspicuous, imprecise,*

*irrational,* and *immobile*.  This strategy reduces the cognitive load that memorizing the

pronunciation of each of the words independently would otherwise carry, thus also

making the learning process faster.  The strategy also allows the student to make

predictions about other morphological changes that *n* undergoes which promotes

analogizing to new situations and lends to more learner autonomy.

The second delimitation applied to Oxford's (1990) definition is the way in

which it fits within a CLT context. As outlined above, CLT produces communicative

competence through authentic, learner-oriented, fluency-based tasks and exercises.

Students negotiate these tasks and exercises by implementing their learning strategies.

To show how learning strategies fit within CLT, Oxford (1990) explains that learning

strategies "contribute to the main goal [of] communicative competence [and] allow

learners to become more self-directed" (p. 9). Thus, learning strategies are not merely

tools to learn language; rather, they are tools to develop communicative competence

and learner autonomy—the very same goals as CLT.

Despite Oxford's influential work on the definition of learning strategies, many

researchers take issue with her definition. An important point made by Dörnyei and

Skehan (2003) is that the major researchers and developers in the language learning

strategies field cannot agree on whether language learning strategies are behavioral or

cognitive. This debate questions whether language learning strategies are things which

learners *do* or things that they *think*. For instance, a speaking student might jot down

speaking notes using a graphic organizer to facilitate better fluency when speaking.

This could be considered a behavioral strategy in that the learner alters his or her

actions to accommodate the strategy—either by writing the notes or by spending time

in preparation even if the notes are organized mentally. On the other hand, cognitive

strategists would argue that such a strategy requires mental processing and is therefore

based more on cognition and less on behavior. Oxford (1990) herself qualifies

strategies as "specific actions" (p. 8), but others refer to strategies as "operations" (see Rigney, 1978, & Dansereau, 1985), "special thoughts or behaviors" (O'Malley & Chamot, 1990), or "active contribution[s]" (Dörnyei & Skehan, 2003) to the learning task. These and other definitions reflect Ellis's (1994) criticism that learning strategies have been collected "*ad hoc* and atheoretical[ly]" (p. 533) on the grounds that no one really knows the limits of what a learning strategy is.

A compromise to this dilemma was proposed by Ellis (1994) and Cohen (1998), who suggested that strategies should be divided into two major categories: those for *learning* the L2 and those for *using* the L2. In this way, language teachers with a pedagogical emphasis on language *learning* strategies would not have to be burdened with language *use* strategies and vice versa. But under scrutiny, this dichotomy fails to appreciate the complexity of language learning, and it distances strategies from language acquisition. For example, it is possible to learn language while using the language. It is likewise possible to use language in order to learn it—otherwise known as practicing. Thus a complete separation of language learning strategies from language use strategies is pedagogically and theoretically flawed in terms of SLA.

It is beyond the scope of this literature review to expose and then clear away the theoretical and practical muddle and to definitively mark-out the territory of language learning strategies—if they are solely cognitive, solely behavioral, or some combination of both. It is simply important to note that the learning strategies field has attached to it a very brief and convoluted history. This is largely the result of so much research in the field being done in such a short amount of time.

Rather than focus on the field of learning strategies in general, it is the objective of this study to enter the pristine field of pronunciation learning strategies. It is critical to initiate a dialogue, based on theoretical constructs, to identify how pronunciation learning strategies relate to existing pronunciation acquisition theory and to determine how those strategies can be implemented to ease the task of pronunciation acquisition for individual learners. To do so, a definition of learning strategies must be proposed. Despite its current drawbacks, Oxford's 1990 definition is the most widely accepted in the field. Thus, for the purposes of this study, learning strategies will carry the definition applied by Oxford (1990; see also Peterson, 2000): Specific actions taken by the learner to make pronunciation learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations.

*Pronunciation in Current Language Acquisition Research*

Learning strategies have become an accepted part of second language teaching especially in a CLT context when applied to the four major skills of SLA: reading, writing, listening, and speaking. Despite the popularity of learning strategies within Communicative Language Teaching, researchers such as Elliott (1997) have noticed that "the acquisition of pronunciation has fallen to the wayside and has suffered from serious neglect in the communicative classroom" (p. 96) while Derwing and Rossiter explain that learning strategy studies have not discussed pronunciation strategies (2002). Interestingly, only in the last six years have researchers taken an interest in pronunciation strategy research (e.g. Peterson, 2000; Vitanova & Miller, 2002; Derwing & Rossiter, 2002; and Osburne, 2003). It is bizarre that language learning strategies have garnered the attention of language teachers since the mid 1970s, yet

their application to pronunciation has gone unnoticed until the early years of the

twenty-first Century.

Jones (1997) understood this inconsistency and lamented:

Most commercially produced course books on pronunciation today
present activities remarkably similar to the audiolingual texts of the 50's,
relying heavily on mechanical drilling of decontextualized words and
sentences. While professing to teach the more communicative aspects of
pronunciation, many such texts go about it in a decidedly
uncommunicative way. The more pronunciation teaching materials have
changed, it seems, the more they have stayed the same.

In similar terms, Vitanova and Miller (2002) explain 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" (para 1).

Joan Morley (1998), however, counters these arguments by saying that "more

programs in a variety of ESL/EFL settings are revising curricula so that speech in

general, and pronunciation in particular, are brought into the mainstream of instruction

with a learner goal of oral communicative competence" (p. 20). And Celce-Murcia,

Brinton, and Goodwin (1996) express the need for pronunciation instruction to become

more communicatively oriented (p. 11). Riney and Flege (1998) supported this same

observation when they created an experiment to study the effects of time in an English-

speaking country on foreign accent. By marking the improvement of Japanese

speakers' foreign accent over the course of 42 months, the researchers observed a

strong connection between improved foreign accent and length of time spent in an

English-speaking country. The ESL students who spent time in an English speaking

country improved their English accent substantially over students who spent all of their

time in Japan. Communicative Language Teaching seeks to provide learners with language experience that approximates authentic communication like that found in an English-speaking country without actually being located in an English-speaking country.

Unfortunately, until recently, pronunciation learning in and out of CLT translated into rote repetition of troublesome consonants and vowels (see Celce-Murcia, Brinton, & Goodwin, 1996). Recent research has revealed the necessity of teaching supersegmental pronunciation for the benefit of communication and acculturation (Derwing, 2003). For instance, Derwing, Munro & Wiebe (1998) reported that prosody is a major factor in pronunciation for communication (see also, Anderson-Hsieh, Johnson, & Koehler, 1992; Derwing & Munro, 1997). Teaching students to better articulate sounds in a native manner is simply a rewording of the same rote-learning programs of the 1950s. Still, much important research has identified what ESL students can do to make their pronunciation more native-like, yet specific suggestions can be confusing and burdensome to the student, especially if teachers are not available to explain and model these suggestions. Providing pronunciation learning strategy training that allows students to self- monitor and self-correct their own speech and otherwise strategically learn pronunciation in terms of segmentals, supersegmentals, pausing, is key to improved pronunciation among ESL learners.

*Pronunciation Learning Strategy Studies*

The pronunciation learning strategies field is the domain that links pronunciation learning and instruction to language learning strategies. It is vital that students become aware of what they can do to improve their pronunciation even when

their teachers are not available to assist them. Cohen, Weaver, & Tao-Yuan-Li (1995) have indicated that language learning strategies across the ESL curriculum, but especially in speaking, are eminently teachable and learnable. Students must become aware of and learn what strategies can be employed to improve pronunciation as part of, and as an extension of, the traditional classroom education. As teachers learn and understand learner-centered pronunciation strategies, they can then help their students develop those strategies in their individual language learning efforts in order to create a true learner-centered pronunciation environment.

Unfortunately, the number of academic studies created to determine pronunciation learner's strategies is staggeringly low. Only four studies to date have recognized this gap in research during the past thirty years of learning strategy popularity (Derwing & Rossiter, 2002; Osburne, 2003; Peterson, 2000; Vitanova & Miller, 2002).

Peterson (2000) conducted the first study solely devoted to the field of pronunciation learning strategies by documenting twelve strategies identified through the use of diaries and interviews by eleven research participants. Her work is extremely important as it is the only study to date that attempts to focus on discovering and classifying pronunciation learning strategies. She chose eleven adults to study, nine of which were female. Participants in the study were from a range of proficiency levels. Her methodology consisted of self-report dairies and interviews.

Students writing in a dairy were asked to record all strategies they were using or had ever used to learn Spanish pronunciation. Even though Peterson's study investigates pronunciation learning strategies used by native English speakers learning

Spanish as an L2, the pronunciation strategies are still applicable to ESL pronunciation. They were instructed to write metacognitive remarks about their pronunciation learning experiences in their diary. After a two to three week period an exit interview was administered in order to clarify any remarks in the diaries about pronunciation learning that were confusing to the researcher.

A new group of participants were then interviewed and asked to identify any strategies that they currently used or had previously used to learn Spanish. The strategies gleaned from the diaries were used to exemplify pronunciation strategies.

Unlike the studies that followed hers, Peterson focused her work on native English speakers learning Spanish in a foreign language context rather than non-native English speakers learning that language in an ESL context. Soliciting strategies the participiants' L1 has some clear advantages. Because the participants and researcher all spoke English fluently, students would be more likely to share their strategies and explain them more clearly.

Peterson's study was purely hypothesis generating. Her methods were clear and well designed. The broad approach to collecting pronunciation strategies from diaries and interviews allowed her to produce the largest and most comprehensive taxonomy of pronunciation strategies yet collected, amounting to twelve pronunciation learning strategies and 43 tactics, or subsets of those strategies.

Two years after Peterson's study, Vitanova & Miller (2002) designed a pilot study to investigate what pronunciation students thought of the instruction they were receiving. Although the article explained that three pronunciation classes participated in the study, the actual number of participants was never given, a major shortcoming of

the study. The language backgrounds of the participants were identified as Chinese, Korean, Spanish, Russian, Taiwanese, Greek, French, and Indian (para. 5). The participants were ESL graduate students who were being taught various pronunciation strategies they could use on their own without the aid of a teacher. The assumption of the researchers was that by teaching pronunciation strategies to students, the students would continue to improve in their pronunciation outside of class. The study did not attempt to validate this claim empirically; rather, it collected the viewpoints and opinions of the participants, which corroborated with the researchers' assumption.

The opinions of the graduate-level pronunciation students were elicited through an anonymous response journal. Students from three different pronunciation classes were asked a series of open-ended questions about their pronunciation improvement. They responded to several reflection prompts over the course of three academic quarters in an attempt to get at the strategies they used to improve their pronunciation. Prompts included such questions as "Why do you wish to improve your pronunciation? What do you find most helpful in improving pronunciation?" (para. 5).

Even though the study looked at what elements of pronunciation *instruction* the students felt were most helpful, it identified some learner-centered pronunciation strategies that students found useful. These were identified as metacognitive strategies that included 1) self-correction of poor pronunciation, and 2) active listening to native pronunciation (Vitanova & Miller, 2002). Unfortunately, these activities were merely mentioned in the text, and little description was included of what each skill entailed.

This study showed that students recognized the value of using pronunciation strategies outside of the classroom but it failed to identify more than two strategies

students used to improve pronunciation and also failed to determine if the students were actually using any strategies outside of the classroom.  Overall, the paper emphasized the need to teach pronunciation students how to assess their own pronunciation needs and develop strategies accordingly.  Although the proposal is noble, the paper gave no indication of how to do this or what strategies to teach.  However, an important contribution of this study was the assertion that affective factors influence pronunciation learning.  For instance, the researchers found that poor confidence, feelings of frustration, and feelings of depression affected the student's pronunciation learning (Vitanova & Miller, 2002, para.28).

In an article on pronunciation published in 1991, Joan Morley points out almost the same things as Vitanova & Miller, though Morley completely dispenses with student self-observations and merely makes her claims based on experience.  Morley discussed the need of learner self-involvement in pronunciation learning in terms of four areas:  1) recognition of self responsibility; 2) development of self-monitoring skills; 3) development of speech modification skills; and, 4) recognition of self-accomplishment (p. 503-504).  Morley failed to recognize affective factors beyond those associated with taking pride in one's own pronunciation successes.

An important point that Morley makes is the need for teacher involvement even when pronunciation strategies are intended to be used autonomously, "learner self-involvement cannot be left to chance; it must be actively shaped, early and continually, throughout ESL course work" (p. 503).  Morley's important insight is that pronunciation strategies cannot be completely context free.  Training must still be accompanied with pronunciation learning in order for students to understand how to use

certain pronunciation learning strategies.  This view is supported by Rossiter (2001) who found that students instructed in paraphrase were more likely to use paraphrase and similar skills than students in a control group who were not taught the skill. Ultimately, Morely's 1991 article represented extremely forward-thinking in terms of its pronunciation strategy focus.

In a study contemporary with Vitanova & Miller (2002), Derwing & Rossiter (2002) created a much more robust study in order to investigate specific pronunciation strategies that ESL learners used.  Derwing & Rossiter (2002) posited a mismatch between what ESL students thought they needed in terms of their pronunciation needs, what they received as far as instruction in the classroom, and what their actual strategies were for coping with pronunciation breakdown in natural language environments.

The study used 100 participants from an adult, college-level, ESL program with 19 different language groups represented.  All participants were immigrants with females representing a little less than two-thirds of the population.  Students ranged in their ESL proficiency from low-intermediate to high-intermediate and over half (55%) attributed communication breakdown to pronunciation problems.  Students orally responded in structured interviews to questions about their pronunciation skills.  Some of the questions were asked using a seven-point likert scale ranked from 1 point for *strongly agree* to 7 points for *strongly disagree* while others were open ended and meant to elicit specific strategies that students used to overcome language breakdown caused by pronunciation difficulties.  One of the examples given for the likert scale was

"My accent changes if I am excited."  An example of an open ended question was given as "What do you do when someone has not understood you."

Over the course of six weeks, the researchers in this study collected a number of pronunciation strategies reported by students.  Seven categories were established, which were self-repetition; paraphrase; increase in volume; write, spell; slow rate; clear speech; and an "other" category (Derwing and Rossitier, 2002, p. 159).  These categories were then used in the next stage of the study.  Students were asked to label their favorite strategy to overcome communication breakdown.  An interesting trend emerged that showed that using paraphrasing as a pronunciation strategy to improve communication was the most popular strategy.  The study went further to show that higher-level students (intermediate and high-intermediate) used paraphrasing more frequently than lower-level (low-intermediate) students.

In terms of affective variables, this study showed that a majority of students polled (60%) felt that their pronunciation changed when they became excited or nervous.  This underlines the need of researchers in this field to recognize emotional states as elements influencing pronunciation.

Finally, this study reported that only 10% of the participants claimed prosody as a pronunciation problem that lead to a breakdown in communication.  This finding was unexpected considering the strong emphasis on prosody currently found in pronunciation research.  The study asserted that students who recognized a pronunciation problem in their communication were either not getting the instruction they needed, or the instruction they received was not helping them.  It did suggest, on the other hand, that students in higher levels tended to personalize their usage of

pronunciation strategies more in order to compensate for specific communication breakdown.

Derwing & Rossiter's study was well designed and well carried out though their data collection procedures were limited to interviews and questionnaires. The study showed the need to better understand the perceived needs of second language learners. Additionally, according to the study, students themselves must learn to asses their own pronunciation needs and choose strategies that will improve their pronunciation deficiencies.

The final study that focuses on pronunciation learning strategies was conducted by Osburne (2003), who looked specifically at the pronunciation learning strategies of higher level ESL learners. Osburne used 50 volunteer participants from a variety of language backgrounds to tease out new pronunciation strategies. All participants were judged to be advanced learners by their ESL instructors.

The method Osburne used was impressive. While in a monitored interview, each student was asked to record a ten-minute language learning autobiography. After this, the student's recording was played back, and the moderator asked the student to repeat a line he or she had heard in the autobiography. The purpose of repeating the line was to elicit better pronunciation and inquire regarding what the student did to improve his or her pronunciation. At that, the moderator would record any strategies the student reported.

Osburne's methodology was quite impressive, yet it failed to give students extended time to think of pronunciation strategies in the same way that self-report diaries do. Similarly, students may not have the accuracy or fluency required to give a

spur-of-the moment response to their moderator on what corrective measures they took. This sort of immediate response interview does have benefits as the self-report is immediate and corresponds to a specific act of pronunciation improvement. Additionally, Osburne's methodology necessarily limited the sort of strategies that the participants could mention. Rather than being asked to identify any pronunciation strategy, these students were limited to what helped them on specific repetition acts.

After collecting strategies from her 50 participants, Osburne had each interview transcribed and the strategies delineated. From that, eight categories of strategies were identified for pronunciation improvement. Though Osburne defined eight categories of strategy learning, the specific actions her participants mentioned in their interviews were only vaguely explained. Once the eight categories were established, Osburne identified which categories were most used by the participants.

Osburne found almost the same thing as Derwing & Rossitier (2002): students reported paying very little attention to prosody when attempting to improve their pronunciation. Osburne discovered that a large percentage (26%) of the participants attempted to improve their pronunciation by concentrating on individual words. This is similar to Derwing & Rossitier's study that showed paraphrase as a powerful compensatory tool. Pronunciation improved as students concentrated on the word and meaning level.

The findings in this section suggest that though pronunciation strategies have not received much attention in the language acquisition field, some researchers have begun to investigate the field preliminarily and have begun to explain what ESL learners use pronunciation learning strategies to do. With more research it is likely that

additional insights will enhance our knowledge of how language learners develop

pronunciation skills.

| Author | Pronunciation learning strategies |
|---|---|
| Peterson (2000) | Representing sounds in memory<br>Practicing naturalistically<br>Formal practice with sounds<br>Analyzing the sound system<br>Using proximal articulations<br>Finding out about the target language pronunciation<br>Setting goals and objectives<br>Planning for a language task<br>Self-evaluation<br>Using humor to lower anxiety<br>Asking for help<br>Cooperating with peers<br>Representing sounds in memory |
| Vitnova and Miller (2002) | Self-correction of poor pronunciation<br>Active listening to native pronunciation |
| Derwing and Rossiter (2002) | Self-repetition<br>Paraphrasing<br>Increasing or decreasing volume<br>Writing and/or spelling difficult words<br>Using a slow rate of speech<br>Calming down<br>Using pantomime<br>Avoiding difficult sounds<br>Appealing for assistance from native speakers<br>Using clear speech<br>Monitoring articulatory gestures |
| Osburne (2003) | Focusing on sounds below the syllable-level<br>Focusing on individual syllables<br>Focusing on prosodic structures<br>Monitoring global articulatory gestures<br>Focusing on paralanguage<br>Focusing on individual words<br>Focusing on memory or imitation |

**Table 2: Pronunciation Learning Strategies in Academic Articles**

Each of the four studies that exist about pronunciation learning strategies

identified unique strategies used by the participants to improve their pronunciation.

Unlike the overwhelming amount of learning strategies that have been identified in other fields, the small number of pronunciation learning strategies or categories can easily be summed up as shown in Table 2.

*Pronunciation Learning Strategies in Pronunciation Literature*

In order to get a broader look at documented pronunciation learning strategies, a further literature review was conducted looking at pronunciation pedagogy books and pronunciation workbooks. Though these types of books are numerous, there are few pieces which identify learning strategies to improve pronunciation. Of those texts that offer pronunciation learning strategies, most simply refer to pronunciation acquisition skills used by learners, and then list pronunciation strategies as an afterthought to their teaching suggestions. These strategies are generally intuitive and teacher-devised with little relation to pronunciation acquisition theory.

Eleven books dealing with pronunciation pedagogy and instruction from 1979 to current were consulted. Jones (1997), Stapp (1999), Vitanova & Miller (2002), and Oxford (1990) have suggested the use of imitation and mimicry activities to help students learn pronunciation. Imitation and mimicry activities include what Gethin and Gunnemark (1996) refer to facetiously as "mocking" –the act of imitating a foreign accent as a form of amusement. Other writers placed a large focus on noticing and accentuating supersegmental structures (see for example, Jones, 1997; Vitanova & Miller, 2002; and Florez ,1998). Jones (1997) and Vitanova & Miller (2002) also suggested that a learner's motivational strategies can improve his or her pronunciation, as can an association with native speakers of the L2. Pater (1997) suggested memorizing the pronunciation of words; Young-Scholten (1993) encouraged the use of

positive interference from the L1 phonology to cope with a new sound system.  Neufeld (1979) encouraged intent listening. Oxford (1990) advised learners to simply repeat new sounds—a function close to drill practice in that both require repetition, but Oxford's representation of repetition suggests that it can be done in context, perhaps even while in conversation.

Naiman et al (1978) presented several pronunciation learning strategies as a supplement to a research study in which 34 language learners gave descriptions of their general language learning experience through interviews, observations, and questionnaires.  Pronunciation was not an area of focus in the study, and when the strategies were reported they were listed under the heading "Sound Acquisition" (pp. 33-34), yet the strategies offered represent an important summary of reported pronunciation learning strategies.

Gethin and Gunnemark (1996) proposed several pronunciation strategies that L2 learners could use specifically to make pronunciation improvement an extra-curricular, autonomous process (see Table 3).

Finally, Prokop (1989) offered twelve strategies that also related loosely to pronunciation.  All of these strategies are displayed in Table 3.  The table is meant both to summarize the strategies and to indicate the high level of overlap that can easily occur in pronunciation research.  For example, the strategy of imitating a native speaker was discussed by five different authors.  Table 3 presents unique pronunciation strategies on the left and authors who discussed those strategies on the right.

| Pronunciation Strategy | Author(s) |
|---|---|
| Imitation and/or mimicry of native speaker | Jones (1997), Stapp (1999), Vitanova & Miller (2002), Naiman, et al (1979), and Oxford (1990) |
| Focus on supersegmentals | Jones (1997), Vitanova & Miller (2002), and Florez (1998) |
| Improve motivation | Jones (1997) and Vitanova & Miller (2002) |
| Memorize the pronunciation of words | Pater (1997) |
| Positive L1 interference | Young-Scholten (1993 |
| Intent listening | Neufeld (1979), and Naiman, et al (1979) |
| Repetition | Oxford (1990) |
| Use of phonetic symbols and transcriptions<br><br>Practice 'mock talk' or imitating L2 prosody using L1 words | Naiman, et al (1979), and Gethin & Gunnemark (1996) |
| Repeat after tapes in a language laboratory<br>Read aloud<br>Use phonetic symbols and transcriptions<br>Repeat other's pronunciation silently<br>Talk aloud/role-play<br>Acquire a general knowledge of phonetics<br>Do special exercises for sounds not existing in the learner's native language<br>Practice different sounds, first in isolation and then in the context of words<br>Listen carefully to the errors made by native speakers to infer certain key sounds or structures<br>Tend to sound, not spelling<br>Avoid self-consciousness<br>Notice the intricate differences between L1 and L2 pronunciation | Naiman, et al (1979) |
| Avoid laziness of pronunciation when speaking<br>Help facial muscles to become accustomed to moving in new ways to accommodate L2 pronunciation<br>Eagerly listen to and practice new sounds<br>Be determined to get pronunciation right<br>Put self in proximal points for hearing L2 pronunciation:  TV, Movies, Radio | Gethin & Gunnemark (1996) |
| Monitor and eliminate negative interference<br>Distinguish errors among other speakers<br>Self-monitor<br>Practice<br>Finding out about the target language pronunciation<br>Focus on articulatory gestures of others<br>Private repetition<br>Actively listen to other's pronunciation<br>Skip difficult words<br>Self-correction<br>Pre-rehearse sounds<br>Review old material for confidence booster | Prokop (1989) |

**Table 3:  Pronunciation Learning Strategies in Pedagogy Books and Workbooks**

The intent of the above review is to demonstrate the variety of tactics and strategies used by learners to help them remember, learn, and/or produce accurate pronunciation in a second language. It is certain that more research would further identify strategies used by pronunciation learners in their significant task.

This review of the literature in general has shown that though the pronunciation strategy field is still in its infancy, some important ideas have been emerging for years. These ideas are mainly anecdotal suggestions made by language teachers either as observational suggestions or suggestions based on teaching methods. Furthermore, this review illustrates that there is substantial agreement among language teachers in terms of what strategies are useful and helpful.

To summarize the review so far, language teachers have seemed to view pronunciation learning strategies as an interesting postscript in pronunciation learning for many years while researchers have recently taken interest in these strategies. It is likely that the field of pronunciation learning strategies will become a popular area of study in the near future as CLT and strategies-based instruction continues to enjoy much popularity in language teaching. Furthermore, it is suggested that from here, pronunciation learning strategies should be collected and analyzed in terms of their fit within an organizational framework as pronunciation learning strategies emerge from both teachers and researchers. This suggestion would help expand and codify this field in an organized manner. As learning strategies continue to take an important role in communicative teaching, pronunciation strategies will also take an important role in pronunciation learning.

*Categorizing Learning Strategies*

As the pronunciation learning strategies field expands, researchers and instructors will need an organizational system for labeling and categorizing strategies. The complication with general strategy taxonomies is explained below, followed by a discussion of existing taxonomies for pronunciation learning strategies.

*Strategy taxonomies.* Developing a collection of pronunciation learning strategies without the aid of a theory-driven organizational system will greatly complicate the development of the pronunciation learning strategy field. This has been a theoretical pitfall of researchers, materials developers, and teachers with regard to reading, writing, listening, and speaking strategies fields. As Dörnyei & Skehan (2003) have noted, learning strategies have a weak foundation in theory. It is imperative that some link exist to tie learning strategies to current trends in language teaching.

From the time that strategy research entered the SLA field, a preponderance of descriptive studies have identified an almost endless collection of learning strategies, which in turn have been categorized in many unique ways (Dörnyei & Skehan, 2003). Because language strategies have gained popularity so quickly, the strategies field is in a state of disorganization. Many researchers have devised various classification systems in an attempt to tame the massive amounts of descriptive research regarding learning strategies (ie: Oxford, 1990; O'Malley & Chamot, 1990; Rubin, 1981; Dörnyei & Skehan, 2003)

For instance, Oxford (1990), in perhaps the most widely used typology, divides learning strategies into six categories (Memory, Cognitive, Compensation, Metacognitive, Affective, and Social) while O'Malley & Chamot (1990) divide the

field into three categories (cognitive, metacognitive, and social/affective). The fact that there are many classification systems is explained by Hsiao & Oxford (2002) who assert that each classification system represents a different approach to acquisition theory. Thus if a teacher chooses to use a classification system that focuses on social strategies, it is only because the teacher believes that social interactions are extremely important to language acquisition.

This explanation of various classification systems is extremely generous. It is more likely that classifications are made less on theoretical grounding in second language acquisition and more on grounds of researcher intuition.

In a remarkably complex study, however, Hsiao & Oxford (2002) went to great lengths to determine what kind of classification system should be used to organize the numerous learning strategies currently available. The study, which compared seven models of classification systems (from a binary construct to a construct with two categories and six subcategories) using confirmatory factor analysis, identified Oxford's (1990) taxonomy as the system most able to account for learner variability because it was deemed more consistent with learner strategy usage than other models tested. However, the researchers admit, "it appears that there could be other approaches that might help to advance theories of strategy classification and explain variability in learners' strategy use as well or better than the six-factor strategy model" (p. 378). They go on to suggest that a re-working of classification schemes, with a revised method for gathering learning strategies to reflect these classifications, could provide more insight into learning strategy theory.

*Taxonomies for Categorizing Pronunciation Learning Strategies*

In the contrastingly unblemished field of pronunciation learning strategies, only one classification scheme has been presented. Peterson (2000) managed to fit nearly every pronunciation learning strategy she could find or discover into Oxford's (1990) categorization system. Her reasoning for choosing this particular taxonomy appears to come down to ease rather than a strong theoretical foundation. Since Oxford's taxonomy had never before been applied to pronunciation learning strategies, it seems quite feasible that such a correlation is perfectly natural. Yet Oxford's taxonomy does not necessarily coordinate with the processes inherent in pronunciation acquisition.

For instance, Peterson (2000) insists that self-evaluation through listening to one's own pronunciation on a record is a valuable metacognitive activity for pronunciation acquisition. Language teachers would likely agree. However, the classification of such a strategy under the *metacognitive* group does little to explain how such an activity relates to the specific process of acquiring a target language sound system. This is not to say that Peterson or Oxford have produced flawed categorization schemes; rather, it is suggested that a scheme that better represents the pronunciation acquisition process be proposed whereby specific strategies could be applied to specific areas of pronunciation acquisition. A model for such a categorization scheme is Kolb's (1984) learning cycle construct.

*Kolb's Learning Construct*

Kolb's (1984) learning cycle construct currently enjoys much acclaim for its ability to explain learning in multiple fields (Dornyei & Skehan, 2003). The construct focuses on four progressive areas of learning. First, the learner must begin with

concrete experience, move to a reflection on observation, then proceed to abstract conceptualization based on that reflection, and, finally, the learner acts on this new conceptualization, which starts the process up again. This process can be exemplified in learning the pronunciation of a new English sound. For instance, a student might come across the word *bought* and focus on the vowel sound. This initial exposure qualifies as concrete experience and might encourage the student to consider how the target pronunciation of the vowel differs from any initial or lingering expectations of the sound's pronunciation. This act relates to a reflection on observation, which is followed by abstract conceptualization where the student might analogize the pronunciation of the vowel in *bought* to all other words with the same medial vowel sound or spelling. This assumption is tested when the student begins to speak with formulaic vowel sounds and either encounters effective communication or puzzled looks from interlocutors. In either case, the student uses the reaction of others, or possibly a correction, as a source of concrete experience that starts the cycle over again.

While Kolb's (1984) theory of learning is influential in many areas of education and Psychology, it entered SLA through its ability to explain learning styles. Dörnyei and Skehan (2003) are language researchers who have briefly applied Kolb's theory to the processes of language acquisition. They posited that concrete experience in Kolb's theory relates to the construct of input in SLA. Input here is any stimulus whereby learners encounter language. These researchers further relate the reflection on experience stage to SLA's construct of noticing, or the attenuation—both intentionally and unintentionally—to the rules and patterns of language. Dörnyei and Skehan (2003) fail to apply Kolb's stages directly to pronunciation acquisition.

In terms of pronunciation acquisition, Dörnyei and Skehan's (2003) observations are helpful but lacking since they do not account for pronunciation acquisition.  Table 4 below illustrates how Kolb's (1984) theories can be specifically related to pronunciation acquisition theory.  Definitions of terms in the pronunciation acquisition construct are given following the Table.

| Kolb's (1984) Learning Cycle Construct | Pronunciation Acquisition Construct |
| --- | --- |
| Concrete Experience | Input / Practice |
| Reflection on Observation | Feedback / Noticing |
| Abstract Conceptualization | Hypothesis forming |
| Action Based on New Conceptualization | Hypothesis testing |

**Table 4:  Kolb's (1984) Construct and Pronunciation Acquisition Theory**

In Table 4 concrete experience was related to the pronunciation stages of input and practice.  Pronunciation input can be considered any stimulus whereby learners encounter sounds, such as the radio, conversations, or visual diagrams of phonemes.  Practice is the act of producing sounds either in isolation or in communicative contexts.  Both input and practice offer the learner some concrete experience with a target pronunciation of a sound.

Reflection on observation was related to both pronunciation noticing and feedback of pronunciation.  Noticing is the attenuation—both intentionally and unintentionally—to pronunciation rules and patterns.  Pronunciation feedback is a function of an interlocutor's ability to understand and cognitively process the pronunciation of a speaker.  It is a gauge whereby a speaker determines the accuracy or acceptability of a particular utterance.

Abstract conceptualization was related to the hypothesis forming stage of pronunciation acquisition. Hypothesis formation is the mental process that attempts to bridge the gap between actual pronunciation and target pronunciation based on feedback from others or learner-noticed discrepancies.

Finally, action based on new conceptualization was related to the hypothesis testing stage of pronunciation acquisition where hypothesis testing includes implementing changes in pronunciation according to new hypotheses. An example of hypothesis testing might be pronouncing a word with a slightly different vowel sound after communication breakdown in hopes of reestablishing communication.

It is instructive to transfer Kolb's construct to the area of pronunciation acquisition where it can help to make sense of pronunciation acquisition theory and also categorize pronunciation learning strategies. This construct can then be used as the theoretical foundation for a pronunciation learning strategy categorization scheme where strategies are organized according to their efficacy in improving a learner's ability to obtain input or encourage practice, notice specific pronunciation details either through implicit or explicit feedback, form hypotheses about those details, and test such hypotheses. Such a scheme represents a recursive pattern and would appear as in Table 5.

Since this organization looks at the actual process of second language pronunciation acquisition and coordinates that process with pronunciation learning strategies, it would be feasible for both instructors and autonomous language learners to assess where an L2 learner required improvement. A learner who is unable to produce the English phonemes /i/ and /I/ differently can be benefited from pronunciation

learning strategies organized by acquisition theory.  For example, when a learner

attempts to use these two sounds interchangeably (practice), the learner will receive

feedback in the form of correction, stalled communication, or, worst of all,

communication breakdown.  With any of these responses, the learner can attempt to

notice a new difference between the sounds and create a new mental conceptualization

of how the sound should be produced (hypothesis forming).  Finally, the learner must

take the time and build up the confidence to attempt a new version of the sound

difference according to his or her hypothesis of the difference (hypothesis testing).  In

each of these areas, learners can be benefited by knowing strategies for accomplishing

the task at hand.  Learners who seem to break down in one of these areas can likewise

be benefited from pronunciation learning strategies by adopting new strategies to cope

with such breakdown.

Table 5 presents a synthesized taxonomy of pronunciation strategies that

employs a theoretical framework more in line with current pronunciation acquisition

theory.  Some strategies may be listed in two different categories.  The reason for this

overlap is that some strategies span several steps of the pronunciation acquisition

construct.  For example, *intent listening* is listed in both the input and noticing sections

because a learner encounters sounds when listening intently (input) and is able to notice

important pronunciation distinctions at the same time (noticing).

| Kolb's (1984) Learning Cycle Construct | Pronunciation Acquisition Construct | Pronunciation Learning Strategies |
|---|---|---|
| Concrete Experience | Input / Practice | **Input**<br>• Intent listening<br>• Focusing on articulatory gestures of others<br>• Active listening<br>• Eagerly listening to new sounds<br>• Putting self in proximal points for hearing L2 pronunciation: TV, Movies, Radio, etc.<br>• Representing sounds in memory<br>• Focusing on individual syllables of words<br>**Practice**<br>• Reading aloud<br>• Practicing new sounds<br>• Imitating and/or mimicry of native speakers<br>• Practicing 'mock talk' or imitating L2 prosody using L1 words<br>• Talking aloud/role-play<br>• Memorizing the pronunciation of words<br>• Helping facial muscles become accustomed to accommodating L2 pronunciation<br>• Practicing different sounds, first in isolation and then in the context of words<br>• Repeating after tapes in a language laboratory |
| Reflection on Observation | Noticing / Feedback | **Noticing**<br>• Noticing the intricate differences between L1 and L2 pronunciation<br>• Focusing on supersegmentals of language<br>• Intent listening<br>• Distinguishing errors among other speakers<br>• Focusing on articulatory gestures of others<br>• Listening carefully to errors made by native speakers to infer key sounds or structures<br>• Acquiring a general knowledge of phonetics<br>**Feedback**<br>• Self-monitoring<br>• Focusing on supersegmentals of own speech<br>• Using phonetic symbols and transcriptions<br>• Monitoring and eliminating negative interference<br>• Active listening<br>• Asking for help<br>• Cooperating with peers |
| Abstract Conceptualization | Hypothesis forming | **Hypothesis Forming**<br>• Monitoring and eliminating negative interference<br>• Self-correcting<br>• Acquiring a general knowledge of phonetics<br>• Doing special exercises for sounds not existing in the learner's native language<br>• Finding out about the target language pronunciation |
| Action Based on New Conceptualization | Hypothesis testing | **Hypothesis Testing**<br>• Repeating new words according to new hypotheses<br>• Skipping difficult words<br>• Rehearsing sounds<br>• Using proximal articulations<br>• Increasing or decreasing volume of speech<br>• Using a slower rate of speech<br>• Using clear speech<br>• Lowering anxiety |

**Table 5: Connection between Kolb's (1984) construct, SLA, and Pronunciation learning strategies**

*Research Questions*

This literature review was meant to show the large gap that currently exists between pronunciation acquisition theory and practical pronunciation learning strategies in a CLT context.  Despite the fact that much research has yet to be conducted in order to amass a larger collection of pronunciation learning strategies, it is apparent that the field will not remain in its infancy for long.  Before the pronunciation field becomes as cluttered with theoretically shaky definitions of learning strategies and categorization schemes as the general SLA field has become, it is imperative that researchers establish pronunciation learning strategies in pronunciation acquisition theory.  A taxonomy influenced by Kolb's (1984) learning cycle construct and based on pronunciation acquisition theory has been presented as an answer to this suggestion. Yet it remains to be seen if this is a viable construction for organizing pronunciation strategies.  It is also important to determine which, if any, areas of strategic pronunciation learning are most used by successful students.  This study will use the construct and strategies compiled in Table 5 to look at the following questions in order to advance the field of pronunciation learning strategies and determine what areas of strategic pronunciation learning are most beneficial to successful pronunciation learners.

1. What pronunciation strategies do adult ESL learners in an intensive English program use to help them improve their English pronunciation?

2. Does usage of these pronunciation learning strategies correlate with measures of pronunciation skill in spontaneous speech as manifested by pronunciation scores on a Level Achievement Test?

3. What natural categories of pronunciation strategies emerge from an examination of learner responses to a strategies usage questionnaire?

**Chapter Three**

**Method**

*Introduction*

This study was meant to help bridge the existing gap between strategic learning

and pronunciation learning theory. The specific objective was to determine if there is a

correlation between pronunciation learning strategies used by adult ESL learners and

their spontaneous pronunciation skill. In addition, this study sought to categorize

pronunciation learning strategies based on the literature review as well as the data

produced from this study. Finally, the study investigated the pronunciation learning

strategies most frequently used by adult learners. Quantitative and qualitative data

were analyzed using a Strategic Pronunciation Learning Scale (SPLS) with

pronunciation samples elicited through the speaking portion of a level achievement test

(LAT) from a large group of ESL learners enrolled in an intensive English program.

*Data Collection*

*Subjects* The subjects in this study were students enrolled in the English

Language Center (ELC) at Brigham Young University in Fall Semester, 2006. The

ELC is an intensive English program designed to prepare students for future academic

work in English. It offers five distinct proficiency levels for students from beginning to

high-intermediate. Additionally, each level features instruction in five areas of

language learning: reading, writing, speaking, listening, and grammar. No courses

devoted strictly to pronunciation are offered, although some corrective pronunciation

instruction is occasionally offered in listening/speaking classes. Students are placed in

proficiency levels at the beginning of the semester based on their overall language

proficiency as judged by computer-based placement exams and oral interviews with faculty members of the ELC. During the first week of classes, students are re-evaluated by their individual teachers to ensure that each student is placed at the correct level. If a consensus is reached among the teachers that a particular student is substantially higher or lower than other students in the class, that student is approached by the administration and given the option to move to a more appropriate level.

*Subject Selection.* Most of the students enrolled in low-intermediate, intermediate, and high-intermediate classes at the ELC at the time of this study participated in it, including 183 students from these three proficiency levels. Students from beginning and high-beginning levels were excluded from this study because it was felt that student performance on the spontaneous speaking tasks elicited by the level achievement tests would confound general language fluency with pronunciation accuracy. Also, not including the lower proficiency students enabled the researcher to present the questionnaire in English rather than translating it into fifteen different native languages.

Nearly all of the participants were international ESL students with a student (F-1) visa. Language backgrounds of students included Arabic, Armenian, Chinese, French, Haitian Creole, Italian, Japanese, Korean, Mongolian, Portuguese, Russian, Spanish, Tagalog, and Thai. For the purposes of this study, participants were categorized by their native language background as Latin, Asian, or Other.

The average stay of subjects in the United States at the time of the study was 9 months; however, one respondent reported having lived in the United States for 240

months with the next longest stay being 60 months.  Because of this, a category of *60 months or more* was created for this demographic in order to reduce the influence of this single respondent in the analysis.  While the majority of subjects expressed a high degree of interest in improving their pronunciation of standard American English, 58% of respondents had no experience studying pronunciation in a classroom setting.  About 40% of respondents reported having pursued up to four months of formal classroom pronunciation instruction.  Participants, therefore, were placed into one of two categories based on their pronunciation learning experience:  those with no experience were placed in the first category while those with "some" experience were placed in the second category.

| Native Language Background | Low-intermediate | Intermediate | High-intermediate | Number |
|---|---|---|---|---|
| Arabic | -- | -- | 1 | 1 |
| Armenian | 2 | 1 | -- | 3 |
| Chinese | 6 | 10 | 4 | 20 |
| French | -- | 2 | -- | 2 |
| Haitian Creole | 4 | 2 | 1 | 7 |
| Italian | -- | 1 | 2 | 3 |
| Japanese | 8 | 7 | -- | 15 |
| Korean | 20 | 14 | 7 | 41 |
| Mongolian | 2 | 5 | 1 | 8 |
| Portuguese | 1 | 2 | -- | 3 |
| Russian | 2 | 2 | | 4 |
| Spanish | 30 | 33 | 11 | 74 |
| Tagalog | -- | -- | 1 | 1 |
| Thai | -- | 1 | -- | 1 |
| Total | 75 | 80 | 28 | 183 |

**Table 6:  Native Language Backgrounds**

Of the study participants, 60% were female, and 40% were male. The average age of the subjects was 25 years. Most of the learners were college-level students or adult learners with at least the equivalent of a high school education.

| Gender | Male | Female |
|--------|------|--------|
|        | 73   | 110    |

**Table 7:  Gender of Participants**

*Instruments*

The main instrument in this study was the Strategic Pronunciation Learning questionnaire. It was designed to measure the frequency with which subjects intuitively used pronunciation learning strategies. Other instruments included a standard speaking LAT, which is administered each semester, and a pronunciation score derived from spontaneous oral production on the LAT.

*Questionnaire.* The researcher developed the content for the questionnaire, which had a format that mimicked a strategic learning model created by Tseng, Dörnyei & Schmitt (2006). The purpose of the questionnaire was to collect frequency counts of pronunciation learning strategies in five categories of pronunciation learning that related to the Kolb's learning cycle (see Table 5):  input, practice, noticing/feedback, hypothesis forming, and hypothesis testing. An extra category, motivation, was added to account for affective and motivational aspects of strategic pronunciation learning. The questionnaire consisted of questions that were representative of one and only one pronunciation learning category. Each of the six sections consisted of approximately four statements about pronunciation strategies and asked students to rate how frequently they used such strategies for pronunciation improvement, as sampled in Table 8. The researcher narrowed each category to approximately four statements for the sake of creating a questionnaire that could be administered in the amount of time

allotted by the research institution, approximately fifteen minutes.  Time constraints

were placed on the administration of the questionnaire because it would be

administered following a scheduled cumulative test at the end of the semester and a

longer questionnaire would interfere with the testing environment and potentially lose

validity due to test fatigue.

The researcher limited the items on the questionnaire by first evaluating

strategies listed for each category and eliminating strategies that appeared redundant

(ie:  Distinguishing errors among other speakers and Listening carefully to the errors

made by native speakers).  The researcher then repeated this process again after a pilot

test and eliminated strategies that were clearly not discriminatory.  This process easily

lent itself to reducing the number of items on the questionnaire.

| Learning Experience | Several times a day | About once a day | About once a week | About once a month | Less than once a month | Never |
|---|---|---|---|---|---|---|
| When I am listening to English speakers, I listen for new sounds. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Table 8:  Sample item from Strategic Pronunciation Learning Survey**

It was intended that each prompt would include an introductory clause that sets

the context of the pronunciation strategy such as, "When I am listening to English

speakers."  Prompts were designed to be as short as possible, each being only one

sentence long.  Also, prompts were written in natural, elementary language, at the low

intermediate level.  Finally, prompts were written in first person present tense and were

worded so that the response options could be easily interpreted by the examinee.  The

final questionnaire contained 28 items.  Even after pilot testing and revising items to

minimize confusions, one participant still expressed some confusion over some of the

items.  However, this particular complaint was a single isolated occurrence and did not represent a pattern of misunderstandings.

The questionnaire was administered to the subjects electronically following immediately after the administration of the speaking/listening LAT.  Subjects indicated on the questionnaire the frequency with which they engaged in the pronunciation learning strategies by clicking a box underneath the appropriate response category.

The questionnaire items were developed based on the synthesized taxonomy of pronunciation strategies presented earlier in this thesis (see Chapter 2).  Each section included statements that directly related to pronunciation strategies (for details of item specifications, see Appendix D).

The degree of pronunciation strategy usage was measured with a six-point likert scale with six description categories of "several times a day," "about once a day," "about once a week," "about once a month," "less than once a month," and "never." Students were asked to tick the box which best corresponded to their pronunciation learning experience.

*Level Achievement Test.*  Standardized speaking LATs were administered to all students at the end of the semester.  Students in each proficiency level were given a level-specific speaking LAT with level-specific speaking prompts.  These prompts required students to produce spontaneous spoken responses, which were recorded by computer for later scoring and analysis.

The LATs were used to assess students' overall speaking skill with minor emphases in various sub-skills, such as pausing, intonation, and vocabulary.  These sub-skills did not determine the overall LAT score, but functioned as key elements for

raters to keep in mind when giving a holistic score.  Each speaking LAT was rated by two independent raters specifically trained as speaking instructors and raters. Additionally, each rater completed an inter-rater reliability training in order to ensure standardized rating.  When two raters disagreed by more than one grade level, both raters individually re-assessed the student's production to issue a revised score.  Almost always the re-assessment results in two scores within the acceptable range.  If the scores still differ to an unacceptable level, the process is repeated until an appropriate score is reached.

*Pronunciation Score*.  An overall pronunciation score was given for each subject based on their spontaneous oral production on a specific LAT prompt.  The selected prompts required subjects to demonstrate their verbal ability to give advice and narrate.  There was no overlapping task among low-intermediate, intermediate, and high-intermediate LATs on which to anchor all spontaneous pronunciation scores. However, the intermediate LAT had a task that overlapped with a low-intermediate task and a different task that overlapped with a high-intermediate task.  These overlapping tasks were used to determine the spontaneous pronunciation score.  All low-intermediate subjects were given their pronunciation score based on a "compare/contrast" task.  All high-intermediate subjects received their pronunciation score based on a "narration" task.  Intermediate subjects performed both of these tasks, so fifty percent of intermediate subjects received their pronunciation score based on the "compare/contrast" task while the remaining subjects received scores based on the "narration task."  The following holistic eleven-point rubric describes the criteria that informed the pronunciation score.

| Criteria | Score |
|---|---|
| ▪ Speech is incomprehensible due to mispronounced and missing sounds (segmentals). | 0 |
| ▪ Pronunciation is mostly indistinguishable from a language other than English. | .5 |
| ▪ Speech indicates a low level of fluency.<br>▪ Sounds (segmentals) are frequently mispronounced or missing, **which causes some incomprehensibility**. | 1 |
| ▪ L1 influences English pronunciation in a large way. | 1.5 |
| ▪ Speech indicates a mediocre level of fluency.<br>▪ Sounds (segmentals) are occasionally mispronounced or missing, **but do not cause incomprehensibility**. | 2 |
| ▪ L1 influences English pronunciation in a distracting way. | 2.5 |
| ▪ Speech indicates a moderate level of fluency.<br>▪ Sounds (segmentals) are pronounced at a **native English level most of the time**. | 3 |
| ▪ L1 influences English pronunciation in a noticeable way. | 3.5 |
| ▪ Speech indicates a high level of fluency.<br>▪ Sounds (segmentals) are pronounced at a **native English level almost all of the time**. | 4 |
| ▪ L1 influences English pronunciation in a minimal, non-distracting way. | 4.5 |
| ▪ Speech indicates a very high level of fluency.<br>▪ Sounds (segmentals) are **pronounced at a native English level**.<br>▪ L1 has no influence on English pronunciation.<br>▪ Speaker might be mistaken for a native English speaker. | 5 |

**Table 9:  Pronunciation Skill Rubric**

The pronunciation rubric was divided into six levels from zero to five (see Table 9).  Five represented native-like pronunciation while zero represented unintelligible pronunciation to a proficient English speaker.  Each level except the highest was further divided into a sub-section which was labeled a half a point above the level score, for example, level 3 was divided into both 3 and 3.5.  This meant that a pronunciation sample might be ranked at a level 3, but have elements that showed higher levels of achivements in some requirements, in which case it would be marked as a high 3, or level 3.5.  This allowed for greater accuracy in assigning pronunciation scores because the rater could indicate that a particular speech sample may have been higher, but not

high enough to warrant passing the participant to the next score up.  The spontaneous pronunciation score reflected the global pronunciation fluency of each participant.

The pronunciation score given to each student was determined by the researcher listening to a digital voice recording of each participant.  To ensure that the scores were reliable, a second rater was trained on the pronunciation rubric and asked to determine a second pronunciation score for a random 20% of the participants.  The second rater was a trained teacher of English as a second language who worked at the ELC where this study was done.  His interaction with some of the participants in classroom settings before this study may have influenced his objectivity; however, precautions were taken to ensure that that both raters determined the spontaneous pronunciation score without reference to any participant information such as a age of learner, nationality, native language, or proficiency level at the ELC.  Out of forty pronunciation scores, only two scores differed by more than one full point.  An inter-rater reliability score was calculated on this data and the resulting Pearson correlation coefficient results showed inter-rater reliability for the sample to be .87.  This indicates that the original rater remained consistent in determining pronunciation scores.

*Procedure*

Permission to survey all speaking/listening students in the low-intermediate to high-intermediate levels at the English Language Center was granted by the ELC.  The questionnaire was then approved by the Institutional Review Board of the English Language Center and Brigham Young University (see Appendix E).

The questionnaire was programmed to be administered optionally after students completed their speaking LAT.  Translation of the questionnaire into native languages

was deemed to be unnecessary following a pilot study and focus group where only English questionnaires were administered. Suggestions to improve comprehensibility were made by the focus group, and the researcher included these suggestions in the final questionnaire. Students were given as much time as they needed to complete the questionnaire. The average time required to complete the 28 items was ten minutes.

*Data Analysis*

*Independent variable.* The independent variable in this study consisted of student's usage of pronunciation learning strategies as measured by the Strategic Pronunciation Learning Scale.

*Moderating Variables*. Moderating variables included demographic information about each learner. There were five demographic categories that made up the moderating variables: sex (male or female), ELC level (low-intermediate, intermediate, high-intermediate), language (Latin, Asian, Other), length of stay in America (in months up to 60), and previous classroom pronunciation training (some or none).

*Dependent variable.* The dependent variable in this study was pronunciation skill. A global pronunciation score was given to each of the subjects in this study following their spontaneous performance on an end-of-semester speaking task. The pronunciation scale ranged from 0 (the lowest) to 5 (the highest) and was calculated based on overall comprehensibility and fluency as judged by the researcher. An overall pronunciation score was used rather than component scores, such as a segmental score and a supersegmental score, because the overall score better represented the aim of the

study: the questionnaire was designed to get at global pronunciation rather than components of pronunciation.

*Statistical Procedures.* Analyses were performed on the data in three general ways. A backward elimination procedure was performed for the demographic variables to determine if any of these variables significantly correlated with the pronunciation scores. This procedure looked at overlapping variance among the five demographic variables and retained only significant variables, which would then be used in the final stepwise regression.

A factor analysis on the twenty-eight pronunciation learning strategies was then performed to determine any underlying factors that accounted for the data and to group strategies into natural categories. These factors were also used as significant variables in the stepwise regression.

Lastly, a stepwise regression analysis was performed on the significant demographics, factors, and individual strategies. This last step correlated all possible independent variables with the dependent variable to determine which, if any, of the variables predicted the spontaneous pronunciation score. SAS software was used for all statistical analyses. The statistical analyses were conducted with help from the Department of Statistics at Brigham Young University.

*Pilot Study*

A pilot study was conducted four months prior to the administration of the full research design in order to collect feedback on the functionality of the research instrument. The pilot study participants included twenty-three adult ESL learners enrolled at an intensive English program. Subjects were self-selected from levels three,

four, and five (corresponding to low-intermediate, intermediate, and high-intermediate) of the English Language Center at Brigham Young University. The subjects were given a computerized version of the Strategic Pronunciation Learning Scale (see Appendix A). All subjects were then gathered as a focus group to provide immediate and open-ended feedback on the questionnaire.

The focus group revealed that some items in the Strategic Pronunciation Learning Scale contained confusing and redundant verbiage. Subjects also offered helpful insights into answers they gave on the questionnaire.

Following the focus group, a ministep analysis of the questionnaire results was performed. It became apparent that the response categories failed to substantially differentiate subjects' pronunciation strategy usage. Subjects seemed to view themselves either as "pronunciation learner plus $x$ strategy" or "pronunciation learner minus $x$ strategy." This led to the most significant change in the questionnaire. Response categories were re-labeled to quantify how frequently subjects used the strategies listed. A summary of these and other minor changes can be found in Appendix B.

Finally, the Strategic Pronunciation Learning Scale posed open-ended questions about pronunciation strategies. These questions and their answers are listed in Appendix C.

**Chapter Four**

**Results**

This study was designed to investigate pronunciation learning strategies by collecting a sample of such strategies and determining if there is a correlation between pronunciation learning strategies used by adult ESL learners and their actual spontaneous pronunciation skill. Also, the study sought to categorize pronunciation learning strategies based on the research and data produced from this study. This chapter will present descriptive and inferential statistics related to these objectives.

Following a discussion on the descriptive statistics of the data collected using the Strategic Pronunciation Learning Scale, three statistical operations will be presented, including a backward elimination selection, a factor analysis, and a stepwise regression analysis. These three statistical operations were performed on the data that was collected from the SPLS in a three-step process in order to answer the research questions.

*Descriptive Statistics*

The SPLS required participants to respond to 28 statements about their pronunciation strategy usage. Participants responded on a likert scale with descriptors *several times a day, about once a day, about once a week, less than once a month,* and *never.* Participants who failed to indicate their level of usage of a particular pronunciation strategy were assumed to have had no experience with that strategy, and thus their non-answer was scored in the *never* category. All responses were coded so that the category *several times a day* was given the score of one (1) while the category *never* was scored as six (6) and so on. The lower the pronunciation score, the more

frequently the strategy was used.  Table 10 shows the mean scores for each strategy

based on the 183 responses.

| Item Number | Brief Description of Strategy | Mean Item Score |
|:---:|:---|:---:|
| 19 | Immediate self-correction | 1.759563 |
| 13 | Ask for pronunciation help | 1.765027 |
| 14 | Try to sound like an English speaker | 1.781421 |
| 4 | Listen for new sounds | 1.857923 |
| 22 | Change speed of speech | 1.874317 |
| 16 | Willing to guess the pronunciation of new sounds | 1.879781 |
| 27 | Look for a good learning environment | 1.912568 |
| 28 | Keep working until I reach the goals that I make for myself | 1.939891 |
| 2 | Identify sounds that are difficult for **me** to produce | 1.945355 |
| 26 | Fix the problem of a poor learning environment | 2.076503 |
| 23 | I feel happy with the ways I keep from getting tired of learning | 2.098361 |
| 17 | Sound it out new English sounds | 2.125683 |
| 6 | Practice new sounds | 2.147541 |
| 20 | Find ways to avoid the problem sounds | 2.15847 |
| 15 | Compare new words to similar words that I do know | 2.15847 |
| 5 | Repeat other's words silently | 2.15847 |
| 7 | Memorize words that are difficult for me to pronounce | 2.163934 |
| 1 | Use English media such as television, movies, and the radio | 2.185792 |
| 9 | Think about the differences between my native language and English | 2.196721 |
| 25 | Solve stressful situations immediately | 2.229508 |
| 10 | Concentrate on word stress | 2.229508 |
| 21 | Change volume of speech. | 2.262295 |
| 3 | Notice other's pronunciation mistakes | 2.273224 |
| 24 | I know how to cut down pronunciation anxiety | 2.415301 |
| 12 | Ask for feedback on my English pronunciation | 2.486339 |
| 8 | Adjust the muscles in my face for new sounds | 2.743169 |
| 18 | Pronounce new words using my native sound system | 3.054645 |
| 11 | Use a system of symbols that help me more than English spelling | 3.131148 |

Table 10:  Mean Pronunciation Strategies Usage

It is noteworthy that the most frequently used strategy, item nineteen, was a self-

correction strategy, item nineteen.  The second most frequently used strategy on the

Strategic Pronunciation Learning Scale was item thirteen, "When I don't know how to

pronounce a word in English, I ask for help."  This particular strategy will be of special

interest later in the analysis.  The least frequently used pronunciation strategy was item

number eleven, "To improve my English pronunciation, I use a system of symbols that

help me more than English spelling."  It was expected that adult ESL learners would be

less inclined to use on a regular basis such systems as the International Phonetic Alphabet

or other phonetic systems to help them improve their English pronunciation because such

systems are often time consuming to learn and interpret.

Another descriptive statistic shows scores by groups as described in Table 11

where the means for pronunciation scores and SPLS scores are compared across

language background and ELC levels.

|  |  | ELC Level 3 | ELC Level 4 | ELC Level 5 |
|---|---|---|---|---|
| **Asian** | Mean Score: Pronunciation | 1.84 | 1.67 | 2.05 |
| | Mean Score: SPLS | 2.31 | 2.41 | 2.07 |
| **Latin** | Mean Score: Pronunciation | 2.11 | 1.83 | 2.00 |
| | Mean Score: SPLS | 2.08 | 2.26 | 2.20 |
| **Other** | Mean Score: Pronunciation | 2.45 | 1.93 | 2.50 |
| | Mean Score: SPLS | 2.80 | 2.60 | 1.79 |

**Table 11: Pronunciation and SPLS Means by Learner Groups**

In a final descriptive analysis, participants were rank-ordered by their

spontaneous pronunciation score.  Tables 12 and 13 offer descriptive data on the top

quartile and bottom quartile of participants in terms of spontaneous pronunciation

score.  Participants' mean SPLS score is reported followed by their ELC level, sex,

native language, and length of stay in America (by months).  A lower mean SPLS score

suggests that the participant used pronunciation strategies on a more frequent basis.

| Participant | Pron. score | Mean SPLS score | ELC level | Sex | Native language | Length of stay in U.S. (in months) |
|---|---|---|---|---|---|---|
| 152 | 5 | 3.11 | 4 | F | Asian | 9 |
| 038 | 4.5 | 1.64 | 4 | M | Latin | 8 |
| 007 | 4 | 2.25 | 5 | F | Latin | 4 |
| 015 | 4 | 2.14 | 3 | M | Latin | 6 |
| 158 | 4 | 1.5 | 5 | F | Other | 34 |
| 013 | 3.5 | 1.61 | 3 | F | Latin | 7 |
| 048 | 3.5 | 1.75 | 3 | F | Asian | 4 |
| 062 | 3.5 | 2.46 | 3 | F | Other | 4 |
| 072 | 3.5 | 1 | 5 | F | Asian | 18 |
| 089 | 3.5 | 1.54 | 5 | F | Asian | 3 |
| 099 | 3.5 | 2.36 | 4 | M | Asian | 5 |
| 130 | 3.5 | 3.29 | 3 | F | Other | 3 |
| 001 | 3 | 1.68 | 3 | F | Latin | 8 |
| 019 | 3 | 2.36 | 3 | F | Latin | 4 |
| 023 | 3 | 2.11 | 3 | F | Asian | 4 |
| 042 | 3 | 3.43 | 4 | F | Other | 18 |
| 046 | 3 | 2.43 | 3 | F | Asian | 4 |
| 057 | 3 | 1.82 | 5 | M | Asian | 4 |
| 070 | 3 | 1.86 | 3 | F | Asian | 4 |
| 075 | 3 | 1.71 | 3 | F | Asian | 4 |
| 082 | 3 | 1.07 | 3 | M | Asian | 8 |
| 108 | 3 | 1.79 | 5 | F | Latin | 6 |
| 115 | 3 | 2.46 | 4 | F | Asian | 3 |
| 131 | 3 | 1.43 | 3 | M | Latin | 5 |
| 170 | 3 | 1.64 | 4 | M | Latin | 3 |
| 002 | 2.5 | 2.64 | 4 | M | Latin | 28 |
| 006 | 2.5 | 2.04 | 5 | F | Latin | 11 |
| 008 | 2.5 | 2.21 | 3 | M | Latin | 8 |
| 009 | 2.5 | 1.64 | 3 | F | Latin | 4 |
| 010 | 2.5 | 1.82 | 4 | F | Latin | 8 |
| 018 | 2.5 | 1.68 | 4 | F | Latin | 4 |
| 024 | 2.5 | 2.14 | 4 | F | Asian | 4 |
| 033 | 2.5 | 2.57 | 3 | M | Other | 8 |
| 044 | 2.5 | 3.29 | 4 | M | Latin | 11 |
| 050 | 2.5 | 1.14 | 3 | M | Latin | 3 |
| 060 | 2.5 | 2.25 | 4 | F | Latin | 3 |
| 065 | 2.5 | 2.79 | 4 | F | Asian | 4 |
| 074 | 2.5 | 2.25 | 3 | M | Asian | 3 |
| 092 | 2.5 | 1.5 | 4 | M | Asian | 4 |
| 102 | 2.5 | 2.61 | 5 | F | Latin | 7 |
| 103 | 2.5 | 2.32 | 4 | M | Latin | 7 |
| 112 | 2.5 | 1.89 | 4 | M | Latin | 7 |
| 116 | 2.5 | 2.46 | 3 | M | Latin | 8 |
| 119 | 2.5 | 1.79 | 5 | F | Other | 12 |
| 125 | 2.5 | 2.07 | 3 | F | Latin | 10 |
| 128 | 2.5 | 1.29 | 5 | M | Latin | 4 |

**Table 12: Top Quartile Ranking Participants Based on Pronunciation Score**

| Participant | Pron. score | Mean SPLS score | ELC level | Sex | Native language | Length of stay in U.S. (in months) |
|---|---|---|---|---|---|---|
| 137 | 1.5 | 2.68 | 3 | F | Latin | 3 |
| 145 | 1.5 | 1.04 | 3 | F | Latin | 4 |
| 151 | 1.5 | 2.71 | 5 | F | Asian | 9 |
| 155 | 1.5 | 2.82 | 5 | F | Asian | 30 |
| 159 | 1.5 | 2.86 | 4 | M | Latin | 3 |
| 165 | 1.5 | 1.54 | 4 | M | Asian | 15 |
| 166 | 1.5 | 2.82 | 3 | M | Asian | 7.5 |
| 168 | 1.5 | 3.32 | 4 | M | Asian | 38 |
| 172 | 1.5 | 1.54 | 4 | F | Asian | 4 |
| 176 | 1.5 | 2.93 | 4 | F | Latin | 8 |
| 178 | 1.5 | 3.11 | 3 | F | Latin | 7 |
| 179 | 1.5 | 2.21 | 5 | M | Latin | 12 |
| 180 | 1.5 | 2.46 | 3 | F | Latin | 8 |
| 4 | 1 | 1.43 | 3 | M | Latin | 4 |
| 11 | 1 | 2 | 3 | M | Latin | 4 |
| 25 | 1 | 1.29 | 5 | M | Latin | 12 |
| 27 | 1 | 2.93 | 3 | M | Latin | 7.5 |
| 30 | 1 | 2.64 | 3 | F | Latin | 11 |
| 61 | 1 | 2.57 | 3 | M | Latin | 8 |
| 73 | 1 | 1.11 | 3 | M | Latin | 4 |
| 77 | 1 | 2.86 | 4 | F | Latin | 9 |
| 80 | 1 | 3.89 | 5 | F | Latin | 16 |
| 86 | 1 | 2.75 | 3 | M | Other | 4 |
| 88 | 1 | 2.64 | 4 | F | Asian | 8 |
| 101 | 1 | 2.21 | 3 | M | Asian | 3 |
| 122 | 1 | 2.43 | 3 | M | Asian | 4 |
| 127 | 1 | 3.04 | 3 | F | Asian | 4 |
| 133 | 1 | 2.39 | 4 | F | Asian | 8 |
| 134 | 1 | 2.18 | 3 | M | Latin | 4 |
| 135 | 1 | 4.04 | 3 | M | Asian | 4 |
| 141 | 1 | 1.75 | 3 | F | Latin | 3 |
| 144 | 1 | 2.25 | 3 | M | Asian | 4 |
| 157 | 1 | 2.5 | 4 | F | Latin | 4 |
| 169 | 1 | 1.86 | 4 | F | Latin | 4 |
| 174 | 1 | 2.11 | 4 | F | Asian | 15 |
| 182 | 1 | 1.36 | 4 | F | Asian | 7.5 |
| 14 | 0.5 | 1.82 | 3 | M | Asian | 8 |
| 28 | 0.5 | 2.43 | 4 | F | Other | 8 |
| 29 | 0.5 | 2.11 | 3 | F | Latin | 7 |
| 97 | 0.5 | 2.5 | 3 | F | Latin | 16 |
| 114 | 0.5 | 3.61 | 4 | F | Latin | 4 |
| 143 | 0.5 | 1.32 | 4 | F | Latin | 7 |
| 146 | 0.5 | 2.96 | 4 | F | Latin | 4 |
| 156 | 0.5 | 1.96 | 3 | M | Asian | 4 |
| 21 | 0 | 2.79 | 5 | M | Asian | 4 |
| 110 | 0 | 2.04 | 4 | F | Latin | 12 |

**Table 13: Bottom Quartile Ranking Participants Based on Pronunciation Score**

*Inferential Statistics*

A three-step statistical analysis was performed on the SPLS data to answer the research questions.  First, a backward elimination selection was performed, followed by a factor analysis and a stepwise regression analysis.  Each operation was performed by a member of the Statistics Department at Brigham Young University.

A backward elimination selection is a statistical procedure consisting of several steps that work to average out any differences in responses within a specific model of variables, leaving only the variables that are significant in the model.  For the SPLS data, the five demographic responses (ELC level, sex, native language, time in U.S., and semesters of pronunciation studies) were used to predict pronunciation score.  The five factor model was analyzed and the least significant factor was removed, following which the model was refitted and re-analyzed until only the most significant predictor variables remained.  After this process was complete, the significant predictors (at the .05 alpha level) were ELC level, native language, and time in U.S.

| Predictor variables | *F value* | *Pr > F* |
|---|---|---|
| ELC Level | 2.55 | .080 |
| Sex | .764 | .764 |
| Native Language | 2.27 | .106 |
| Length in U.S. | 12.86 | .000 |
| Studied Pronunciation | .43 | .430 |

**Table 14:  Backward elimination selection results**

Following the backward elimination selection, a factor analysis using the twenty-eight survey responses as the variables of interest was performed.  This method is one way to identify underlying structure or groupings that may exist among the

survey responses.  Using the principal component method and a varimax orthogonal

rotation, there were two main factors that emerged.  The first factor, labeled

*monitoring*, was an overall average of many of the survey responses and included

responses from the input, practicing, noticing, and feedback groups. The specific list of

items that loaded more heavily on this factor were items is listed in order of largest to

smallest factor loadings in Table 15.

| Factor One:  Monitoring/Practicing | | | Factor Two:  Motivation | | |
| --- | --- | --- | --- | --- | --- |
| Item Number | *Item Description* | *p-value* | Item Number | *Item Description* | *p-value* |
| 5 | Repeat other's words silently | .791 | 26 | Fix the problem of a poor learning environment | .790 |
| 6 | Practice new sounds | .732 | 25 | Solve stressful situations immediately | .755 |
| 8 | Adjust the muscles in my face to produce new sounds | .682 | 27 | Look for a good learning environment | .698 |
| 7 | Memorize words that are difficult for me to pronounce | .664 | 28 | Keep working until I reach the goals that I make for myself | .689 |
| 4 | Listen for new sounds | .601 | 24 | I know how to cut down pronunciation anxiety | .618 |
| 12 | Ask for feedback on my English pronunciation | .605 | 22 | Change speed of speach | .552 |
| 1 | Use English media such as television, movies, and the radio | .546 | 19 | Immediate self-correction | .538 |
| 10 | Concentrate on word stress | .499 | | | |
| 9 | Thing about the differences between my native language and English | .461 | | | |
| 14 | Try to sound like an English speaker | .404 | | | |
| 3 | Notice other's pronunciation mistakes | .400 | | | |

**Table 15:  Factor Loadings for SPLS Data.**

The second factor loaded highly on the items listed in order of largest to smallest

factor loadings in Table 15.  The criterion for loading "highly" was determined to be 0.4.

These factors represent categories other than those that were expected and

enumerated in Chapter Two.  For instance, factor one contains items from the input,

practice, feedback, and noticing categories. Factor two, on the other hand, contains items from the hypothesis testing and motivation categories. Table 16 summarizes these findings.

Factor One: Monitoring

| Item | Item Description | Category |
|---|---|---|
| 5 | When I am listening to someone speaking English, I repeat their words silently | Practice |
| 6 | When working on my English pronunciation, I practice new sounds. | Practice |
| 8 | When working on my English pronunciation, I adjust the muscles in my face for new sounds, like opening my mouth wide. | Practice |
| 7 | When working on my English pronunciation, I memorize words that are difficult for me to pronounce. | Practice |
| 4 | When I am listening to someone speaking English, I listen for new sounds. | Input |
| 12 | When I am conversing with someone speaking English, I ask for feedback on my English pronunciation. | Feedback |
| 1 | When I am trying to learn new English sounds, I use English media such as television, movies, and the radio. | Input |
| 10 | To improve my English pronunciation, I concentrate on word stress. | Noticing |
| 9 | To improve my English pronunciation, I think about the differences between my native language and English. | Noticing |
| 14 | When I am conversing with someone speaking English, I try to sound like an English speaker. | Feedback |
| 3 | When I am listening to someone speaking English, I notice when they make mistakes. | Input |

Factor Two: Motivation

| Item | Item Description | Category |
|---|---|---|
| 26 | When I am studying English pronunciation and the learning environment gets bad, I fix the problem. | Motivation |
| 25 | When I feel stressed about my English pronunciation learning, I solve this problem immediately. | Motivation |
| 27 | When I study English pronunciation, I look for a good learning environment. | Motivation |
| 28 | When learning English pronunciation, I keep working until I reach the goals that I make for myself. | Motivation |
| 24 | When I feel stressed about learning English pronunciation, I know how to cut this stress down. | Motivation |
| 22 | If people don't understand my English pronunciation, I change my speed of speech. | Hypothesis Testing |
| 19 | If people don't understand my English pronunciation, I immediately correct myself. | Hypothesis Testing |

**Table 16: Factor categories**

In determining the underlying factor that described all items in factor one, it was important to recognize that the first four and most significant factor loading items all came from the practice category. Furthermore, both noticing items from the SPLS were included in factor one. The fact that all items focused on practice were included in the same factor is not especially surprising because it was expected that practice activities would load as a group. Also, it was expected that noticing items would also load together, though it was not anticipated that they would load together with practice items.

An important conclusion that can be drawn from the first factor loadings is that practice and noticing represent a fairly unidimensional construct. As such, there is no strong reason to separate these categories. Noticing pronunciation distinctions accesses the same underlying skill as practicing pronunciation distinctions.

Factor two was less problematic since it covered most of the motivation items. Again, these were expected to load together. Two additional items also loaded on this factor from the hypothesis testing category. Looking at this factor as a collection of affective techniques for improving the pronunciation learning environment helps to explain the occurrence of the last two items in the second factor. For example, changing the speed of speech (item # 22) could be considered an affective technique in as much as it is used by pronunciation learners to help them maintain control of their communicative environment. Speed of speech is an easily modulated coping strategy for pronunciation learners. After all, altering specific phonemes or stress can be very difficult and communicatively unreliable for the language learner, yet altering the speed of speech requires almost no knowledge of a language's phonological system and can

make the learner feel as though he or she has regained control of the communicative task. Similarly, immediate self-correction (item # 19) can help the pronunciation learner save face in a conversation and thus maintain a position of credibility in the eyes of the interlocutor. The fact that all items from the hypothesis forming category did not load with one another, nor did they load with other factors, suggests that these items are isolated pronunciation learning strategies.

After completing a backward elimination selection and a factor analysis, a stepwise regression analysis was performed to determine variables that were most successful in predicting pronunciation scores. A stepwise regression analysis operates by establishing a model of high-predicting variables, then adding the single most significant predictor to the model from a pool of potential predictors. Once the potential predictor is added, the model is evaluated through an F-test to ensure that all predictors in the model are still significant. If a predictor is no longer important, it is removed and put back into the pool of potential predictors. Successive steps alternate between adding significant predictors to the model and removing predictors that are no longer important. Because of the large number of F-tests performed in analyses such as backward elimination and stepwise regression, the alpha levels are much more difficult to interpret in these analyses. The standard alpha level of .05 is relaxed in most statistical software for backward elimination and stepwise regressions to adjust for multiple F-tests. Thus, at least three of the alpha levels in Table 17 appear insignificant when in reality they are significant predictors of spontaneous pronunciation score.

For the SPLS data, the three significant demographic responses (ELC level, native language, and time in U.S.) were included in the model because of their previous

ability to predict spontaneous pronunciation score. The pool of potential predictors

included the two main factors mentioned earlier and all 28 survey responses. The final

model indicated that ELC level, native language, and time in U.S., along with items 3

*Noticing other's pronunciation mistakes*, 5 *Repeating other's words silently*, 8

*Adjusting facial muscles*, 13 *Asking for pronunciation help*, and 21 *Changing volume of*

*speech* were significant in predicting pronunciation score; however, length of stay,

item 5 *Repeating other's words silently*, and item 21 *Changing volume of speech* were

inversely correlated.

| Variable | Parameter Estimate | Standard Error | F value | Pr > F |
|---|---|---|---|---|
| Language | 0.12693 | 0.09142 | 1.93 | 0.1668 |
| Length of stay | -0.01616 | 0.00658 | 6.03 | 0.0151 |
| ELC level | 0.05960 | 0.08368 | 0.51 | 0.4773 |
| Item 3 *Noticing other's pronunciation mistakes* | -0.11411 | 0.04701 | 5.89 | 0.0162 |
| Item 5 *Repeating other's words silently* | 0.11727 | 0.04990 | 5.52 | 0.0199 |
| Item 8 *Adjusting facial muscles* | -0.07012 | 0.04631 | 2.29 | 0.1319 |
| Item 13 *Asking for pronunciation help* | -0.15532 | 0.07292 | 4.54 | 0.0346 |
| Item 21 *Changing volume of speech* | 0.11632 | 0.03967 | 8.60 | 0.0038 |

**Table 17: Significant predictors of pronunciation score**

Just as important as noting which variables predicted the pronunciation score is

noting variables that did not predict pronunciation scores. Surprisingly, neither of the

main factors were significant predictors. This means that the construct underlying

noticing and practicing was not a statistical predictor of pronunciation score, nor was

the underlying construct of motivation. This finding is not to say that practice and

motivation were altogether unrelated to pronunciation; rather, the underlying construct

may not be totally responsible for pronunciation skill development. This finding seems to indicate that the categorization of pronunciation learning strategies may simply be more of an organizational convenience instead of a pedagogical necessity.

Another item that, curiously, failed to predict pronunciation score was semesters of pronunciation study. This can be explained by the nature of students' language-learning background. Students who reported studying pronunciation previously represented only 42% of participants, and many of these participants counted their current semester as previous pronunciation study even though the institution offers no pronunciation courses. A majority of students, 58%, reported receiving no previous pronunciation instruction at all. Thus it is not surprising that this demographic held no significance in predicting spontaneous pronunciation scores.

In terms of actual predictors, though, the stepwise regression analysis indicated that language, ELC level, item 3 *noticing other's mistakes*, item 8 *adjusting facial muscles*, and item 13 *seeking pronunciation help* were all significant predictors of spontaneous pronunciation score. A *post-hoc* analysis was performed on language groups to determine which of the three, Latin, Asian, or Other, best predicted pronunciation score. The Other language group was shown to have higher pronunciation scores than the Latin or Asian language groups. ELC level was also a significant predictor of pronunciation score: the more advanced learners had higher pronunciation scores. Students advance in levels of language learning because of their advancement in overall proficiency, and it is assumed that students at a higher level in the ELC would pronounce English more native-like because of their training and practice.

Another important predictor of spontaneous pronunciation score was strategy number three, "when I am listening to someone speaking English, I notice when they make mistakes." When participants reported using this strategy more frequently, they tended to have better spontaneous pronunciation scores. This result suggests that participants who were very attuned to the mistakes of other English speakers might possibly possess a talent or skill for focusing on the nuances of sound distinctions within a language.

Strategy number eight, "when working on my English pronunciation, I adjust the muscles in my face for new sounds, like opening my mouth wide," represented another significant predictor of spontaneous pronunciation score. Participants who reported using this strategy more frequently also had higher spontaneous pronunciation scores. It is common for native speakers to coach non-native speakers in pronunciation by emphasizing and even over-exaggerating facial muscles or articulatory gestures. While this strategy might appear primitive and inexact, frequent usage of this activity was correlated with higher pronunciation scores.

Finally, strategy thirteen, "when I don't know how to pronounce a word in English, I ask for help," was the last significant predictor of pronunciation score. Participants who reported using this strategy frequently also tended to have a higher pronunciation score. This is not a terribly surprising finding since strategy 13 was among the most used strategies. This finding is also fairly intuitive because it is generally accepted by both native and non-native speakers that pronunciation improvement can be greatly facilitated by the intervention of a trained, or at least experienced, English speaker.

As mentioned previously, several predictors on the SPLS were inversely significant in predicting pronunciation score.  These included length of stay in the U.S., and item numbers 5 *Repeat other's words silently* and 21 *Change volume of speech.*.

The fact that as participants reported greater lengths of stay in the U.S. their pronunciation score was lower was highly unexpected (see Riney and Flege, 1998).  It is possible to explain the phenomenon of lower pronunciation scores among longer-term residents by suggesting that fossilization had occurred in the spontaneous pronunciation of participants who had remained in the United States longer.  However, all but one participant reported having lived in the United States for less than five years.  It does not seem probable that fossilization of English could occur within just five years of arrival for enough study participants to produce a significant finding.

Another explanation for the finding is more satisfying and probable.  Presumably the best overall language learners also have some of the best pronunciation.  Many higher-level learners in the ELC program opted not to participate in this study because they had already passed the TOEFL earlier in the semester and had been admitted to other institutions, including colleges and universities in America.  Their success on the TOEFL reduced their incentives to prepare for and take the level achievement tests, to which this study was attached.  This practice has been observed at the ELC for several years.  Those learners who did take the level achievement tests, and by extension participated in this study, were those who still felt obligated to study because they had not passed the TOEFL.  These students likely included those who had stayed in America for an extended period of time either retaking levels or prolonging their education in an attempt to pass the TOEFL on their F-1 visa.  Thus it is likely that

many of the higher-level English speakers were not represented in this study while lower-level, longer-term learners were likely overrepresented.

Besides length of stay in America, item 5, "When I am listening to someone speaking English, I repeat their words silently," also inversely predicted pronunciation score. This means that when a subject reported using this strategy more frequently, their pronunciation score was more likely to be low. This is not to say that repeating other's speech causes poor pronunciation; however, it might indicate that frequent sub-vocalized repetition can interfere with the memory or reception skills necessary to perceive and then produce accurate spontaneous English pronunciation.

Finally, item 21, "If people don't understand my English pronunciation, I change my volume of speech," was another significant inverse predictor of pronunciation score. It has long been considered naïve to assume that speaking louder when communication breaks down will improve communication. In terms of pronunciation, it appears that this holds true: those who alter the volume of their speech on a regular basis are less likely to be better at spontaneously pronouncing English. An increase in volume of spoken English carries with it a host of articulatory and affective modifications that can influence spontaneous pronunciation. For instance, when a non-native English speaker uses increased volume of speech to compensate for communication breakdown, strong emotions of frustration often accompany this act. Furthermore, the speaker tends to lose attenuation to articulatory gestures and difficult sounds in favor of louder speech. It is not suggested that volume modification causes poor pronunciation; however, it is suggested that frequent volume modification co-occurs with lower spontaneous pronunciation scores.

None of the remaining twenty-three strategies on the SPLS were significant predictors of pronunciation score. That is to say, it was nothing more than chance if any of the remaining strategies predicted pronunciation scores.

A *post-hoc* analysis was performed on the data in the form of a t-test to determine how pronunciation strategy usage differed between the top and bottom scorers for spontaneous pronunciation skill. Item scores from the SPLS were tabulated for the top and bottom 25% of learners based on their pronunciation score and then compared. A significant difference emerged (*t(54) = .007, p < .01*) indicating that higher ability pronunciation learners used pronunciation strategies more frequently than lower pronunciation learners. This is not surprising as similar results have been reported in other studies (Anderson, 2005; Bruen, 2001b; Chamot & El-Dinary, 1999; Green & Oxford, 1995; O'Malley & Chamot, 1990; Warton, 2000). The mean for variable 1, which is scores of the top quartile, is 96.54. The mean for variable 2, which is scores of the bottom quartile, is 109.79.

In the following chapter, these results will be discussed in order to answer the research questions and give recommendations for pronunciation instruction.

**Chapter Five**

**Discussion and Conclusion**

This study was meant to investigate the relationship between pronunciation learning strategies and spontaneous pronunciation skill. It was also meant to arrange pronunciation learning strategies into categories determined in the research and based on data produced from this study. The specific objective of this chapter is to answer the research questions, thereby clarifying the relationship between pronunciation learning strategies, the use of those strategies, language learning theory, and pronunciation skill. Furthermore, this chapter will discuss implications, limitations, and suggestions for further research relating to this study. First, the research questions were as follows:

1. What pronunciation strategies do adult ESL learners in an intensive English program use to help them improve their English pronunciation?

2. Does usage of these pronunciation learning strategies correlate with measures of pronunciation skill in spontaneous speech as manifested by pronunciation scores on a Level Achievement Test?

3. What natural categories of pronunciation strategies emerge from an examination of learner responses to a strategies usage questionnaire?

*Discussion of Results*

1. *What pronunciation strategies do adult ESL learners in an intensive English program use to help them improve their English pronunciation?*

Table 18 lists the twenty-eight strategies tested and the frequency with which they were used as reported by the 183 participants. Frequency count of usage is

reported in percent of respondents who used a particular strategy in a particular time period.

| Strategy | Day* | Week | Month | Year | Never |
|---|---|---|---|---|---|
| Ask for pronunciation help | 81 | 15 | 3 | 1 | 0 |
| Change speed of speech | 79 | 14 | 3 | 2 | 1 |
| Listen for new sounds | 78 | 15 | 4 | 2 | 1 |
| Willing to guess the pronunciation of new sounds | 75 | 16 | 5 | 1 | 1 |
| Immediate self-correction | 75 | 17 | 3 | 2 | 0 |
| Identify sounds that are difficult for **me** to produce | 74 | 19 | 3 | 1 | 3 |
| Try to sound like an English speaker | 74 | 14 | 4 | 4 | 2 |
| Look for a good learning environment | 71 | 18 | 5 | 3 | 0 |
| Keep working until I reach the goals that I make for myself | 70 | 20 | 4 | 2 | 1 |
| Memorize words that are difficult for me to pronounce | 69 | 20 | 6 | 4 | 1 |
| Sound it out new English sounds | 69 | 19 | 7 | 1 | 3 |
| Use English media such as television, movies, and the radio | 68 | 20 | 7 | 2 | 2 |
| Think about the differences between my native language and English | 68 | 17 | 5 | 6 | 3 |
| Repeat other's words silently | 67 | 20 | 5 | 4 | 3 |
| Compare new words to similar words that I do know | 67 | 21 | 4 | 4 | 2 |
| Change volume of speech. | 67 | 19 | 4 | 3 | 6 |
| Fix the problem of a poor learning environment | 67 | 19 | 5 | 5 | 0 |
| Practice new sounds | 66 | 23 | 7 | 4 | 0 |
| Concentrate on word stress | 66 | 18 | 11 | 3 | 2 |
| Find ways to avoid the problem sounds | 66 | 21 | 6 | 3 | 3 |
| Notice other's pronunciation mistakes | 64 | 20 | 5 | 6 | 2 |
| I feel happy with the ways I keep from getting tired of learning | 62 | 25 | 6 | 3 | 2 |
| Solve stressful situations immediately | 59 | 27 | 7 | 2 | 2 |
| Ask for feedback on my English pronunciation | 54 | 27 | 9 | 5 | 4 |
| I know how to cut down pronunciation anxiety | 54 | 26 | 9 | 4 | 4 |
| Adjust the muscles in my face for new sounds | 48 | 28 | 9 | 7 | 7 |
| Pronounce new words using my native sound system | 44 | 22 | 12 | 6 | 15 |
| Use a system of symbols that help me more than English spelling | 42 | 23 | 10 | 8 | 16 |

**Table 18:  Strategy Usage in Percent for Each Time Period**

Table 18 presents the percentage of participants who marked a particular strategy for a particular time period.  For example, the first strategy listed, ask for pronunciation help, shows that 81% of participants used this strategy at least on a daily basis.  Furthermore, 15% of participants reported using this strategy at least weekly, but less than daily.  Only 3% of participants showed that they used this strategy at least

monthly, but less than weekly; 1% reported using this strategy at least yearly, but less than monthly.  Finally, no participants reported completely avoiding this strategy.

| Rank | Strategy | Mean | Category |
|:---:|---|:---:|---|
| 1 | Immediate self-correction | 1.76 | Hypothesis testing |
| 2 | Ask for pronunciation help | 1.76 | Noticing / Feedback |
| 3 | Try to sound like an English speaker | 1.78 | Hypothesis forming |
| 4 | Listen for new sounds | 1.85 | Input / Practice |
| 5 | Change speed of speech | 1.87 | Hypothesis testing |
| 6 | Willing to guess the pronunciation of new sounds | 1.88 | Hypothesis forming |
| 7 | Look for a good learning environment | 1.91 | Motivation |
| 8 | Keep working until I reach the goals that I make for myself | 1.94 | Motivation |
| 9 | Identify sounds that are difficult for **me** to produce | 1.94 | Input / Practice |
| 10 | Fix the problem of a poor learning environment | 2.07 | Motivation |
| 11 | I feel happy with the ways I keep from getting tired of learning | 2.09 | Motivation |
| 12 | Sound it out new English sounds | 2.12 | Hypothesis forming |
| 13 | Practice new sounds | 2.14 | Input / Practice |
| 14 | Find ways to avoid the problem sounds | 2.15 | Input / Practice |
| 14 | Compare new words to similar words that I do know | 2.15 | Hypothesis forming |
| 14 | Repeat other's words silently | 2.15 | Hypothesis testing |
| 17 | Memorize words that are difficult for me to pronounce | 2.16 | Input / Practice |
| 18 | Use English media such as television, movies, and the radio | 2.18 | Input / Practice |
| 19 | Think about the differences between my native language and English | 2.19 | Noticing / Feedback |
| 20 | Solve stressful situations immediately | 2.23 | Noticing / Feedback |
| 20 | Concentrate on word stress | 2.23 | Motivation |
| 22 | Change volume of speech. | 2.26 | Hypothesis testing |
| 23 | Notice other's pronunciation mistakes | 2.27 | Input / Practice |
| 24 | I know how to cut down pronunciation anxiety | 2.41 | Motivation |
| 25 | Ask for feedback on my English pronunciation | 2.48 | Noticing / Feedback |
| 26 | Adjust the muscles in my face for new sounds | 2.74 | Input / Practice |
| 27 | Pronounce new words using my native sound system | 3.05 | Hypothesis forming |
| 28 | Use a system of symbols that help me more than English spelling | 3.13 | Noticing / Feedback |

**Table 19:  Mean Frequency of Pronunciation Learning Strategy Usage by Acquisition Categories**

When combining the most frequently used pronunciation learning strategies with the language acquisition theory presented in Chapter Two, it became clear that learners indeed made use of all areas of the acquisition model.  The model presented in Chapter Two suggested that Kolb's (1984) Learning Cycle Construct fit with a general construct of pronunciation language acquisition.  It was implied that pronunciation learners would cycle through a theoretical round of categories—input/practice,

feedback/noticing, hypothesis forming, and hypothesis testing (and motivational strategies)—to develop pronunciation skill. Furthermore, it was expected that learners would manifest cycling through this model by choosing to use strategies from all four theoretical categories. The data revealed that learners indeed used strategies from all acquisition categories. Table 19 presents the pronunciation learning strategies organized from most popular to least popular by the mean of all respondents' scores. The table shows that the four most frequently used strategies came from four different categories of acquisition theory while no single acquisition category figured predominantly in frequent strategy usage.

2. *Does usage of these pronunciation learning strategies correlate with measures of pronunciation skill in spontaneous speech as manifested by pronunciation scores on a Level Achievement Test?*

The second most frequently used pronunciation strategy reported on the SPLS was also among the significant predictors of pronunciation score, that being a request for pronunciation help when encountering a new English word.

Nearly 81% of all respondents claimed to use this strategy on a daily basis. Other strategies that were reported by English pronunciation learners as used at least daily by 75% or more of learners included (in order of popularity) changing speed of speech, listening for new sounds, immediately correcting incorrect sounds, and guessing unfamiliar pronunciation. Only 64% of participants reported noticing other's English mistakes on a daily basis while a mere 48% of participants reported adjusting facial muscles on a daily basis. This suggests that only one of the three highly correlated learning strategies was widely used by pronunciation learners.

Evidence from the SPLS suggested that five out of all twenty-eight pronunciation learning strategies tested predicted pronunciation skill—of those, three strategies showed a positive correlation to pronunciation score while two showed an inverse relationship.

The three strategies that positively related to pronunciation involved noticing pronunciation mistakes, adjusting facial muscles while speaking, and asking for help with the pronunciation of new English words. It is not surprising that learners who notice pronunciation distinctions also produce those distinctions better; however, this assumption is not always the case. In general language learning settings, perception usually precedes production, thus a learner might be capable of perceiving or noticing pronunciation mistakes, but might still be developing the skills to avoid those pronunciation pitfalls. An example in first language acquisition is the *fis* phenomenon wherein children can perceive a difference between their pronunciation and an adult's pronunciation, but cannot yet produce that distinction (Berko & Brown, 1960; Clark, 2003). A strong correlation linking noticing to improved production, therefore, may not be completely justified. Furthermore, it is not clear why adjusting facial muscles would initially correlate highly with better pronunciation. A learner can modify his or her face in a variety of ways that could potentially affect pronunciation positively or negatively. While trained actors often engage in face "warm-up" activities in order to improve their articulation of sounds, it is hard to believe that the participants in this study had training in or frequently used facial techniques prior to or during spontaneous communication. The last of the three positively correlated strategies, asking others for help, is the most reasonable strategy for improving pronunciation. It requires the intervention of an

English speaker. Immediate, direct, personalized feedback is intuitively very helpful for pronunciation learners, and arguably, helps a learner quickly progress through Kolb's learning construct as it is related to pronunciation for a particular sound because the act of getting help suggests that a leaner is prepared to notice pronunciation differences and willing to receive feedback.

The two strategies that inversely related to pronunciation score involved silent repetition of model English pronunciation and modulation of speech volume when pronunciation is misunderstood. It was anticipated that the first strategy would be highly correlated with higher pronunciation score because it required modified practice. However, upon further thought, it was accepted that this type of practice would not facilitate feedback—an integral part of the pronunciation learning process. As Dörnyei and Skehan (2003) have pointed out, it is vital that learners spend time in all areas of Kolb's learning construct for the process to be effective. Lingering in the input state, for instance, might ensure that learners are encountering large amounts of pronunciation stimuli, but the same learner who never works on noticing will fail to make sense of the incoming stimuli, thus sabotaging the entire recursive nature of the learning process.

Combined, these results suggest that some pronunciation learning strategies tended to relate to pronunciation skill in this study. While it is not possible to make causal claims as to which strategies influence or improve spontaneous pronunciation, it is acceptable to acknowledge that noticing mistakes, adjusting facial muscles, and seeking pronunciation help are strategies used more frequently by those learners with higher spontaneous pronunciation scores in this study. Similarly, silent or sub-

vocalized repetition and volume modification are strategies used more frequently by learners with relatively lower pronunciation scores.

Having reviewed the most significant findings, perhaps the most revealing finding of this study showed that participants with higher spontaneous pronunciation scores used pronunciation learning strategies significantly more frequently than participants with lower pronunciation scores.  This indicates that there is a relationship between high usage of pronunciation learning strategies and pronunciation skill in spontaneous speaking tasks.  Furthermore, there may be a link between high pronunciation scores and frequent usage of pronunciation learning strategies from all language acquisition categories.

The correlations found in this study are limited to those who participated in this study.  It is probable that the correlations between strategy and pronunciation ability would change with a different group of learners.  For instance, a more motivated group of learners would likely have more correlations between strategy usage and pronunciation score, while a less motivated group would likely have fewer or no correlated strategies.  The actual strategies that did correlate with pronunciation scores would also likely change with a different group of learners depending on how long they have used strategies, how familiar they are with the strategies, and how frequently they practice English pronunciation, among other considerations.  In sum, the results of this experiment are descriptive of the study group and should not be generalized at large before additional studies can triangulate the findings or discover more concrete findings.  Furthermore, the language learning strategies in this study should be reviewed and analyzed to determine their precise roles in pronunciation learning.

3.  *What natural categories of pronunciation strategies emerge from an examination of*
    *learner responses to a strategies usage questionnaire?*

Part of this study was to determine if a categorization scheme for pronunciation strategies could be devised that places strategies into classifications based on Kolb's (1984) Learning Cycle Construct and a general language acquisition construct in order organize the pronunciation strategies research.  This objective has great potential for pronunciation students, teachers, and researchers.  Such things as providing comprehensible input, assigning practice activities, and offering feedback are all important elements of teaching pronunciation, but all lead to explicit knowledge of pronunciation.  In real conversation outside of the classroom or isolated practice activities, learners do not have the time or mental resources to attend to all the intricacies of pronunciation—even if they have been exposed to and even practiced every intricate detail of the target language's pronunciation.  In order for a learner to move toward native-like pronunciation, that learner must make pronunciation knowledge implicit or automatic.  Unfortunately, the task of turning explicit knowledge into implicit, automatic knowledge can only be performed by the learner.

It is easy to envision the kind of learners who are adept at taking in explicit pronunciation instruction but fail to make this instruction implicit.  For instance, a learner may know a host of pronunciation rules and even be able to explain the very rules he or she breaks when speaking.  On the other hand, there are learners who operate almost entirely on implicit knowledge, including native speakers.  When probed about their knowledge of pronunciation they may reveal a severely limited understanding of what makes their pronunciation so native-like.  The transfer of explicit

pronunciation knowledge to automatic pronunciation skill must be accomplished by the individual learner, but properly targeted pronunciation learning strategies, based on acquisition theory, are learning tools that can facilitate this transfer. This is not to say that explicit pronunciation knowledge is unhelpful, but implicit knowledge is more automatic and allows for less on-line monitoring of pronunciation. Indeed, pronunciation learning strategies are meant to be explicit tools taught to pronunciation learners, but the role of pronunciation learning strategies is to facilitate pronunciation automaticity.

Pronunciation learning strategies categorized in a random organization may be helpful for learners interested in improving their pronunciation simply because they offer additional pronunciation learning ideas. However, these same strategies grouped according to pronunciation acquisition theory can be much more effective. For instance, the teacher of a beginning-level pronunciation class might instruct learners on simple pronunciation distinctions and then offer input strategies to facilitate the automatic awareness of these distinctions in native speech. A teacher of advanced students might see that his or her students are adept at noticing pronunciation distinctions but have difficulty applying those distinctions to new situations; therefore the teacher might focus on hypothesis forming and testing strategies. In these two examples, pronunciation teachers can help learners begin the acquisition process or target specific parts of the process. An organization of pronunciation learning strategies that is based on language acquisition theory, therefore, is a precise instrument for addressing pronunciation learning needs by means of acquisition theory to create pronunciation automaticity. On the other hand, pronunciation learning strategies

organized outside of acquisition theory is tantamount to a shotgun approach to pronunciation learning and improvement.

In this study, it was anticipated that a number of factors would emerge from the SPLS data into which pronunciation strategies could be organized. This would help justify the framework that would relate pronunciation strategies to the theory of pronunciation acquisition; however, only two main factors appeared. They included a factor, labeled monitoring, that included both noticing and production skills. The second factor, labeled motivation, involved strategies that focused on developing and maintaining motivation to accomplish the pronunciation-learning task.

The monitoring factor included strategies that represented the first two categories of the Learning Cycle and general language acquisition constructs. Kolb (1984) indicated that concrete experience and reflection on observation are essential elements to learning. The respective categories in the language acquisition construct for these two categories are input/practice and feedback/noticing. The factor analysis indicates that the first two categories in the general language acquisition model are highly related to one another. This means that learners who use the first category of language acquisition, input/practice, when learning pronunciation also use the second category, feedback/noticing. The term *monitoring* was applied to this combination of categories; hence, when learners monitor their pronunciation, they engage in strategies that relate to input/practice and feedback/noticing. In terms of Kolb's theory, when learners monitor their pronunciation, they have concrete experiences with pronunciation and reflect on those observations.

The second factor, motivation, was not an original part of either Kolb's construct or the general language acquisition construct. This category was added because motivation is considered an influential variable in language acquisition. As expected, motivational strategies highly related to one another and grouped as a factor. This indicates that motivation is indeed separate from the language acquisition categories identified in Chapter Two. Thus, pronunciation learners will see a clear difference between pronunciation learning strategies for motivation and strategies allied with Kolb's learning construct.

Of the twenty-eight strategies examined, ten strategies did not fall within either of the two factors previously mentioned, and they failed to form factor groups of their own. Thus, the remaining strategies were considered to be orphan strategies. The orphan strategies did not appear to belong to particularly insightful or natural categories. Pronunciation learning strategies that are not associated with monitoring or motivation should be studied in greater depth and length to determine if and how they relate to acquisition theory.

An important finding of the study is that the monitoring and motivation factors did not predict pronunciation score. This means that even when pronunciation learning strategies are arranged in factor-loaded categories, those categories as a whole do little to explain pronunciation skill. This is not to say that the factors are inconsequential; rather, it simply means that no group of strategies from a single factor or acquisition category correlated with pronunciation skill in this study. In part, this was expected because a single category or factor that could predict pronunciation skill would indicate that only a portion of Kolb's (1984) Learning Cycle Construct was utilized in

improving pronunciation—in other words, only one element of acquisition theory would be responsible for all pronunciation improvement.

Additionally, the SPLS was a one-shot questionnaire that solicited self-report data on pronunciation strategies prior to any substantial exposure to pronunciation strategies. This study did not take into consideration the length of time or amount of exposure that students had to pronunciation learning strategies. It did not take into account the fact that pronunciation strategy usage can fluctuate. For all of these reasons the findings may be more difficult to interpret and should be replicated.

Regardless of the results of the study, the significance of aligning pronunciation learning strategies with acquisition theory should not be overlooked. The fact that a pedagogically-founded categorization scheme of pronunciation learning strategies has been developed is in itself an important development in this field. At this point in the field of pronunciation strategies, it is reasonable that pronunciation learning strategies should be aligned with language acquisition theory to help pronunciation learners develop implicit and automatic pronunciation skill. Learners and teachers can select strategies that lead to better acquisition of pronunciation rather than haphazardly picking strategies that may or may not benefit specific acquisition needs.

Fundamentally, using a language acquisition construct as the basis for pronunciation strategy categorization is advantageous in at least two ways. First, it provides a classification scheme that, unlike others, is based in cyclical learning theory, meaning that this categorization scheme is theory-driven and can inform recursive strategy usage. The second advantage is that pronunciation learners and teachers can

use this categorization scheme to identify and utilize a variety of strategies across the pronunciation acquisition spectrum.

*Implications of the Research*

In analyzing the results of the SPLS data, it became apparent that while many pronunciation strategies used by pronunciation learners are insignificant in predicting pronunciation skill, some are used more frequently by those with higher pronunciation skill. It also became apparent that only three pronunciation strategies were significant predictors of pronunciation score. Yet these strategies seemed to appear repeatedly in the profile of good pronunciation learners. It may be useful for teachers to help students notice other's mistakes, adjust facial muscles, and seek pronunciation help— not because these strategies directly improve pronunciation, but because these strategies are used by learners with high pronunciation scores.

Furthermore, teachers should be aware that pronunciation students may benefit from discussions and practice situations in which students learn how to use strategies in a more communicative manner and in a larger variety of settings.

Other implications suggest that categorizing pronunciation learning strategies into a monitoring category that contains both input/practice and noticing/feedback strategies is justified by the research. For teachers, this means that students may not readily see the differences among strategies from these two groups. This does not mean, however, that pronunciation students should abandon input/practice and noticing/feedback strategy categories since these are still significant categories for describing the various functions of pronunciation acquisition. Though it does not bear out directly that hypothesis forming and hypothesis testing are strongly cohesive

categories, the research does imply that learners frequently use strategies from all acquisition categories.

*Limitations of this Study*

It is important to note that pronunciation learning strategies represent only one of the many variables which can affect pronunciation improvement. For instance, learner age, attenuation to pronunciation differences, learning styles, previous languages learned, and many other factors can influence pronunciation skill (Celce-Murcia, Brinton, & Goodwin, 1996; Wong, 1987). This study can only be interpreted in terms of its investigation of how pronunciation learning strategies affect pronunciation.

This study was limited to 183 participants from three intact levels at the ELC. High-intermediate students were severely underrepresented compared to levels of both low-intermediate and intermediate students. Furthermore, participants in this program were not enrolled in classes strictly related to pronunciation, nor was their pronunciation skill a large determinant in their overall proficiency scores. Because of these limitations, this study cannot be thought of as generalizable to the entire ELC student body, to other intensive English programs, or to English pronunciation learners in general. The conclusions about pronunciation learning strategies may only be applicable to intermediate listening/speaking students at the ELC.

Another limitation that might have affected the study involved the administration of the SPLS. The survey was administered immediately following a final examination. It is possible that test fatigue and other affective influences could have affected the reliability of student scores. Had the SPLS been administered

independent of the final examination, it could have been a longer questionnaire with more opportunities for participants to offer insights into their strategy usage. In the same vein, the computer administration aspect of the SPLS proved to be another complication for score reliability. The first round of surveys failed to load properly on the computer and so survey administrators passed out paper and pencil copies of the survey and recorded student responses by hand, thus introducing the possibility of error in score reporting.

Another limitation is that questionnaires such as the SPLS are one-shot strategy surveys that merely capture a moment in time of a student's strategy usage. That is, pronunciation development occurs over years of work, and current measures of strategy usage may not account for strategies that learners once found helpful but no longer use. Also, because the SPLS was a self-report instrument, it is likely that student responses were only best guesses about their pronunciation strategy usage. It may have been helpful for participants to have become familiar with the items on the SPLS in advance of its administration so that they could better estimate their strategy usage.

A final limitation of the study involved the wording of the SPLS. Even though pilot testing was done to ensure that the wording on the SPLS was comprehensible and explicit at the low-intermediate level, some participants still expressed some confusion at specific words and phrases both during the survey administration and afterward. It is likely that these misunderstandings would account for some slight variation in the reporting of data. This should be considered when interpreting the SPLS data.

*Suggestions for Further Research*

This study has investigated the correlation of pronunciation learning strategies to spontaneous pronunciation skill at a holistic level. Further research in this field is absolutely necessary in order to determine what other elements of pronunciation skill correlate with pronunciation learning strategies. For instance, it may be beneficial to investigate the relationship between pronunciation learning strategies and segmental production, supersegmental production, word stress, sentence stress, and/or intonation patterns. It might also be fruitful to investigate the relationship between pronunciation learning strategies and the aforementioned distinctions of cued pronunciation.

Another important direction includes investigating causal links between pronunciation learning strategies and pronunciation skill. It is plausible that spontaneous pronunciation skill can be positively modified through the means of pronunciation strategy usage. In order to investigate this, a pronunciation class could be organized that would focus on strategies. Participants could be assessed as to what strategies they already used for pronunciation improvement, and then they could be given additional strategies to use over the course of several weeks or months. A pronunciation pre-assessment with a final assessment and possible formative assessments would reveal if certain strategies had significant power to cause an improvement in pronunciation.

Pronunciation learning strategies themselves are another important area for further research. While this study focused on twenty-eight pronunciation learning strategies, countless other strategies undoubtedly exist which can be qualified and tested in the same or a similar manner as explained in this study. The present study

surveyed published materials to identify and collect pronunciation learning strategies while other studies have solicited such strategies using self-report, immediate recall, and other tactics. Pronunciation learning strategies collected in this fashion might lay a better groundwork for finding more strategies that significantly predict pronunciation skill.

Another area of future research involves the application of pronunciation learning strategies in the classroom. Currently, most pronunciation classes are still based around segmental and supersegmental pronunciation instruction. An innovation that comes out of this study is the idea of a pronunciation strategies class organized around the pronunciation acquisition process. A class of this nature would contain four units, each corresponding to the four sections of pronunciation acquisition theory with a fifth unit discussing motivational strategies for improved pronunciation. In the first unit, students would learn strategies related to input and practice. For instance, they might be shown how to make use of television and radio to access more pronunciation input. They might also learn of techniques or resources available to help them practice pronunciation. Homework requirements would motivate students to complete strategy-based assignments so that students were sure to do the coursework outside of class.

Such a class as that described above would provide invaluable information as to the learnability of pronunciation strategies. Additionally, pre-tests and post-tests of student proficiency during each unit could be used in research studies to investigate the causal relationships between pronunciation learning strategies and improved pronunciation. In fact, any investigation into which, if any, pronunciation learning

strategies actually work to improve pronunciation is an important research possibility in this field.

The SPLS is another area of this study that stands to be improved for future research. One of the major drawbacks of the SPLS is the fact that the various strategies seemed difficult for learners to differentiate. In the statistical analyses it became apparent that participants viewed many of the strategies the same, if this were not the case, more factors would have emerged from the factor analysis. One way to remedy this weakness would be to reduce the items on the SPLS and use highly representative items from each section of the pronunciation acquisition theory when administering the questionnaire. This process would result in more significant findings and would give better insights into how language learning strategies correlate with measures of pronunciation ability.

In the results section, some assumptions about pronunciation strategy usage were presented. For instance, volume modification was shown to correlate with poorer pronunciation. An explanation was presented that posited an increase in volume of spoken English might divert the speaker's attention from producing the correct sound to dealing with the frustration of communication breakdown. Another example is the idea that repeating other's speech causes poor pronunciation. It was explained that this strategy might interfere with memory and reception skills necessary to perceive and then produce accurate spontaneous English pronunciation. These hypotheses that were presented to explain results are unsubstantiated but warrant further research. Studies could be designed and executed to determine how significant pronunciation learning strategies affect pronunciation ability in the moment of use.

A final area for further research includes deeper investigation into the classification schemes of pronunciation learning strategies. Confirmatory factor analyses could be performed on a larger number of strategies to test both the Kolb (1984) and Oxford (1990) classifications. Perhaps a more descriptive classification system that can account for all the factors underlying pronunciation learning would emerge.

*Conclusions*

This study was meant to bridge a gap that currently exists between pronunciation learning theory and language acquisition theory. It used descriptive and inferential statistics to determine pronunciation strategies that learners used to improve their English pronunciation and determine strategies that correlated with spontaneous pronunciation skill. It also sought to determine natural categories of pronunciation strategies. Investigation into these areas of inquiry was done through the use of learner responses to items on a strategic pronunciation learning survey.

Learners appeared to make use of pronunciation learning strategies from all four categories of pronunciation acquisition. Three strategies emerged as significant predictors of pronunciation skill, they were noticing other's English mistakes, adjusting facial muscles, and soliciting pronunciation help. These tended to be strategies used by pronunciation learners with high pronunciation scores. Furthermore, the results of this study suggest that speaking louder and repeating English speech silently are strategies used by pronunciation learners with lower scores. Participants who used a variety of strategies more frequently also had higher spontaneous pronunciation skill. For instance, participants with higher pronunciation scores reported using many of the

twenty-eight strategies on the SPLS several times daily while lower pronunciation scorers used the same strategies significantly less frequently, ie: once a day or several times a week. Monitoring and motivation emerged as natural categories that described many pronunciation learning strategies. The monitoring category comprised input/practice and noticing/feedback strategies. A categorization scheme for pronunciation learning strategies that is based on pronunciation acquisition theory appears to be a plausible alternative to generic strategy classification systems.

It is often assumed that learning strategies remain constant over time. In all actuality, testing learning strategies at one time may reveal results that are altogether different from the very same test administered some days or weeks later. Thus the conclusions drawn from this study can only be interpreted based on their description of the data collected for this study. It is highly probable that an identical study to this one may yield very different results. For instance, pronunciation learning strategies that correlate with high pronunciation skill may differ from those reported in this study because the pronunciation strategy usage of participants may have changed. For these reasons, it is important that additional studies be undertaken like this one to investigate strategies, factors, and pronunciation acquisition categories that consistently emerge as predictors of spontaneous pronunciation skill.

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APPENDIX A
Strategic Pronunciation Learning Scale—Pilot Instrument

Intro. paragraph that includes all the warnings, benefits, etc. of completing this survey per the IRB requirements.  Your answers, LAT scores, and class rankings will be kept confidential…
Please rate your experience with each of the statements below by checking (√) in the boxes whether you strongly agree, agree, partly agree, slightly disagree, disagree, or strongly disagree.

| Item | Learning Experience | Strongly Agree | Agree | Partly Agree | Slightly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| *Input/Practice* | | | | | | | |
| 1. | When I am listening to English speakers, I am able to identify their errors in pronunciation. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2. | When I am listening to English speakers, I am able to identify sounds that are difficult for me to produce. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 3. | When I am listening to English speakers, I can concentrate on their mouth movements. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 4. | When I am listening to English speakers, I often repeat their words silently. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 5. | When I am listening to English speakers, I can notice when they make mistakes. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 6. | When I am listening to English speakers, I am able to listen for new sounds. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 7. | When I am trying to learn new English sounds, I use English media such as television, movies, and the radio. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 8. | When working on my English pronunciation, I read aloud. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 9. | When working on my English pronunciation, I try to practice new sounds. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 10. | When working on my English pronunciation, I try to imitate English speakers. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 11. | When working on my English pronunciation, I try to engage in conversation with other English speakers. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 12. | When working on my English pronunciation, I try to memorize difficult words. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 13. | When working on my English pronunciation, I try to adjust my facial muscles for new sounds, like opening my mouth wide. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

14. When you are working on your English pronunciation, what additional methods do you use to improve your pronunciation?

_____

_____

_____

_____

| Item | Learning Experience | Strongly Agree | Agree | Partly Agree | Slightly Disagree | Disagree | Strongly Disagree |
|------|---------------------|----------------|-------|--------------|-------------------|----------|-------------------|
| *Noticing/Feedback* | | | | | | | |
| 15. | To improve my English pronunciation, I try to think about the differences between my native language and English. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 16. | To improve my English pronunciation, I try to concentrate on word stress. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 17. | To improve my English pronunciation, I try to use phonetic symbols. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 18. | When I am conversing with English speakers, I ask for feedback on my English pronunciation. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 19. | When I don't know how to pronounce a word in English, I ask for help. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

20. When you aren't sure of your English pronunciation, what additional methods do you use to gauge your pronunciation?

_____

_____

_____

| Item | Learning Experience | Strongly Agree | Agree | Partly Agree | Slightly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|

*Hypothesis Forming*

| Item | Learning Experience | Strongly Agree | Agree | Partly Agree | Slightly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| 21. | When I am conversing with English speakers, I try to correct my mispronunciation. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 22. | When I am conversing with English speakers, I try to sound like an English speaker. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 23. | When I encounter a word I don't know how to pronounce in English, I try to compare it to similar words that I do know. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 24. | When I encounter a word I don't know how to pronounce in English, I am willing to guess the pronunciation. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 25. | When I encounter a word I don't know how to pronounce in English, I try to sound it out. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 26. | When I encounter a new word in English, I try to pronounce it using my native sound system. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 27. | When I encounter a word I don't know how to pronounce in English, I have special techniques to learn how to pronounce it. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

28. When pronouncing a word incorrectly in English, what additional methods do you use to correct yourself?

_____

_____

_____

29. When encountering a word you don't know how to pronounce in English, what additional methods do you use to learn the pronunciation?

_____

_____

_____

| Item | Learning Experience | Strongly Agree | Agree | Partly Agree | Slightly Disagree | Disagree | Strongly Disagree |
|------|---------------------|:--------------:|:-----:|:------------:|:-----------------:|:--------:|:-----------------:|
| *Hypothesis Testing* | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 30. | If people misunderstand my English pronunciation, I can immediately correct myself. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 31. | If people misunderstand my English pronunciation, I can find ways to avoid the misunderstood sound. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 32. | If people misunderstand my English pronunciation, I try to change my volume of speech. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 33. | If people misunderstand my English pronunciation, I can change my speech to make it understood. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 34. | If people misunderstand my English pronunciation, I can avoid becoming frustrated. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 35. | If people misunderstand my English pronunciation, I try to change my speed of speech. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

36. When your English pronunciation is misunderstood, what additional methods do you use to make yourself understood?

_____

_____

_____

_____

37. Generally speaking, how did you learn these additional pronunciation methods?

_____

_____

_____

38. Generally speaking, where did you learn these additional pronunciation methods?  Check (√) all that apply.

    ☐ Classroom    ☐ Friends    ☐ Family    ☐ Tutoring    ☐ Textbooks    ☐ Self-taught

    ☐ Other:  _____

    _____

39. At what point in your language learning did you start to recognize and use these methods?

_____

_____

40. How effective do you feel these methods have been in helping you pronounce sounds correctly?  Check (√) your answer.

    ☐ Very    ☐ Somewhat    ☐ Slightly    ☐ Slightly    ☐ Somewhat    ☐ Very
    effective    effective    effective    ineffective    ineffective    ineffective

41. Please circle which applies:  Male / Female

42. What is your current age?  _____

43. How long have you lived in America throughout your life?  Years:  _____ Months:  _____

44. What was your age when you began living in America?  _____

45. What is your native language?  _____

46. What other languages do you speak?  _____

47. Have you ever studies pronunciation in a classroom before?  Y / N

48. If you answered yes, how long did you study?  Years:  _____ Months:  _____

49. If an English pronunciation class were offered at the ELC, how interested would you be in taking it?  Check (√) your answer.

| ☐ Very interested | ☐ Somewhat interested | ☐ Slightly interested | ☐ Uninterested |
|---|---|---|---|

_____          _____

Name                                                                    Signature

Thank you very much for your participation in this study!

| Do not write in this space. |
|---|
| LAT: _____ |
| Rank: _____ / _____ |
| Level:  1   2   3   4   5 |

APPENDIX B
Strategic Pronunciation Learning Scale—Final Instrument

Thank you for completing this questionnaire.  Your answers will be kept confidential.  **Your answers will not lower or affect your grade in any way.**  Only the researcher and your teacher will know your LAT and class ranking scores.

Read the learning experience sentences on the left and think specifically about your pronunciation learning in the past month or two.  Please rate your experience with each of the statements below by clicking on the appropriate box.  Decide how often you use the activity or skill to **improve your pronunciation**:  several times a day, about once a day, about once a week, about once a month, less than once a month, or never.

| Item | Learning Experience | Several times a day | About once a day | About once a week | About once a month | Less than once a month | Never |
|------|---------------------|:---:|:---:|:---:|:---:|:---:|:---:|
| 1. | When I am trying to learn new English sounds, I use English media such as television, movies, and the radio. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2. | When I am listening to someone speaking English, I identify sounds that are difficult for **me** to produce. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 3. | When I am listening to someone speaking English, I notice when they make mistakes. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 4. | When I am listening to someone speaking English, I listen for new sounds. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 5. | When I am listening to someone speaking English, I repeat their words silently. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 6. | When working on my English pronunciation, I practice new sounds. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 7. | When working on my English pronunciation, I memorize words that are difficult for me to pronounce. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 8. | When working on my English pronunciation, I adjust the muscles in my face for new sounds, like opening my mouth wide. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 9. | To improve my English pronunciation, I think about the differences between my native language and English. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 10. | To improve my English pronunciation, I concentrate on word stress. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 11. | To improve my English pronunciation, I use a system of symbols that help me more than English spelling. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 12. | When I am conversing with someone speaking English, I ask for feedback on my English pronunciation. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 13. | When I don't know how to pronounce a word in English, I ask for help. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 14. | When I am conversing with someone speaking English, I try to sound like an English speaker. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 15. | When I find a word I don't know how to pronounce in English, I compare it to similar words that I do know. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 16. | When I find a word I don't know how to pronounce in English, I am willing to guess the pronunciation. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 17. | When I find a word I don't know how to pronounce in English, I sound it out. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 18. | When I encounter a new word in English, I pronounce it using my native sound system. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 19. | If people don't understand my English pronunciation, I immediately correct myself. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 20. | If people don't understand my English pronunciation, I find ways to avoid the sound that caused problems. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 21. | If people don't understand my English pronunciation, I change my volume of speech. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 22. | If people don't understand my English pronunciation, I change my speed of speech. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 23. | During the process of learning English pronunciation, I feel happy with the ways I keep from getting tired of learning. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 24. | When I feel stressed about learning English pronunciation, I know how to cut this stress down. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 25. | When I feel stressed about my English pronunciation learning, I solve this problem immediately. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 26. | When I am studying English pronunciation and the learning environment gets bad, I fix the problem. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 27. | When I study English pronunciation, I look for a good learning environment. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 28. | When learning English pronunciation, I keep working until I reach the goals that I make for myself. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

APPENDIX C
Open-ended Questions and Answers from the Pilot Study

| Question | Responses |
|---|---|
| When you are working on your English pronunciation, what additional methods do you use to improve your pronunciation? | ▪ Repeat words over and over<br>▪ Watch face in the mirror while speaking<br>▪ Sing English songs<br>▪ Repeat a favorite quote<br>▪ Read aloud<br>▪ Watch DVDs and write the script down and try to speak like actors or actresses<br>▪ Listen to unfamiliar words again and again<br>▪ Use English conversation books and task sheets |
| When you aren't sure of your English pronunciation, what additional methods do you use to gauge your pronunciation? | ▪ Observe the reaction of the person I speak with<br>▪ Look at the face and expressions of the person I speak with<br>▪ Listen to English speakers and comparing my pronunciation with theirs<br>▪ Check the dictionary and look online to get feedback |
| When pronouncing a word incorrectly in English, what additional methods do you use to correct yourself? | ▪ Change pronunciation<br>▪ Use a different word<br>▪ Say the word again<br>▪ Repeat the word many times<br>▪ Change the word stress |
| When encountering a word you don't know how to pronounce in English, what additional methods do you use to learn the pronunciation? | ▪ Use an electronic dictionary<br>▪ Ask native speakers for help |
| At what point in your language learning did you start to recognize and use these methods? | ▪ Don't remember<br>▪ When I realized that other people could not understand me<br>▪ When I started learning English in my home country<br>▪ After learning all the grammar rules<br>▪ When I noticed differences between English and my native language<br>▪ When I began to understand native speakers |

APPENDIX D
Questionnaire Item Specifications

The questionnaire items were developed based on the synthesized taxonomy of
pronunciation strategies presented earlier in this thesis (see Chapter 2).  Each section
included statements that directly related to pronunciation strategies.

| Pronunciation Category | Corresponding Strategies |
|---|---|
| Input:  Activities that promote the reception of English sounds. | a. Learning new sounds<br>b. Identifying errors in native's pronunciation<br>c. Identifying sounds that are difficult for the examinee to produce |
| Practice:  Activities that promote the production of English sounds. | a. Repeating words silently<br>b. Practicing new sounds<br>c. Imitating native speakers<br>d. Memorizing difficult words<br>e. Retraining facial muscles while practicing pronunciation |
| Noticing/feedback:  Activities or mental processes that produce in the mind of the speaker an understanding of how close to or far from the target pronunciation was his or her own pronunciation | a. Concentrating on the difference between L1 and English sounds<br>b. Concentrating on word stress<br>c. Using phonetic symbols<br>d. Requesting pronunciation feedback/assistance from native speakers |
| Hypothesis forming:  Mental processes that attempt to bridge the gap between actual and target pronunciation based on feedback from others or learner-noticed discrepancies | a. Trying to correct mispronunciations<br>b. Concentrating on sounding like a native English speakers<br>c. Comparing new sounds in English with L1 sounds<br>d. Guessing the pronunciation of new words<br>e. "Sounding out" new English words |
| Hypothesis Testing:  Implementing changes in pronunciation according to new hypothesis or creating a favorable environment for practicing sounds. | a. Correcting/clarifying self<br>b. Avoiding frustration<br>c. Circumlocution<br>d. Altering volume or speed of speech |
| Motivation:  Activities or mental processes that create or maintain focus on the learning task. | a. Eliminating boredom<br>b. Eliminating stress<br>c. Improving the learning environment<br>d. Maintaining motivation |

## Consent to be a Research Subject

### Introduction
Grant Eckstein is doing research at the ELC to see if your personal system for learning English pronunciation really improves your pronunciation. You were asked to help in this research because you are a student in a listening/speaking class at the ELC.

### Procedures
After finishing your listening/speaking LAT, you will be asked to stay at the computer and finish a survey. You will be asked to put a check (√) mark on 36 questions about your pronunciation. You will also be asked to answer 18 questions about yourself and how you have learned English pronunciation. This question period will take about 25 minutes and has **no relation to your grade**. If you would like to give more input, you can volunteer after the survey to give more information about your pronunciation learning. Finally, your LAT score and your class ranking score will be added to your survey.

### Risks/Discomforts
The risks for helping in this study are low. You may feel anxious to get out of the computer room after your LAT. You might also be nervous about researchers seeing your LAT score and your class ranking score. If you give additional information, it is possible that you may feel a little embarrassed about your pronunciation or how you learned it.

### Benefits
If you help in this study, you may learn new ways to improve your English pronunciation on your own. Your answers will also help show if students at the ELC want more pronunciation instruction. If you help with this study, you will help researchers understand how students learn pronunciation.

### Confidentiality
Your name will not be written on your survey. There will be no way for anyone to know which survey is yours after your LAT score and class ranking have been included. That means that no one will know what your LAT score and class ranking scores are except for the researcher and your teacher. Your survey will be kept in a secure file on the computer until the research is finished. Then your answers and your scores will be permanently deleted.

### Participation
Participation in this research is voluntary. You have the right to withdraw at anytime or refuse to participate entirely without jeopardy to your grade or class status. This means that you do not have to help. If you start the survey and do not want to finish, you are allowed to stop. **This will not lower your grade.**

### Questions about the Research
If you have any questions about this study, you can contact Grant Eckstein at (801) 376-7650 or at ge24@byu.net.

### Questions about your Rights as Research Participants
If you have questions about this study and don't want to contact Grant Eckstein, you can contact Renea Beckstrand at 422-3873 or renea_beckstrand@byu.edu.

APPROVED    EXPIRES

OCT 2 7 2006  –  OCT 2 6 2007

I have read, understood, and received a copy of the above consent.  I agree to participate in this study.


Signature: _____     Date: _____