INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

U·M·I

University Microfilms International
A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
313/761-4700 800/521-0600

Order Number 9431852

Effects of self-monitoring and discrimination training on pronunciation change by nonstandard speakers of English

Ellis, Dorothy Ann, Ph.D.

City University of New York, 1994

U·M·I
300 N. Zeeb Rd.
Ann Arbor, MI 48106

Effects of Self-Monitoring and Discrimination Training on Pronunciation Change by Nonstandard Speakers of English.

by

Dorothy Ellis

A dissertation submitted to the Graduate Faculty in Educational Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

1994

This manuscript has been read and accepted for the Graduate Faculty in Educational Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

3/22/94
Date

Barry J. Zimmerman
Chair of Examining Committee

3/22/94
Date

Carol Kehr Tittle
Executive Officer

Dr. Shirley Feldman

Dr. Carol Tittle

Supervisory Committee

The City University of New York

Abstract

Effects of Self-Monitoring and Discrimination Training on Pronunciation Change by Nonstandard Speakers of English

By

Dorothy Ellis

Advisor: Dr. Barry J. Zimmerman

This study examined the independent and joint effects of discrimination training and self-monitoring training on (1) the learning of standard American English pronunciation by nonstandard speakers of English; (2) feelings of self-efficacy and self-evaluation; and (3) the accuracy of one's self-evaluations.

Subjects were 80 urban college students who were unable to pronounce and reliably discriminate the triple consonant cluster /skt/ embedded in the word asked using a standard American English pronunciation. Subjects were stratified by gender (33 males, 47 females) and language status (35 native, 45 non-native) and randomly assigned to the following treatment conditions: (1) Self-Monitoring plus Discrimination Training; (2) Self-Monitoring Only; (3) Discrimination Only; (4) Practice Only; and (5) No Treatment Control.

Results indicate that discrimination training and self-monitoring training (either jointly or independently) had a

significant effect on: the learning of the standard pronunciation of the word asked; transfer of that learning to new words (i.e. masked, risked; and the estimates of accuracy of their performance. However, only subjects who received discrimination training independently or in conjunction with self-monitoring felt significantly more efficacious prior to taking the posttest and when asked about a hypothetical situation in front of 30 strangers and were significantly more sure of how they had performed after they took the posttest. As predicted, subjects in the Self-Monitoring plus Discrimination Group were significantly more successful in learning the standard pronunciation of the /skt/ consonant cluster, transferring that learning to new words, and estimating their performance on the pronunciation posttest than subjects in the Discrimination Only and Self-Monitoring Only conditions. Although subjects in the Discrimination Only and Self-Monitoring Only conditions did show significant changes in pronunciation, the fact that the combined condition was significantly more effective suggests that discrimination is an important precursor that facilitates or enhances self-monitoring.

This study provides strong evidence that in a learning task, self-observation and self-recording can assist in changing pronunciation for some learners. However, to be

truly effective, a learner must be able to have a clear idea of the standard and be able to accurately discriminate among the various pronunciations in order for self-correction to occur. Therefore, the importance of the self-evaluation component has been verified by the results of this study.

Acknowledgements

A brilliant man with no arrogance--only kindness and patience is rare. I am honored to have met someone like this--his name is Dr. Barry Zimmerman. His brilliance, kindness and patience provided a pure beam of light that reached into all the dark places I encountered while working on this dissertation. Thank you Barry for illuminating the labyrinths of research. I will always admire your genius and try to emulate your patience and kindness. I feel honored to know you and to have had you as my advisor.

To my husband, David Koprowski, who learned more about self-efficacy than he ever cared to, Elvis (1968) said it best:

"When no one else can understand me....
When everything I do is wrong....
You give me hope and consolation...
You give me strength to carry on...
And you're always there to lend a hand
in everything I do...
that's the wonder...
the wonder of you."

You truly are the wonder of my life. Thank you for being proud of me instead of afraid and jealous and most

importantly, thanks for giving me seven, guilt-free years while I worked on this degree.

To Dr. Carol Tittle, thank you for your faith and encouragement and for being a wonderful role model; to Dr. Shirley Feldman: thank you for your feedback and interest in language; and to Rhonda Palant: thank you for always being glad to see me and for answering 450 questions and most importantly, for being a friend.

To my friend and fellow warrior, Mike Detras, who helped me so much throughout this whole program: Here's to completion and never having to eat in the corner alone. To Sebastian Bonner, Bob Kovatch, Chris Kaufman, Tom Murphy, Rosalie Friend, and Sheila Strauss: without you graduate school would have been a lot less enjoyable.

To my mother: thank you for telling me a woman should have an education (although I'm not sure you meant this much!); to my Dad: I wish you were here to see this; To my beloved sister, Kathy: your love has made such a difference in my life--I wouldn't be here today without you. To my wonderful friend Diane Nichols: thank you for sharing every step of this journey with me--you always lightened my heart; To Madelaine and Howard Mendelsohn: thank you for showing me that age is just a number and that perseverence is a virtue. And I can't forget Karen Bearden, Patty Goonan,

Linda Gromadski, and Barbara Werner who ever reminded me that there was life outside of graduate school and who kept laughter alive during the writing of this dissertation. To my colleagues at LaGuardia: Sandra Dickinson, Will Koolsbergen, Sally Mettler, Carol Montgomery, Joyce Rheuben, and Carol Rivera-Kron: thank you for your advice-(which was always worthwhile) and for your encouragement (which was always needed). A special thanks to Susan Gizzi and her Speech Center staff (Donnalisa, Lisa, Venita and Walter) who helped me so much during the pilot test and pretest phases. And of course to my wonderful students who have taught me so much. (This is beginning to sound like an Oscar acceptance speech.) Finally, I acknowledge myself for not giving up five minutes before the miracle, and I thank my Higher Power for making this miracle and all the miracles in my life possible.

Table of Contents

List of Tables

List of Tables (Continued)

List of Figures

CHAPTER 1
Introduction

The teaching of standard American English is an implicitly and explicitly stated goal of the American school (Taylor, 1986). The seriousness of such a goal becomes clearer when one considers the fact that the U.S. Census projects that by the year 2000, one-third of the speech, language, and audiology caseloads in the schools will be made up of Blacks, Hispanics, Asians and American Indians (Deal, 1988). Obviously, the use of standard American English pronunciation is a present and growing concern for educators and hence should be of interest to educational psychologists. Curiously, educational psychologists have focused primarily on reading and writing tasks and rarely on the pronunciation and articulation of Standard American English.

The national performance of American schools in teaching Standard English to nonstandard English speakers is dismal. Taylor (1986) states that "On almost every reported measure at the national or state level, children from nonstandard English-speaking communities achieve lower competency levels in the language of education than children who come from standard English-speaking communities. The result has been an overplacement of nonstandard English-speaking children in

special educational classes, speech-language pathology clinical services and compensatory educational classes, and an underplacement of these children in classes for talented and gifted students" (p. 156).

Why have traditional methodologies for teaching standard English to nonstandard English speakers failed? Taylor (1986) argues that the methodologies have failed primarily because they "lack a valid understanding of linguistic differences and bidialectilism" (p. 157). In addition, one could argue that the teaching methodologies have not been based on appropriate research and learning models.

If we are to develop an effective alternative to the traditional and failure-ridden approaches to teaching standard English as a second dialect then that alternative must be built upon sound linguistic principles and pertinent empirical research driven by an appropriate theoretical model.

Linguistic Issues

Prior to the early 1970's, the discipline of communication disorders tended to view nonstandard English dialects--and many foreign accents--as pathological linguistic systems that were to be "improved", if not eradicated, by the speech-language pathologist. There was no discussion of teaching standard English as a second dialect. It was solely a matter of

teaching standard English as a first--and only--language (Taylor, 1986).

Four events changed this view vis-a-vis nonstandard English dialects. First, the Black Caucus of the American Speech and Hearing Association called for a reassessment of definitions and norms for viewing normalcy and disorders among nonstandard English speakers (Taylor, Stroud, Hurst, Moore and Williams, 1969). Second, the field of sociolinguistics provided strong theoretical arguments, historical facts and research data to demonstrate that nonstandard English dialects were linguistically valid, useful to their speakers, and devoid of inherent pathology. Third, Public Law 94-142, the Education of All Handicapped Children Act of 1975, prohibited the use of discriminatory assessment instruments that were not in the language or communication system of the person being assessed. This prohibition provided, by implication, enormous credibility to nonstandard English dialects. Fourth, several court cases, (Lau v. Nichols (1974) and Martin Luther King Junior Elementary School Children v. Ann Arbor School District (1979) established that educational programs that do not take a child's indigenous language into account violate the child's equal protection under the law as guaranteed by the 14th amendment to the United States Constitution.

The result of these events has been to heighten the recognition that there is a significant difference between a language difference and a language disorder.

Taylor (1986) outlines certain linguistic principles to which the present research study will adhere: First, all varieties of English are linguistically valid, have merit, and are reflective of the cultural, cognitive, and social orientation of their speakers. Second, it is reasonable for a society to have a linguistic standard that permits communication, education, and commerce across various speech communities. Third, the teaching of standard English to nonstandard English speakers does not require eradication of the nonstandard English system. Indeed, this study recognizes that the selection of language codes is situationally based, and for this reason, students need to retain their home language and dialects for use in the situations in which their use is appropriate. Therefore, the teaching of standard English to nonstandard English speakers should be culturally-based to the extent that the learner is taught to be bidialectical--that is, capable of controlling the linguistic system of both the home culture and the larger society for use when needed. This approach is often referred to as a "Standard English as Second Dialect (SESD)" Approach. Fourth, the teaching of standard English as a first or as a second dialect is the

responsibility of teachers not clinicians but the clinician can certainly provide consultative services.

Theoretical and research issues

Because of the bidialectical issues outlined above, research in how to acquire a standard pronunciation should be driven by a theoretical model that places the learner as an active participant and decision-maker who decides why, when and with whom to use each dialect.

One model that provides such heuristic possibilities in the area of second language and second dialect learning is Zimmerman's (1989) self-regulated learning model. This model describes self-regulated learners as learners who are "metacognitively, motivationally and behaviorally active participants in their own learning." (p. 4). Goal setting, planning, organizing, and self-monitoring are examples of metacognitve processes. Motivationally, these student self-initiate activities and display persistence until they meet their goals. From a behavioral stance, these learners restructure their environment for optimal learning, seek out information and self-reinforce during performance.

Central to the self-regulation model is the use of learning strategies. Although the investigation of students' learning strategies is a relatively new endeavor in the field of second language and second dialect learning (Wenden and Rubin, 1987),

quite the opposite is true in the field of psychology which has produced a large literature that includes identification, classification and training of learning strategies.

One of the most valuable contributions to this literature was an article by Brown and Palinscar (1983) in which they classified general learning strategies as either metacognitive or cognitive. They defined metacognitive strategies as "those strategies that involve thinking about the learning processes, planning for learning, monitoring of learning while it is taking place and self-evaluation of learning after the learning activity."(p. 12). Cognitive strategies are defined as "manipulation or transformation of the material to be learned."(p. 12).

Brown and Palinscar (1983) assert that metacognitive strategies can be applied to virtually all types of learning tasks while cognitive strategies are more directly related to a specific task and learning objective. In fact, Brown, Bransford, Ferrara and Campione (1983) argue that "students without metacognitive strategies are essentially learners without direction or opportunity to plan their learning, monitor their progress, review their accomplishments, and decide on future learning directions."(p. 80).

One metacognitive strategy identified by self-regulated learning theorists, second language and second dialect

researchers alike is self-monitoring. Self-monitoring is viewed as a significant learning strategy because it provides feedback on how the person is doing and as Kanfer (1974) reports "recording one's behavior sometimes is reactive, that is, alters the observed behavior." (p. 150). Because many speech and language teachers are interested in altering or enhancing students' pronunciation and articulation, self-monitoring has potential as an effective learning strategy for assisting nonstandard speakers of English to acquire standard English pronunciation.

A second feature of self-regulated learning, proposed first by Carver and Scheier (1981), is the existence of a self-oriented feedback loop. Such a feedback loop allows students to compare their performance on academic tasks with their predetermined goals or standards. This comparison process is referred to as self-evaluation. If a learner compares his or her performance to the standard and finds that it is discrepant, he or she can then self-correct. Such a feedback loop or self-evaluation assumes an awareness of the standard and assumes that the learner is able to discriminate between the wanted the unwanted behavior. For example, in order to acquire a standard English pronunciation, a nonstandard speaker must be able to accurately discriminate between the standard and nonstandard pronunciation of any given phoneme. Speech

pathologists and second language theorists refer to this as auditory discrimination, i.e. the ability to distinguish between closely related speech sounds (Weiner, 1967, p. 19). Without accurate discrimination, i.e. self-evaluation, the learner may be unable to accurately self correct or adjust his or her performance to the standard. Therefore, it would seem that self-evaluation plays an important role in self-regulated pronunciation learning.

This study sought to examine the individual and joint effects of discrimination and self-monitoring training on the pronunciation of nonstandard speakers of English and to clarify the role of self-evaluation in self-regulated learning.

CHAPTER 2

Literature Review

The purpose of this chapter is threefold: first, to define self-monitoring and reiterate why self-monitoring was chosen as a strategy of interest; second, to discuss the theories of reactivity and to show how these theoretical forces have shaped the empirical investigation of self-monitoring and how such theories have sought to explain the reactive effects of self-monitoring; and third, to review and critically analyze the research in self-monitoring and auditory discrimination as it relates to both academic achievement and speech.

Self Monitoring Defined

Self-monitoring is defined differently depending on the theoretical orientation. For example, Kanfer (1974) is a cognitive-behaviorist and as such asserts that self-monitoring:

> "enables the individual to deliberately attend to his behavior (self observation) and to become aware of whether his behavior departs from a consensually or personally accepted standard of performance. (self evaluation)" (p. 149).

> "Self monitoring enables the individual to discriminate the occurrence of the response to a greater extent than do vague self reports and casual observations. If performance departs from the standard, self-regulatory processes are triggered.

> As behavior is brought back within an acceptable range, the self-regulatory processes cease. Self-monitoring begins with a feedback loop in which self adjusted responses are made until the standard of performance is achieved or approximated." (p. 149).

Note that Kanfer's definition makes salient the need for a standard and stresses the importance of the cognitive variable -- self evaluation. Zimmerman (1989), a social cognitivist, would also argue that if the evaluation criteria is insufficient, then observing will not matter, suggesting that it is the comparison process that leads to reactivity or behavior change.

Operant psychologists, on the other hand, define self-monitoring as a "multistage process involving the observation and recording of one's own behavior" (Mace, Belfiore & Shea, 1989). The first step of the process requires the person to be aware of or discriminate the occurrence of the target behavior that is to be controlled. The second stage of self-monitoring requires the individual to record some dimension of the target response such as its frequency, duration or latency.

Mace, Belfiore, and Shea (1989) report that observing and recording one's own behavior are usually structured by the use of a data sheet or mechanical recording device. Subjects are generally trained to use standard behavioral assessment methods to accurately self monitor their behavior. Among the most common self-monitoring methods are (a) narratives, (b)

frequency counts, (c) duration measures, (d) time-sampling procedures, (e) behavior ratings, and (f) behavioral traces and archival records. In general, (a) through (d) are considered on-line or direct assessment methods (i.e. they assess behavior as it occurs) whereas (e) and (f) are indirect methods that record information at a point distant from the occurrence of the behavior.

Obviously, the type of self-monitoring method employed is determined by such factors as (l) compatibility with the target response (2) functioning or developmental level of the subject (3) the degree of reactivity desired; and (4) practical considerations. For example, if one were to monitor one's speech, one should choose a self-recording device that does not interfer with the natural discourse process.

Why self-monitoring? Self-monitoring was chosen as a strategy of interest for two reasons: First, it has proven potential as a behavior-change agent. When psychologists first began to have subjects self-record their behavior, they considered this a rather neutral procedure, but then found that the very act of self-observing and self-recording changed the behavior that was being observed. "Recording one's own behavior sometimes is reactive, that is, alters the observed behavior."(Kanfer, 1974, p. 149). The tendency for behavior to change as a result of self-monitoring is referred to as reactive

effects. Second, my interest in self-monitoring was piqued when my own classrooms observations revealed that unsuccessful language learners did not monitor their own pronunciation nor were they able to accurately discriminate between the standard and nonstandard pronunciation of certain sounds. A pilot test revealed that students who were taught discrimination and self-monitoring performed better than students in a auditory discrimination only, practice only or no treatment control groups. Since many speech and language teachers are interested in pronunciation change, self-monitoring appears to be an effective strategy for teaching nonstandard speakers to use standard pronunciation. Before reviewing and critically analyzing the research in self-monitoring, the next section will provide a theoretical context for understanding those forces that have shaped the empirical investigation of self-monitoring.

Theories of Reactivity

Although experimental studies of the variables that cause reactivity have flourished, they have provided only a limited understanding of the underlying mechanisms accounting for such reactivity. Four models have emerged to explain reactivity in self-monitoring: (1) The operant recording response model (Rachlin, 1974); (2) The multiple cueing model of self-regulation (Nelson & Hayes, 1981); (3) The cognitive-mediational model

(Kanfer, 1970, 1977); and (4) The self-regulated learning model (Bandura, 1977; Zimmerman, 1986, 1989).

Rachlin's (1974) operant model emphasizes the role of environmental determinants to account for behavior change. According to this model, self-recording responses and self-administered consequences function as discriminative stimuli for behavior that is ultimately controlled by environmental contingencies.

Nelson and Hayes's Multiple Cueing Model extends Rachlin's position that reactivity can be triggered by the self-monitoring response alone. They hypothesized that several stimuli associated with the self-recording process may enhance the salience between the self-monitored behavior and its controlling contingencies. Nelson and Hayes (1981) purport that stimuli such as "therapist's instructions, training in self-monitoring, obtrusiveness of the self-monitoring device, feedback from others and the self-recording response itself may serve this cueing function" (Nelson & Hayes, 1981, p. 7).

In summary, following operant principles of behavior, both Rachlin (1974) and Nelson and Hayes (1981) assume the importance of environmental contingencies in causing reactive self-monitoring and do not recognize the role that cognitions may play in influencing behavior. Such a view may be too

narrow if one is to fully understand the underlying causes of reactivity.

In contrast to the operant view, Kanfer (1970, 1977) proposed a three-stage model of self-regulation. In this cognitive-behavioral model, self-managed behavior results from a sequence of events consisting of self-monitoring, self-evaluation and self-reinforcement. Kanfer asserts that the reactive chain begins when an individual observes and records some aspect of his/her behavior. He views the self-monitoring component as self-observation and recording of the target behavior. Self-evaluation consists of a comparison between the information from self-monitoring and the person's own criteria for a given behavior. In Kanfer's model "Self-monitoring is the crucial trigger for self-adjustive behaviors." (Kanfer, 1970b, p. 151) and the final stage, the self-reinforcement stage, is motivational..." (Kanfer, 1977, p. 312). If during self-evaluation the person's behavior matches or exceeds his or her performance criteria, self-reinforcement follows. "Self-reinforcement may consist of covert positive verbalizations or overt self-administration of external rewards. Conversely, if during self-evaluation the person's behavior fails to meet established performance criteria, covert or overt self punishment may occur. In both situations, the self-administered consequences have motivational properties that

affect the response frequency of the preceding behavior." (Kanfer, 1970b, p. 200).

In summary, the two salient components of Kanfer's model of reactivity that differentiate it from the strictly behavioral theories are: (1) that the reactive chain begins by self-monitoring; and (2) that self-adminstered consequences have motivational properties that affect behavior.

A second cognitive-mediational model is based on Social Cognitive Theory (Bandura, 1977, 1986; Zimmerman, 1986, 1989). This model assumes reciprocal causation among three influential processes: personal, environmental and behavioral determinants of self-regulated learning. Bandura assumes that learning from observing one's own behavior and enactive outcomes is the most influential method for changing a learner's perception of efficacy and improving retention or knowledge.

Zimmerman (1989) asserts that self-regulation involves three classes of subprocesses: self-observation, self-judgment, and self-reaction. "These performance-related subprocesses are assumed to interact with each other in a reciprocal fashion." (p. 12). Zimmerman (1989) provides an astute example which relates to pronunciation: "listening to an audiotape of one's speech is self-observation and is assumed to affect self-judgment of progress in learning. These self-judgments in turn are expected to determine's one's willingness to continue this

self-instructive practice (a self reaction)." (p. 12). Such self-judgments can affect perceptions of self-efficacy which provides motivation for the person to continue using these strategies (self-reaction). Both Bandura (1986) and Zimmerman (1989) agree that an important construct in the self-regulatory process is perceived self-efficacy. "Self-efficacy beliefs are one's beliefs concerning one's capabilities to organize and implement actions necessary to attain designated performance levels." (p. 9) Research in achievement settings indicate that efficacy beliefs influence one's choice of tasks, persistence, effort expenditure and skill acquisition. As students work on tasks, they note (monitor) their progress toward their learning goals. Such progress indicators convey to students that they are capable of performing well--which enhances self efficacy for continued learning.

Zimmerman differs from Kanfer in that he assumes self-reaction affects motivation whereas Kanfer emphasizes the role of self-consequation. However, both cognitive-mediational models recognize the importance of the self-evaluation (self-judgment) component as distinctive from mere self-observation.

Cognitive-behavioral models such as social cognitive theory contend that behavior consequences--rather than strengthening behaviors directly--serve as cognitive sources of information and motivation. Zimmerman (1989) argues that as

people selectively self-monitor, they engage in other cognitive activities (such as rehearsal) that assist learning of successful behaviors. Furthermore, people are motivated to learn behaviors by cognitive factors such as their values and their outcome expectations.

The cue versus motivational properties of self-consequation has been a topic of heated debate among cognitive and operant researchers (Bandura, 1976; Catania, 1975; Goldiamond, 1976a, 1976b; Mahoney, 1976; Thoresen & Wilbur, 1976). One group of operant-oriented theorists has insisted that "since environmental events control behavior, self-monitoring responses or self-administered consequences serve primarily to cue the environmental events that control response frequency" (e.g. Catania, 1975; Goldiamond, 1976a; Rachlin, 1974).

A second group of cognitive-behavioral theorists has claimed that "since self-generated events also control behavior, self-monitored responses may lead to self-administered consequences that in themselves may have motivational properties that control response frequency." (e.g. Bandura, 1976; Mahoney, 1976). Zimmerman (1989) assumes that "self reaction affects motivation which in turn affects response frequency (performance)." (p.14) This controversy is important and certainly deserves further examination. However, it is beyond the scope of this dissertation and one is referred to a further

discussion centering on the role of behaviors as explanations for other behaviors in (Mahoney, 1977; Rachlin, 1977).

In summary, the operant psychologists argue that self-observation and self-recording are sufficient to create reactive effects. One of the major differences between operant models and cognitive-behavioral models is not that people don't learn by doing but rather the mechanisms used to explain such learning are different. Operant psychologists would argue that cognitions may accompany behavior but they do not influence it. One of the strengths of the operant model is that it does not attribute causality to factors such as cognitions (motivation, affect) because they cannot be directly observed. Ironically, this scientific strength of the operant viewpoint may be its greatest weakness because it fails to recognize important (albeit difficult to observe) cognitive factors (i.e. affect, motivation). Cognitive behaviorists (Kanfer, 1974; Zimmerman, 1989), on the other hand, would argue that self observation and self-recording alone may not be sufficient to produce reactive effects and that the self-evaluation component and subsequent self-reactions may play an important role in producing reactive effects. The purpose of this study is to elucidate and test whether self-evaluation is indeed a separate subprocess from self-observation. Central to self-evaluation is the comparison process wherein the individual compares his or her present

performance to some standard. It is hypothesized that accurate comparisons would facilitate reactivity.

Accuracy issues. There is some question as to whether or not self-recording must be accurate in order for reactivity to occur. Earlier researchers such as Bolstad and Johnson (1972) state that "crucial to the effectiveness of any self-regulation procedure is the accuracy of self-observation." (p. 451). However, such allegations have not been empirically confirmed (Broden, Hall & Mitts, 1971; Fixsen, Phillips & Wolf, 1972; Hayes & Cavior, 1977, 1980; Herbert & Baier, 1972; and Lipinski & Nelson, 1974)--all of whom showed that self-monitoring produced reactive effects even though self-monitoring was not accurate when compared with external observations. Hayes and Cavior (1977) correlated individual subjects' accuracy and their ratio change scores (a measure of reactivity). The results were .01 for face touching, -.02 for nonfluencies, and .26 for value judgments, indicating that the accuracy of self-recording was not correlated with the magnitude of its reactive effects. The inaccuracy of subjects in self-recording instances of the target behavior raises a question regarding the mechanisms accounting for reactivity. The above data suggests that reactivity cannot be tied to specific instances of self-recording. However, Peterson et. al. (1975) suggested that a minimum level of accuracy is necessary before reactivity occurs. In their

study, when the accuracy of self-monitoring the phrase you know was .00, no reactivity occurred. Only when training and reinforcement increased the level of accuracy did reactivity occur. In contrast, Hayes and Cavior (1977) reported considerable reactivity for verbal nonfluencies, even though the agreement between self-recorders and external observers on the occurrencies of these nonfluencies was .00. Nelson (1981) had suggested that "differentiating the two components of the self-recording response may offer an explanation: reactivity may occur when the subject sufficiently observes occurrences of the target behavior even if the subject produces inaccurate self-recordings of the same behavior. This issue of accuracy is pertinent to self-monitoring and pronunciation change because the idea of "sufficient observation" suggests that accurate discrimination between the wanted and unwanted pronunciation is central to the self-evaluation (self-judgment) component of the self-regulation model. It also raises the question of how the type of task or behavior being monitored may influence how accurate the self-monitoring must be in order to produce reactive effects. This issue of accuracy will be addressed in the methods section of this study. What follows now is a complete analysis of the research in self-monitoring.

Self-Monitoring Literature Review

An early review of the self-monitoring literature (Kazdin, 1974) indicated that there were a number of interesting yet perplexing features of self-monitoring. These early studies indicate that a number of carefully designed investigations across diverse behaviors have shown no effect of self-monitoring (Berecz, 1972; Hall, 1972; Mahoney, Moura & Wade, 1973; McNamara, 1972). (However, these particular studies focused on weight control and smoking reduction--behaviors we know today to be quite resistant to change.) And when self-monitoring did result in behavior change, the effects did not last over time (Broden et. al., 1971; Fixsen et. al., 1972; Mahoney, 1974). In addition, several early reports cited as support for the efficacy of self-monitoring have been confounded with other procedures (e.g. reinforcement, punishment, non-specific treatment effects, therapeutic instruction and suggestion) that in themselves could account for behavior change (Bayer, 1972; McFall & Hammen, 1971; Rhen & Marston, 1968; Rutner & Bugler, 1969).

Such negative results stand in stark contrast to other studies that indicate that self-monitoring reactivity has been shown to generalize across a wide variety of academic, social, vocational and clinically aberrant behaviors with normal and handicapped children and adults, and across virtually all clinically relevant settings (Mace & Kratchowill, 1988).

In academic settings, for example, self-monitoring has proven effective in reducing maladaptive behaviors such as out-of-seat behavior (Sugai & Rowe, 1984), inattentive/disruptive behavior (Christie, Hiss & Lozanoff, 1984) and nervous tics (Ollendick, 1981). However, such tasks may not be considered true learning tasks because the desired behavior may already be in the subjects' behavioral repertoire.

Because this dissertation will focus on the learning of a new skill (the standard English pronunciation of the triple consonant cluster /skt/ embedded in the word asked), this literature review will critically analyze the research studies in the following areas: self-monitoring and academic achievement, self-monitoring and speech articulation, self-monitoring and second language and second dialect learning (including subtopics of pronunciation change and auditory discrimination).

Self monitoring and academic achievement. Brown (1975) investigated the differential effects of self monitoring, peer-monitoring, and teacher-monitoring on the number of social-studies questions completed and attempted. Forty-eight sixth grade children (22 boys and 16 girls) were matched on Metropolitan Achievement Social Studies scores and randomly assigned to one of three treatment conditions: A contingent reinforcement conditon in which performance was either (a) self-monitored, (b) peer-monitored, or (c) teacher-monitored.

Subjects were all given the same questions in the same order during any one session. Subjects specified their goal by indicating the number of questions they would complete. Subjects received one point for each question completed and bonus points for meeting their respective goals. Performance on questions was monitored daily by subjects, peers, or the teacher and points were exchanged for back-up reinforcers (i.e. edibles) at the end of each day.

Results indicated a significant main effect on the number of points received due to experimental conditions favoring the self-monitoring and peer-monitoring conditions. A second ANOVA showed no significant difference between points achieved and points attempted. Brown (1975) concluded that peer and self-monitoring were more effective than teacher-monitoring. Earlier studies showed no significant differences between self and teacher-monitoring, however, Brown asserts that those studies did not actually deliver the reinforcers (edibles or privileges) whereas this study actually gave the children the back up reinforcers (edibles). One notes, however, that the task was known to students and did not involve the learning of new information or skills. In addition, it is not clear how effective self-monitoring would be in this context without external reinforcement.

Richards (1975) studied the independent effects of self-monitoring and stimulus control in addition to the typical treatment for college students' study behavior--study skills advice. Subjects were 52 female and 38 male undergraduate volunteers enrolled in the same introductory psychology course. Subjects were randomly assigned to two control conditions (no-contact and no-treatment control) and four treatment conditions: study skills advice, study skills advice plus stimulus control, study skills advice plus self-monitoring, study skills advice plus stimulus control plus self-monitoring. The no-contact control consisted of 18 nonvolunteers who had no contact with the therapist/experimenter; and the no treatment control group came to each treatment session and received seven questionnaires on study behavior.

Treatment was administered via handouts (bibliotherapy) rather than direct contact with experimenters. Study skills advice consisted of readings in: SQ3R reading method, taking notes, writing term papers and general reading hints. Stimulus control was operationalized as suggestions such as: "Do your studying at regular times and places, do not study in bed, plan your study times and places so that distracting stimuli is avoided. Self-monitoring subjects were given instructional handouts and blank recording sheets and were asked to self-monitor the number of pages read and hours studied. These

self-monitoring sheets were turned into the therapist weekly and cumulative self-monitoring graphs were turned in at the last treatment session.

Dependent measures were (1) final exam score in psychology (2) final grade in psychology class (3) a multiple choice exam developed by the therapist that was similar to the final exam (4) post-treatment evaluation questionnaire and (5) the self-monitoring data itself.

The results of the ANOVAs and Newman-Keuls tests within a 6 X 2 (Four Treatment Groups X Blocks of Low vs. High Exam Scorers) supported the following hypotheses: (a) self-monitoring was an effective addition to study skills advice and stimulus control was not; indeed stimulus control seemed to have a deleterious effect; (b) study skills was superior to control conditions. Treatment effects were equivalent for good and poor students. The results indicate no difference between the two control groups.

In analyzing the procedures, one notes that in the self-monitoring conditions, subjects handed in weekly sheets to the therapist. Such a procedure could constitute as external monitoring rather than self-monitoring and hence, confound our understanding of what is actually causing the outcome. In addition, when one examines the operationalization of stimulus control one finds a number of self-regulatory strategies, e.g.

planning when to study, arranging the environment, etc. many of which have been indicated as effective learning strategies used by self-regulated learners (Zimmerman & Pons, 1986; 1988). More importantly, there was no dependent variable that measured whether subjects actually performed these tasks. All we know is that they read about them. They do not work if you do not use them. Consequently, one must interpret these results with caution because of the way in which stimulus control was operationalized; the lack of data as to whether students actually followed the directions for stimulus control; and the use of external monitoring as well as self-monitoring procedures.

In contrast to the preceding studies which were driven by an operant model of self-monitoring, the following investigations examine self-monitoring from a cognitive-behavioral perspective recognizing the role of self-evaluation in the self-regulation process. As mentioned earlier, this model is concerned with the manner in which individuals impose performance standards upon themselves, monitor their own performance, and evaluate and reinforce themselves with respect to their ability to meet these self-imposed performance standards. (e.g. Bandura, 1976; Mischel, 1973; Mahoney & Thoresen, 1974).

Mahoney, Moore, Wade and Moura (1973) examined the effects of continuous or intermittent self-monitoring of review exercises on subjects' verbal and quantitative scores on the Graduate Record Exam. Subjects were 27 college students randomly assigned to four treatment conditions: (a) continuous self-monitoring (b) intermittent self-monitoring; (c) performance feedback, and (d) control.

Self-monitoring groups were instructed to press a counter (either continuously (after each correct answer) or intermittently (after every third correct answer) when they received feedback that their answer was correct. Subjects in the performance feedback group also received information on the accuracy of their responding but they did not self-monitor. The control group received neither self-monitoring instruction nor performance feedback.

It was predicted that if self-monitoring is often followed by covert self-evaluative reinforcement, self-monitoring subjects would maintain their performance of difficult quantitative and verbal tasks longer than either the performance-feedback or control. Moreover, it was predicted that this superiority would be more marked under conditions of intermittent self-monitoring.

The major dependent variables were (1) time spent reviewing, (2) number of items reviewed divided by time (3) accuracy (both quantitative and verbal).

The results indicated that the self-monitoring groups did spend significantly more time reviewing than did the other groups. However, subjects who self-monitored continuously remained for longer review sessions than intermittant self-monitors--an unpredicted result. The results indicated that the self-monitoring groups exhibited greater accuracy on quantitative problems than either the performance feedback or control group. However, self-monitoring left verbal accuracy unaffected. The authors did note that the subjects differed significantly in verbal abilities but not in quantitative ability at the onset of the test. Results indicate that continuous self-monitoring was superior to intermittent self-monitoring and that performance feedback alone did not enhance either the duration or the accuracy of review performance.

Such results suggest that certain tasks may be more amenable to the effects of self-monitoring and that prior knowledge may play a role in how effective self-monitoring may be. The unanswered question is whether self-monitoring can facilitate learning when the new behavior is not in the individual's current repertoire.

In Kanfer's model, self-evaluation describes "a comparison between the individual's own performance and the performance criterion. This comparison should be facilitated when the individual can specify the criterion toward which he strives and its discrepancy from his present performance." (p. 11). In addition, "...a clearer specification of one's actual performance (via self monitoring) can also facilitate behavioral change." (p.11). In 1977, Spates and Kanfer set out to test these hypotheses by studying the contribution of self-monitoring, criterion-setting, self-evaluation, and self-reinforcement to solving simple arithmetic problems.

Subjects were 45 first-grade students (20 boys, 25 girls) who were unable to solve 10 or more arithemtic problems out of a total of 12 problems. Those who did meet this criterion were then tested to see if they could add 2 single-digit numbers. If they could not, they were eliminated. Subjects were then randomly assigned to one of four experimental conditions: self-monitoring, criterion-setting, self-evaluation plus self-reinforcement, self-monitoring plus criterion-setting or a control group.

It was hypothesized that self-monitoring alone would produce no significant effect on performance, while the additional training in each of the other components would incrementally produce significant effects over training in the

other components. Criterion-setting (self-evaluation) was hypothesized to be central to effects anticipated in each of the components. The dependent variable was number of errors on a pre and posttest.

In contrast to similar studies, the investigators did not have subjects monitor their answers. Instead, subjects were taught to monitor the adding procedure. "As you add each of these problems, say out loud what numbers you are adding: for example, now I am adding these two numbers here." The experimenter worked the problems in the right-to-left order, but verbalized aloud only what the subject was to verbalize later. This procedure assumed that all subjects received a demonstration of the right-to-left order of adding numbers. Subjects were assisted if they failed to verbalize what they were doing. Assistance was given only when verbalization was lacking or inappropriate, regardless of the accuracy of the answers." (p. 11).

Subjects in the criterion-setting group were told: "As you work each problem, say out loud, "First, I should add the two numbers on the right; then I should add the two numbers in the middle; next I should add the two numbers on the left."

Subjects in the self-monitoring plus criterion-setting group were given the following instructions: "As you work each of these problems I want you to say aloud, "First I should add

the two numbers on the right, five plus one equals six; then I should add the two numbers in the middle; five plus two equals seven; next I should add the two numbers on the left, five plus three equals eight."

Subjects in the self-evaluation (which is really the self-monitoring plus criterion-setting) plus self reinforcement group received the same instructions given above with the following addition: "When you are done with each problem look at your work and see whether you did the right thing and if so, say "I am right, or if you did the wrong thing, say "I'm wrong." (p. 12). All groups were required to exercise the training procedure accurately, without any errors, for three consecutive trials; then the post-test was given.

Because of initial pretest differences, results were determined using an ANCOVA with pretest error scores as the covariate. The ANCOVA indicated a significant effect of treatment with the no treatment control showing the greatest number of errors after training ($\bar{X}$ = 9.84), followed in descending order by the self-monitoring ($\bar{X}$ = 7.27) and criterion-setting groups ($\bar{X}$ = 1.32), respectively.

Post hoc analyses indicated that there was no significant difference between the self-monitoring only group and the no treatment control. However, all other groups were significantly different from the self-monitoring only group and the no

treatment control group. There were no significant differences among the other three treatment conditions. Spates and Kanfer assert that "these data suggest that criterion-setting represents a critical stage in the self-regulation model and that training which did not include this component was ineffective."

Although the hypothesis that training in self-monitoring alone would not produce significant effects was supported, one has to note that subjects were not monitoring their answers but rather the adding procedure. One has to question if this is self-monitoring or self-instruction. This type of monitoring of process rather than product is rare and is not what is usually done in the majority of self-monitoring studies nor is it what people would normally monitor in real-life situations. Spates and Kanfer defend their approach by stating that "self-monitoring of outcome accuracy was deliberately avoided (experimentally) since it would not permit an examination of the effects of self-monitoring of the procedures alone"(p. 14).

Barling (1980) also challenged the "nature of Spates and Kanfer's (1977) self-monitoring manipulation as questionable." (p. 44). And, Nelson (1977) points out that "self-monitoring consists of two processes, self-observation and self-recording--neither of which is likely to have resulted directly from these instructions. Rather, this group's experimental manipulation is

more likely to have approximated self-instructional behavior"(p. 44).

Spates and Kanfer state that "the criterion-setting groups had been given a criterion for the most effective arithemetic procedures, thus setting a standard for their operations and permitting self-correction of procedures. Since all children had the requisite skills in adding, evaluation and self-correcting their procedure (in all groups except 1 and 2), this should also improve the outcome of their arithmetic operations. The present results support this explanation although the "relative effects of training in self-monitoring of operations versus outcomes are yet to be investigated." (Spates & Kanfer, p. 14).

Unfortunately, limitations in the operationalization of the self-monitoring procedure make unclear the merits of the self-evaluation component because the investigators did not provide a clear test of the model. In addition, one can question whether this was a true learning task because subjects already knew how to add single digit numbers. Spates and Kanfer do state that one of the implications of this study is that training in self-monitoring alone may not be sufficient and that there is a need to train to establish criteria by which subjects can judge the adequacy of their behavior in order to make changes in that behavior.

Kirschenbaum and Karoly (1977) explored the role of differential self-monitoring in the maintenance of behavioral self-regulation. In a closed-loop model of self-regulation, the individual is said to maintain goal-directed performance by discriminating task-relevant data (self-monitoring), comparing performance to task standards (self evaluation) and contingently self-rewarding or self-punishing (self consequation). The first stage of this process, self-monitoring, is apparently crucial to the continuance of the self-regulatory process.

Kirschenbaum and Karoly (1977) focused on three factors hypothesized to affect sustained self-monitoring and hence the entire sequence of self-regulatory responses. The factors chosen were (a) differential self monitoring (b) task difficulty, and (c) the subjects' status on the personality dimension of repression-sensitization. The results of a number of experiments exploring differential self-monitoring have indicated that negative self-monitoring, relative to positive self-monitoring, is typically detrimental to effective self-regulation (e.g. Cavior & Marabotto, 1976; Gottman & McFall, 1972; Mischel, Ebbesen & Zeiss, 1973). In the above investigations, subjects who kept records of their failures generally performed less efficiently.

In accord with a social cognitive view, then, excessive negative self-monitoring can be expected to eventuate in lowered self-evaluations (Rotter, Chance, & Phares, 1972), and diminished self-observation. Positive self-monitoring is expected to produce the opposite pattern.

Research based on the Yerkes-Dodson law (Hall, 1966) and theories of motivation known as the "activation arousal" theories (Korman, 1974) suggest that high levels of arousal usually faciliate performance on simple tasks while interfering with performance of difficult tasks. An increase in arousal can be expected to follow negative self-monitoring (as it forces attention to failure) such that negative self-monitoring of simple tasks should lead to task facilitation and sustained self-observation. When the task is relatively difficult, heightened arousal due to negative self-monitoring would be expected to interfere with both performance and sustained self-monitoring.

Subjects were 96 college students (64 males, 32 females) who volunteered to practice solving mathematics problems similar to those found on the Graduate Record Exam. They were assigned to groups in which they either self-recorded inaccurate problem solving (negative self-monitoring), self-recorded accurate problem solving (positive self-monitoring), did not self-record but received immediate performance feedback

(performance feedback), or did not self-record or receive immediate feedback (control). Groups were matched on ability (high or low) and received either easy or difficult problems. A pretest determined subjects' eligibility. The algebra and geometry problems used in the study were compiled based on 150 introductory psychology students' responses to 220 problems.

All participants heard an office-type call bell sound every 3 minutes during each 15-minute problem-solving period. They were told to use the sound of the bell as a reminder to work fast. (One could certainly argue that such cueing can, itself, arouse anxiety differentially in subjects). In addition, a flashing light signaled to all subjects when their answer was correct and at the sound of the bell, positive self-monitors were told to press the buzzer if they had answered the question correctly; negative self-monitors followed the same procedure when they answered a question wrong.

Dependent measures included: performance (accuracy and speed), sustained self-monitoring (time spent and amount written to self during self-observation of videotape replay), self-evaluation (compare your performance with what you imagine it would be if you were in an "ideal" physical-emotional state; the second self-evaluation was a comparison with respect to the presumed performance of peers), and self-consequation (

i.e. participants were asked to imagine they had just received $7 for time and effort in the last problem-solving period. Based on their performance, participants either self-rewarded ($1-$7 additional) or self punished ($1-$7 returned)). Subjects also completed Zuckerman's (1960) Affect Adjective Checklist for the measurement of anxiety.

Results indicate that negative self-monitoring relative to other conditions, led to lowered self-evaluations, decreased favorableness of self-consequations, and to somewhat increased association of anxiety with performance. Negative self-monitoring also led to decreased accuracy in performance, but, in comparison to positive self-monitoring, it faciliated sustained self-monitoring (self-initiated viewing of a videotape of subjects' own problem solving activity) when the task was relatively simple. All groups decreased sustained self-monitoring when the task was relatively difficult. It should be noted that all participants in the high difficulty condition did not perform well. The postulated tendency of self-monitoring of failure to precipitate tuning out or avoidance of self-relevant information is evident from this study. The investigators state that "high task difficulty negatively aroused participants, which produced a disengagement from effective self-regulation." (p. 1124). From a social cognitive perspective, one might argue that negative self-monitoring leads to a decrease in feelings of self-

efficacy and this may be a more important explanation of these results than heightened anxiety.

Behavior of subjects in the easy math problem conditions varied considerably depending on group assignment. Negative self-monitors performed worse in terms of accuracy. However, they were more willing to self-observe by the final trial block than were positive self-monitors.

Although our understanding of self-regulatory processes involved in solving difficult math problems might have been enlightened had the investigators included a measure of self-efficacy beliefs, this is one of the few studies to examine the effects of task difficulty on self-regulatory processes.

Sagotsky, Patterson, and Lepper (1978) examined the individual and joint effects of daily self-monitoring and goal-setting procedures on children's study behavior and academic achievement in an ongoing classroom situation. Subjects were 67 fifth and sixth graders (37 girls and 30 boys). There were four treatment conditions: (1) goal-setting, (2) self-monitoring, (3) goal-setting and self-monitoring and (4) a no treatment control group. All subjects underwent a 4-week baseline phase prior to a 5-week treatment phase.

All subjects were given a green cover sheet on which they were told to write their name, the date, and the page and problem number on which they ended the math period.

Subjects in the goal-setting condition were told to write the page and problem where they started each day, the page and problem number up to which they thought they could work that period (the goal), and the page and problem number when they actually finished at the end of the one-hour math period. They were asked to record this goal on their cover sheets and were asked to make a mark in their unit to which they could refer as they worked, to see how close they were to their goal. At the end of each period, they were to write down the page and number they had reached and to see if they had achieved their goal. Subjects in the self-monitoring condition were given a sheet with a space to mark the page and problem where they stopped working each day and a grid with 12 empty boxes. The subjects were told that during the math period each day, they should note from time to time whether or not they were actually working on their math units. If they were working appropriately, they were asked to place a "+" in one of the blank boxes. If they were not, they were told to put a "-" and suggested that this serve as a reminder to resume studying. Children were given examples of what "working" and "not working" meant in this context. Subjects in the goal-setting plus self-monitoring conditions combined both methods and subjects in the no treatment control received sheets containing a space for them to record the page and problem number of where they

stopped working each day. All subjects were reminded to work hard and complete their math units as quickly and accurately as possible so that all groups were equal in terms of nonspecific motivational factors. Dependent measures involved observations of the students' study behavior during the daily math periods and children's academic achievement in successfully completing their assigned mathematics units. For the behavior observations, the number of 10-second periods that each child spent on-task (working and at teacher's desk) versus off-task (in seat--not working, out of seat--not working, and out of room) was calculated. Similarly, the average number of problems children successfully completed each day was computed, providing an index which assessed both the quantity and quality of the children's work.

Results indicate that self-monitoring produced significant increases in both appropriate study behavior and in actual achievement while goal-setting had no effect on either study behavior or academic achievement. Of interest is the fact that goal-setting did not enhance the effectiveness of self-monitoring in the combined group.

The authors concluded that self-monitoring can produce significant increases in study behavior in the absence of external feedback or rewards. They believe that one reason for the success of self-monitoring is its implicit evaluative

component (recording instances of both positive and negative behavior). They assert that the second reason for its success in this experiment is that subjects recorded off-task behavior which served as a cue for them to return to appropriate on-task behavior. Such results suggest that self-recording on and off-task behavior may carry a different self-evaluative message (and perhaps a different self-reaction) than monitoring only correct or only incorrect answers as was the case with Kirschenbaum & Karoly (1977). The authors attribute the failure of goal-setting to the complex and heterogeneous nature of the mathematic lessons. Subjects were unable to make reasonable estimates of daily achievement. Due to the lack of correlation between classroom study time and actual achievement, the investigators do not assume that techniques that increase study behavior will necessarily increase achievement. In some previous studies increases in study behaviors have produced concomitant increases in academic performance (Cobb, 1972); in others, changes in classroom behaviors were not accompanied by changes in achievement (Ferritor, Buckholdt, Hamblin, & Smith, 1972).

Barling (1980) argues that some studies have concentrated on dependent variables which mainly reflect motivational aspects of academic performance. Yet effective academic performance would result from a combination of

persistence and accuracy. In this respect, dependent variables, such as time-at-task or the number of problems attempted, reflect task persistence. On the other hand, in assessing the number of problems solved correctly--the quality of performance--skill is emphasized. Research has typically concentrated on one or the other. Barling (1980) asserts that successful academic performance must be a function of the reciprocal interaction of these two factors. Thus, Barling (1980) provides us with a study that operationalizes scholastic performance as the ratio of the number of correct responses (skill) to the number of responses made (persistence), and assesses both arithmetic and verbal performance.

Subjects were 138 children (67 boys, 71 girls) from grades three through six. Subjects were randomly assigned to one of five groups: (1) control, (2) control plus feedback, (3) self monitoring (self-observation and self-recording), (4) self-determined performance standards and self reinforcement, and (5) self-instruction. Subjects in the control group were told: "Your job is to answer as many of the questions as you want." (p. 47). In addition to the instructions outlined above, subjects in the control plus feedback group were told "Each time you get an answer correct, this light will go on." (p. 47). Subjects in the self-monitoring group were given the same instructions as outlined above and in addition were told to "keep count of your

score. On the paper in front of you, mark a tick each time you get the answer correct. At the end, we will count your score." (p. 47). Because of the difficulty of separating self-reinforcement from self-determined performance standards, subjects in Group 4 self-determined a standard before starting, and then self-reinforced after the posttest on the basis of the comparison between the performance and the standard. A prompt for the selection of a stringent standard was included. Subjects could self-administer any number of stars between one and 10 for each correct answer and exchange them for various prizes. Subjects in Group 5, the self-instruction group were taught to say aloud and then to themselves: "Don't get nervous, don't rush. Before you guess, try and work out the correct answer from all the choices. Take it a bit slow if you want."

A multivariate analysis of variance (MANOVA) was used to analyze the effects of the five experimental groups on two dependent variables: task persistence (the total number of items attempted) and task accuracy (the total number of items answered correctly) on arithmetic and verbal performance. The results indicate that there was a significant MANOVA effect for both dependent variables. The self-determined performance standard and self-reinforcement condition was the most effective, and significantly more effective than the control group. Mann-Whitney U tests showed there was a decreasing

effect on arithmetic performance in the following order: self-determined performance standard and self-reinforcement, self-monitoring, self-instruction, and control.

Barling (1980) concludes that self-determined standards and self-reinforcement had the most pronounced effects on arithmetic and verbal performance. However, with arithmetic performance, self-monitoring was more effective than self-instruction and control, and self-instruction was more effective than the control group. Barling thinks self-monitoring effects on arithmetic tasks are due to the difficulty of the arithmetic task and the continuous feedback related to success (self-recording) as the subject progresses throught the task. According to Barling, effective performance is a function of both motivation and skill.

Morgan (1985) investigated the effects of self-monitoring sub-goals, study time or distal goals on academic performance and intrinsic motivation. Subjects were 240 students (151 women, 89 men) enrolled at St. Patrick's College in Ireland. Subjects were blocked on the basis of their previous academic achievement into three categories: high achievers, moderate achievers and low achievers. Subjects within each block were then randomly assigned to one of four treatment conditions: (a) self-monitoring of subgoals, (b) self-monitoring of distal goals, (c) self-monitoring of study time, and (d) control. Extrinsic

incentive was operationalized as turning in weekly samples of their notes and intrinsic incentive was not turning in such notes. Half of the sample was under the extrinsic condition, the other half under the intrinsic condition. The major dependent variable was the year-end examination in the educational psychology course.

The results of the ANOVA revealed a highly significant effect of study condition. Scheffe comparisons showed the self-monitoring of subgoal condition differed significantly from the other three conditions which did not differ significantly from each other.

Subjects in the extrinsic motivation condition scored slightly higher than those individuals in the intrinsic condition but the increase was not statistically significant. There was no interaction between study condition and motivation and neither study condition nor motivation interacted with previous achievement. The group that self-monitored study time spent significantly more time studying; however, their examination performance was not significantly better than the control group. An ANOVA and Scheffe comparison revealed a signficant effect of study condition on intrinsic interest in the educational psychology course due to the high ratings of subjects who self-monitored subgoals.

Morgan (1985) concluded that self-monitoring of sub-goals has a beneficial effect on learning and motivation to learn. Morgan explains the learning effects by stating that subgoals enhance "learning by providing schema for the integration of diverse items of information" (p. 628). Morgan cited previous research findings (Schunk, 1983; Schunk & Gaa, 1981) indicating goal proximity has important motivational effects on a task. Morgan believes that the higher intrinsic interest shown in the subgoal condition is due to feelings of competence and self-efficacy because the subgoal condition promoted feelings of mastery through short-term proximal goals. These feelings moderated the effect of the extrinsic incentive. He cited previous research findings to support his view (Bandura, 1982; Deci, 1975; Morgan, 1984). Morgan also adds that self-monitoring of sub-goals is a more effective way to study because it saves time.

In summary, self-monitoring has been shown to be an effective strategy in increasing academic achievement on a variety of academic tasks (Barling, 1980; Brown, 1975; Kirschenbaum & Karoly, 1977); Mahoney et. al., 1973; Morgan, 1985; Richards, 1975; Sagotsky et. al., 1978. However, other studies showed self-monitoring to be less effective than self-determined standards (Barling, 1980), self-reinforcement (Barling, 1980); and criterion-setting (Spates & Kanfer, 1977). It

also appears that self-monitoring sub-goals is more effective than self-monitoring study time or distal goals (Morgan, 1983) and that self-monitoring of incorrect versus correct math answers results in decreased accuracy and persistence (Kirschenbaum & Karoly, 1977). In addition, task difficulty significantly mitigates the reactive effects of self-monitoring (Kirschenbaum & Karoly, 1977).

In conclusion, this review of the self-monitoring and academic achievement literature reveals a rather inconsistent picture. Some studies that showed self-monitoring to be effective were confounded by external reinforcement (Brown, 1975) or external monitoring (Richards, 1973). Although Spates and Kanfer (1977) report that criterion-setting is more effective than self-monitoring, one must interpret these results cautiously when one notes the way in which the investigators operationalized self-monitoring. In addition, design limitations in the operationalization of independent variables (Richards, 1975) and the type of dependent variable measured (Richards, 1975) greatly affects one's interpretation of these findings.

Although this review suggests that self-monitoring can have significant effects on academic achievement, we now need to review the research that focuses specifically on self-monitoring and speech.

Self-monitoring and speech. Speech clinicians and pathologists examined the effects of self-monitoring on stuttering (Costello, 1974; LaCroix, 1973; Ingham, Adams & Reynolds, 1978), and verbal disfluencies (Mace & Kratchowill, 1988). Clinicians were also interested in whether self-monitoring could enhance the maintenance and generalization of speech therapy effects (Ingham, 1982; Koegel, Koegel, & Ingham, 1986; Koegel, Koegel, Voy & Ingham, 1988). However, rare was the study that examined the independent effects of self-monitoring on actual pronunciation/articulation change.

In a seminal investigation of stuttering, LaCroix (1973) reported substantial reductions in "percentages of words disfluent" (p. 273) when the subject depressed a hand-held digital counter each time he emitted a disfluency. Unfortunately, the results are difficult to interpret because of the absence of adequate baseline data, failure to withdraw treatment conditions and lack of speech rate data, (i.e. if one slows down and does not talk as much then one may not exhibit as many disfluencies). Because of these limitations in the experimental design, it is possible that other variables besides self-monitoring were causing the reactive effects. Regarding the issue of accuracy and self-monitoring, LaCroix reports that stuttering tallies by subject and clinician differed markedly

with one subject but almost totally agreed for the other suggesting no correlation between accuracy and reactivity.

In 1978, Ingham, Adams and Reynolds designed a multiple baseline study to determine whether any modification of stuttering associated with self-recording is independent of changes in speech rate. Three subjects were asked to self-monitor the word the as well as their own stuttering behavior.

During the self-monitoring the phase, subjects were instructed to press the button whenever they said the word the. At the end of the interval, the experimenter asked the subject to read out and then record the counter total on the protocol. Identical procedures were followed during the self-monitoring stuttering phase. The investigators state "the reversal of treatment conditions order was designed to identify possible "carryover effects" of instructions to self-recording stuttering.

The investigators reported inconsistent results. For subject 1 there were no reactive effects and, therefore, no evidence that self-recording stuttering was associated with a change in stuttering. However, the data for subject 2 show that the percentage of stuttering was reduced, and this effect was not confounded by a reduced speech rate. In fact, syllables per minute increased during self-recording. Subject 3, on the other hand, stuttered more during the self-monitoring phase but the frequency of stuttering did decline during baseline conditions

that followed. Although self recording did not produce a reduction in stuttering for subject 3, it did in fact produce a reactive effect.

Such a finding suggests the possibility of a mediating variable. It is possible that self-monitoring may make one more self conscious (hence nervous) and, therefore, may not be useful for all subjects and all types of speech problems. However, the fact that stuttering was reduced in the baseline condition that followed self-monitoring suggests the possibility of covert self-monitoring.

Closer examination of the procedures indicates that subjects were told that "the purpose of the study was to record accuracy in counting stutters and the word the while speaking and not to reduce stuttering." (p. 468). Such instructions are important because subjects were told to observe and self record--not to evaluate and change stuttering behavior. The fact that the three subjects reacted differently to these instructions suggests that cognitive processes, such as self-evaluation and self-reaction, can influence reactivity. Such results suggest that the operant models of self-monitoring may not be sufficient to explain certain changes in behavior. As mentioned above, the subjects were told that the aim of the procedure was to accurately record the number of stutters and the number of times each said the word the. However, each

subject recorded the total count of the target behavior at the end of each interval and awareness of changes in these counts from interval to interval may have had a signficant effect on behavior. Subject 2, the one subject who showed a reduction in stuttering "readily verbalized his pleasure on noting a pattern of decreasing stuttering during the self-recording stuttering phase." (p. 468). Such qualitative data suggests that self-reaction may depend on cognitive understanding of response patterns rather than mere response discrimination processes. Such a finding indicates the importance of self-evaluation (self judgment) processes and suggests an independent effect from self-observation. This study raises more questions than it answers and indicates the need for theory-driven empirical studies so that results can be adequately interpreted.

Regarding the issue of accurate self-monitoring, the results indicate that although subject 1 was the most accurate, he was also the least reactive. Subject 2, on the other hand, was the most reactive and yet the least accurate. Subject 3 was not accurate but showed reactivity in the opposite direction. Kazdin (1974) reported that some behaviors have been modified by monitoring in spite of substantially less than continuous and accurate counting. It would appear that differing covert factors play a major role in determining the outcomes of self-

monitoring and mechanical adherence to accuracy may not greatly influence actual reactive effects.

Mace and Kratchowill (1988) examined self-monitoring and the reduction of speech disfluencies such as um, uh and you know. The investigators used a pretest-postest design in which 60 undergraduates were assigned to four experimental conditions, each of which reflected a specific theoretical orientation previously outlined. These were: (1) self-monitoring only (Rachlin, operant); (2) self-monitoring plus goal setting (Kanfer, cognitive-behavioral); (3) self-monitoring plus goal setting plus self reinforcement (Nelson & Hayes), and (4) goal-setting plus self-reinforcement; and (5) a training only condition.

The experiment was divided into four experimental phases: pre-self monitoring, training in self monitoring, self monitoring and cognitive assessment. All phases were audiotaped. The pre-self monitoring phase acted as a baseline measure wherein subjects were asked a series of questions to elicit opinions on topics. The experimenter recorded each occurrence of the target behavior using a hand-held noiseless counter underneath the table.

Immediately following this phase, all subjects received training in self-monitoring (Mahoney, 1977) which consisted of (1) learning the operational definition of the target response; (2)

learning to self-record the target behavior on the hand-held counter and (3) practicing self-monitoring. Subjects in the self-monitoring only group were given a mechanical counter with a visual display and told: "Each time you say a nonfluency, click the counter and look at your total." (p. 330). The subjects in the self-monitoring plus goal setting group were given the same instructions as Group I but were also told: "When you discussed the first three questions you said ____ nonfluences. Before we start, set your own goal for reducing nonfluencies. Tell me what your goal is and write it down on the card in front of you." (p. 330). Subjects in the self-monitoring plus goal-setting plus self-reinforcement condition were told if they reached or exceeded their goal, say aloud: "I did a really good job of showing self control." Subjects in the the goal setting plus self-reinforcement were given the same instructions as indicated above; however, they were not given a mechanical counter. Participants in the training only group took part in the preself monitoring phase and the posttest phases only.

The results of the study indicate that compared to a no-treatment control group, all treatment groups showed a significant decrease in verbal nonfluencies. However, reactive effects were largest under the two conditions that employed self reinforcement. There were, however, no significant differences between these two groups suggesting that self-

monitoring did not add substantially to the reduction of verbal disfluencies. The investigators state that "the contribution of self-reinforcement to the reactivity of self-monitoring appeared to be the result of external contingencies rather than a function of covert processes" (p. 341).

A closer examination of the data reveals that there were also significant reductions in the training only group even though this group was not allowed to self-record, set goals, or self-reinforce. It appears that the self-observation component alone may produce reactive effects. The data also revealed that the goal setting plus reinforcement group significantly reduced its nonfluencies when compared to the self-monitoring only group, self-monitoring plus goal setting and training only group. Such results suggest that self-recording may not be necessary to produce significant reactive effects. However, one cannot discount the possibility of covert monitoring. It would have been interesting to listen to the audiotape to see if there were pauses or self-repairs in the speech of these subjects because one could argue that pauses and self-repairs are an indication of covert self-monitoring. Unfortunately, such data was not available.

The results of this study have a number of implications regarding a theory of reactivity in self-monitoring. The investigators believe that a major finding of this study is the

importance of training in self-monitoring. They suggest that the major function of the training may be to teach the individual to discriminate the occurrence of a given response" (p. 342). However, one could also argue that this study, unlike the previous study, provided a clear standard that all subjects understood, i.e. to reduce disfluencies, and this resulted in consistent reactive effects in the desired direction. The fact that "subjects provided with a mechanical counter for self-monitoring did no better than those without the recording device." (p. 343) suggests that self-evaluation processes may play a more important role than self-recording. Because such results are contradictory to other empircal studies that reported more reactivity with obtrusive self-recording devices (Maletsky, 1974; Nelson, Lipinski & Boykin, 1978), the investigators suggest that "the obtrusiveness of the device may be effective in applied situations where there is more distraction and the self-recording device helps one to focus." They argue that laboratory settings do not have as many distracting stimuli. One could also suggest that the type of task may dictate the effectiveness of a self-recording stimuli.

The effect of goal setting on reactivity is another aspect of this study that has theoretical implications. The experimenters state that "goal setting contributes little, if any, to the reactive process in the absence of reinforcement. This corroborates the

findings of Sagotsky et. al. (1978) yet contradicts other studies that demonstrate that goal setting is a key variable (Morgan, 1985, Spates and Kanfer, 1974).

The importance of reinforcement to reactivity is a third theoretical implication. The investigators state that "only Rachlin (1974) ascribed a paramount role to external reinforcement. In the absence of external consequences, self-monitoring and goal setting serve no function." (p. 335). Interestingly, Bandura (1976) agrees with the view that reinforcement, albeit self-administered, can be a critical component in the reactive process. However "the major point of contention is whether the source of reinforcement lies within or outside the skin" (Mace & Kratchowill, 1988, p. 340). Mace and Kratchowill argue that the "external event in this case is the experimenter's stated contingency and the act of commending oneself in front of the experimenter. Because superior performance was evident only in those groups receiving the external form of reinforcement, the experimenters state that there appears to be little need to turn to covert variables to explain the observed differences in reactivity" (p. 340). One must keep in mind, however, that the other groups also significantly reduced nonfluencies when compared to pretest scores.

According to the cognitive-mediational view, the self control or reactive process is largely automatic (Spates & Kanfer, 1977). "That is, the act of self-recording initiates a covert process beginning with the evaluation of one's performance against some standard or goal." (p.340). The investigators, however, contend that if this "chain of events were automatic, we would have expected to see a large percentage of subjects reporting self-punishing statements on the cognitive assessment variable across all groups--a pattern that was not borne out by the data." (p. 340). Although this study suggests that self-monitoring can reduce unwanted disfluencies, it appears that reinforcement produces the effect in a more significant way.

The maintenance and transfer ("carryover") of previously changed pronunciation beyond the treatment setting and into spontaneous speech is identified as a serious problem by most speech clinicians (Mowrer, 1971; Wing & Heingartner, 1973). This problem has been the focus of most of the investigations into self-monitoring and speech. As a consequence, little is known about the effects of self-monitoring on the learning of new pronunciation.

Johnston and Johnston (1972) were the first to use self-monitoring to enhance carryover effects. The investigators set up a series of three experiments in a classroom setting.

Subjects were four children (age six), two males and two females who demonstrated severe articulation problems. A single consonant sound was selected for each child. The investigators indicate that it was a sound in which the child had already received individual or group speech therapy during the previous nine months but which was not being correctly articulated outside of the speech therapy setting. The experimenters state that "A common strategy for training such responding in children is first to teach the child to respond discriminatively to correct and incorrect sounds produced by others" (p. 49). This is commonly referred to as discrimination training and is important when one considers the role of self-evaluation in self-regulated learning. The investigators wanted to challenge this model and show that this discrimination stage was unnecessary. Instead, the investigators hypothesized that training discriminative responding to correct and incorrect sound emissions in the child's own fluent speech while he was engaged in normal verbal activities would be more effective. However, the investigators were only able to do this because the correct sound was already in the subject's repertoire.

Each child was given a manual counter and taught to click the counter immediately after correctly articulating his speech sound in normal speech. When the child said the sound correctly, the child was given a sticker which could later be

turned in for a reward. When the child said the sound incorrectly, the teacher corrected him. The dependent variable was the percentage of the total correct sound emissions in activity and play periods. The investigators reported that all subjects at the beginning of the activity period showed an immediate decrease in the rate of incorrect sounds with only a slight increase in correct rates. This change resulted in a decrease in the overall production of the speech sound suggesting an overall decrease in the rate of verbalizations. However, a gradual increase in correct sound production did occur. Although the results of the experiment do indicate an increase in correct speech production, we do not know whether the reactive effects were due to self-monitoring or external reinforcement or both.

In 1976, Engel and Groth tackled the issue of "carryover" by what they called "reinforcing post-articulation responses based on feedback" (p. 93). Subjects were six children from the second, third and fourth grades who had been enrolled in public school speech therapy on the production of one defective sound during part of the previous academic year. The selection criteria were that the children have voluntary control of the articulation error and a lack of complete carryover into reading and conversational speech. If the child misarticulated 70% or more of the words containing his sound in a five-minute

reading sample, he was considered an appropriate subject. Five subjects were lispers, and one substituted d/o.

A teacher's aide was trained and told to take baseline measures by covertly listening to samples of the subject's articulation during oral readings in the regular classroom. The aide tallied the number of words with his sound and the number of incorrect productions. A minimum sample of 20 attempts to produce words containing the target sound was obtained at each observation and seven covert observations on separate days were made prior to the beginning of speech therapy. After baselines were taken, each of the subjects was enrolled in individual speech therapy which consisted of practice in using the target sound in phrases, sentences, connected discourse and reading. Verbal reinforcers such as "good" and "right" were delivered following correct production. The first five minutes of each session were used to obtain a sample of the child's articulation during oral reading and these were charted by percentage of errors and compared with the covert observations of the teacher's aide.

During the self-monitoring phase, subjects were told: "Each time you read a word that contains your sound, I want you to raise your hand if you think you said it correctly. If you remember to do both, I will give you a point. When you get a total of 30 points, we will put a star on your speech chart.

When you have five stars, you may have your choice of (1) ten cents (2) a candy bar or (3) a bottle of pop" (p. 95).

Reinforcement of postproduction signalling (i.e. self-monitoring) continued until the rate of error production declined to 5% or lower for five consecutive sessions on both the overt and covert production samples. After the carryover technique had been discontinued, covert sampling of the child's articulation during oral reading in the classroom was continued three times per week for 10 sessions, and then monthly samples were taken for five months.

The results of the study indicate that all six subjects reached zero percentage of error in four to six weeks and maintained this behavior change throughout the remainder of the academic year. The graphs show that errors measured overtly and covertly tended to decrease together. Of interest is the fact that only anecdotal information from the teachers and teacher's aide indicate that carryover occurred during spontaneous conversation. As in the previous studies, this single subject design does not allow us to understand fully the role of self-monitoring because the treatment included external reinforcement. In addition, one could argue that oral reading is not as cognitively complex as spontaneous conversation because it allows for attention to form (pronunciation and articulation) but does not require the individual to make up a coherent

sentence as one has to do in actual conversation. However, the real issue is the fact that this study would not be considered self-regulated learning as long as there is external reinforcement from a person in authority. In addition, this was not a true learning study because the investigators clearly state that the subjects already had the correct pronunication in their repertoire prior to the experiment.

Ingham (1982) was the first to use self-monitoring to assist students to maintain and generalize stuttering treatment effects. Using a multiple baseline design with two male subjects (aged 18 and 20), Ingham reports that each introduction of self-monitoring to the performance contingent maintenance schedule was followed by reductions in stuttering across two speaking situations: talking on the telephone and talking to family members. Most importantly, the results indicate the number of syllables-per-minute stayed within an acceptable range. However, a closer look at these results reveals some inconsistencies and suggests that it is not clear what is actually producing the results: the goal-setting component, the self-monitoring component, the external reinforcement component, or the self-reinforcement component.

After stuttering treatment had been administered, both subjects began a clinic-based performance contingent maintenance schedule. However, this procedure failed to

produce generalization to ostensibly identical non-clinic conditions.

This clinic-based performance contingent maintenance schedule required subjects to complete three 1300 syllable stutter-free monologues and three 1300 syllable stutter-free telephone conversations during an assessment session with a speech rate of 170 to 210 syllables per minute. The clinician's measures of syllables, stuttering, and speaking time were obtained from the overt and covert recording and were converted to (1) percent of syllables stuttered for the overt only; and (2) syllables spoken per minute.

The self-monitoring procedure required the subject to assess behaviors independently. Subjects participated in the speech tasks described above and then counted the instances of stuttering and estimated the speech rate on a daily basis. If the subject's and clinician's scores agreed (within a percentage range), then the subject received reinforcement. When a criterion number of "agreed scores" were achieved for four consecutive days, the training was shifted to the second stage. At this stage, the subject's scoring accuracy for stuttering was externally reinforced. On intermittent and unannounced occasions, the subject's score was compared with the clinician's score. If their scores failed to agree, the subject returned to the first training stage. If a prescribed number of checks agreed

with the clinician, the subject was left entirely responsible for the evaluation and reinforcement of his behavior. During this stage, subjects could reduce the daily schedule of speech tasks contingent upon self-evaluating that the target behavior range was achieved in each 1300 syllable recording. It appears, therefore, that goal setting played a major role in this design. For example, if the subject decided that two consecutive daily sets of recordings were within target range, he would record the trio of speech tasks only once every two days on two occasions and, if successful, then once more four days later. If the subject monitored his stuttering and found that he failed to achieve the target behavior on any speech task, he had to reintroduce the daily recording schedule. If he had to do this for four consecutive days, then he returned to stage one.

The results for subject 1 indicate that self-monitoring was associated with reduced stuttering but it did not disappear entirely. Although subject 1 stopped stuttering during all telephone conversations, he continued to stutter when talking to his father. He then had to be trained to self-monitor in this context and improvement was noted.

The results for subject 2 show that the introduction of self-monitoring training during conversations with relatives resulted in complete cessation of stuttering, and this was maintained during the subsequent self-managed performance

contingent maintenance schedule. The results were not indicative of maintenance, however, because the treatment continued during the six months study period and at no time was the treatment (self monitoring plus performance contingent reward) stopped to see if the results would persist.

In summary, each introduction of self-monitoring and self-management training to the performance contingent maintenance schedule was followed by covertly and overtly assessed reductions in stuttering across two contexts: talking on the telephone and talking to relatives and these reductions were sustained for at least six months. However, a closer examination of the entire design indicates that one cannot claim results reflected maintenance effects because the treatment was never withdrawn.

Although the study was supposed to examine the use of self-monitoring as a vehicle for enhancing generalization and maintenance of stuttering treatment effects, it is evident that the design has been confounded by the use of goal-setting and reinforcement by self and others. In addition, the investigators report that both subjects had been exposed to a stuttering tratment that included prolonged speech techniques prior to this experiment. They reported that these subjects were highly motivated and were supported by their diligent and cooperative parents, which is not always the case with most stutterers. One

could also argue that the program was not entirely self managed since the subjects' and clinician's scores had to match for a reward to be granted. The subjects were aware that they were going to be covertly assessed because they had to sign a release form. Subject 1's data did, in fact, show evidence that the two data collections (overt and covert) produced dissimilar findings. In conclusion, we again find that self-monitoring is a promising strategy but that the experimental designs have confounded the results by including other variables such as goal-setting and external reinforcement. It is clear that a study which assesses the independent effects of self-monitoring is needed.

Koegel, Koegel and Ingham (1986) and Koegel, Koegel, Voy and Ingham (1989) both focused on the use of self-monitoring to transfer pronunciation change to out-of-clinic speaking contexts. In the 1986 study, subjects were 13 elementary school children (7 boys, 6 girls) who exhibited various pronunciation problems such as lateralized /s/ and /z/ substituted /o/ for /s/ and /o/ for /z/ and/or substituted /w/ and /r/. The children attended public school speech therapy, individually; or in small groups, twice weekly for 15- to 20-minute sessions throughout the entire study. The design included four phases. During baseline, subjects demonstrated consistent misarticulation of one to three consonants during unstructured spontaneous speech outside the

classroom and 100% misarticulation during the pretest. Treatment consisted of teaching subjects how to pronounce the target sounds using an imitation/modeling method based on a performance-contingent reward schedule. Once subjects demonstrated 100% accuracy in pronunciation during these drills, they were taught to self-monitor. The self-monitoring procedure was taught as follows:

"The clinician demonstrated a correct and incorrect target sound, and then the child was required to produce a correct and incorrect sound. Next, the child was taught to record correct responses during a conversation as demonstrated by the clinician. Every time the child produced a correct response, s/he recorded a "+" on the data sheet. If the child missed a correct response, the clinician reminded the child. If the child recorded an incorrect response, the clinician required the child to erase the "+" and then to correctly produce and record the sound."(p. 27). Subjects were required to carry data sheets and record responses in all environments. Points could only be earned for correct productions that occurred during reading and conversation with another person, not for drill-like activities or talking alone.

The effects of the self-monitoring treatment program were measured monthly through systematic generalization probes taken in natural conversational interactions outside of

the treatment setting such as the playground, school hallway, etc. These probes were conducted during baseline, after self-monitoring treatment when subjects were using data sheets, when the data sheets were removed, and at a three-month follow up after summer vacation. The generalization probe was measured by an observer who was naive to the experimental condition and who independently recorded the subjects' correct/incorrect productions of the target sound(s) during conversational interactions. The procedure was as follows:

> "The observer was introduced by the teacher as a teacher's aide. The observer would make a comment or ask a question until ten instances of the target phoneme were noted. Observers were trained to unobtrusively hold their fingers in either a bent or straight position to indicate correct or incorrect responses. Then, immediately following the conversation, the numbers were recorded." (p. 28).

A reliability check of each of the primary observers was done and the percentage of agreement across 60 sessions was 93.3%. However, one has to recognize that it is not always easy to carry on a conversation with someone when you are trying to have them say a certain sound or word, and thus the practicality of this procedure for actual classroom learning is questionable.

The results are consistent across children, showing negligible generalization prior to the initiation of the self-monitoring condition. After the self-monitoring activities were implemented, all of the children demonstrated increases in the use of the target sound during the generalization probe.

Results also indicated that parents' and teachers' subjective judgments corresponded very closely to the data plotted. With the exception of children 11 and 13, all of the others reported to be incorrectly producing the target sounds before self-monitoring was initiated and correctly producing them (with progressive improvement) in the classroom and at home after the self-monitoring procedures were implemented.

This study raises certain issues as to what is actually creating the generalization of effects. The clinician provided extrinsic reinforcers to establish and maintain self-monitoring activities. This suggests that the role of self-reporting to another individual, who provides reinforcers, may be what is actually creating the results. In addition, occasional checks were made with parents and teachers to be sure that the child was actually monitoring during unstructured conversations and not simply marking responses without engaging in a speaking situation. The children became aware of these spot checks when they turned in their self-monitoring data sheets to the clinician to receive their rewards.

The investigators recognized that the study was limited in its ability to measure and report details of the accuracy and frequency of the children's self-monitoring activities, and it is conceivable that these aspects may have influenced the effectiveness of the present procedure.

Although the generalization probe data provided a direct measure of the effectiveness of the self-monitoring, they only provided an indirect measure of the self-monitoring activity itself. Because the researchers were unable to directly observe the children at all times, the exact accuracy, and frequency of the children's self-monitoring activities could only be estimated through the parent/teacher validity checks.

The data indicate that several children recorded progressively fewer responses per month as time went on. Thus, whether self-monitoring functioned to serve as a self-reinforcement for correct articulation (where accuracy would be important), whether the presence of the data sheets served as a discriminative stimulus for the child to remember to produce correct pronunciation or even whether the self-monitoring activity led people in the child's natural environment to attend to and reinforce the child's correct articulation cannot be determined from this study. In addition, if a person begins to notice that he or she is getting better in pronunciation, such self-reaction may also be an important factor.

The investigators did report that productions during the beginning of the self-monitoring program appeared quite labored and then gradually became more natural sounding. Thus, although the treatment approach was effective, it appeared to produce qualitative changes in speech suggesting that learning was taking place during the course of the self-monitoring activities.

The results indicated that some of the children learned their target sound faster than others, and although subjects 2, 8 and 11 demonstrated maintenance well above their baseline levels, their correct target sound productions did decline followning the summer vacation. Bornstein (1985) discusses the fact that some children appear to be more responsive to self-instructional training than others. Variables such as subject's age, intelligence, history, pretraining or cognitive style (i.e. internal or external perceptions of control) may all be factors that influence success. It may also be that some children were able to utilize more sophisticated forms of metacognition or cognitive monitoring (Flavell, 1979, 1981); Meichenbaum & Asarnow, 1979) to facilitate their use of the self-monitoring activity. Of special interest is the fact that subjects 7, 9 and 11 spoke Spanish at home. Each of these subjects had slightly more difficulty than the other children. In fact, subjects 7 and 9 did not appear to show major change during the self-

monitoring phase and subject II showed significant change during self-monitoring but a definite downturn at the three-month follow-up.

Such a finding for non-native speakers is not surprising when one considers the linguistic issues previously discussed. Second language and second dialect speakers may use one language or dialect in formal situations and another language or dialect in informal situations. (exactly the type of contexts being used in Koegel et al.'s study). Code switching (sometimes referred to as code-shifting) is a very important aspect of bilingualism and bidialectilism (Grosjean, 1988). It is defined as "the use of more than one language by communicants in the execution of a speech act" (DiPietro, 1977, p. 2). Code switching can occur in the same utterance or conversation. Multilingual speakers also code switch (shift) according to conversational context. For example, many Spanish speakers in the United States speak English in school and at work but speak only Spanish at home. Such a phenomenon has been observed in many countries. For example, in Canada native speakers of French will speak English at work and French at home. Haitians speak French in school and at work and Creole at home. When bilinguals speak to each other one may hear both languages in one sentence.

Code shifting also occurs among bidialectical speakers. For example, a person might speak Standard English in school and at work and switch to a nonstandard dialect like Black Vernacular English when talking to friends or family members.

Because of the ubiquitous use of code switching (shifting), these individuals may have a difficult time maintaining and transferring pronunciation learned in a clinic or classroom environment. It appears that the systematic selection of environments may be necessary in order to enhance maintenance and generalization through self-monitoring. This is also an excellent example of why one must understand and respect linguistic differences when conducting research of this nature.

In a follow-up study, Koegel, Koegel, Voy, and Ingham (1988) replicated the same procedures as outlined in the previous study only this time they controlled for intelligence and had subjects only work on one pronunciation problem: /s/ for /z/. In addition, they replaced the intrusive self-monitoring data sheets with wrist counters, and they tried to control for accuracy, by including multiple dependent measures: (1) percentage of correct generalization probes (outside of clinic), (2) percentage of correct generalization probes (inside clinic) and (3) percentage of accuracy within clinic. Subjects were 7 second, third and fourth graders (5 boys, 2 girls).

Unfortunately, the researchers continued to use the same reinforcement contingencies outlined in the previous study. Therefore, it is still not clear what variable is creating the change: external monitoring, external reinforcement, self-monitoring, auditory discrimination, or a combination of all of them.

Ruscello and Shelton (1979) investigated the misarticulation of either the /r/ or /s/ speech sounds in 11 subjects ranging in age from seven to eight years. This was the only study that examined the effect of self-monitoring on the learning of a new pronunciation. Unfortunately, the treatment was confounded by planning as well as external monitoring. Subjects were randomly assigned to one of two groups. Group 1 was taught to plan articulatory movements mentally in order to produce the target sound and assess production. Group 1 did receive practice involving isolated sounds, syllables and words and were given information about articulatory placement of the target sound. They were told: "Now think about making the new sound. Picture where you are going to put your tongue" (p. 506) and then they were given explicit instructions as to where to place their tongue depending on whether they were working on /r/ or /s/. After articulating a training item, Group 1 subjects evaluated their productions. If the response was produced correctly and also judged as correct by the subject,

the experimentor acknowledged the successful trial. Group 1 followed this technique: Plan it, Say it, Monitor correctness and Receive feedback. Group 2 merely said it and received feedback. There was no control group. Three measures were used to assess response to training: (1) the number of correct responses on the sound production tasks; (2) a count of the sound in conversation; and (3) the percentage of target sound productions that were articulated correctly in the training materials.

With the exception of the first sound production task administered after the initiation of training, the results of the study indicate that the planning plus self-monitoring group outperformed the practice plus feedback group on sound production task and talking task measurements made during training segments and follow-up segments of the study. The researchers clearly acknowledge that they did not know whether the results were due to the planning or the self-monitoring aspect of the training. Essentially, the two groups were comparable in accuracy. The accuracy with which members of the planning plus self-monitoring group assessed their practice responses during the first training segment suggests an accuracy rate of 86% to 94% correct, but the researchers stated that "the pattern of their errors suggests that these high percentages are deceiving. That is, approximately

86% of the judgment errors involved children labeling incorrect responses as correct. This error pattern was present throughout the first training segment; no improvement in judgment accuracy occurred" (p. 510) Because of this pattern, Ruscello and Shelton suggest that self-monitoring may not have contributed to their learning. Thus, the researchers conclude that mental planning seems to be the important treatment procedure. This is one of the few studies, however, that examines self-monitoring and pronunciation without any external reinforcement. Unfortunately, the results are now confounded with planning. Certainly what is needed is a study that examines the independent effects of self-monitoring on pronunciation change or acquisition. In addition, the fact that subjects were not accurate in monitoring their own mistakes suggests that there is a need for discrimination training.

This review of the speech literature indicates that self-monitoring has been used with mixed degrees of success to reduce stuttering (Ingham, Adams & Reynolds, 1978; Ingham, 1982; LaCroix, 1973; and speech disfluencies (Mace & Kratchowill, 1983). Those studies involving pronunciation used self-monitoring to facilitate generalization and transfer rather than actually change subjects' pronunciation (Engel & Groth, 1976; Johnston & Johnston, Koegel et. al., 1986; Koegel et. al., 1988). Although the results of these studies indicate that self-

monitoring did enhance maintenance and generalization, the experimental designs were confounded by external monitoring and external reinforcement and, therefore, it is not clear whether self-monitoring actually produced the results. In addition, Koegel et. al., 1986; and Koegel et. al., 1988 did include some degree of discrimination training of self and others' pronunciation during the self-monitoring segment of the study and this too confounds our understanding of what is actually causing the results. The only study that examined the effects of self-monitoring as a means of actually changing pronunciation confounded the effects of self-monitoring with planning (Ruscello & Shelton, 1979).

In summary, this review of the self-monitoring and speech literature suggests that self-monitoring may be a powerful strategy for reducing stuttering and verbal nonfluencies, changing pronunciation and enhancing maintenance and generalization of such changes. However, the critical analyses of these studies reveals limitations in the experimental designs: i.e. confounds with reduction in speaking time, external monitoring, external reinforcement, planning, and auditory discrimination. In addition, a closer examination of these studies reveals that they are not true learning studies because the subject already had the desired pronunciation in their linguistic repertoire (albeit at low levels) before self-

monitoring was introduced. What is needed is a study that clearly determines the independent and joint effects of self-monitoring and discrimination on the learning of a new pronunciation that is not in the subject's linguistic repertoire and that is what this dissertation research sought to accomplish.

Self-monitoring and second language learning. Although several researchers have reported that self-monitoring is a metacognitive strategy used primarily by more advanced second language learners (Huang & Van Naerssen, 1987; Naiman, Frolich, Stern & Todesco, 1978; O'Malley, Chamot, Stewner-Manzanares, Russo & Kupper, 1985a, Lambert, 1981; Gass, 1983), the majority of the studies relied on self-report data rather than experimental data and as such do not provide a clear conceptual framework for understanding how self-monitoring works or whether or not it is a significant mediating variable in the second language learning process.

The most well-known work on monitoring in second language research is the work of Krashen (1977). Krashen argues that monitoring is a conscious process in which the learner applies grammatical rules to language production. Krashen believes there is a difference between the acquisition and learning of a second language. Language acquisition is considered an unconscious process while learning is a conscious process. He views monitoring as a highly deliberate form of

processing and hence, can only be used during learning. Krashen (1977) identified three types of monitors: (1) over monitors who pay too much attention to rules and are inhibited in conversation; (2) under monitors who do it by "feel" and not by using conscious rules; and (3) optimal monitors who monitor effectively so that it does not interfere with natural conversation. Unfortunately, Krashen offers only anecdotal evidence to substantiate his observations.

Acton (1984) also mentions the importance of self-monitoring especially as it relates to "fossilized speakers" i.e., ESL learners who may be relatively fluent but quite inaccurate and whose pronunciation is often described as "highly resistant to change" (Selinker, 1972). Acton states that "fossilized learners generally find it necessary to do some type of conscious monitoring in order to be able to effect change in everyday conversation." (p. 76). Acton discusses two different types of monitoring: post hoc and kinesthetic monitoring. "In post-hoc monitoring, learners are taught to scan their speech after the fact, suppressing the urge to monitor sounds and structures, consciously, as they speak them. This tactic often helps learners to recall or notice mispronunciations. Kinesthetic monitoring involves teaching learners to monitor certain aspects of their speech based on the correct "feel" of the target sound and consciously ignoring the auditory input. This approach

seems especially effective in working with problems of word-final devoicing, where perception of the vibration of the vocal cords is, to a large extent, a matter of feeling that sensation in the throat and jaw area. Acton states that "there is a general principle here that is relevant in working with fossilized learners: the ear is often the last to know." (p. 83). This last remark suggests that for fossilized speakers, auditory discrimination may not be effective.

Because this dissertation focused on pronunciation change or the enhancement of one's pronunciation repertoire and because subjects in the study were second language and second dialect learners, the next section will review the research in pronunciation and second language learning.

Self-monitoring and pronunciation change. In reviewing the literature on pronunciation change and second language learning, one is again struck by the dearth of experimental studies focusing on different methods of improving pronunciation. Although voice and diction textbooks advocate certain methods for changing or enhancing pronunciation such as auditory discrimination (Gilbert 1984, 1992; Hahner, Sokoloff & Salisch (1990), and even self-monitoring (Berger, 1988), there are no experimental studies that test the effects of these methods. The next question of course is why? The answer is best understood from an historical perspective.

In a state of the art review, Morley (1991) concludes that the field of second language learning, in particular, English as a second language, has been in a quandary as to "whether pronunciation should (or can) be taught and if so, what should be taught and how." (p. 481). According to Morley (1991), during the 1940's, 1950's and 1960's, pronunciation was viewed as an important component of English language teaching curricula in both the audiolingual methodology developed in the U.S. and the British system of situational language teaching. Along with correct grammar, accuracy of pronunciation was a high-priority goal in both systems. Beginning in the 1970's and extending into the 1980's, a lot of questions were raised about pronunciation in the ESL curriculum. In sharp contrast to the previous period, there were questions about the importance of pronunciation as an instructional focus, and, most importantly, there were questions about whether or not it could be taught directly at all. Second language researchers were at a loss to explain individual differences in performance with respect to rates and ultimate levels of achievement in phonology. The effect was that increasing numbers of ESL programs "gave less and less time and explicit attention to pronunciation; and many programs dropped it entirely."(Morley, 1991, p. 485).

The elimination or reduction of the pronunciation component occurred amid growing dissatisfaction with many of

the principles and practices of the traditional approaches to teaching pronunciation. The familiar ways and means of teaching pronunciation no longer seemed appropriate as new pedagogical sights were set on "language functions, communicative competencies, task-based methodologies and realism and authenticity in learning activities and materials. Moreover, both the process and the product were seen as flawed. The process, viewed as meaningless noncommunicative drill and exercise gambits, lost its appeal; likewise, the product, that is the success ratio for the time and energy expended, was found wanting." (Morley, 1991, p. 486)

During this period, much of the research on second language pronunciation focused on factors that affect the attainment of native-like pronunciation. For example, the age factor remains an unresolved issue in second language acquisition research. Some studies have shown a biological advantage for younger learners (Sovel, 1969; Seliger, Krashen & Ladefoged, 1975), while others have shown no such advantage (Olson & Samuels, 1973; Snow & Hoefnagel-Hohle, 1977). Lowenthal and Bull (1984) suggest these contradictory findings reflect varying psychosocial conditions of the testing situations under which data were gathered in these studies. Research findings "suggest not a critical period of language development, but rather, that the way in which language is processed can

change throughout the course of development (Menyuk, 1978, p. 154). Other researchers focused on personality variables such as extroversion or sociability (Busch, 1982) . Leather (1983) and Macken and Ferguson (1981) suggest that the fact that pronunciation is intimately associated with a person's identity (and ethnicity) and suggest that this may explain why considerable individual variation is found in rates and ultimate levels of achievement in phonology. Other factors such as individual language aptitude (e.g. the ability to mimic sounds) has also been cited as a contributing factor. Of particular relevance to this dissertation is that Leather (1983) reports findings which support the view "that it is individual perceptual ability which remains the limiting factor in developing second language pronunciation" (p. 199). It would seem that a study that tested such an hypothesis would include training in auditory discrimination.

A review of research in second language pronunciation training revealed a number of prescriptive ("how to") articles advocating various pedagogical approaches--none of which included auditory discrimination or self-monitoring procedures (Hammerly, 1982; Morley, 1979; Stevick, 1978, 1982, Parish, 1977). In addition, these reports were not experimental in nature and consequently did not offer clear evidence of which pedagogical methods are effective and which are not.

Murakawa (1981), however, reported that a 12-week program of phonetic training can produce significant changes in the articulation of individual phonemes by Japanese adults learners of English; and similar results are reported by Pennington (1984) after six instructional sessions incorporating training in both articulation and listening discrimination. Unfortunately, neither study examined the effects of self-monitoring on pronunciation. In contrast, Suter (1976) found no positive effect for formal training on pronunciation; however, this was not an experimental investigation. Instead, Suter examined the predictors of pronunciation accuracy in second language learning through interviews and questionnaires. He sought to determine what facilitated accurate pronunciation among a group of 61 non-native speakers of English.

These non-native subjects were Arabic, Japanese, Persian and Thai speakers. By holding the number of language groups to four, he insured sufficient number of speakers in each category to make measurement of the native language and oral mimicry variables meaningful. Twenty variables believed to be related to pronunciation accuracy were examined. The English pronunciation of the non-native speakers was then rated under controlled conditions by a panel of 14 native English speaking judges. The variables which proved to be most strongly related to pronunciation accuracy were: (1) native language (how

different the native sound system was from the target language: English), (2) strength of the speaker's concern about his or her pronunciation, and (3) amount of conversation carried out at work and at school with native speakers of English. Among the variables found to have negligible relationships to pronunciation accuracy were: (1) amount of formal classroom training in the pronunciation of English, (2) extroversion, and (3) gender.

One of the most surprising findings was that the variables relating to classroom training demonstrated very little relationship to pronunication accuracy. The speakers who had more formal training dedicated specifically to the pronuniciation of English were not significantly better pronouncers ($r = .15$, $p = .12$). There are several tempering factors, however. For one thing, all the speakers in this study had undoubtedly received some degree of classroom training in pronunciation as part of their very early work in English, even though this training consisted of nothing more than repeating the abc's. In effect, this variable measured the relationship of much versus little training in pronunciation. The effects of some formal training in pronunciation versus none at all remains unknown. Suter states that "It is conceivable that a little formal training is essential for pronunciation accuracy, but that training beyond that point is simply unproductive"(p. 105).

Although the study did examine length of time in formal pronunciation training, there was no way to measure the quality of that training. It is certainly possible that the quality of training in pronunciation, if it could be measured, would demonstrate a significant relation to pronunciation accuracy. This represents a primary goal for this dissertation research.

A second limitation of Suter's study is that it did not define native-like pronunciation. For example, a non-native speaker may have a foreign accent yet be pronouncing a word accurately in terms of standard American English. For example, in the proposed research, subjects will be taught to pronounce the word asked using a standard pronunciation. A typical nonstandard pronunciation of this word is aksed in which the /s/ and /k/ are reversed. Whether or not a non-native speaker is using a standard or non-standard pronunciation, he would still be judged a non-native speaker by native speakers because of his/her foreign accent. Many standard native speakers of English have accents (Southern, New England, Midwestern, New York, etc.; most accents involve the lengthening or flattening of vowels).

Many researchers and practitioners advocate "The natural approach" i.e. that the learner will pick up the appropriate pronunciation through interaction with native speakers rather than through formal training. Unfortunately, such a model does

not consider the fact that vast numbers of non-native speakers arrive in the United States and live and interact in ethnic enclaves that require little or no knowledge of the host country's language. If they do interact with native speakers, such interaction may be brief (at school or at work) and rarely reinforced at home because the first language (or dialect) is usually spoken there (Wyatt, 1988). In addition, "The natural way" does not consider that those non-native speakers who learn English "on the street" and not in a classroom may acquire the nonstandard pronunciation of English instead of the standard because they may be what is "natural" in their community.

One of the hypotheses of this dissertation is that standard American English pronunciation is not "learned naturally" by nonstandard speakers and that there is a need for a specific type of intervention if learning is to occur. The results of this dissertation support that hypothesis.

Beginning in the mid-1980's and continuing into the 1990's, there has been a growing interest in revisiting the issue of pronunciation training in part because many researchers have expressed concerns about particular groups whose pronunication difficulties may place them at a professional or social disadvantage (Wong, 1986; Morley, 1987, 1988, Anderson-Hsieh, 1989, Celce-Murcia, 1991). Pennington and Richards (1986)

state, however, that this resurgence of interest in pronunciation training is not focused in an isolated, segmental way; but in a "top-down perspective of pronunciation that highlights the overarching role of context....and that many aspects of pronunciation are determined by the positioning of the elements within long stretches of speech, according to the information structure and the interactional context of the discourse as determined by speaker and hearer." (p. 208). They advocate that: "Pronunciation be taught as an integral part of oral language use, as part of the means for creating both referential and interactional meaning, not merely as an aspect of the oral production of words and sentences" (p. 219).

In summary, this literature review reveals that little is known about the reactive effects of self-monitoring on the pronunciation change of second language learners of English. We do know that self-monitoring is a metacognitive strategy used by more advanced second language learners. However, the majority of the studies in the second language literature are descriptive rather than experimental in nature (Huang & Van Naerssen, 1987; Naiman et al, 1978; O'Malley et al, 1985a and 1985b; Rubin, 1975).

Self-monitoring, discrimination and nonstandard English dialects. Although nonstandard dialects, in general, and Black Vernacular English, in particular, have been the subject of

intense inquiry over the past two decades, the focus of the work has been on the linguistic aspect of these dialects. Therefore, a great deal of attention has been placed on describing the differences in the morphological structure (grammar) and phonology (pronunciation) of these dialects (Burling, 1973; Dillard, 1973; Fasold & Wolfram, 1970; Labov, 1972, 1966; Wolfram, 1990). In terms of teaching a second dialect the most frequently recommended methodology is contrastive analysis (Allen, 1969; Wolfram and Fasold, 1974). This analysis is defined by Shaughnessy (1977) as "a technique developed in foreign-language training that uses a common analytical frame to describe the mother tongue and the target language at the points where differences between the two languages produce interference errors" (p. 156). Activities based on contrastive analysis teach features identified as different through drills in mimicry, repetition, substitution and discrimination. However, except for passing references to self-monitoring as a means to help nonstandard English speakers learn standard English (Berger, 1988; Lee, 1971), there were no experimental studies that focused on self-monitoring and nonstandard English pronunciation.

As for discrimination training, a number of scholars have suggested the need for discrimination training when teaching speakers of Black Vernacular English to speak or write Standard

American English (Feigenbaum, 1970; Johnson, 1979, Reed, 1983; Seymour & Ralabate, 1985; Smith, 1979; Stewart, 1970), but few scholars have actually tested such methods experimentally. Goldin (1967) reported success in changing nonstandard English pronunciation and grammar to standard English by having six year olds listen to tapes and discriminate the standard and nonstandard and then imitate standard English modeled in songs, poems and speaking games. The researcher used a pretest and posttest oral interview and reported that the experimental group exhibited significantly more examples of standard English pronunciation and grammar than the control group who were exposed to the "usual methods" (p. 4) of language instruction. Although this study provides some experimental evidence that discrimination training may enhance the learning of standard English, it is confounded with modeling and repetition drills, therefore, it is not clear what exactly is producing the effect. In addition, the researcher never describes the "usual method" of language instruction given to the control group. A study by Garvey and Baldwin (1969) examined the effects of discrimination training on the learning of standard English pronunciation and grammar by 24 fifth graders enrolled in two inner city schools in Baltimore. Subjects were 24 "Negro" children (6 males and 6 females from each school) who were randomly assigned to an experimental or

control group. The experimental group was given a six lesson, self-instructional program in standard English pronunciation (/sts/ final consonant cluster) and grammar programmed on a teaching machine called a Portable Laboratory System. Each section of the program consisted of three sequences: stimulus situation, a required response, and a response consequence (feedback). The stimulus situation included: an auditory sample, visual sample, and a combination (auditory and visual) sample accompanied by the same type of instructions, for example: a subject might be given an auditory sample with auditory instructions: "Say guests" (p.24); and then a visual sample with visual instructions: "Say the word: guests" (p. 24); and then an auditory and visual sample with auditory and visual instructions: "Listen: guests. What word did you hear (heard and seen): guess, guest, guests?" (p. 24). This auditory and visual combination appears to be the way in which the researchers operationalized discrimination training. The subject received feedback after each sample and had the option to reselect. The training was followed by a 14 part mastery posttest that reflected the pronunciation and grammar covered in the program. A 2 x 2 x 14 repeated measures analysis revealed that the experimental group did significantly better than the control group on the mastery test $F = 8.75$, df (1,20), $p < .01$. The only other significant effect was attributable to test

parts ($F = 4.62$, df (13,260), $p < .01$) and simply indicates that some parts of the test were more difficult than others for all 24 subjects but the ERIC document never revealed which test parts were most difficult. The researchers did report that subjects had more difficulty with the pronunciation segment and that the teaching machine responded to "any sound of sufficient intensity" (p. 28) so it is possible that subjects were not getting appropriate feedback during the training. They did, however, still outperform the control group (81% accurate versus 62% accurate). Unfortunately, the researchers did not pretest their subjects so we do not know if the subjects had the standard pronunciation and grammar in their repertoire prior to the study or whether they were already able to accurately discriminate and produce the standard pronunciation of the final consonant cluster /sts/. In addition, this field test was not designed to evaluate the effectiveness of the different methods (auditory, visual and combination samples and instructions) or the effects of receiving feedback and having the option of replaying samples and instructions. Therefore, although the results are encouraging, they must be interpreted cautiously. A later study by Baran and Seymour (1976) examined the assumption that minimal word pairs are perceptually difficult to differentiate when spoken in Black English. This assumption was examined relative to (1) Black children's performance in

differentiating the meanings of their own word pair production and those of other Blacks and Whites and (2) White children's performance in differentiating the meanings of word pairs produced by Black children. Subjects were 20 Black and 20 White five-year-old preschool children. Results indicate that perceptual errors were significantly greater for Whites listening to word pairs produced by Blacks than for Blacks listening to themselves, other Blacks, or Whites. In addition, Seymour & Ralabate (1985) argue that "productive mastery of the dialectical form may be dependent on mastery of discrimination and recognition skills. Such mastery may be evidenced by the ability to differentiate between two phonemes" (p.147). They also suggest that a "necessary precursor to style switching (bidelectilism) appears to be mastery of perceptual skills" (p. 147). This review suggests the need for discrimination training because nonstandard speakers of English may not discriminate the differences between standard and nonstandard English pronunciation without some form of intervention. In fact, a pilot study of this dissertation revealed that native and non-native speakers who were both Black and White were unable to determine whether they had used a standard or nonstandard pronunciation of the word <u>asked</u> when listening to themselves on tape. This review indicates that little is known about the

relationship between discrimination, self-monitoring, and the learning of standard English by nonstandard English speakers.

Self monitoring and auditory discrimination in second language learning. As the above literature review suggests, discrimination may play an important role in the acquistion of a second language. According to Yule, Hoffman and Damico (1988), "It is widely recognized that a crucial component in developing effective second language pronunciation is, in fact, the development of listening skills" (p. 765) which would be defined as auditory discrimination. Speech pathologists define auditory discrimination as "the ability to distinquish between closely related speech sounds" (Weiner, 1967, p. 19). Numerous textbooks dedicated to improving ESL pronunciation include a substantial number of exercises designed to ensure that the student, as listener, can first recognize the types of sound distinctions that are phonemic in English. As Prator and Robinett (1985) claim in the introduction to their pronunciation manual, the first step in learning to pronounce in a second language is "learning to hear and identify a sound or sound contrast when a native speaker produces it" (p. xvi). Positive effects of instruction on production or perception are also reported for training in prosodic (stress and intonation) features by Gilbert (1980), Neufeld and Schnederman (1980), de Bot (1983) and de Bot and Mailfert (1982). To develop this

perceptual ability, most pronunciation texts offer various types of phoneme discrimination exercises. The assumption is that the more often ESL learners can accurately identify the English sound contrasts presented, the more sensitive they will become to the basic elements in the English sound system. Taylor (1986) also argues that "it is necessary for a person to be able to label features of a dialect to acquire competence in reproducing those features" (p. 176)...."Labeling can sharpen awareness and facilitate discussions among learners about the nature of language and language differences. In addition the ability to recognize and contrast surface structure elements appears to facilitate the learning of new linguistic and communicative behaviors" (p. 176). In contrast, Acton (1984), argues that auditory discrimination may not be necessary when he says "....in fossilized speakers--those whose pronunciation is resistant to change--the ear is the last to know." (p. 73).

Although many speech therapy programs and voice and diction textbooks have been based on the supposition that there is a relationship between auditory discrimination and articulation defects, experimental findings have been regarded as equivocal (Powers, 1957). However, in a later review of the literature, Weiner asserts that "evidence does support the hypothesis of a link between auditory discrimination and articulation defects especially with children under the age of

nine" (p.20). Wepman (1960) provided an outline of auditory discrimination theory stating that "there is evidence that the more nearly alike two phonemes are in phonetic structure, the more likely they will be misinterpreted. Individuals differ in their ability to discriminate among sounds. The ability to discriminate frequently matures as late as the end of the child's eighth year. There is a strong positive relationship between slow development of auditory discrimination and inaccurate pronunciation. There is a positive relation between poor discrimination and poor reading. There is little if any relation between the development of auditory discrimination and intelligence as measured by most intelligence tests. Certainly the previously discussed studies by Goldin (1967) and Garvey and Baldwin (1969) on the use of discrimination training in teaching standard English to nonstandard speakers suggests the need for careful experimental study of discrimination training.

Weiner (1967) stated that an important question which has not been touched on is the relationship between the ability to distinquish sounds uttered by someone else (external model discrimination) to the ability to monitor one's own sound production errors, and the relation of both to articulatory proficiency. Aungst and Frick (1964) provided an excellent demonstration of the role of self-monitoring of errors,

unfortunately they did not allow for the appearance of the external model discrimination factor.

Yule, Damico and Hoffman (1986) were the first to examine the relation between external models of auditory discrimination and self-monitoring. In an attempt to explain why the performance of certain ESL students would deteriorate during auditory discrimination training, the investigators asked 67 ESL students to listen to 40 tape-recorded sentences (the external discrimination model). These sentences were structured so that either answer would make sense; and, therefore, subjects had to accurately discriminate what the model was saying. For example: We saw a very big (crowd/cloud). As each sentence was spoken, subjects had to circle what they thought the model said. The investigators introduced what they operationalized as a self-monitoring variable by asking subjects "How sure are you of the correctness of your answer?" Note that this is really a self-evaluation measure. Subjects were provided a three-point scale with 3, representing Very Sure and 1 representing Not Very Sure. This procedure was performed at the first session and after seven weeks of instruction in auditory discrimination.

The investigators reported that the results indicated three different groups of students: (1) a lower level group, in terms of initial test accuracy scores, who improved in their ability to

choose correct answers on a test but whose self-monitoring (self-evaluation) did not improve; (2) a middle group who actually regressed in accuracy scores but whose self-monitoring (self-evaluation) scores actually improved; and (3) a higher level group who showed only minor improvements in both accuracy and self-monitoring.

In a follow-up study using the same discrimination task, Yule, Damico & Hoffman (1988) defined self-monitoring as "the ability to know when an accurate identification was being made and to recognize when a distinction was not clear" (p. 113). Subjects were 56 adult, intermediate level ESL students enrolled in a pronunciation course using Prator and Robinett (1985) as the textbook. The dependent variables in this study were (a) percentage correct score and (b) a self-monitoring ability score calculated on the basis of the responses to the same type of scale described above. This self-monitoring score was calculated from the interaction of two sets of ratios. One dimension consists of the ratio of correct choices at confidence level 5 (then at 4, 3, 2 and 1) to total correct choices, and the other dimension is the ratio of incorrect choices at level 5 (then at 4, 3, 2, and 1) to total incorrect choices.

Subjects were divided into three groups according to the change in percentage correct score from T1 to T2. The three groups consisted of (1) those whose scores improved (2) those

whose scores decreased and (3) those whose scores remained the same after auditory discrimination training. The investigators report that subjects in Group 2 (those who showed a decrease) did in fact show an increase in self-monitoring ability during the same period. In addition, their percentage correct scores improved significantly from T2 to T3.

The results of this study are somewhat questionable given the way in which the authors have interpolated the raw data. However, the authors recognized the role of self-monitoring and state that: "the effect of standard pronunciaton course materials may not simply be the development of an ability to identify a sound or sound contrast in the second language. We suggest that there is a complex interaction over time between simply identifying a sound contrast and being confident that the identification is accurate. Although the level of accuracy achieved by this group of learners only averaged about 75%, that accuracy seemed to have a more solid basis in terms of the learner's self monitoring skills" (p. 114). The authors state that "These learners had developed a keener sense of and greater confidence in knowing when they were getting a particular English sound distinction correct and when they were still likely to be making a mistake" (p. 115).

This investigation by Yule, Damico and Hoffman (1988) certainly suggests the potential value of examining the

independent and joint effects of discrimination training and self-monitoring training on the pronunciation of nonstandard speakers of English and what effect such training would have on feelings of self-efficacy.

Summary

1. The review of the self-monitoring and academic achievement literature reveals a somewhat inconsistent picture. Although, self-monitoring has been shown to be an effective strategy in increasing academic achievement on a variety of academic tasks (Barling, 1980; Brown, 1975; Kirschenbaum & Karoly, 1977; Mahoney et. al., 1973; Morgan, 1985; Richards, 1975; Sagotsky et. al., 1978.; other studies showed self-monitoring to be less effective than self-determined standards (Barling, 1980), self-reinforcement (Barling, 1980); and criterion-setting (Spates & Kanfer, 1977).

It also appears that self-monitoring of sub-goals is more effective than self-monitoring of study time or distal goals (Morgan, 1983) and that self-monitoring of incorrect versus correct math answers results in decreased accuracy and persistence (Kirschenbaum & Karoly, 1977). In addition, task difficulty mitigates the reactive effects of self-monitoring (Kirschenbaum & Karoly, 1977).

More importantly, a critical analysis reveals that some studies that showed self-monitoring to be effective were confounded by external reinforcement (Brown, 1975) or external monitoring (Richards, 1975). Although Spates and Kanfer (1977) report that criterion-setting is more effective than self-monitoring, one must interpret these results cautiously in view

of the way in which the investigators operationalized self-monitoring. Such design limitations in the operationalization of independent variables (Richards, 1975) and the type of dependent variable measured (Richards, 1975) greatly affects one's interpretation of these findings.

2. The review of the self-monitoring and speech literature suggests that little is known about the effects of self-monitoring on the learning of new pronunciation. Only one study examined the effects of self-monitoring on pronunciation (Ruscello & Shelton, 1979) and unfortunately, the researchers combined self-monitoring with planning so that it is not clear what actually caused the effect. It should be noted also that subjects in this study already had the new (desired) pronunciation in their repertoire (albeit at low levels) prior to experimental treatment.

The remaining studies suggest that self-monitoring may be a powerful strategy for reducing stuttering, verbal disfluencies and enhancing the maintenance and transfer of speech therapy effects. However, one must interpret these findings with caution because of limitations in the experimental designs, i.e. confounds with decreases in speaking time, external monitoring, external reinforcement, and auditory discrimination. When external monitoring and external reinforcement are included in the experimental design, one

could argue that we are no longer talking about self-regulated learning.

In addition, these studies and those self-monitoring studies involving academic behavior such as time-on-task, out-of-seat behavior, etc. focused on socially desirable behaviors that the subjects already had in their repertoire or already knew how to perform. There is a difference between increasing a behavior already in the individual's repertoire versus learning a new behavior or response.

This dissertation study focused on subjects learning a new pronunciation that is not already in their repertoire and examined the effect of a self-directed system that is capable of producing the learning of a new response and not merely the increased performance of a known response. It is hypothesized that learning a new response is possible only when the standard for change is well understood and discriminated.

3. A review of the literature on <u>self-monitoring, discrimination training and nonstandard English dialects</u> revealed that most of the theorists and researchers focused on describing the morphological and phonological structure of Black Vernacular English and Southern nonstandard English. No empirical training studies of self-monitoring were found although a number of scholars mention self-monitoring as a learning technique (Berger, 1988; Lee, 1971; Walker, 1977). With

regard to discrimination, Baran and Seymour (1976) do report that nonstandard speakers have difficulty discriminating between standard and nonstandard English in their own and others' speech and suggest that discrimination training may play an important role in learning a standard English dialect. In addition, Goldin (1967) and Garvey and Baldwin (1969) report encouraging evidence that accurate discrimination may be an important step in the learning of standard English. Unfortunately, the results of these studies must be interpreted cautiously due to limitations in experimental design.

4. A review of the self-monitoring and discrimination training within the second language learning literature revealed that although numerous studies report that self-monitoring is a metacognitive strategy used by more advanced second language learners, all of the studies are descriptive rather than experimental studies and as such do not provide a clear conceptural framework for understanding how self-monitoring works or whether it is a significant mediating variable in the second language learning process.

There is some controversy as to whether or not auditory discrimination training is necessary in order to accurately pronounce in a second language, but there have been no experimental studies to test this hypothesis using second language learners. Although positive effects of instruction on

production or perception have been reported for training in prosodic (stress and intonation) features (Gilbert, 1980; Neufeld and Schneiderman, 1980; de Bot, 1983; and de Bot and Mailfert, 1982) and for phonetic training (Murakawa, 1981), these studies are descriptive rather than experimental and none of them examined the relation between discrimination and self-monitoring.

Weiner (1967) states that an important question which has not been touched on is the relationship between the ability to distinquish sounds uttered by someone else (external model discrimination) to the ability to monitor one's own sound production errors, and the relation of both to articulatory proficiency. Yule, Damico and Hoffman (1986; 1988) were the only researchers who examined the relationship between external models of discrimination and self-monitoring. Unfortunately, this was not an experimental study. Instead, the investigators asked subjects "How sure are you that you made the discrimination correctly?" In effect, subjects were asked to self-evaluate their auditory discriminations and not their own speech production. Hence, the question of the relationship between external discrimination and self-monitoring was still unanswered and, therefore, was tested experimentally in the present dissertation.

Purpose of the Study

The purpose of this study was to observe the independent and joint effects of discrimination and self-monitoring training on the learning of standard American English pronunciation by nonstandard speakers of English.

This study sought to provide information regarding whether self-evaluation is a separate subprocess from self-observation. One of the most important, yet least researched components of the self-regulation model is self-evaluation. This subprocess is emphasized in several cognitive-behavioral models (Bandura, 1986, Kanfer, 1970; Zimmerman, 1986). Self-evaluation involves a comparison between the individual's own performance and the performance criterion. It was hypothesized that this comparative process would be facilitated when the individual can specify the criterion toward which he or she strives and its discrepancy from his or her present performance. A behavioral manifestation of this comparative process is the ability to accurately discriminate between the wanted and unwanted performance. In most non-speech studies surveyed, this discrimination was quite easy, i.e. either you were sitting in your seat working or you were not; either the math problem was correct or it was not. However, discriminating between subtle pronunciation inflections can be

a daunting task. Pilot study data revealed that most of the students tested could not accurately discriminate between a standard and nonstandard pronunciation when listening to tape-recordings of their own speech. Discrimination training that assists the individual in "hearing" the desired sound may be an integral part of the puzzle. This study sought to determine if discrimination was a necessary precondition for self-monitoring. It was hypothesized that without accurate discrimination, self-recording of one's pronunciation would not improve learning (i.e. produce reactive effects) and would diminish self-efficacy when one realized his or her errors.

Finally, this study sought to add to the existing research on self-efficacy as a key intermediary variable in self-regulation. This study examined the relation between self-efficacy and the variables of self-monitoring, discrimination, and the learning of standard American English pronunciation.

The proposed research sought to answer to the following research questions:

1. Was discrimination training sufficient to learn the standard pronunciation of the word asked, and what are its effects on feelings of self-efficacy and measures of self-evaluation?

2. Was self-monitoring sufficient to learn the standard pronunciation of the word asked and what are its effects on feelings of self-efficacy and measures of self-evaluation?

3. What were the effects of combining discrimination training and self-monitoring training on learning the standard pronunciation of the word asked, and what are its combined effects on feelings of self-efficacy and measures of self-evaluation?

4. What were the independent and joint effects of self-monitoring and discrimination training on the accuracy of one's self-evaluations?

A Priori Hypotheses

H1 Subjects in the Discrimination and Self-Monitoring conditions will have higher scores on all dependent variables (i.e. standard pronunciation posttest, transfer test, self-efficacy, self-evaluation, accuracy, and self-repairs) than either the Practice Only (no discrimination and no self-monitoring) or No Treatment Control groups.

H2 Subjects in the two Self-Monitoring groups (Discrimination plus Self-Monitoring and Self-Monitoring Only) will have higher scores on all dependent variables than subjects in the two no-monitoring groups (Discrimination Only and Practice Only).

H3 Subjects in the two Discrimination groups (Discrimination plus Self-Monitoring and Discrimination Only) will have higher scores on all dependent variables than subjects in the two no discrimination training groups.

H4 Subjects in the Discrimination plus Self-Monitoring will have higher scores on all dependent variables than the Self-Monitoring Only and Discrimination Only groups.

CHAPTER 3

Methods

Subjects

Subjects were 80 undergraduate students enrolled in a remedial speech course at an urban community college who placed into this course based on their scores on the CUNY Reading Placement Test (DTLS). Subjects were then stratified by gender (33 males, 47 females) and language status (native and non-native speakers of nonstandard American English: 35 native, 45 non-native speakers) and randomly assigned to experimental conditions. (See Table 1 for the distribution of males, females and native, non-native speakers to experimental conditions.) According to the Director of Financial Aid at this college, 52% of the students receive some form of financial aid.

Design

A pretest-posttest design experiment (Campbell & Stanley, 1966) was employed using a 2 X 2 factorial design (self-monitoring and discrimination training) and a dangling control group. The four experimental conditions included: (1) Discrimination plus Self-Monitoring; (2) Self Monitoring Only (3) Discrimination Only; (4) Practice Only (no discrimination and no self-monitoring); and a No Treatment Control group. The experiment proceeded in four phases. Phase I was the selection

Table 1

Number of Subjects per Group by Gender and Language Status

	Native Speakers		Non-Native Speakers	
	Males	Females	Males	Females
Discrimination + Self-Monitoring	3	4	4	5
Self-Monitoring Only	3	4	3	6
Discrimination Only	2	4	3	7
Practice Only	4	4	4	4
No Treatment Control	3	4	4	5
Total	15	20	18	27

N = 80; n = 16 per cell

phase which varied according to each experimental condition, i.e. subjects in the Discrimination conditions received discrimination training; subjects in the Self-Monitoring conditions received training in self-recording. Phase III consisted of three practice trials and Phase IV was the posttest segment. Before providing a detailed explanation of each of the experimental phases and each training component, an understanding of the experimental task is essential.

Task

The task focused on the triple consonant cluster /skt/ embedded in the word asked. Although the word is spelled asked, the /ed/ is pronounced like a /t/ and, therefore, is considered a triple consonant cluster. There are a number of reasons why the word asked was chosen as the task for this experiment. First, the nonstandard English pronunciation of the word asked is a common and frequently occurring word yet is one of the most stigmatized forms of nonstandard English, especially when pronounced axed, (Bianchi, Bond, Kandler & Seidler, 1983; Smith, 1979). Second, the /skt/, triple consonant cluster is one of the most difficult to pronounce and change for nonstandard speakers (Berger, 1988,). Third, both native and non-native speakers of nonstandard English have difficulty pronouncing the word asked using a standard pronunciation.

Native speakers tend to say axed /æ kst/ which is referred to as a reversal, i.e. the /sk/ sound is reversed and pronounced /ks/; and non-native speakers tend to say /æ sk/ which is referred to as an omission i.e., they omit the /ed/; or they substitute the/id/ for the /ed/. The tendency to reverse, omit or substitute the sounds in this word, coupled with the automaticity of speech, make the standard pronunciation of the word asked a challenging and compelling experimental task.

One might question why this study would focus on only one word or one triple consonant cluster. It is a common practice in speech therapy and in second language and second dialect learning to concentrate on one particular phoneme at a time. As the literature review revealed, precedence exists in many experimental speech studies (e.g., Johnston & Johnston, 1972; Engel & Groth, 1976; Ingham, 1982; Koegel & Koegel, 1986; Koegel et. al., 1988; Ruscello & Shelton, 1979). Such a limited focus makes sense when one considers how hard one must concentrate in order to change a particular sound and then incorporate that sound into one's spontaneous conversation. Such an approach also makes sense from a self-monitoring viewpoint because it is extremely difficult to monitor more than one behavior at one time (Fixsen et. al., 1973).

Procedures

Phase 1. The Pretest involving the word asked was conducted in an audio-lingual speech lab equipped with individual tape recording and headset facilities. Students read aloud and recorded a pretest consisting of five written paragraphs with the word asked embedded 20 times. (See Appendix A). An initial sample of 151 students were tested, but only students who used a nonstandard pronunciation of the word asked at least 19 out of 20 times were allowed to participate in the study. (In fact, not one subject was able to pronounce the word asked using a standard pronunciation. Two subjects used the pronunciation assted (a degraded pronunciation that is used when speaking fast) and they only said this once and were allowed in the study.) The rationale for such a stringent criterion was that this was a learning experiment, and only students who did not have the standard pronunciation in their repertoire would be eligible to participate in the study.

Next, students were asked to listen to their own recordings of the pretest and circle on the paper every word they think they said using a nonstandard pronunciation. They were instructed to circle each word no matter how many times they mispronounced it. Only students who could not reliably discriminate when they were pronouncing the word asked using

a nonstandard pronunciation were eligible to be subjects in the study. The purpose of this discrimination pretest was to determine if subjects were able to discriminate between the standard and nonstandard pronunciation of the word asked. It is a major hypothesis of this study that self-evaluation is an important construct in self-regulated learning. Theoretically, one must be able to compare one's performance to some standard in order to self-evaluate effectively. Therefore, only subjects who are unable to reliably discriminate between the standard and nonstandard pronunciation of the word asked were allowed to participate. The pilot test revealed that a few subjects were able to guess correctly when they used a nonstandard pronunciation, yet this had no bearing on their subsequent performance. Thus a criterion of four correct discriminations was set (only subjects with four or fewer discriminations were allowed in the study). In order to control for possible speech pathology, audiology, or learning disability problems, all subjects filled out a questionnaire asking for a detailed history of such problems (See Appendix B). In order to eliminate any students with hearing problems, the experimenter read aloud the following sentence and asked students to write down what they heard: "I saw him last night and he asked me to go out". Next, subjects were asked to write down the following words exactly as they saw them on the

board: was, upper, lip, asked. This procedure controlled for any pronunciation problems that resulted from visual reversals. Only subjects who demonstrated absolutely no deficiencies on this test were allowed to participate in the study. It should be noted that such screening procedures are routinely done in all speech classes and are used to make referrals to LaGuardia's deaf program or learning disabilities program. Subjects were also asked to answer the following questions so that the sample could be appropriately stratified:
What is your first language? Do you speak another language? If yes, what language? Where were you born? Where did you grow up? A trained speech lab tutor acting as independent observer listened to 15% of all students (n = 151) who were tested, and 20% of those students picked to participate in the study. Each sample was randomly assigned, and inter-rater reliability was 100%.

Phase II. This phase consisted of the Discrimination training and/or Self-Monitoring training. Only subjects in those conditions participated in this phase of the experiment. The Discrimination training consisted of the following steps and was similar to other auditory discrimination procedures outlined in the literature (Hahner, Sokoloff, Salisch, 1990; Garvey & Baldwin, 1968) yet tailored to this particular task.

Step one. All subjects were told that the purpose of these exercises was to learn the standard pronunciation of the word asked. During the discrimination training, each subject was given aural and visual examples of the standard and nonstandard pronunciation of the word asked as outlined below:

1. asked /æskt/ Standard
2. aksed (axed) Nonstandard
3. ask (æsk) Nonstandard
4. ask...ed (a sk id) Nonstandard

Subjects learned that pronunciation 1 is considered standard American English; and numbers 2, 3 and 4 are considered nonstandard American English. Each of the above examples was segmented into individual phonemes and said aloud five times by the experimenter on videotape. In addition, subjects also had a poster they could refer to during the discrimination training.

Step two. Subjects were then asked to watch and listen to a videotape of the experimenter saying aloud three, 16 sentence discrimination sets (48 sentences in total) that varied the four types of pronunciation outlined above. (See Appendix C for a complete script of the videotape). After listening to each sentence, subjects were asked whether the speaker said number 1, 2, 3 or 4. It was believed that the discrimination training would be facilitated by having only the pronunciation

of the word asked change and not the speaker. Therefore, the experimenter was videotaped saying the sentences aloud, ensuring standardization across subjects and conditions.

Step Three: Subjects received immediate feedback from the experimenter on the accuracy of their discrimination. For example: Videotape: Tanya axed Ernnie to go shopping. The subject would then respond: #2 and the Experimenter would say: correct. Subjects had to reach 95% accuracy on each 16 sentence discrimination set before moving on to the next set of discrimination sentences. The pilot test revealed that some subjects were unable to accurately discriminate between two of the pronunciations. Therefore, the videotaped training included examples of each pronunciation and required subjects to determine if the pronunciation was the same or different. For example, asked-axed: was that the same or different? asked-asked: was that the same or different?) All subjects but one demonstrated 95% to 100% accuracy on the discrimination training trials and advanced to Phase III, the practice trial phase of the experiment.. As previously determined, any subject who was unable to reach 95% accuracy during either of the training phases would be replaced by another subject (This particular subject only evidenced 75% accuracy).

Two experts, a linguist and a speech pathologist, who have extensive experience with native and non-native speakers of

nonstandard English, viewed the discrimination training videotape in order to determine the validity of this training. Inter-rater reliability scores calculated prior to the beginning of the study indicated 100% agreement with each other and the videotape.

Subjects in the Self-Monitoring Only and the Practice Only groups were told on videotape: Today we are going to work on your pronunciation of the word asked. Listen very carefully to the standard pronunciation of the word: asked. They were not taught to discriminate between the standard and nonstandard pronunciations of the word.

Subjects in the Discrimination plus Self-Monitoring condition then proceeded to learn how to self-record. The Self-Monitoring training consisted of the following training steps and is congruent with other self-monitoring training procedures outlined in the literature (Mahoney, 1977) yet tailored to meet the needs of this particular learning task. (See Appendix D for a complete transcript of this training).

Step one. Subjects watched a videotape explaining what self-monitoring is and how it can help the student learn standard English pronunciation. Subjects were then told "We are going to work on your pronunciation of the word asked. Listen very carefully to the standard pronunciation of the word asked."

Step two. Subjects were then given the opportunity to practice self-recording. Each subject was given a data sheet (See Appendix D) and the following videotaped instructions: "At the signal, begin reading aloud each sentence on your data sheet. Remember to use the standard pronunciation of the word. After each sentence, say aloud whether you think you used a standard or nonstandard pronunciation." Subjects were then given feedback about the accuracy of their monitoring. Subjects were told the distinction between giving them feedback on their pronunciation versus their self-monitoring. For example, if they used a nonstandard pronunciation of the word asked and they monitored that it was nonstandard, they were told: "You monitored correctly." And if they used the standard pronunciation and said "Standard", they were told: "You monitored correctly." If they used the standard, but monitored it as nonstandard, or vice versa, they were told: "You monitored incorrectly". Subjects understood that this feedback did not mean that they were using the standard pronunciation but rather that they were monitoring accurately. Subjects were also told they could self-repair immediately if they knew they did not use the standard pronunciation. All subjects but one were trained to a 95% - 100% level of accuracy--that subject only achieved 50% accuracy and was replaced. It should be noted that if the experimenter could not understand what the

subject said, the subject was asked to repeat the sentence. All self-monitoring and discrimination training were audiotaped, and exercise sheets were placed in the subjects' files. In order to ensure that the training was carried out correctly, 25% or 8 of the subjects in the Self-Monitoring conditions audiotaped training sessions were listened to by two independent, trained observers. Inter-rater reliability was .86.

Phase III. This phase included three practice trials. All subjects but those in the No Treatment Control group participated in this phase of the experiment. Subjects were given brief instructions prior to each practice trial and told to use the standard English pronunciation of this word (pointed to the word asked). Once they understood the exercise by giving an example, they were told "Now that you understand the exercise, please answer this question at the top of the sheet." "How sure are you that you can use the standard American English pronunciation of the word asked?" This question measured self-efficacy (See Appendix E). Subjects were then told to speak loudly and clearly into the tape recorder and were left alone in a 10 x 11 room. When they completed the practice trial, they were told to hit "Stop" on the tape recorder, answer the self-evaluation question at the bottom of the page "How sure are you that you used the standard pronunciation of the word asked? (See Appendix E), and come out of the room and

notify the experimenter that they were finished. In Trial one, subjects were asked to read aloud a 20 sentence recitation drill (See Appendix E). Each sentence included the target word asked (e.g. Tanya asked Ernie to go to the movies.) During Trial two, subjects were provided with 20 different subject nouns (see Appendix F) and were asked to make up a sentence using that subject and the verb asked, (e.g. (l) the bus driver: The bus driver asked the man where he was going.) Trial Three consisted of a series of 20 questions that the subject had to answer. For example: What did the girl ask the priest? The girl asked the priest if he was hungry (See Appendix G). The exercises in Trials two and three were more cognitively complex because they required subjects to concentrate on both form (pronunciation) and content (make up a sensible sentence). Because such a task mimics the cognitive processes required in spontaneous conversation, it is closer to the ultimate goal of having the subject use the standard pronunciation in actual conversation. To ensure the cognitive complexity of the task, subjects were told they had to make up an entirely new sentence for each item in Trials 2 or 3, and that they were not allowed to use the same sentence or answer over and over.

During this self-regulating practice trials phase, the word asked was never modeled orally, and feedback on performance was not given to any of the subjects. All subjects were alone

when they were audiotaped. Subjects in the Self-Monitoring conditions, however, followed an important variation. In addition to saying all the exercises aloud, these subjects were told to say aloud whether they thought they used the standard or nonstandard pronunciation of the word asked. When they completed the first trial, they were instructed to rewind the audiotape and listen to themselves and then monitor the accuracy of their monitoring. For example, if they used the standard pronunciation and said standard, (or if they used the nonstandard and said nonstandard), they were to give themselves a check (✓). However, if they used the nonstandard and said standard (or vice versa), they were to give themselves an X. Subjects received no feedback from the experimenter at any time during the practice trials phase. This is perhaps the first experiment in which subjects have been asked to meta-monitor, i.e. monitor their own monitoring. Subjects in the Discrimination Only, Practice Only and No Treatment Control conditions merely recorded the exercises into a tape recorder. They did not self-monitor nor were they given the opportunity to listen to their performance.

Phase IV. This phase was the posttest segment of the experiment.

Measures

This study included the following dependent variables: (1) the number of standard pronunciations of the word asked on the pretest and posttests (2) the number of standard pronunciations on two transfer tasks (3) measures of self efficacy (4) measures of self-evaluation, and (5) measures of estimated accuracy on the posttest, near transfer and far transfer tests; and (6) measures of pronunciation self-repair.

Pronunciation measures. In order to measure if there were any treatment effects, all subjects were asked to read aloud and record a 20-item posttest which was a combination of the formats used during the practice trials phase of the experiment but an alternate form (for example, recitation of sentences, sentence production, and question answering). (See Appendix H). This study had to make a distinction between two standard pronunciations of the word asked. The pilot study revealed that if subjects learned a degraded standard pronunciation assted (used when speaking fast), they were unable to transfer the /skt/ to other words such as: masked, basked, risked, whisked. Therefore, this degraded standard version was not taught. However, if a subject used this degraded, non-stigmatized version during the practice trials and posttest, they would be given one point and two points for the full pronunciation, asked. (Please note: the full pronunciation,

asked, was the only one taught during the training, and the only model provided.)

Transfer measures. Subjects were asked to record two, 20 sentence exercises that represented a near and far transfer of the /skt/ sound to other words containing that sound. For example, the near transfer test consisted of 20 sentences (10 each) that contained the words masked and basked (Notice these words actually contain the word asked, see Appendix I). The far transfer task consisted of 20 sentences that contained the words risked and whisked (See Appendix J).

Self-efficacy measures. Self-efficacy was measured prior to each practice trial, prior to the pronunciation posttest, and prior to a hypothetical speech situation. Subjects were asked to indicate on a scale ranging from 10% to 100% exactly "How sure are you that you can pronounce the word asked using a standard English pronunciation during this exercise?" (See Appendices E, F and G). After completing all posttests, subjects were then asked "How sure are you that you can pronounce the word asked using a standard pronunciation when you are giving a speech to 30 strangers?" The same 10-point scale was used for this measure (See Appendix K).

Self-evaluation measures. Measures of self-evaluation were taken after each practice trial exercise and after the pronunciation posttest. Subjects were asked on a scale from

10% to 100%: "How sure are you that you used a standard pronunciation of the word asked on the above exercise?" The same 10-point scale described above was used (See Appendices E, F and G).

Accuracy measures. Estimated accuracy measures were taken for each group after the posttest and two transfer tests. After the pronunciation posttest, subjects were asked: "How many do you think you said using a standard pronunciation of the word asked out of the total of 20?" (See Appendix I). In the case of the two transfer tests, they were asked "How many times do you think you said the word masked using a standard American English pronunciation. The total was (10)." The same question was asked for basked, risked, and whisked. (See Appendices I and J). In order to determine the accuracy score, the actual score was subtracted from the estimated score yielding a difference score that reflected how accurately each subject estimated his or her performance. For example: if the estimated scores was 18 and the actual score was 20, then the accuracy score would be -2. Note that for the accuracy score on the pronunciation posttest, however, actual scores had to be interpolated because subjects had received one point for assted and 2 points for asked. Because subjects were asked how many they thought they said correctly out of a total of 20, the interpolated score gave 1 point for both assted and asked so that

the total actual score on the pronunciation posttest would not exceed 20 (Subjects were never taught asxed and did not know about the 2 points for asked).

Self-repair measures. One way to determine whether someone is covertly monitoring their pronunciation is by counting the number of self-repairs a subject manifests when saying the word asked. Self-repairs occur when a person says a word and then fixes it either in the middle of the utterance or immediately thereafter. For example, I ax...asked my brother; or I axed...asked my brother. The pilot test revealed that such self-repairs are quite common and easily measured from the subject's audiotape during the practice trials and posttest phases of the experiment. Subjects in the Self-Monitoring conditions were actually told that self-repairs were a form of self-monitoring and that they could self-repair their speech during the exercises.

Inter-rater reliability measures were calculated by training two independent observers to discriminate among the four pronunciations of the word asked (1 standard, and 3 nonstandard). The observers were two speech lab tutors who have extensive training in pronunciation. Each observer listened to the audiotapes of the pronunciation posttest and two transfer tests of 25% of the subjects randomly assigned from each of the five groups. Inter-rater reliability for the posttest was .99; for

the near transfer .99 and for the far transfer .99 on pronunciation; and .99 for self-repairs on the posttest.

Once subjects completed all posttests, subjects in the Self-Monitoring Only, Practice Only, and No Treatment Control Groups received effective treatment in order to ensure that all students learned the standard pronunciation of the word asked.

CHAPTER 4

Results

The first question concerned the comparability of the groups on the pretests, i.e. pronunciation, discrimination, and reading. Analysis of variance (ANOVA) revealed no significant differences among the groups: pronunciation pretest $F(4,75) = .25$ $p < .90$; discrimination pretest $F(4,75) = .84$, $p < .50$; and reading $F(4,75) = .93$ $p < .81$. Thus the random assignment of subjects to conditions succeeded in ensuring the comparability of the experimental groups. The group means and standard deviations for each pretest are presented in Table 2.

The second question to be answered was: Were there any significant treatment, gender or language (native, non-native speakers) main effects or interactions on any of the dependent variables? The results of a three way Analysis of Variance (Gender, Language, Treatment: 2 X 2 X 5) for each dependent variable are presented in Tables 3, 4 and 5. There was a significant main effect for Treatment but no significant main effect for Gender or Language, no signficant two-way interactions (Gender X Treatment, Gender X Language or Language X Treatment) nor any significant three way interactions (Gender X Language X Treatment) on any of the dependent variables. Therefore, there was no need to control for Gender or Language effects in subsequent analyses.

Table 2

Group Means and Standard Deviations for Pronunciation Pretest, Discrimination Pretest and Reading Scores

	Pronunciation Pretest		Discrimination Pretest		Reading Scores	
Group	M	STD	M	STD	M	STD.
Discrimination plus Self-Monitoring	.06	.25	.38	1.03	17.19	4.65
Self-Monitoring Only	.06	.25	.25	.58	18.06	4.06
Discrimination Only	.00	.00	.48	1.09	16.50	3.62
Practice Only	.06	.25	.13	.34	18.12	3.66
No Treatment Control	.06	.25	.69	1.25	17.50	5.20

Note. No significant difference among groups on any of these pretest scores.

n for each group = 16

N = 80

Table 3

Gender, Language and Group Effects for Pronunciation Posttest, Near Transfer and Far Transfer Scores.

		Dependent Variables					
Main Effects	df = 1,79 N = 80	Pronunciation Posttest		Near Transfer		Far Transfer	
		F	p	F	p	F	p
Treatment Group		25.74	.01*	9.10	.01*	10.82	.01*
Gender		.53	.47	.27	.61	.12	.73
Language		3.60	.06	.19	.66	.48	.49
Two Way Interactions							
Group x Gender		.70	.59	2.20	.08	1.16	.34
Group x Language		1.40	.25	.11	.98	.82	.52
Gender x Language		.14	.71	.28	.60	.30	.58
Three Way Interaction							
Gender x Language x Group		.094	.98	.05	.99	.49	.74

Note: * A significant group effect but no significant two way or three way interactions.

Table 4

Gender, Language and Group Effects for Self-Efficacy and Self-Evaluation Measures.

Main Effects (df = 1,79, N = 80)	Dependent Variables: Self-Efficacy (Post) F	p	Self-Efficacy (Strangers) F	p	Self-Evaluation F	p
Treatment Group	7.45	.01*	4.52	.003*	8.64	.01*
Gender	.006	.94	1.18	.28	.47	.49
Language	.29	.59	.02	.89	.16	.69
Two Way Interactions						
Group x Gender	1.62	.18	1.69	.16	2.16	.08
Group x Language	1.07	.38	1.08	.38	.64	.64
Gender x Language	.008	.93	.04	.84	.05	.83
Three Way Interaction						
Gender x Language x Group	1.04	.39	.44	.78	.12	.98

Note: * A significant group effect but no significant two way or three way interactions.

Table 5

Gender, Language and Group Effects for Self-Repair Scores and Estimated Accuracy

Scores on: Pronunciation Posttest, Near Transfer and Far Transfer Scores.

Main Effects* df = 1,79 N = 80	Dependent Variables							
	Self-Repair		Estimated Accuracy on: Posttest		Near Transfer		Far Transfer	
	F	p	F	p	F	p	F	p
Treatment Group	1.85	.13	31.71	.01*	8.89	.01*	5.87	.01*
Gender	.11	.75	.00	.99	1.15	.29	1.49	.23
Language	.21	.65	2.30	.14	.02	.88	1.75	.19
Two Way Interactions								
Group x Gender	1.53	.20	.46	.76	1.23	.31	.87	.49
Group x Language	.66	.62	2.42	.06	.74	.57	2.06	.09
Gender x Language	1.29	.26	.15	.70	.60	.44	.59	.45
Three Way Interaction								
Gender x Language x Group	1.03	.40	.19	.94	.41	.80	.32	.86

Note: *a significant group effect for all estimated accuracy measures but not for self-repair scores; No significant two way or three way interactions.

An Analysis of Variance on each dependent variable was performed and a priori hypotheses were tested by a one way analysis of variance (ANOVA). This experiment used a 2 X 2 factorial design with a dangling control. In order to ensure the integrity of the factorial design, group 4 (Practice Only) and group 5 (No Treatment Control) were compared to see if there were any significant differences between these groups on each of the dependent variables. As reported in Table 6, the results of t test comparisons indicate no significant differences between the two groups on all of the dependent variables except for the near Transfer test for pronunciation $t(30) = 2.01$, $p < .054$ and the near transfer test for Accuracy $t(30) = -2.45$, p .02. Because there were no significant differences between these groups, the Practice Only group was used in all factorial analyses except when analyzing the data for the near transfer pronunciation test and near transfer accuracy test. In this case, results were compared using Practice Only (Group 4) as well as a combined Group 4 and Group 5 (No Treatment Control). It should be noted that when groups 4 and 5 were combined, they produced some similar results, however, there were some differences that will be discussed.

The results of the Analysis of Variance for the pronunciation posttest, near transfer test and far transfer test.

Table 6

T Test Results for Comparison of Practice Only and No Treatment Control Groups

Dependent Variable	t value	p
df = 30 n = 32		
Posttest	.58	.56
Near Transfer	2.01	.05*
Far Transfer	-1.82	.07
Grandpost	-.89	.38
Self-Efficacy (post)	.41	.69
Self-Efficacy (strangers)	-.44	.67
Self-Evaluation (post)	.50	.62
Self-Repair	.90	.37
Accuracy on Posttest	-1.19	.24
Accuracy on Near Transfer	-2.45	.02*
Accuracy on Far Transfer	-.32	.75
Accuracy on Grandpost	-1.51	.14

Note. All probabilities are two-tailed

indicate a significant main effect for Discrimination on the posttest, $F(1,63) = 34.61$, $p < .01$; near transfer test, $F(1,63) = 14.11$, $p < .01$; and far transfer test, $F(1,63) = 26.67$, $p < .001$; a significant main effect for Self-Monitoring on the posttest, $F(1,63) = 28.87$, $p < .01$; near transfer test, $F(1,63) = 5.84$, $p < .02$; and far transfer test, $F(1,63) = 8.51$, $p < .005$; and no significant interaction effect for the postttest, $F = 2.43$, $p < .12$; near transfer test, $F = .63$, $p < .43$; and far transfer test, $F = .97$, $p < .32$. Results are the same when groups 4 and 5 are combined. The means and standard deviations for each group on the pretest, posttest, near transfer, and far transfer tests are reported in Table 7.

Because of the significant correlations between the pronunciation posttest, the near transfer test (.74), and the far transfer test (.72); and the signficiant corrrelations between the near and far transfer tests (.83), these scores were combined into a single score and then an analysis of variance was run. Not surprisingly, the results were similar: a significant main effect for Discrimination, $F(1,63) = 33.29$, $p < .01$; a significant main effect for Self-Monitoring $F(1,63) = 19.84$, $p < .01$; and no significant interaction effect $F(1,63) = .10$, $p < .75$). The results of an analysis of variance on the self-efficacy measure (at posttest) and a separate ANOVA on the self-

Table 7

Group Means and Standard Deviations on Pronunciation Posttest, Near Transfer, and Far Transfer Scores.

Group	Posttest Mean	Posttest Std.	Near Transfer Mean	Near Transfer Std.	Far Transfer Mean	Far Transfer Std.
Discrimination plus Self-Monitoring	35.88	5.71	11.50	8.40	13.25	6.54
Self-Monitoring Only	13.06	16.28	6.25	8.95	6.63	7.56
Discrimination Only	14.63	17.20	8.63	7.03	10.19	7.77
Practice Only	1.38	2.75	.56	.96	.44	.73
No Treatment Control	.98	1.18	.06	.25	2.88	5.30

Note. Maximum score on posttest = 40;

efficacy measure (in front of 30 strangers) revealed a significant main effect for Discrimination, for the self-efficacy (posttest), $F(1,63) = 24.32$, $p < .01$; and for the self-efficacy (strangers) $F(1.63) = 15.21$, $p < .001$; but no significant main effect for Self-Monitoring on either the self-efficacy (posttest), $F(1,63) = 1.57$, $p < .21$ or self-efficacy (strangers), $F(1,63) = 1.01$, $p < .31$. However, there was a signficant interaction effect for self-efficacy (posttest) $F(1,63) = 5.90$, $p < .02$ and for self-efficacy (strangers), $F(1,63) = 4.05$, $p < .049$. In addition, an analysis of variance of the self-evaluation measure (at posttest) revealed similar results: a significant main effect for Discrimination $F(1,63) = 24.32$, $p < .001$; no main effect for Self-Monitoring, $F = 1.91$, $p < .17$); and a significant interaction effect $F = 9.55$, $p < .003$. The means and standard deviations of each group on the self-efficacy (post), self-efficacy (strangers), and self-evaluation (post) measures are reported in Table 8. In addition, Figure 1 highlights the interaction effect for self-efficacy (post) and this interaction is similar for self-efficacy (strangers) and self-evaluation (post) (See Figure 2). As Table 8 reveals, subjects in the combined training (Discrimination + Self-Monitoring) and Discrimination only training had similar self-efficacy and self-evaluation scores (self efficacy (post) $M = 79.37$, $M = 74.37$ respectively; self-efficacy (strangers) $M = 75$;

Table 8

Group Means and Standard Deviations of Self-Efficacy and Self-Evaluation Scores.

Group	Self-Efficacy (Posttest)		Self-Efficacy (Strangers)		Self-Evaluation (Posttest)	
Group	Mean %	Std.	Mean %	Std.	Mean	Std.
Discrimination Plus Self-Monitoring	79.37	12.36	75.00	18.97	82.50	14.83
Self-Monitoring Only	48.12	25.09	45.62	27.31	44.37	28.74
Discrimination Only	74.37	15.47	70.00	16.73	74.37	13.15
Practice Only	63.75	11.47	60.62	13.88	65.62	15.04
No Treatment Control	61.25	21.56	63.75	25.00	62.50	20.16

Note: Significant effect for Discrimination but not for Self-Monitoring. However, there was a significant interaction effect for all these measures.

Figure 1

Interaction Effect for Self-Efficacy at Posttest

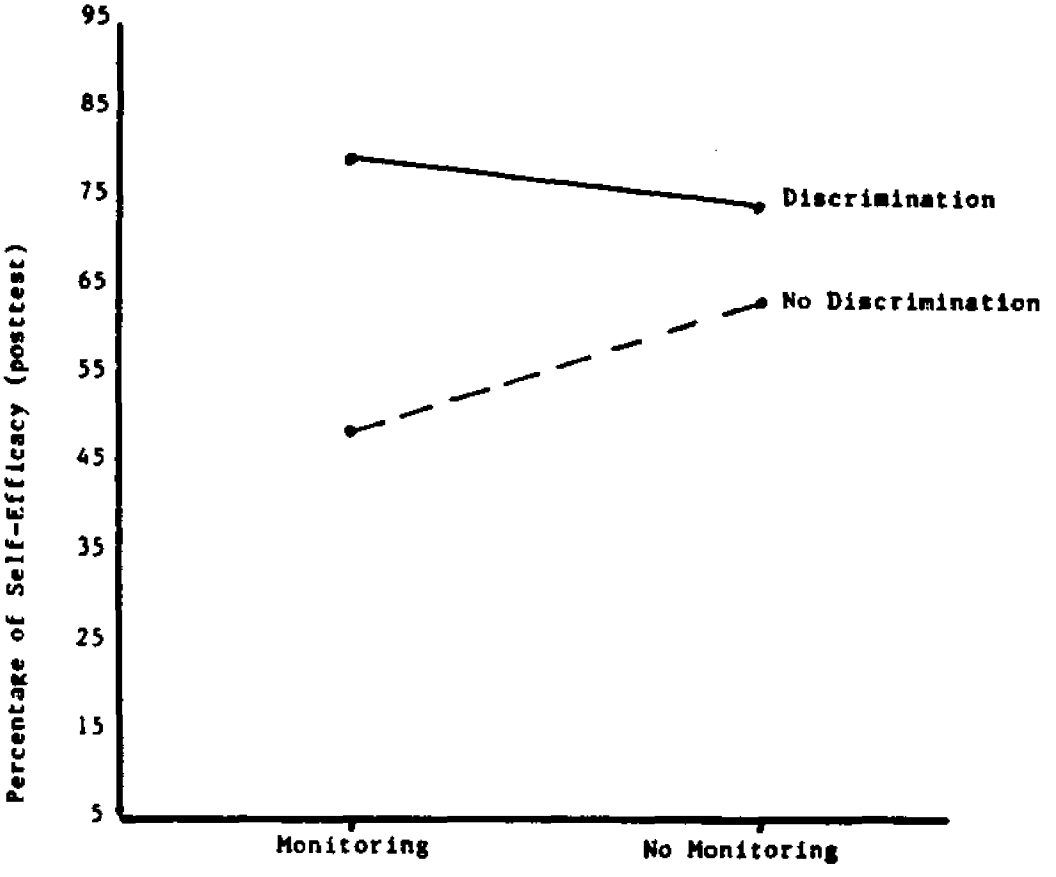
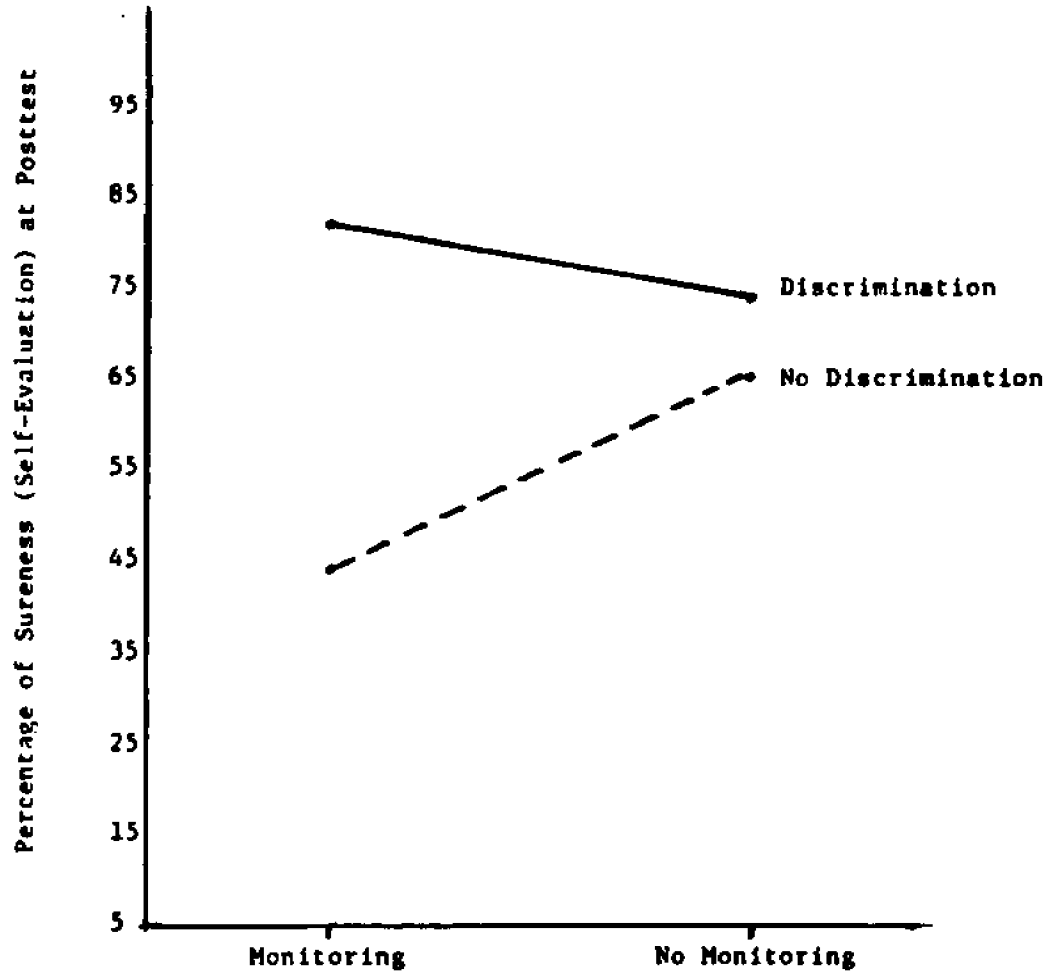


Figure 2

Interaction Effect for Self-Evaluation at Posttest



M = 70; self-evaluation (post) M = 82.5, M = 74.3). However, subjects in the Self-Monitoring Only group had much lower scores, (self-efficacy (post) M = 45.6; self-efficacy (strangers) M = 45.6; self-evaluation (post) M = 44.3) than even the Practice Only (self-efficacy (post) M = 63.7; self-efficacy (strangers) M = 60.6; self-evaluation (post) M = 65.6). This interaction can best be understood in conjunction with subjects' accuracy scores and a review of the procedures followed in the Self-Monitoring Only group and the Practice Only group which will be explained in the Discussion section.

As reported in Table 9, Pearson r correlations between self-efficacy (post) and pronunciation posttest, near transfer and far transfer scores are all significant as are the correlations between the self-evaluation (post) scores and pronunciation posttest, near transfer and far transfer scores. Conversely, there are no significant correlations between self-efficacy (post) scores and accuracy on posttest, accuracy on near transfer and accuracy on far transfer; nor on self-evaluation (post) scores and accuracy scores on the posttest, near transfer or far transfer (See Table 10 for all accuracy correlations).

An analysis of variance on self-repair scores indicated no significant main effects for Discrimination, $F(1,63) = .20$, $p < .65$; but one that was significant for Self-Monitoring $F = 3.89$, $p <$

Table 9

Intercorrelations between Self-Efficacy and Self-Evaluation Scores and Pronunciation Posttest, Near Transfer and Far Transfer Scores.

Dependent Variable	Posttest	Near Transfer	Far Transfer
Self Efficacy (Posttest)	.37**	.35**	.29*
Self- Evaluation (Posttest)	.45**	.39**	.32*

Note: ** significant at the $p < .01$
* significant at the $p < .05$

Table 10

Intercorrelations between Self-Efficacy, Self-Evaluation Measures and Estimated Accuracy Scores.

	Estimated Accuracy on:		
Measures	Posttest	Near Transfer	Far Transfer
Self-Efficacy (Post)	.07	.07	.005
Self-Evaluation (Post)	.07	.06	.14

Note: No significant correlations between self-efficacy and self-evaluation scores and any of the estimated accuracy scores.

.058. There was no interaction effect, F = .04, $p < .08$. Group means and standard deviations are reported Table 11.

An analysis of variance of the estimated accuracy scores for the postest revealed a significant main effect for Discrimination, F(1,63) = 7.99, $p < .006$; a significant main effect for Self-Monitoring, F(1,63) = 69.46, $p < .01$; and no significant interaction effect, F(1,63) = .34, $p < .56$). An analysis of variance that combined Groups 4 and 5 revealed the same results: a significant main effect for Discrimination, F(1,79) = 13.68, $p < .01$; a significant main effect for Discrimination, F (1,79) = 13.68, a significant main effect for Self-Monitoring, F = 96.43, $p < .05$; and no significant interaction effect, F = 1.09, $p < .29$.

An ANOVA of the estimated accuracy scores for the near Transfer test revealed a significant main effect for Self-Monitoring, (1,63)= 11.57, $p < .01$; no significant main effect for Discrimination, F = .66, $p < .41$; and no significant interaction effect, F = 1.40, $p < .24$. Because Groups 4 and 5 (Practice Only and No Treatment Control) were significantly different on this score, an analysis of variance combining both groups was done, and the results were somewhat similar for accuracy on the near Transfer test: a significant main effect for Self-Monitoring F(1,79) = 22.53 $p < .01$; and no significant main effect for

Discrimination, $F = 3.41$, $p < .06$. However, the interaction effect was marginally significant, $F = 3.83$, $p > .054$.

The ANOVA of the estimated accuracy scores for the far Transfer test revealed a significant main effect for Self-Monitoring, $F(1,63) = 12.23$, $p < .01$; no significant main effect for Discrimination, $F = 1.45$, $p < .23$; and no significant interaction, $F = 2.44$, $p < .12$. Group means and standard deviations for the accuracy measures on the posttest, near transfer and far transfer tests are reported in Table 12. In addition, Figure 3 highlights the marginal interaction effect revealed when groups 4 and 5 were combined.

Table 11

Group Means and Standard Deviations for Self-Repair Scores at Posttest

Group	Self-Repair Mean	Std.
Discrimination plus Self-Monitoring	1.75	2.23
Self-Monitoring Only	2.06	2.64
Discrimination Only	.88	1.14
Practice Only	1.00	1.46
No Treatment Control	.63	.81

Note. A significant effect for Self-Monitoring only.

Insert: This was not a surprising finding given the fact that this was part of the Self-Monitoring Training. What is interesting is that it appears that all subjects were self-repairing to some extent (i.e. self-monitoring) regardless of the group they were assigned to.

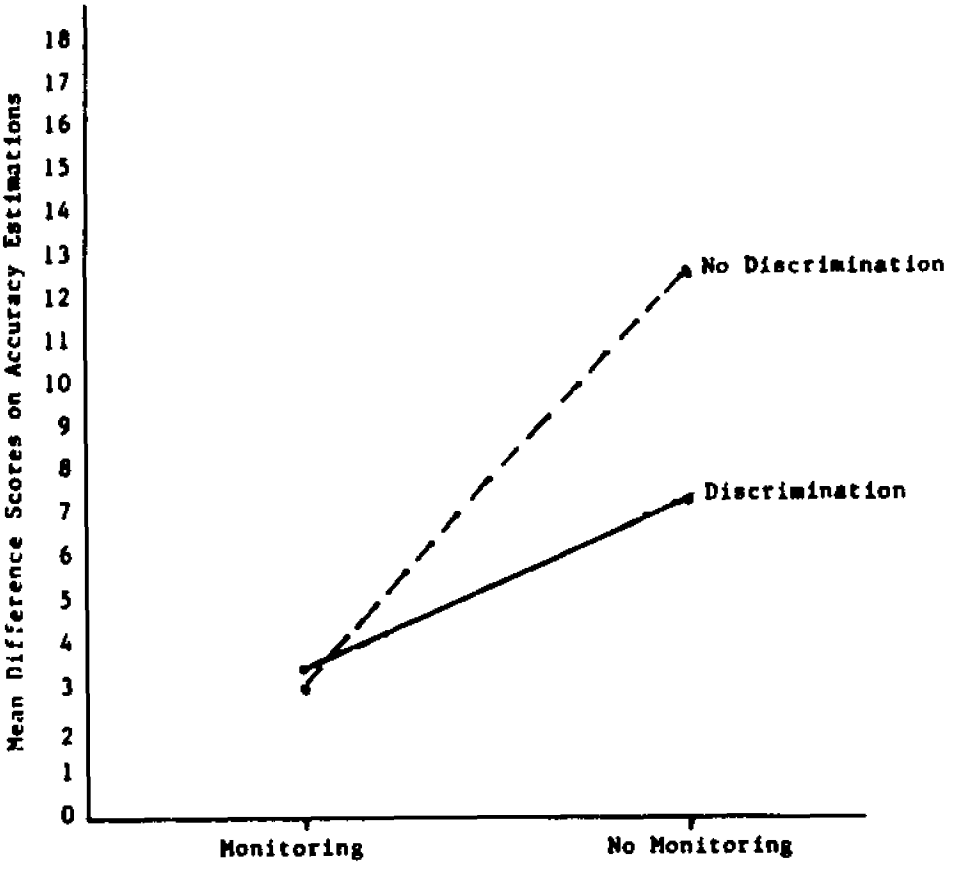
Table 12

Group Means and Standard Deviations for Accuracy Measures on: Posttest, Near Transfer, and Far Transfer

Group	Accuracy Measures					
	Posttest		Near Transfer		Far Transfer	
	Mean	Std.	Mean	Std.	Mean	Std.
Discrimination Plus Self-Monitoring	-2.69	2.80	3.63	9.05	2.81	7.98
Self-Monitoring Only	.19	3.51	3.00	5.62	2.25	3.00
Discrimination Only	7.25	8.01	7.38	7.23	5.88	8.07
Practice Only	11.63	4.57	10.75	4.14	10.25	4.74
No Treatment Control	13.50	4.34	14.69	4.91	11.00	8.19

Figure 3

Interaction effect on Accuracy Measures for Near Transfer Test when scores for Practice Only and No Treatment Control are combined.



Note: Interaction is only evident when Practice Only and No Treatment Control groups are combined in ANOVA. Mean for combined groups = 12.75

Tests of a priori hypotheses

Hypothesis One predicted that the discrimination and self-monitoring treatment conditions would have higher scores on all the dependent variables: pronunciation posttest, near transfer test, far transfer test, self-efficacy at posttest, self-efficacy for strangers, self-evaluation at posttest, self-repair, and accuracy on posttest, near transfer and far transfer. In order to test for these specific a priori hypotheses, a one-way analysis of variance was performed. The results indicate that there was a significant difference among the groups for all dependent variables except self-repair. More specifically, Hypothesis One predicted that the treatment groups would outperform the Practice Only and No Treatment Control groups. This prediction was realized on the pronunciation posttest $t(75)$, $= 7.99$, $p < .01$; near transfer test $t(75) = 5.86$, $p < .01$; far transfer test $t(75) = 5.96$, $p < .01$; accuracy on posttest, $t(75) = -9.66$, $p < .01$; accuracy on near transfer $t(75) = -5.48$, $p < .01$; accuracy on far transfer $t(75) = -4.54$, $p < .01$. However, there was no such effect for self-efficacy (post), $t(75) = 1.17$, $p < .25$; self-efficacy (strangers) $t(75) = .283$, $p < .79$; self-evaluation (post) $t(75) = .688$, $p < .49$; or self-repair measures $t(75) = 1.83$, $p < .07$.

Hypothesis Two predicted that subjects in the two Self-Monitoring groups would have higher scores on all dependent variables than subjects in the no Self-Monitoring conditions. The a priori test of this hypothesis using an analysis of variance (ANOVA) revealed a significant effect for Self-Monitoring on the following dependent variables: pronunciation posttest, $t(75) = 6.00$, $p < .01$; near transfer, $t(75) = 2.70$, $p < .009$; far transfer, $t(75) = 3.01$, $p < .004$; and self-repair, $t(75) = 2.16$, $p < .034$. Of interest is the fact that there was a signficant effect for Self-Monitoring on all the accuracy scores, however, the scores were negative because the Self-Monitoring groups were more accurate than the no Self-Monitoring groups and hence the differences between their actual and estimated scores were lower: accuracy on posttest, $t(75) = -8.58$, $p < .01$; accuracy on near transfer, $t(75) = -3.58$, $p < .001$; accuracy on far transfer, $t(75) = -3.28$, $p < .002$. There was no significant effect for Self-Monitoring on self-efficacy (post), $t(75) = -1.81$, $p < .24$; self-efficacy (strangers), $t(75) = -.953$, $p < .34$; and self-evaluation (post), $t(75) = -1.36$, $p < .18$. (However, it will be recalled from the previous reported results that there was a significant interaction effect on these three measures.)

Hypotheses Three predicted that subjects in the two discrimination groups would have higher scores on all dependent variables than subjects in the two no-discrimination

training groups. The results of the a priori testing of this hypothesis using an analysis of variance (ANOVA) revealed a significant effect for discrimination on the following dependent variables: pronunciation posttest, $t(75) = 6.57$, $p < .01$; near transfer, $t(75) = 4.20$, $p < .01$; far transfer $t(75) = 5.33$, $p < .01$; self-efficacy (post), $t(75) = 4.66$, $p < .01$; self-efficacy (strangers), $t(75) = 3.69$, $p < .01$; self-evaluation (post), $t(75) = 4.87$, $p < .01$; accuracy on posttest, $t(34.8) = -2.91$, $p < .005$. There was no significant effect for discrimination on self-repair, $t(75) = -.49$, $p < .63$; accuracy on near transfer, $t(75) = -.855$, $p < .40$; and accuracy on far transfer, $t(75) = -1.13$, $p < .26$.

Hypothesis four predicted that subjects in the Discrimination plus Self-Monitoring condition would have higher scores on all dependent variables when compared to the Self-Monitoring Only and Discrimination Only conditions. The results of the a priori tests reveal that this prediction was true for the following dependent variables: pronunciation posttest, $t(75) = 6.55$, $p < .01$; near transfer $t(75) = 2.09$, $p < .04$; far transfer, $t(75) = 2.57$, $p < .012$; self-efficacy (post), $t(75) = 3.29$, $p < .002$; self-efficacy (strangers), $t(75) = 2.67$; $p < .009$; self-evaluation (post), $t(75) = 3.92$, $p < .01$; accuracy on post, $t(75) = -4.20$, $p < .01$. However, the Discrimination plus Self-Monitoring group demonstrated no such significance difference on self-

repair, $t(75) = .51$, $p < .61$; accuracy on near transfer, $t(75) = -.793$, $p < .43$; and accuracy on far transfer, $t(75) = -.61$, $p < .58$.

CHAPTER 5

Discussion

The purpose of this study was to examine the independent and joint effects of discrimination training and self-monitoring training on: (1) the learning of standard American English pronunciation by nonstandard speakers of English; (2) feelings of self-efficacy and self-evaluation; and (3) the accuracy of one's self-evaluations.

Treatment effect on pronunciation.

The results clearly indicate that discrimination training and self-monitoring training (either jointly or independently) had a significant effect on students' learning of the standard English pronunciation of the word, asked, when compared to students who merely practiced or who did not receive any treatment. In addition, students in the treatment groups transferred this learning to new words containing the /skt/ consonant cluster, i.e. masked, basked (near transfer) and risked, whisked (far transfer) more effectively than subjects in the Practice Only and No Treatment Control groups. More importantly, subjects who received both treatments, (first, they were taught to accurately discriminate between the standard and nonstandard pronunciations of the word asked; then, they were taught to self-monitor their own pronunciation of this word), were significantly more successful in learning the

standard pronunciation, and in transferring that learning to both a near transfer task (masked, basked) and a far transfer task (risked, whisked) than subjects who received the treatments independently.

Treatment effect on feelings of self-efficacy.

The results clearly indicate that only subjects who received discrimination training independently or in conjunction with self-monitoring training felt significantly more efficacious prior to taking the posttest and when asked about a hypothetical situation in front of 30 strangers. In addition, these same subjects were significantly more sure of how they had performed after they took the posttest. One of the most interesting findings is that subjects who received self-monitoring training alone reported significantly lower feelings of self-efficacy and self-evaluation than even the Practice Only and No Treatment Control groups; whereas subjects who received both discrimination training and self-monitoring training reported significantly higher feelings of self-efficacy and self-evaluation. In either case, it appears that subjects were self-reacting to their own performance. This interaction effect (See Figures 1 and 2) was evident on both self-efficacy scores (post and strangers) and on the self-evaluation (post) scores and can best be understood in conjunction with subjects' accuracy scores and by reviewing the procedures followed for

the Self-Monitoring Only and Practice Only groups. As may be recalled, subjects in both the Self-Monitoring Only conditions and Practice Only conditions received two examples of the standard American English pronunciation of the word asked on videotape. The Practice Only group was then instructed to take part in the Practice Trials, whereas the Self-Monitoring Only group was taught how to self-monitor and then did the Practice Trials. Measures of self-efficacy were taken prior to each Practice Trial, prior to the posttest and after the far transfer test (strangers). Self-evaluation measures were taken after each Practice Trial and after the posttest. Part of the self-monitoring training required the subject to say a sentence aloud and then tell whether or not he/she used the standard or nonstandard pronunciation. If the person monitored correctly, the experimenter said, "You monitored correctly"; if the person monitored incorrectly, the experimenter said "You monitored incorrectly." In either case, the subject could easily determine whether or not he or she was using a standard or nonstandard pronunciation. At no time was the subject's pronunciation corrected by the experimenter, nor was the subject given further models of the standard pronunciation. They were taught to self-observe only. Consequently, subjects in the Self-Monitoring Only condition were aware when they were or were not using the standard pronunciation. This was not the case

with subjects in the Practice Only condition which may explain why their feelings of self-efficacy were higher. It should be noted that some subjects in the Self-Monitoring Only condition experienced tremendous frustration during the training phase when they were aware that they were not saying asked using a standard pronunciation and the experimenter could not provide an additional example of the standard pronunciation, etc. It does demonstrate, however, that telling someone to observe their behavior without teaching them to discriminate between the standard and nonstandard can have a negative effect on one's self-efficacy and one's self-evaluation of one's performance. Anecdotal observations suggest that some subjects gave up after the initial round of self-monitoring training and resigned themselves to the fact that they could not use the standard pronunciation but could monitor accurately, while others persisted in trying to say the standard pronunciation--and for some--their persistence paid off.) Subjects in the Discrimination plus Self-Monitoring group, on the other hand, reported significantly higher feelings of self-efficacy and self-evaluation because they had learned to discriminate among the different pronunciations of the word asked and when they received feedback on whether they were monitoring correctly were able to self-correct their performance.

Treatment effect on estimated accuracy measures.

Subjects in all groups were asked to estimate how many (out of a possible 20) they think they said accurately using a standard English pronunciation after they took the posttest, near transfer, and far transfer tests. The actual score was subtracted from the estimated score yielding a difference or accuracy score that reflected how accurately each subject estimated his/her performance. The results indicate that the treatment groups were significantly more accurate in their estimates than the Practice Only and No Treatment Control groups. Although subjects in the Discrimination plus Self-Monitoring condition were significantly more accurate than the Discrimination Only and Self-Monitoring Only groups on the posttest, this was not true on the near transfer or far transfer tests. These same results were mirrored for the Discrimination conditions; however, subjects in the Self-Monitoring Only condition were significantly different from the Discrimination Only and Practice Only groups on all three measures: posttest, near transfer and far transfer suggesting that the Self-Monitoring Only subjects knew they did not know how to say: masked, basked, risked and whisked. The fact that the Self-Monitoring Only group was more accurate on all three measures may offer further insight into the reason for the interaction

effect on the self-efficacy and self-evaluation measures for subjects in this group--they obviously knew the limits of their capability, whereas those who only had discrimination training did not.

These findings are important because they provide evidence that self-evaluation is a distinct subprocess from self-observation. Self-evaluation involves a comparison between the individual's own performance and the performance criterion. It was hypothesized that this comparative process would be faciliated when the individual could specify the criterion toward which he or she was striving and its discrepancy from his or her present performance. A behavioral manifestation of this comparative process is the ability to accurately discriminate between the wanted and unwanted performance. Discriminations between subtle pronunciation inflections can be a daunting task, and subjects in this study were pretested to ensure that they could not discriminate among these sounds to any reliable degree.

This study sought to determine if discrimination was a necessary precondition for self-monitoring, and it was hypothesized that without accurate discrimination, self-recording of one's pronunciation would not improve learning (i.e. produce reactive effects) and would diminish self-efficacy when one realized his or her error. Although subjects in the

Discrimination Only and Self-Monitoring Only conditions did show significant changes in pronunciation, the fact that the combined condition was significantly more effective suggests that discrimination is an important precursor that facilitates or enhances self-monitoring. In addition, the results indicate that subjects in the Discrimination plus Self-Monitoring condition and the Discrimination Only conditions reported significantly higher feelings of self-efficacy and self-evaluation when compared to subjects in the Practice Only and No Treatment Control groups. The fact that there was an interaction effect indicates that subjects who only received self-monitoring training had lower self-efficacy because they were sure that they did not know how to say asked using a standard American English pronunciation. However, when they received discrimination training prior to learning self-monitoring, they not only outperformed all other subjects, but their self-efficacy on the posttest and for a hypothetical speech in front of 30 strangers was significantly enhanced even when compared to those subjects receiving Discrimination training only.

There is some question in the literature about the effect of self-monitoring accuracy on students' reactivity. Although this study suggests that subjects in the Discrimination Only and Self-Monitoring only groups were significantly more accurate when compared to the Practice Only and No Treatment Control groups,

that accuracy did not produce the greatest amount of reactive effects (i.e. changes in pronunciation). The results clearly indicate that discrimination training when combined with self-monitoring produced the most significant reactive effects. The fact that self-monitoring alone did produce reactive effects (changes in pronunciation in the desired direction) does provide some support for the behavioral view of self-observation; however, the results indicate that discrimination training plays an even more significant role and enhances the reactive effects produced by self-monitoring alone. In addition, the significantly lower feelings of self-efficacy reported by the Self-Monitoring Only subjects argues for the importance of the discrimination component.

Treatment effect on self-repair measures.

Subjects in the Self-Monitoring conditions had significantly more self-repairs on the posttest than subjects in the Discrimination Only, Practice Only and No Treatment Control conditions. Although self-monitoring subjects were told that they could self-repair, subjects in the Discrimination plus Self-Monitoring condition did not self-repair significantly more than subjects in the Self-Monitoring Only condition. This suggests that discrimination training had little effect on the rate of self-repair. It will be recalled that a self-repair could be seen as a behavioral manifestation of self-monitoring. Evidence of self-

repairs were present in all conditions not just the self-monitoring conditions indicating perhaps that some self-observation and self-correction was occurring in all groups. Audio-lingual tapes of subjects in the self-monitoring conditions suggest that self-repairs may reflect a lack of self-efficacy (unsure whether they are using the standard pronunciation) as well as an indicator of persistence.

Effects of language origin.

Johnson (1979) argued that "learning another dialect of English, is, in some ways, more difficult than learning another language"... and that part of that difficulty "is because of the similarity between standard and nonstandard American English" (p.418). Such an hypothesis suggests that non-native speakers of English may have an easier time learning Standard American English than native speakers of English. This study could not test this hypothesis directly because the non-native speakers in the study had already learned a nonstandard English dialect prior to coming to college. However, the fact that there was no significant language origin by treatment interaction (See Table 2) indicates that we can attribute the learning of the standard pronunciation to the treatments and not to whether the subject is a native or non-native speaker of English. This study does, however, indicate the importance of pretesting non-native speakers and not assuming they have no

prior knowledge of English. It should be noted that the non-native subjects in this study (n=45) represented over 14 different native languages that included: Arabic (1), Bengali (2), Chinese (1), English based Creole (3), French (1), French based Creole (5), Indonesian (1), Korean (1), Polish (1), Russian (1), Spanish (24), Tagalog (2), Urdu (1), and Ukawi (1).

Limitations of the study

First, this study did not determine if treatment effects were maintained, nor did it test whether treatment effects carried over to natural conversations. It is recognized, however, that the issue of maintenance and transfer depend on what happens after the study as well as the level of learning. For example, personal and professional goals as well as social pressures from peer, family and professional groups to which one belongs or desires to belong are expected to directly affect maintenance and generalization. Second, although this study laid the groundwork for an effective bidialectical methodology, it did not test the feasibility of code shifting between standard and nonstandard pronunciation when the social context requires such shifting. It does appear that shifting between asked and axed, for example, might be quite difficult and perhaps more difficult than code shifting on morphological features such as a double negative because this involves whole words rather than subtle phoneme substitutions, omissions or reversals. This

should certainly be a topic for future study. Finally, this study focused on only one pronunciation task, the triple consonant cluster /skt/, but future studies should examine whether discrimination and self-monitoring training are effective with other nonstandard pronunciations that are equally difficult such as /sks/, final /th/ and the /l/ and /r/.

Educational Implications

In the debate among second language theorists and teachers concerning the necessity of pronunciation training in second language (dialect) learning, some theorists argue that nonstandard speakers will learn standard English pronounciation via natural interactions with standard English speakers. However, reliance on natural methods of learning assumes (1) that all nonstandard speakers interact regularly with standard speakers; and (2) that all native speakers use the same dialect of English all the time. Such assumptions are usually erroneous. For example, attributing learning to the "natural way" does not explain why many nonstandard speakers of English continue to speak nonstandard English when standard is expected, despite having been exposed to standard English pronunciation in school and on radio and television. This study does reveal that if there is no specific intervention, one's pronunciation does not change even when a model is provided and practice is possible. This suggests that the

"natural" way, i.e. the assumption of many second language theorists that pronunciation will take care of itself as people naturally interact with speakers in the host culture, is unwarranted. It is quite clear that a training intervention is necessary if we expect dialect speakers to learn the standard and hence become bidialectical and have the ability to code shift when necessary between the two dialects.

Most importantly this study provides strong evidence that in a learning task, self-observation and self-recording can assist in changing pronunciation for some learners. However, to be truly effective, a learner must be able to have a clear idea of the standard and be able to accurately discriminate among the various pronunciations in order for self-correction to occur. Therefore, the importance of the self-evaluation component has been verified by the results of this study.

A second implication of this study is that discrimination training is clearly an important precursor to self-monitoring and significantly enhances the learning of standard English pronunciation by bidialectical speakers because it provides examples of both standard and nonstandard pronunciations and teaches students to discriminate between these pronunciations. This is the first such study to preserve the bidialectical nature of one's speech. Certainly, speech teachers should combine these training strategies in their curriculum because students

will learn to discriminate the differences between standard and nonstandard pronunciation, but, more importantly, once they learn to self-observe, they will be able to self-correct their own speech production. One of the most important implications of any successful, self-regulatory strategy, especially self-monitoring, is that, if used, learners will have a potent learning tool that allows them to learn more effectively on their own. It should be noted that due to the results of this research study, the Speech Center of
LaGuardia Community College is being changed to a learning model that uses diagnosis, bidialectical discrimination training and self-monitoring.

Such findings also have implications for research on self-regulation. Zimmerman (1989) has suggested that self-monitoring involves three key self-regulatory subprocesses: self-observation, self-judgment (or self-evaluation) and self-reaction (e.g. a self-correction). In order to self-evaluate accurately, one must be able to discriminate between the wanted and unwanted pronunciation. This discrimination is especially important for bidialetical speakers who use standard English pronunciation in certain contexts and nonstandard pronunciation in others. In this study, the process of comparison was directly examined. Subjects were taught to discriminate the four types of pronunciation of the word <u>asked</u>

(one is the Standard English pronunciation and the other three are the nonstandard English pronunciations). It was predicted that subjects who were taught to discriminate and to self-monitor would perform better, and this is exactly what happened. Such results provide further evidence that self-recording alone (and environmental contingencies) may not be enough to explain reactive effects, and that the cognitive component, self-evaluation, does, indeed, play an important role in self-monitoring. These findings present difficulties for operant models of acquisition but not for cognitive-behavioral models.

A final implication is that discrimination training alone and in conjunction with self-monitoring significantly enhances one's self-efficacy and the self-evaluation of one's performance, but the results of this study clearly indicate that one must use self-observation (self-recording) techniques cautiously because without providing the means to self-correct, students' report significantly lower feelings of self-efficacy. This is especially important because of the positive relation of self-efficacy and persistance on task. Should a student encounter such frustration on the first sound that is worked on, this can affect whether or not the student bothers to pursue the task further. And bidialectical speakers usually have to work on more than

one sound to become proficient as standard speakers of English.

In conclusion, this study has found an effective alternative to the traditional and failure-ridden approaches to teaching standard English as a second dialect. In addition, one of the major criticisms of the literature is that there are few empirical studies that validate exactly what training methods work best. Although many scholars proffer excellent ideas, few have tested these methods experimentally. This study is one of the first in the second language literature to test the independent and joint effects of discrimination training and self-monitoring. It is also one of the first studies to examine the effects of each of these treatments on feelings of self-efficacy by native and non-native learners of standard English. Finally, this study takes into consideration the need for a bidialetical approach to second dialect acquisition and shows that teaching students to accurately discriminate between standard and nonstandard pronunciation is an important precursor to becoming bidialectical.

Appendix A

Script of Directions for Pronunciation and Discrimination Pretests and sample of the pretests

1. Write your name in the space provided.
2. What is your first language?
3. Do you speak a second language? If yes, state which one.
4. Where were you born?
5. Where did you grow up?
6. Say your name aloud into the microphone.
7. Rewind the tape, play it back to make sure that the unit recorded your name. If it did not, raise your hand. If the unit is recording properly, wait for further directions.
8. We are now ready to begin. State your name clearly into the microphone.
9. Read aloud the directions on top of the paper: Read the following paragraphs aloud using Standard American English or what you might call "proper" pronunciation.
10. Once you have completed the paragraph, press the stop button, and remove your headset and listen for further instructions. Remember to put the machine on stop.
11. Now that everyone has recorded their paragraph, please press the rewind your tape.

Directions for Discrimination Pretest

12. Turn the page over and read aloud the following directions:

    Listen to your tape recording and underline every word you think you said using a nonstandard or what you think might be an incorrect English pronunciation. Remember: underline or circle every word you think you said using a nonstandard pronunciation even if it is the same word--be sure to underline or circle it each time--no matter how many times it occurs.

13. Please raise your hand immediately if you find that your paragraph did not record.

14. Once you are finished, press the stop button and remove the headset and wait for further instructions.

15. Are there any questions?

16. Let's just repeat the directions. Listen to your own tape and underline every word that you think you said using a nonstandard English pronunciation. Even if you notice that you are saying the same word over and over again, underline it each time. When you are finished, press the stop button and remove your headset. If you find that the tape did not record your paragraph, raise your hand immediately.

Appendix A

NAME_____ What is your first language? _____

Where were you born? _____ Do you speak another language YES NO

Where did you grow up? _____ If yes, what language? _____

****

LISTEN TO INSTRUCTIONS BEFORE PROCEDING.

READ THE FOLLOWING PARAGRAPHS ALOUD INTO THE MICROPHONE USING A STANDARD AMERICAN ENGLISH PRONUNCIATION.

****

Marcia asked Luis: "What are your career goals?" Then Luis asked Marcia if she was planning to go back to college. They continually asked each other these questions, but neither one of them actually pursued their goals.

Last week, however, Luis finally asked his supervisor what courses he should take to get promoted. His supervisor then asked him: "What type of a promotion are you interested in--sales or accounting?" Luis asked him, "Which one do you think I'm more qualified for?" His supervisor said, "I think you would be excellent in sales." He then asked Luis "Which one do you think you would enjoy more?" Luis agreed with him and said, "Sales."

In the meantime, Marcia asked Professor Max how to transfer to a four-year college. Professor Max asked her what she wanted to major in and suggested she call a few colleges to find out if they offer that major. She called each college and asked them to send her a catalog. Then she asked Professor Max to write her a recommendation.

Marcia asked herself if she was doing the right thing and inside she felt she was but she asked her friend, Gail, "Do you think I should major in Psychology?" Gail asked her, "Does that really interest you?" Marcia said, "Yes." Then Gail asked her, "Are you willing to work hard?" and Marcia said, "Definitely." So Gail then asked her, "Will Luis be supportive?" and Marcia said "He better be." Gail replied, "Then, do it."

Yesterday, Marcia asked Luis about his career plans. Luis replied: "I asked my supervisor and he recommended the Sales Division so I signed up for a marketing course." Then Luis asked Marcia the same question, and she said, "I'm transferring to Hunter College to complete my B.A. in Psychology." They then asked each other if they were happy with their choices.

****

Once you have read the above paragraphs aloud into the tape recorder, press REWIND and then STOP. WAIT FOR FURTHER INSTRUCTIONS.

NAME _____ DISCRIMINATION SEGMENT

Listen to your tape and underline or circle any word you think you said using a nonstandard English pronunciation. Continue to underline or circle each word even if it is the same word that you keep saying using a nonstandard pronunciation.

****

1. Marcia asked Luis: "What are your career goals?"
2. Then Luis asked Marcia if she was planning to go to college.
3. They continually asked each other these questions, but neither one of them actually pursued their goals.
4. Last week, however, Luis finally asked his supervisor what courses he should take to get promoted.
5. His supervisor then asked him: "What type of a promotion are you interested in--Sales or Accounting?"
6. Luis asked him, "Which one do you think I'm more qualified for?" His supervisor said, "I think you would be excellent in sales."
7. He then asked Luis "Which one do you think you would enjoy more?" Luis answered, "Sales."
8. In the meantime, Marcia asked Professor Max how to transfer to a four-year college.
9. Professor Max asked her what she wanted to major in and suggested she call a few colleges to find out if they offer that major.
10. She called each college and asked them to send her a catalog.
11. Then she asked Professor Max to write her a recommendation.
12. Marcia asked herself if she was doing the right thing and inside she felt she was.
13. Marcia asked her friend, Gail, if she should major in Psychology.
14. And Gail asked her: "Does that really interest you?" Marcia said, "Yes."
15. Then Gail asked her: "Are you willing to work hard?" and Marcia said, "Definitely."
16. So Gail then asked her: "Will Luis be supportive?" and Marcia said, "He better be."
17. Yesterday, Marcia asked Luis what his career plans are.
18. Luis said, "I asked my supervisor and he recommended the Sales Division so I signed up for a marketing course."
19. Then Luis asked Marcia the same question and she said, "I'm completing my B.A. in Psychology and transferring to Hunter College.
20. They then asked each other if they were happy with their choices.

Appendix B

NAME_____

This questionnaire is designed to serve you better and to ensure that you receive the appropriate speech diagnosis.

1. Have you ever been in speech therapy. Yes No (Circle One)
   If yes, please explain the reason.

   _____

   _____

   _____

2. Please describe any problems you have had in speaking (such as lisp, stuttering, etc.).

   _____

   _____

   _____

3. Do you have any problem distinguishing sounds or hearing what other people are saying?

   _____

   _____

   _____

4. Have you ever been diagnosed with any illness that might affect your speaking or hearing abilities?

   _____

   _____

   _____

5. Listen to what the instructor says and write down exactly what you hear.

   _____

   _____

   _____

6. Write down the words on the board exactly as you see them.

   _____

   _____

Appendix C

Transcript of Discrimination Training Videotape

Today we are going to learn to discriminate the different pronunciations of the word asked.

1. There are four basic pronunciations of the word asked. I want to give you the standard pronunciation first: asked (this is repeated four times). Let me break down each sound: a/s/k/t/ (this is repeated four times).

2. A second pronunciation of the word asked is axed (akst) and that is a nonstandard pronunciation (this is repeated four times). In this pronunciation you are reversing the /s/ and /k/ sounds. So it sounds like this: /a/ k/s/t/ (this is repeated four times). Notice that the /k/ sound is coming before the /s/ sound.

3. A third pronunciation is also nonstandard and this is when people drop the /ed/ and say ask (this is repeated four times). Here there are only three sounds: /a/s/k/ (this is repeated four times).

4. Another pronunciation which is also nonstandard, and you have probably heard people say this and that is askid. The difference here is that they are substituting the /id/ sound for the /t/ sound, a/s/k/id/ (this is repeated four times). All subjects are told to look at the poster that shows all four pronunciations by number.

5. There are other pronunciations of the word asked that you might have heard such as ass and assted, but I want you to keep in mind only the four we have discussed.

6. Let's review and points to chart on wall: #1 is the standard pronunciation asked; #2 is a nonstandard pronunciation axed (akst); #3 is also a nonstandard pronunciation ask; and #4 is nonstandard as well askid.

7. What we are going to do now is a Discrimination Trial. I'm going to say a sentence, and I want you to listen carefully and tell me which of the four pronunciations was used. After each sentence, tell me which pronunciation you think I said: #1, #2, # 3 or #4. I will replay any sentence you missed so just tell me if you didn't hear it or you need to hear it again. Let's begin.

Discrimination Trial One

1. Marcia asked him to go to the movies.
2. I asked him to clean the car.
3. He asked me if I would go out with him.
4. Maria asked the man to go away.
5. Sue axed her to go to Europe.
6. Max axed her to go out.
7. The teacher axed the policeman for directions.
8. Darryl axed them to do their homework.
9. Ralph ask her to clean the house.
10. Yesterday, they ask Mom for the money.
11. Fred ask the woman for bread.
12. Kyle ask her to leave immediately.
13. Bob askid his boss for a raise.
14. Jesus askid his sister for help.
15. The man askid the student for his homework.
16. The teacher askid the student for his homework.

It's very possible that you may be confusing some of the sounds so we are going to do an exercise to see if you are discriminating accurately. Listen to the following words and tell me whether I am using the same pronunciation or different.

1. asked-axed: was it the same or different?
2. asked-ask: was it the same or different?
3. asked-askid: was it the same or different?

4. ask-axed: was it the same or different?
5. ask-ask: was it the same or different?
6. asked-asked: was it the same or different?
7. axed-axed: was it the same or different?
8. asked-axed: was it the same or different?

Let's see how you did.

Experimenter will then tell the subject how they did. If they have 95%- 100% accuracy, they will move on to next trial.

We are going to go on to Discrimination Trial Two. We will follow the same directions. Listen carefully to the sentence and tell me whether I used the standard pronunciation #1 asked; the nonstandard #2 axed; the nonstandard #3 ask; or the nonstandard #4 askid. Listen carefully.

Discrimination Trial Two

1. I axed him to clean the car.
2. He axed me if I would go out with him.
3. Maria ask the man to go away.
4. Sue askid her to go out.
5. Max asked her to dance.
6. The teacher asked them to do their homework.
7. Darryl axed the policemen for directions.
8. Ralph ask her to clean the house.
9. They askid Mom for the money.
10. The man ask the tutor for assistance.
11. Jesus axed his sister for help.
12. Fred askid the woman for bread.
13. Kip asked her to leave immediately.
14. Bob ask his sister for help yesterday.
15. Marcia axed him for the money.
16. The main asked for the bread.

Just in case you are having some difficulty discriminating the sounds, let's do that exercise. I'm going to say the words

and you tell me whether the pronunciation is the same or different.

1. asked-asked
2. axed-asked
3. asked-ask
4. ask-askid

Let's see how well you did.

You have reached 90%-100% accuracy, and we are going to move on to Discrimination Trial Three.

Discrimination Trial Three

Listen carefully to each sentence. At the end of each sentence, indicate which pronunciation (1, 2, 3 or 4) was used. You will receive immediate feedback. Let's review: #1 is the standard: asked; #2 is nonstandard: axed; # 3 is nonstandard: ask; and #4 is nonstandard: askid.

1. Marcia axed him to go to the movies.
2. I axed him to clean the car.
3. He asked me if I would go out with him.
4. Maria ask the man to go away.
5. Sue askid her to go to Europe.
6. Max askid her to dance.
7. The teacher ask them to do their homework.
8. Darryl asked the policeman for directions.
9. Ralph ask her to clean the house.
10. They askid Mom for the money yesterday.
11. Fred asked the woman for bread.
12. Kip asked her to leave immediately.
13. Bob ask his boss for a raise.
14. Jesus askid his sister for help.
15. The man axed the tutor for assistance.
16. Bob axed his sister for help.

Again, let's make sure that you can acccurately discriminate the sounds. Listen carefully to the following words and tell me whether they are the same or different:

1. asked-ask: was it the same or different?
2. asked-axed: was it the same or different?
3. asked-askid: was it the same or different?
4. asked-asked: was it the same or different?
5. axed-asked: was it the same or different?
6. ask-asked: was it the same or different?
7. ask-ask: was it the same or different?
8. asked-askid: ws it the same or different?

Let's see how well you did.

Any of the discrimination trials may be repeated to bring the subject up to between 90 - 100% accuracy.

The videotape of this discrimination training was seen and listened to by a linguist and a speech pathologist. Both had 100% agreement on the pronunciations of the word asked. In addition, the issue was raised as to whether someone could discern the pronunciation just by seeing it visually. In order to test this, a native and non-native speaker of standard American English were asked to view the videotape and tell us if they could tell us what word was being spoken. Neither observer was able to distinguish the word asked much less whether the pronunciation was standard or nonstandard.

Appendix D

Transcript of Self-Monitoring Training Videotape and Practice Sheets

Today I am going to teach you a strategy for improving your pronunciation and for learning Standard American English pronunciation. The name of this strategy is called self-monitoring. Self-monitoring is used all over the word by millions of people: athletes, singers, dancers, performers, business people and students. They use self-monitoring to improve their performance. In order for you to understand what I mean by self-monitoring, let's examine the words. Obviously you know what self means. Monitoring means to observe, to evaluate and to self-correct, if necessary. So to self-monitor, we actually observe, evaluate and correct our behavior. For example, you have probably self-monitored when you were learning a new dance step, or trying to perfect your jump shot or even to improve your study skills. You probably observed your behavior and if it wasn't what you wanted, you self-corrected your performance. So you have probably done this many times in your life. Today we are going to monitor your pronunciation. We are going to work on your pronunciation of the word <u>asked</u>. You are going to say a sentence using that word and after the sentence I want you to indicate whether you think you used a standard or nonstandard

pronunciation of the word. I will give you feedback. However, this feedback will be distinctly different because I will not tell you whether you said the word correctly. Instead I will tell you whether you monitored correctly. For example: if you say the sentence and use the standard pronunciation and then you say "standard", I will say: "You monitored correctly". However, if you say the sentence and use a nonstandard pronunciation and you realize you did and you say "nonstandard", I will also say "You monitored correctly". Is that clear? It's very important that you pay attention to your pronunciation. Let's do some practice exercises. Listen carefully: the standard pronunciation of the word is asked. Let's begin. (Subjects had to achieve between 90-100% accuracy in self-monitoring their pronunciation of the word asked. This does not always mean that they are using the standard pronunciation, but rather that they can accurately monitor when they use the standard or the nonstandard.)

NAME _____

SELF-MONITORING PRACTICE SHEET

Say the following words, phrases and sentences aloud. Be sure to use a standard pronunciation of the word asked. After each one, say aloud whether you think you used the standard or nonstandard pronunciation.

Example: John asked Mary to go to the store. Standard.

1. Asked ( )
2. Asked ( )
3. Asked ( )
4. Asked ( )
5. Asked ( )
6. I asked Tanya ( )
7. You asked him ( )
8. Max asked Sheila ( )
9. Sheila asked her ( )
10. They asked them ( )
11. Sonay asked him to leave. ( )
12. Alice asked her to say.( )
13. Mark asked Philip if he could swim. ( )
14. They didn't know Nat asked her. ( )
15. Nat asked her for her number. ( )
16. The professor asked me a question. ( )
17. Nan asked her what type of topic. ( )
18. The class asked the professor about the test. ( )
19. Bob asked him how hard the test will be. ( )
20. Taj asked if he could be excused. ( )

NAME _____

Please read the following sentences aloud using a Standard English pronunciation of the word ASKED. After each sentence, indicate whether you used the standard or nonstandard pronunciation.

1. Tanya asked Max for directions.
2. Max asked Selwyn if he knew how to skate.
3. Selwyn asked Michelle to dance.
4. Michelle asked Lili if she had a watch.
5. Lili asked Kay to go shopping.
6. Kay asked Kim for the homework assignment.
7. Kim asked Thomas to dance.
8. Thomas asked his father for the car.
9. The father asked Patrick where he was going.
10. Patrick asked Ralph if he passed the test.
11. Ralph asked Mark to go to the party.
12. Mark asked Bob if he saw the girl again.
13. Bob asked the girl to the movies.
14. The girl asked Rolf to leave her alone.
15. Rolf asked Dad for some money.
16. Dad asked Nan to be home early.
17. Nan asked the ghost to leave her alone.
18. The ghost asked the people to leave the house.
19. The people asked the President to tell the truth.
20. The president asked Congress to pass his bills.

Scripts for Self-Monitoring during the Practice Trials Phase

1. Now that you have learned to accurately monitor your own pronunciation of the word asked, you are going to practice this skill in different types of exercises.
2. You are going to tape record your exercises now. I want you to follow the same procedures we have been using. Say the sentence clearly into the tape recorder and make sure you use a standard pronunciation. After each sentence, indicate whether you used a standard or nonstandard pronunciation or give the number (only subjects who had discrimination training prior to self-monitoring training would be able to give the number).
3. When you have finished, stop the tape recorder and open the door and let me know that you are finished.
4. Rewind this tape, and listen carefully to your pronunciation of this word (points to word on practice trial sheet). I want you to determine if you monitored correctly. If you think you monitored correctly, i. e. (You used a standard pronunciation and you monitored it as standard; or you used a nonstandard pronunciation and you monitored it as nonstandard), then give yourself a checkmark ( ) in the space provided. However, if you disagree with your own monitoring, then give yourself an X. What you are really

doing now is monitoring the way in which you monitored. This will help you to be a more effective speaker.

5. Why don't you repeat the directions to me so that I know you understand.

6. We are going to follow these same procedures for the next three exercises. Are there any questions?

Appendix E

NAME_____ PRACTICE TRIAL ONE

LOOK AT THE EXERCISE BELOW. HOW SURE ARE YOU THAT YOU CAN USE A STANDARD PRONUNCIATION OF THE WORD ASKED? (Circle the percentage that most accurately reflects your feelings.)

NOT SURE			MAYBE			PRETTY SURE		REALLY SURE	
10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

****

Read the following sentences aloud using a standard pronunciation of the word ASKED.

1. Sasha asked him to go jogging.
2. Kay asked him to clean his desk.
3. Lili asked her to take notes.
4. Nat asked the girl to dinner.
5. You asked her out?
6. Alex asked her to sing.
7. I asked her to sit down.
8. Roger asked them to be quiet.
9. Carol asked the policeman to help her.
10. Nan asked the teacher for help.
11. Ted asked her for some money.
12. Ralph asked her to make dinner.
13. Tip asked them to vote on the bill.
14. The slob asked for a clean shirt.
15. The jerk asked to be on the show.
16. G.O. asked to leave the party.
17. Guns and Roses asked to be left alone.
18. Public Enemy asked for some understanding.
19. The D.J. asked to be turned off.
20. J.Q. asked the maid for more coffee.

****

HOW SURE ARE YOU THAT YOU USED A STANDARD PRONUNCIATION OF THE WORD ASKED ON THE ABOVE EXERCISE. (Circle the percentage that most accurately reflects your feelings.)

NOT SURE			MAYBE			PRETTY SURE		REALLY SURE	
10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

NAME _____ Appendix F PRACTICE TRIAL TWO

LOOK AT THE EXERCISE BELOW. HOW SURE ARE YOU THAT YOU CAN USE A STANDARD PRONUNCIATION OF THE WORD ASKED. (Circle the percentage that most accurately reflects your feelings.)

NOT SURE			MAYBE			PRETTY SURE		REALLY SURE	
10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

****

You are to make up a sentence using the word asked for each of the following subject/nouns. Example: Bus driver. The bus driver asked me for money.
Juan. Juan asked me to eat dinner.

1. Cab driver
2. Maria
3. Luis
4. The professor
5. The doctor
6. The nurse
7. The boy
8. The girl
9. Max
10. Sheila
11. Darryl
12. Fred
13. The baby
14. The judge
15. The father
16. The son
17. Mom
18. Me
19. Kip
20. You

****

HOW SURE ARE YOU THAT USED A STANDARD PRONUNCIATION OF THE WORD ASKED. (Circle the percentage that most accurately reflects your feelings.)

NOT SURE			MAYBE			PRETTY SURE		REALLY SURE	
10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

NAME_____ Appendix C PRACTICE TRIAL THREE

LOOK AT THE EXERCISE BELOW. HOW SURE ARE YOU THAT YOU CAN USE A STANDARD PRONUNCIATION OF THE WORD ASKED? (Circle the percentage that most accurately reflects your feelings.

NOT SURE			MAYBE			PRETTY SURE		REALLY SURE	
10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

****

You are to answer the following questions using a standard pronunciation of the word ASKED. Make up an answer that makes sense and do not repeat the same answer.

Example: What did Maria ask the priest. Maria asked the priest if he was hungry.

1. What did Max ask Sheila?
2. What did Sheila ask Juan?
3. What did Juan ask the professor?
4. What did the professor ask Ted?
5. What did Ted ask the cop?
6. What did the cop ask Mark?
7. What did Mark ask Bob?
8. What did Bob ask Ted?
9. What did Ted ask Kelly?
10. What did Kelly ask Ralph?
11. What did Ralph ask Crystal?
12. What did Crystal ask the guy?
13. What did the guy ask J.Q.?
14. What did J.Q. ask Sis?
15. What did Sis ask Lou?
16. What did Lou ask the ghost?
17. What did the ghost ask Hal?
18. What did Hal ask the jury?
19. What did the jury ask the judge?
20. What did the judge ask the witness?

****

HOW SURE ARE YOU THAT YOU USED A STANDARD PRONUNCIATION OF THE WORD ASKED IN THE ABOVE EXERCISE? (Circle the percentage that most accurately reflects your feelings.)

NOT SURE			MAYBE			PRETTY SURE		REALLY SURE	
10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

Appendix H

NAME_____ POSTTEST

LOOK AT THE EXERCISE BELOW. HOW SURE ARE YOU THAT YOU CAN USE A STANDARD PRONUNCIATION OF THE WORD ASKED. (Circle the percentage that most accurately reflects your feelings.)

NOT SURE			MAYBE			PRETTY SURE		REALLY SURE	
10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

****

ANSWER THE FOLLOWING QUESTIONS ALOUD USING A STANDARD PRONUNCIATION OF THE WORD ASKED.
Example: What did the teacher ask the student? The teacher asked the student to read.

1. What did the professor ask the student?
2. What did Marcia ask Mark?
3. What did the mother ask the daughter?
4. What did the son ask the father?
5. What did the politician ask the voter?

****

READ THE FOLLOWING SENTENCES ALOUD USING A STANDARD PRONUNCIATION OF THE WORD ASKED.

6. Maria asked her mother why she was upset.
7. Her mother asked her to mind her own business.
8. Then Robert asked his mother the same question.
9. His mother then asked him why he wasn't at work.
10. They all asked each other questions.

****

MAKE UP A SENTENCE FOR EACH SUBJECT/NOUN LISTED---BE SURE TO USE ASKED IN EACH SENTENCE.
Example: The mother. The mother asked him to eat his dinner.

11. Her brother
12. Tex
13. The wife
14. Leila
15. Nat

****

READ THE FOLLOWING SENTENCES ALOUD USING A STANDARD PRONUNCIATION OF THE WORD ASKED.

16. Kip asked her to go to the movie
17. Sis asked them to buy her a present.
18. Jamie asked her to marry him.
19. Kim asked her father to sit down.
20. I asked him to get out of the house.

****

HOW SURE ARE YOU THAT YOU USED A STANDARD PRONUNCIATION OF THE WORD ASKED. (Circle the percentage that most accurately reflects your feelings.)

NOT SURE			MAYBE			PRETTY SURE		REALLY SURE	
10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

****

How may do you think you said using a standard pronunciation of the word ASKED.

The total was 20 _____

Appendix I

NAME _____ TRANSFER TEST 1

READ THE FOLLOWING SENTENCES ALOUD USING A STANDARD ENGLISH PRONUNCIATION.

1. The masked man went to sleep.
2. The masked woman had many masks.
3. & 4. Many masked men mean many masked women.
5. Zorro was a famous masked man.
6. The cat woman is a famous masked woman.
7. The masked boy was afraid.
8. The Phantom of the Opera is a masked man.
9. Mardi Gras means many masked men and women.
10. The masked men and women paraded down the street.
11. They basked in the sunlight.
12. She basked and laughed on the beach.
13. When was the last time you basked on the beach.
14. They basked only during the day.
15. They basked and baked in the sunlight.
16. The girls basked while the boys looked.
17. They basked on the beach when no one was looking.
18. That was the last time she basked on the beach.
19. Sheila basked while Maria cooked.
20. Ted basked while Fred built the house.

How many times do you think you said the word BASKED using a standard English Pronunciation (Total was 10 _____)

How many times do you think you said the word MASKED using a standard English Pronunciation (Total was 10 _____)

Appendix J

NAME _____ TRANSFER TEST 2

READ THE FOLLOWING SENTENCES ALOUD USING A STANDARD ENGLISH PRONUNCIATION.

1. They risked their lives.
2. He risked his fortune.
3. I risked everything I owned.
4. Max risked his life by continuing to smoke.
5. Sheila risked her job.
6. The firemen risked their lives yesterday.
7. Maria risked the life of her child.
8. The stuntmen risked thir eyesight.
9. She risked her life when she told the truth.
10. Sally risked everything.
11. They whisked them away in a limousine.
12. She whisked the creme.
13. Ted and I whisked through the store.
14. They were whisked up by the helicopter.
15. Sandra whisked through the classroom.
16. Max whisked the egg.
17. Dad whisked them away as fast as he could.
18. Del whisked through the kitchen.
19. The jet whisked away.
20. Bob whisked her away from her dull life.

How many times do you think you said the word RISKED using a Standard English pronunciation? (Total was 10 _____)

How many times do you think you said the word WHISKED using a Standard English pronunciation? (Total was 10 _____)

Appendix K

NAME _____

HOW SURE ARE YOU THAT YOU CAN USE A STANDARD PRONUNCIATION OF THE WORD ASKED DURING A SPEECH IN FRONT OF 30 STRANGERS?

(CIRCLE THE PERCENTAGE THAT MOST ACCURATELY REFLECTS YOUR FEELINGS).

NOT SURE			MAYBE			PRETTY SURE		REALLY SURE	
10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

Bibliography

Abraham, R. G. & Vann, R. (1987). Strategies of two language learners: a case study. In A. Wenden and J. Rubin (Eds.) Learner strategies in language learning. Englewood Cliffs, NJ: Prentice Hall.

Acton, W. (1984). Changing fossilized pronunciation. TESOL Quarterly, 18, 71-85.

Allen, V. (1969). Teaching standard English as a second dialect. The Florida FL Reporter, 7, 123-129.

Aungst. L. F. & Frick. J. V. (1964). Auditory discrimination ability and consistency of articulation of /r/. Journal of Speech and Hearing Disorders, 29, 76-85.

Bandura, A. (1977a). Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 84, 191-215.

Bandura, A. (1982). Self-efficacy mechanism in human agency. American Psychologist, 37, 122-147.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive view. Englewood Cliffs, NJ: Prentice Hall.

Barling, J. (1980). A multistage multidependent variable asssessment of children's self-regulation of academic performance. Child Behavior Therapy, 2(2), 43-54.

Baran, J. & Seymour, H. (1976). The influence of three phonological rules of Black English on the discrimination of

minimal word pairs. Journal of Speech and Hearing Research, (19), 467-474.

Bayer, C.A. (1972). Self-monitoring and mild aversion treatment of trichotillomai. Journal of Behavior Therapy and Experimental Psychology, 3, 139-141.

Berecz, J. (1972). Modification of smoking behavior through self-administered punishment of imagined behavior: A new approach to aversion therapy. Journal of Consulting and Clinical Psychology, 38, 244-250.

Berger, M. I. (1988). Speaking Standard Too. Chicago, IL: Orchard.

Bianchi, D. B., Bond, W., Kandel, G. & Seidler, A. (1983). Easily Understood: A basic speech text. Wayne, NJ: Avery.

Bolstad, O. D., & Johnson, S.M. (1972). Self-regulation in the modification of disruptive classroom behavior. Journal of Applied Behavior Analysis, 5, 443-454.

de Bot, K. (1983). Visual feedback of English intonation, 1: Effectiveness and induced practice behavior. Language and Speech, 26, 331-350.

de Bot, K. & Mailfert, K. (1982). The teaching of intonation: Fundamental research and classroom applications. TESOL Quarterly, 16, 71-77.

Broden, M., Hall, R. V. & Mitts, B. (1971). The effect of self-recording on classroom behavior of two eight grade students. Journal of Applied Behavioral Analysis, 4, 191-199.

Brown, A. L. & Palinscar, A. S. (1982). Inducing strategic learning from texts by means of informed self-control

training. Topics in Learning and Learning Disabilities, 2, 1-17. Special issue on metacognition and learning disabilities.

Brown, A. L., Bransford, J. D., Ferrara, R. A., and Campione, J.C. (1983). Learning, remembering and understanding. In J.H. Flavell and M. Markman (Eds.), Carmichael's Manual of Child Psychology, Vol. 3, 77-166; New York: Wiley.

Brown, J. H. (1975). The differential effects of monitoring procedures on achievement behavior. Journal of Educational Research, 68(8), 318.

Burling, R. (1973). English in Black and White. NY: Holt, Rinehart & Winston.

Busch, D. (1982). Introversion-extroversion and the EFL proficiency of Japanese students. Language Learning, 32, 109-132.

Campbell, D., & Stanley, J. (1966). Experimental and quasi-experimental design for research. Chicago: Rand McNally.

Cantania, A.C. (1975). The myth of self-reinforcement. Behaviorism, 3, 192-199.

Carver, C. S. & Scheier, M. F. (1981). Attention and self-regulation: A control theory approach to human behavior. New York: Springer-Verlag.

Cavior, N. & Marabotto, C. M. (1976). Monitoring verbal behaviors in a dyadic interaction. Journal of Consulting and Clinical Psychology, 44(1), 68-76.

Chamot, A. U. & Kupper, J. (1989). Learning strategies in foreign language instruction. Foreign Language Annals, 22, 13-23.

Christie, D.J., Hiss, M. & Lozanoff, B. (1984). Modification of inattentive classroom behavior. Behavior Modification, 8(30, 391-406.

Cobb, J. A. (1972). The relationship of discrete classroom behaviors to fourth-grade academic achievement. Journal of Educational Psychology, 63, 74-80.

Costello, J. M. & Bosler, S. (1976). Generalization and articulation instruction. Journal of Speech and Hearing Disorders, 41, 359-373.

Deal, V. R. (1988, April). Multicultural populations: Issues in assessment and intervention. Workshop presented at the Ohio Speech and Hearing Assoication Convention, Cleveland.

Deci, E. L. (1975). Intrinsic motivation. New York: Plenum Press.

Dillard, J. (1972). Black English. New York: Vintage Books

DiPietro, R. (1977). Code-switching as a verbal strategy among bilinguals. In F. Eckman (Ed.), Current themes in linguistics: bilingualism, experimental linguistics and language typologies. Washington, D.C.: Hemisphere Publishing.

Engel, D. & Groth, L. R. (1976). Case studies of the effect on carryover of reinforcing postarticulaton responses on feedback. Language, Speech and Hearing Services in Schools, 7, 93-101.

Fasold, R.W. & Wolfram, W. (1970). Some linguistic features of Negro dialect. In R. Fasold & R. Shuy (Eds.) Teaching standard English in the inner city (pp. 41-86), Washington, D.C.: Center for Applied Linguistics.

Feigenbaum, I. (1970). The use of nonstandard English in teaching standard: contrast and comparison. In R. Fasold & R. Shuy (Eds.) Teaching standard English in the inner city, (pp. 87-104), Washington, D.C.: Center for Applied Linguistics.

Ferritor, D. C., Buckholdt, D., Hamblin, R. L., & Smith, L. (1972). The noneffects of contingent reinforcement for attending

behavior on work accomplished. Journal of Applied Behavior Analysis, 5, 7-18.

Fixsen, D. L., Phillips, E. L. & Wolf, M. (1972). Achievement place: The reliability of self-reporting and peer-reporting and their effects on behavior. Journal of Applied Behavioral Analysis, 5, 19-30.

Flavell, J. H. (1979). Metacognition and cognitive monitoring-a new area of cognitive-developmental inquiry. American Psychologist, 34, 906-911.

Flavell, J. H. (1981). Cognitive monitoring. In W. Dickson (Ed.) Children's oral communication skills (pp.35-60). New York: Academic Press.

Garvey, C. & Baldwin, T. (1969). A self-instructional program in standard English: Development and evaluation. (Report No. R 50). Washington, DC: Office of Education (DHEW) Bureau of Research. (ERIC Document Reproduction Service No. ED 032 536

Gilbert, J. B. (1984). Clear speech. New York: Cambridge University Press.

Giles, H. (1979). Ethnicity markers in speech. In K. R. Scherer & H. Giles (Eds.), Social markers in speech (pp.251-290). Cambridge: Cambridge University Press.

Goldiamond, I. (1976b). Self-reinforcement. Journal of Applied Behavior Analysis, 9, 509-514.

Goldin, R. (1967). Learning standard English by linguistic methods. Eric Document Reproduction Services (No. ED 018 783)

Gottman, J. M., & McFall, R. M. (1972). Self-monitoring effects in a program for potential high school dropouts: A time series analysis. Journal of Consulting and Clinical Psychology, 39, 273-281.

Grosjean, F. (1982). Life with two languages: An introduction to bilingualism. Cambridge, MA.: Harvard University Press

Hahner, J., Sokoloff, M. A., & Salisch, S. (1990). Speaking clearly: Improving voice and diction. New York, NY: McGraw Hill.

Hall, J. F. (1966). The psychology of learning. Philadelphia: Lippincott.

Hall, S. M. (1972). Self control and therapist control in the behavioral treatment of overweight women. Behavior Research and Therapy, 10, 59-68.

Hayes, S. C., & Cavior, N. (1972). Multiple tracking and the reactivity of self-monitoring: I. Negative behaviors. Behavior Therapy, 8, 819-831.

Herbert, E. W. & Baer, D. M. (1972). Training parents as behavior modifiers. Journal of Applied Behavior Analysis, 5, 139-149.

Hochel, S. (1982, November). Black dialect and speaking: Teaching the acquisition of oral standard English on the college level. Paper presented at the 68th annual meeting of the Speech Communication Association. Louisville, Kentucky.

Huang, X. H. & Van Naerssen, M. (1987). Learning strategies for oral communication. Applied Linguistics, 8(3), 286-303.

Ingham, R. J. (1982). The effects of self-evaluation training on maintenance and generalization during stuttering treatment. Journal of Speech and Hearing Disorders, 47, 271-280.

Ingham, R. J., Adams, S. & Reynolds, G. (1978). The effects on stuttering of self-recording the frequency of stuttering or the word "the". Journal of Speech and Hearing Research, 21, 459-469.

Johnson, K.R., (1979). Teaching Mainstream American English. Journal of Black Studies, 9(4), 411-422.

Johnston, J. M., & Johnston, G. T. (1972). Modification of consonant speech-sound articulation in young children. Journal of Applied Behavior Analysis, 5, 233-246.

Jones, C. J., Trap, J. & Cooper, J. O. (1977). Technical report: students' self-recording of manuscript letter strokes. Journal of Applied Behavioral Analysis, 10(3), 509-514.

Kanfer, F.H. (1970b). Self-monitoring: Methodological limitations and clinical applications. Journal of Consulting and Clinical Psychology, 35, 148-152.

Kanfer, F. H. (1975). Self-management methods. In F. H. Kanfer & A. P. Goldstein (Eds.) Helping people change. New York: Pergamon.

Kazdin, A. E. (1974). Reactive self-monitoring: The effects of response desirability, goal setting and feedback. Journal of Consulting and Clinical Psychology, 42, 704-716.

Kirschenbaum, D. S. & Karoly, P. (1977). When self-regulation fails: Tests of some preliminary hypotheses. Journal of Consulting and Clinical Psychology, 45(6), 1116-1125.

Koegel, R. L., Koegel, L. K. & Ingham, J. C. (1986). Programming rapid generalization of correct articulation through self-monitoring procedures. Journal of Speech and Hearing Disorders, 51, 24-32.

Koegel, R. L., Koegel, L. K., Voy, K. V. & Ingham, J. C. (1988). Journal of Speech and Hearing Disorders, 53, 392-399.

Korman, A. K. (1974). The psychology of motivation. Englewood Cliffs, N.J.: Prentice-Hall.

Krashen, S. (1977). The monitor model for second language performance. In M. Burt, H. Dulay, and M. Finochhario (Eds.), Viewpoints on English as a Second Language. New York: Regents.

Labov, W. (1972a). Language in the inner city. Philadelphia, PA: University of Pennsylvania Press.

LaCroix, Z. (1973). Management of disfluent speech through self-recording procedures. Journal of Speech and Hearing Disorders, 38, 272-274.

Lambert, W. E. (1981). Bilingualism and language acquisition. In H. Winitz (Ed.) Native language and foreign language acquisition. Annals of the New York Academy of Sciences, 379, 9-22.

Leather, J. (1983). Second language learning pronunciation learning and teaching. State of the art article. Language Teaching, 16, 198-219.

Lee, F. R. (1994, January 5). Lingering conflict in the schools: Black dialect vs. Standard speech. The New York Times. A1, D22-23.

Lee, R. (1971). Linguistics, communication, and behavioral objectives. The Speech Teacher, 20, 1-9.

Lipinski, D. P. & Nelson, R. O. (1974). The reactivity and unreliability of self-recording. Journal of Consulting and Clinicial Psychology, 42, 118-123.

Lowenthal, K., & Bull, D. (1984). Imitation of foreign sounds: What is the effect of age? Language and Speech, 27, 95-98.

Mace, F. C., Belfiore, P. J., & Shea, M. C. (1989). Operant theory and research on self-regulation. In B. J. Zimmerman & D. H. Schunk (Eds.), Self-regulated learning and academic achievement: Theory, research, and practice. Progress in

cognitive development research. (pp.27-50). New York: Springer-Verlag.

Mace, F. C. and Kratchowill, T. (1985). Theories of reactivity in self-monitoring. Behavior Modification, 9, 323-343.

Mace, F. C., & Kratochwill, T. R. (1988). Self-monitoring: Applications and issues. In J. Witt, S. Elliott, & F. Gresham (Eds.), Handbook of behavior therapy in education (pp.489-502). New York: Pergamon.

Macken, M. A., & Ferguson, C. A., (1981). Phonological universals in language acquisition. Annals of the New York Academy of Sciences, 379, 110-129.

Mahoney, M. J. (1976). Terminal terminology: A self-regulated response to Goldiamond. Journal of Applied Behavior Analysis, 9, 515-517.

Mahoney, M. J. (1977). Some applied issues in self-monitoring. In J. D. Cone & R. P. Hawkins (Eds.), Behavioral assessment: New directions in clinical psychology. New York: Brunner/Mazel.

Mahoney, M. J., Moore, B. S., Wade, T. C., & Moura, N. G. (1973). Effects of continuous and intermittent self-monitoring on academic behavior. Journal of Consulting and Clinical Psychology, 41(1), 65-69.

Mahoney, M. J., Moura, N. G. & Wade, T. C. (1973). Relative efficacy of self-reward, self-punishment and self-monitoring techniques for weight loss. Journal of Consulting and Clinical Psychology, 40, 404-407.

Mahoney, M. J. (1974). Self-reward and self-monitoring techniques for weight control. Behavior Therapy, 5, 48-57.

McFall, R.M. (1970). Effects of self-monitoring on normal smoking behavior. Journal of Consulting and Clinical Psychology, 35, 135-142.

McNamara, J. R. (1972). The use of self-monitoring techniques to treat nail biting. Behavior Reseach and Therapy, 10, 193-194.

Meichenbaum, D. & Asarnow, J. (1979). Cognitive-behavioral modification and metacognitive development: Implicatoons for the classroom. In P. C. Kendall & S. D. Hollon (Eds.) Cognitive-behavioral interventions: Theory, research, and procedures (pp. 11-35). New York: Academic Press.

Menyuk, P. (1978). Language and maturation. Cambridge, M.A.: The M.I.T. Press.

Mischel, W., Ebbesen, E. B., & Zeiss, A. R. (1973). Selective attention to the self: Situational and dispositional determinants. Journal of Personality and Social Psychology, 7, 129-142.

Morley, J. (1979). Improving spoken English. Ann Arbor: University of Michigan Press.

Morley, J. (1991). The pronunciation component in teaching English to speakers of other languages. TESOL Quarterly, 25 (3), 481-519.

Morgan, M. (1984). Self-monitoring of attained subgoals in private study. Journal of Educational Psychology, 77(6), 623-630.

Mowrer, D. E. (1971). Transfer of training in articulation therapy. Journal of Speech and Hearing Disorders, 4, 427-445.

Murakawa, H. (1981). Teaching English pronunciation to Japanese adults. Dissertations Abstracts International.

Naiman, N., Frohlich, M., Stern, H. H. and Todesco, A., (1978). The good language learner. Toronto: Ontario Institute for Studies in Education.

Nelson, R. O. (1977). Methodological issues in assessment via self-monitoring. In M. Hersen, R. M. Eisler, & P. M. Miller (Eds.), Progress in behavior modification:Vol 5 (pp.263-308). New York: Academic Press.

Nelson, R. O. (1977). Assessment and therapeutic functions of self-monitoring. In M. Hersen (Ed.), Progress in behavior modification: Vol 5. New York: Academic Press.

Nelson, R. O. &, Hayes, S. (1981). Theoretical explanations for reactivity in self-monitoring. Behavior Modification, 5(1), 3-14.

Neufeld, G. & Schneiderman, E. (1980). Prosodic and articulatory features in adult language learning. In R. C. Scarcella & S.D. Krashen (Eds.) Research in second language acquisition. (pp. 105-109). Rowley, MA.: Newbury House.

Ollendick, T. H. (1981). Self-monitoring and self-administered over-correction: The modification of nervous tics in children. Behavior Modification, 5, 75-85.

Olson, L. L. & Samuels, S. J. (1973). The relationship between age and accuracy of pronunciation. Journal of Educational Research, 66, 263-268.

O'Malley, J. M., Chamot, A. U., Stewner-Manzanares, G., Russo, R. & Kupper, L. (1985). Learning strategies used by beginning and intermediate ESL students. Language Learning, 35, 21-26.

O'Malley, J. M., Chamot, A. U., Stewner-Manzanares, G., Russo, R. & Kupper, L. (1985b). Learning strategy applications with students of English as a second language. TESOL Quarterly, 19, 285-296.

Parish, C. (1977). A practical philosphy of pronunciation. TESOL Quarterly 11(3), 311-317.

Pennington, M. C. (1984, March). Can pronunciation be improved by instruction in pronunciation? Paper presented at the 18th Annual TESOL Convention, Houston.

Pennington, M. C. & Richards, J. C. (1986). Pronunciation revisited. TESOL Quarterly, 20 (2), 207-225.

Peterson, G. L., House, A. E., & Alford, H. F. (1975). Self-monitoring: Accuracy and reactivity in a patient's recording of three clinically targeted behaviors. Presented at the meeting of the Southeastern Psychological Association, Atlanta.

Prator, C. H., & Robinett, B. W. (1985). Manual of American English Pronunciation. (4th ed.) New York: Holt, Rinehart & Winston.

Rachlin, H. (1974). Self control. Behaviorism, 2, 94-107.

Reed, Carol. (1973). Adapting TESL approaches to the teaching of written standard English as a second dialect to speakers of American Black English Vernacular. TESOL Quarterly, 7(3), 287-307.

Rehm, L. P. & Marston, A. R. (1968). Reductions in social anxiety through modification of self-reinforcement. Journal of Consulting and Clinical Psychology, 32, 565-574.

Richards, C. S. (1975). Behavior modification of studying through study skills advice and self-control procedures. Journal of Counseling Psychology, 22(5), 431-436.

Rotter, J. B., Chance, J. E., & Phares, E. J. (1972). Applications of a social learning theory of personality. New York: Holt, Rinehart & Winston.

Rubin, J. (1975). What the "good language learner" can teach us. TESOL Quarterly, 9, 41-51.

Ruscello. D. M. , & Shelton, R. L. (1979). Planning and self-assessment in articulatory training. Journal of Speech and Hearing Disorders, 27, 504-512.

Sagotsky, G., Patterson, C. J., & Lepper, M. R. (1978). Training children's self-control: A field experiment in self-monitoring and goal-setting in the clasroom. Journal of Experimental Child Psychology, 25(2), 242-253.

Schunk, D. H. (1989). Social cognitive theory and self-regulated learning. In B. J. Zimmerman & D. H. Schunk (Eds.), Self-regulated learning and academic achievement: Theory, research, and practice. Progress in cognitive development research . New York: Springer-Verlag.

Schunk, D. H., & Gaa, J. P. (1981). Goal-setting influence on learning and evaluation. Journal of Classroom Interaction, 16, 38-44.

Scovel, T. (1969). Foreign accents, language acquistion and cerebral dominance. Language Learning, 19, 245-254.

Seliger, H. W., Krashen, W., & Ladefoged, P. (1975). Maturational constraints in the acquisition of second language accent. Language Sciences, 36, 20-22.

Selinker, L. (1972). Interlanguage. International Review of Applied Linguistics, 10, 209-232.

Seymour, H. N. & Ralabate, P. K. (1985). The acquisition of a phonologic feature of Black English. Journal of Communication Disorders, 18, 139-148.

Shapiro, E. S. (1984). Self-monitoring procedures. In T. H. Ollendick, & M. Hersen (Eds.), Child behavioral assessment: Principles and procedures (pp.148-165). New York: Pergamon Press.

Smith, B. (1979). It ain't what you say, it's the way you say it. Journal of Black Studies, 9(4), 480-493.

Snow, C. E. & Hoefnagel-Hohle, J. (1977). Age differences in the pronunciation of foreign sounds. Language and Speech, 20, 357-365.

Sommers, R. K. (1962). Factors in the effectiveness of mothers trained to aid in speech correction. Journal of Speech and Hearing Disorders, 27, 178-186.

Spates, C. R. & Kanfer, F. H. (1977). Self-monitoring, self-evaluation, and self-reinforcement in children's learning: A test of a multistage self-regulation model. Behavior Therapy, 8(1), 9-16.

Stevick, E. W. (1978). Toward a practical philosophy of pronunciation: Another view. TESOL Quarterly, 12, 145-150.

Stewart, W. A. (1964). Foreign language teaching methods in quasi-foreign language situations. In W. Stewart (ed) Nonstandard speech and the teaching of English. Washington, D.C.: Center for Applied Linguistics.

Suter, R. W. (1976). Predictors of pronunciation accuracy in second language learning. Language Learning, 26(2), 233-253.

Sugai, G. & Rowe, P. (1984). The effect of self-recording on out-of-seat behavior of an EMR student. Education and Training of the Mentally Retarded, 19, 23-28.

Taylor, O. L. (1986). A cultural and communicative approach to teaching Standard English as a second dialect. In O. Taylor (Ed.) Treatment of communication disorders in culturally and linguistically diverse populations. San Diego, CA: College-Hill Press.

Thoresen, G. E., & Wilbur, C. S. (1976). Some encouraging thoughts about self-reinforcement. Journal of Applied Behavior Analysis, 9, 518-520.

Weiner, P. S. (1967). Auditory discrimination and articulation. Journal of Speech and Hearing Disorders, 32 (1), 19-27.

Wenden, A. & Rubin, J. (1987). Learning strategies in language learning. Englewood Cliffs, NJ: Prentice Hall.

Wing, D. M. & Heimgartner, L.J. (1973). Articulation carryover procedured implemented by parents. Language, Speech and Hearing Services in Schools, 4, 182-195.

Wolfram, W. (1990). Dialects and American English. Englewood Cliffs, NY: Prentice Hall.

Wolfram, W. & Fasold, R. (1974). The study of social dialects in American English. Englewood Cliffs, NJ: Prentice Hall.

Wyatt, T. A. & Seymour, H. M. (1988). The Pragmatics of code-switching in Black English speakers. Paper presented at the American Speech-Language-Hearing Association Convention, Boston, MA.

Yule, G., Hoffman, P. & Damico, J. (1986). Learners in transition: Evidence from the interaction of accuracy and self-monitoring skill in a listening task. Language Learning, 37(4), 511-521.

Yule, G., Hoffman, P. & Damico, J. (1988). Paying attention to pronunciation: The role of self-monitoring in perception. TESOL Quarterly, 38 (6), 765-769.

Zimmerman, B.J. (1986). Development of self-regulated learning: Which are the key subprocesses? Contemporary Educational Psychology, 16, 307-313.

Zimmerman, B.J. (1989). A social cognitive view of self-regulated academic learning. Journal of Educational Psychology, 81(3), 329-339.

Zimmerman, B. J., & Martinez-Pons, M. (1986). Development of a structured interview for assessing student use of self-regulated learning strategies. American Educational Research Journal, 23(4), 614-628.