EFFECTS OF SELF-CORRECTION AND A TRADITIONAL APPROACH ON THE ACQUISITION, MAINTENANCE, AND GENERALIZATION OF SPELLING OF THIRD GRADE CHILDREN

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I dedicate this work to my father,
Frank A. Lowery,
who passed away before I completed my graduate studies.
His love, support, and encouragement
were always the foundation
for any success I have experienced in my life.
I wish he were here
to share this accomplishment with me.
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Chapter 1

Introduction

Spelling is an important academic skill, which has been part of the school curriculum since the beginning of educational practice (Heron, Okyere & Miller, 1991). Accurate spelling enhances effective written communication. It is defined as the formation of words through the meaningful arrangement of letters (Mercer & Mercer, 1989). This recall of letter sequences (called orthography) is a cognitive act in which the child coordinates several sources of word knowledge, including phonemes, knowledge of spelling patterns, and syntactic and semantic knowledge of the word (Wong, 1986).

Correct spelling is important to student academic achievement. It contributes to a general impression of being "well educated" (DeStefano, 1978). It allows the writer to put his thoughts on paper without frequent interruption to check on correct spelling, and allows the reader to read what is written. Incorrect spelling is readily noticed by the reader, and can result in an unfavorable impression of the writer.

The words that comprise the English language, however, are not easy to learn to spell. The language is made up of a series of phonemes (sounds) and graphemes (written symbols). The relationships between these sounds and symbols is not always consistent. This is evidenced by the fact that although there are only 26 letters in the alphabet, there are more than 40 phonemes in spoken English, and 251 different ways to spell these different sounds (Hull, 1976). In addition, English includes many irregularly spelled words, some of which are derived from other languages. English also includes homonyms, words that sound exactly the same, but are spelled differently, such as hear / here, sale / sail,
nose / knows. The language also includes heteronyms, which are words that are spelled the same, but have different meanings. Examples are resume/ resume, bow/ bōw, minute/ minūte. Some words have different spellings that reflect American or British influence such as the American spelling of behavior or the British behaviour (Weisberg, 1985).

It is not surprising that many students find learning to spell a difficult experience. The traditional approach, which usually involves a daily task such as writing words a specified number of times, alphabetizing them, and writing them in stories and sentences, has not been successful with all students. A self-correction approach to teaching spelling has been successfully demonstrated to help learning disabled students increase spelling proficiency (McNeish, 1985) and has also been successful in a clinical setting, improving spelling scores of students who have spelling problems (Okyere, 1989).

This study is a systematic replication of a study (McNeish, 1985) which compared a traditional approach to teaching spelling with a self-correction approach.

**Purpose of the Study**

The study examined both a traditional approach to spelling instruction, which involves completing a different task each day such as writing the spelling words a number of times , using the words in sentences and compositions, and alphabetizing the words to a self-correction spelling approach, which employs self-management as a learning strategy. Specifically, it sought to determine which approach results in better acquisition, maintenance, and generalization of correct spelling performance of third grade students. The dependent variable in the study is the number of spelling words learned from a list of previously unlearned words. The independent variables are the traditional and self-correction strategies. Delayed posttests and oral spelling were used as maintenance and generalization measures.
Review of the Literature

The literature review will examine four major areas. First, students identified as “at-risk” will be discussed. Second, the various methodologies of spelling instruction will be presented. Third, the cognitive processes involved in learning how to spell will be discussed. Finally, the research done in the area of spelling self-correction will be examined.

At-Risk Students

The term “at-risk” has been widely used in the educational literature. It has been applied to many different student populations, including those who cannot attend college because of a lack of finances, students who are likely to drop out of high school, students referred for special education placement and students who are likely to abuse alcohol or drugs (Gardner, 1989). For the purpose of this study, “at-risk” refers to students whose academic performance is so far below acceptable standards that they are in danger of failing academically, and possibly dropping out of school.

DeRidder (1988) maintains that students who are “at risk” enter school already disadvantaged in terms of socio-economic status. Their families typically live at or near poverty level, are supported by low skill employment or government subsidies, and are increasingly headed by single parents, many of whom are dropouts themselves. Unquestionably, these factors influence student performance in school. Rumberger (1983) states “…family background is a powerful predictor of dropout behavior.” (p. 210-211).

Beck and Muia (1980) point out that although these students have learned many things by the time they begin formal schooling, few of the things they have learned are likely to be rewarded by schools. For example, in order to survive in and to get some measure of control over their environment, they have learned to be assertive, and, if necessary, aggressive (DeRidder, 1988). These behaviors are not
likely to be acceptable to most educators. Possibly as a result of a lack of adult interaction in the early years, these students often arrive at school unfamiliar with the alphabet, numbers and counting. These are certainly perceived by educators as deficits. In order to manage a wide variety of levels of achievement, teachers sort students into groups with a similar degree of readiness to learn. As a result, children are often grouped with others of the same socio-economic background (DeRidder, 1988).

This grouping of students approach often results in the higher achieving group being the focus of teacher attention, and the lowest achieving group receives a disproportionate number of lower grades, which results in more student disinterest in academics. "At the end of the year, these students are retained, labeled immature, etc.; the beginning of the drop-out syndrome has begun." (DeRidder, 1989). Both low grades and being retained in a grade are predictors of dropping out of school. Failing one grade increases the risk of dropping out of school later by 40-50 % and failing two grades increases this risk to 90% (Mann, 1987).

Lloyd (1978) used predictors such as reading achievement, socio-economic status, non-promotion, and family characteristics to conclude that 70% of dropouts can be identified as early as the third grade. Papagiannis (1983) stated that "...dropping out and other forms of educational failure are structurally determined consequences" (p. 374).

Reed and Sautter (1990), using data from the U.S. Census Bureau report that 60% of children born today will live in a single parent home sometime during their childhood and that children living with a single female parent have a better than 50% chance of living in poverty. Women receiving no prenatal care or care only late in pregnancy increased 26% for non-whites and 17% for whites between 1980 and 1987. They speculate that by the year 2000, one child in four will be poor. Clearly, educators will continue to be challenged to address the needs of "at-risk" students.
Cognitive Processes

Spelling is a cognitive process in which the student passes through various stages. Several researchers have found that children progress through four identifiable stages when learning to spell (Ehri, 1986, Gentry, 1982, Henderson, 1985, Morris & Perney, 1984). These are most commonly identified in the literature as the precommunicative, semiphonetic, phonetic, and morphemic stages.

During the precommunicative phase, children use print, which may be scribbles, numbers or letters, but the letters have no sound correspondence. At this stage, students may know only a few letters, and they may not be differentiated from numbers (Ehri, 1989). For example, a student may spell dog as p-s-t.

The next stage, the semiphonetic, occurs when students learn the names of the letters and their corresponding sound, and use this knowledge to spell. At first, students may only know the sound correspondence for one or two letters, but, as they progress through the stage, they are able to hear and spell more sounds in words (Ehri, 1989). At this point in their language development, students spell only a few words correctly.

During the phonetic stage, the student uses the letters that best represent the sounds in the word, even though the spelling may be inaccurate. A child in this stage might spell telephone as t-e-l-a-f-o-n. The inclusion of vowel sounds is an important distinction between the semiphonetic and phonetic stage. Ehri (1989) states, “It is during the phonetic stage that children’s phonological awareness and knowledge of the system grow substantially” (p. 358).

Finally, the student progresses to the morphemic stage, sometimes referred to as the correct spelling stage. The student now can use his schemata to recognize and recall the correct sequence of letters.

Radebaugh (1985) conducted a study comparing the way good and poor spellers approach a spelling task. The participants were nine third and fourth graders who were identified as good spellers, and eight peers described as poor spellers based on their performance during spelling instruction and in creative writing
exercises. Subjects were asked to describe the strategy used when spelling difficult words. The results indicated that good spellers seldom recalled words using a letter by letter memorization tactic. Rather, they broke the words into smaller parts and tried to produce likely spellings for each part. A good speller might misspell the word, but a reasonable and logical spelling was offered. For example, dinosaur was spelled dancer, crocodile as crokadile, and cautiously as catiiously. Poor spellers were more likely to use a letter by letter approach (e.g. dinusor, krockadiel, coshaly). Radebaugh theorizes that the poor spellers use more strategies typical of students in the phonetic stage, while the good spellers are using strategies typical of the morphemic stage, which she terms the transitional stage. Secondly, results showed that good spellers use visual imagery while the poor students made no reference to visualizing the correct spelling.

**Developmental spelling** Developmental spelling, sometimes referred to as *inventive spelling*, is a concept that meshes with the cognitive theories of spelling. Read (1986) believes that spelling is related to student cognitive development rather than memorization. At various stages in student mental development, students will spell words in certain ways which reflect their understanding of language. As students mature and develop more sophisticated understandings of the English language, they will recognize and relate their knowledge to the skill of spelling. "This suggests that in the lower grades, at least, teachers should include class activities that allow students to write words as they understand them" (Mazzio, 1987, p. 3).

**Error analysis.** Error analysis has been widely described in the literature as a method for discovering what strategies students are employing to spell words, and for determining what teaching strategies may prove successful in helping individual students. Types of errors include omissions, substitutions, transpositions, reversals, and phonetic miscues (Weisberg, 1985). Because there are many ways to make a mistake, specific information on student errors is a prerequisite to formulation of a remediation plan (Hendrickson, Gable, & Hasselbring, 1988).

Suggesting that pairing incorrect and correct spellings help students to focus attention to correct orthography, Kauffman, Hallahan, Haas, Brame, and Boren
(1978) conducted two experiments designed to compare the effectiveness of two methods of correcting spelling errors. The first experiment involved two eight-year-old boys with mild retardation. Each week the students were given ten phonetically irregular words chosen from the students’ reading material. During the model only phase, the teacher said “Here is the way you write the word,” and wrote the word correctly next to the students’ misspelled word. The child then wrote the word correctly. During the imitation plus model phase, the teacher said, “This is how you wrote the word,” and then wrote the word in the exact imitation of the child’s misspelling. The teacher then said, “This is the right way to spell it,” and wrote the word correctly. Using this model, the child wrote the word correctly. The imitation plus model condition resulted in a faster acquisition rate and a higher level of performance than did the model only condition.

The second experiment involved a twelve-year-old child with learning disabilities who had significant difficulty in spelling. A similar procedure as described in the first experiment (model only and imitation plus modeling) was used, with the exception that the target words selected were both phonetically regular and irregular. The subject performed significantly better under the imitation plus model condition.

Nulman and Gerber (1984) conducted an error analysis study involving an eight-year-old student with learning disabilities, who had demonstrated severe problems in learning to spell words correctly. They replicated the results of Kauffman et al. (1978), and found, through informal observation of the student, that while error imitation is effective, the procedure may in fact be aversive to students.

Lydiatt (1984) maintains that error detection and correction results in useful insights into the spellers’ behaviors. This can be accomplished using an informal approach. When asking students to respell words, teachers may discover that many errors are trivial or a major problem may become evident. Students also may be asked to describe the thought processes that they employ to spell words.

Lydiatt (1984) also describes the signal detection theory which holds that the complex act of analyzing spelling errors can be measured in terms of sensitivity and bias. Sensitivity refers to the student’s feeling that the word is “not right”, but the
student is not aware of exactly what is incorrect. Bias refers to the criterion students use to decide whether or not errors exist. When students employ a system that is too rigid, they will miss many errors.

Steps for conducting error analysis. Hendrickson, Gable, & Hasselbring (1988) present a six step procedure for analyzing spelling errors, as well as choosing instructional methods and setting accuracy standards.

Step 1. Obtain Sample of Spelling Errors

The first step in gathering diagnostic information is to obtain samples of errors, because consistent spelling errors made by students can be effectively analyzed. The amount of sampling that is required is unknown, but sampling affords a valuable teaching tool. Teachers can note points of hesitancy, nonproductive body movement, and fluidity of task completion through observation (Johnson, 1985.)

Step 2. Interview the Student

The teacher talks with the student in order to help identify specific words or error patterns that were not evidenced in the error sample. Questions such as “Are there any words you hate to spell?” “What confused you about spelling that word?” and “What words do you usually have trouble spelling?” are designed to elicit responses that may help the teacher to diagnose spelling problems.

Step 3. Analyze and Classify Errors

Correct and incorrect words are charted and analyzed. Scoring errors can be accomplished by using one of five approaches: whole words, syllables, sound clusters, letters-in-place, and letter sequencing. Once the errors are identified, the teacher uses an error analysis chart to score student performance.

Step 4. Select a Corrective Strategy

After errors have been analyzed and classified, the teacher selects a remediation strategy. For example, mistakes in phoneme-grapheme correspondence can be remediated with a phonics approach since such correspondence has been found to be consistent more than 80% of the time (Hanna, Hanna, Hodges, & Peterson, 1971.) Use of a spelling rule approach would be indicated if the student is making errors on predictable words that do not have
sound-letter correspondence. Other approaches such as the use of flashcards are appropriate depending on the error type.

**Step 5 Implement Strategy and Evaluate its Impact**

Repeated evaluations should be done in order to evaluate both the validity of the error assessment and the effectiveness of the instructional strategy. The frequency and extent of the evaluations should be based on the severity of the learning problem as well as the student's learning stage (Evans, Evans & Mercer, 1986).

**Step 6 Apply Normative Standards**

Establish standards for acceptable student spelling performance. These standards may or may not be a percentage correct or a rate criterion, but should be established according to the standards of general education. Teachers should refer to the standards set by students who are performing acceptably as a reference to set criteria.

**Spelling competencies.** Stephens (1977) maintains that there are many spelling competencies required to be an effective speller. Auditory discrimination is essential to hear the difference between consonant and vowel sounds. Knowledge of consonant sounds, including initial, final, and blending sounds, as well as identification of phonograms is necessary. The ability to form plurals, to divide words into syllables, to change the endings of words which require spelling changes, and to spell words in which a vowel digraph forms one sound such as ai, ea, ay, or ei or a diphthong forms a blend such as oi, ou, ow. Knowledge of structural elements (root words, prefixes, suffixes) as well as single syllable silent e words are also required (Mercer & Mercer, 1989).

**Methodologies**

The research in the area of spelling methodology includes varied approaches and instructional designs. Gerber and Lydiatt (1984) point out, "There really is no "best" method if by "best" we mean a method that is equally effective with all students" (p. 8). Many different instructional methods have been used to teach
spelling, and the choice of method has often been based on what is most effective with the majority of the class (Gerber & Lydiatt, 1984). Individual and specialized methods have been studied, particularly with special populations. There appears to be no significantly superior teaching method, but each child should be provided with a system of learning words (Johnson, Langford & Quorn, 1981).

Heron, Okyere, & Miller (1991) have developed a taxonomy of approaches to the teaching of spelling. They separate these methodologies into three separate areas: traditional, remedial, and specialized.

**Traditional.** The traditional method is rooted in linguistic theory, which holds that phonemes, the sound unit that combines with other sounds to form words, and morphemes, which are the smallest unit of language that conveys meaning and can stand alone, are the foundation for learning to spell (Mercer & Mercer, 1989). This approach is based on the idea that regular spelling patterns exist in the English language, and these patterns can be learned and generalized to spell correctly.

The traditional method usually involves using a different task each day to practice the orthography of the words. Writing the spelling words in sentences, arranging them in alphabetical order, using them in the composition of short stories, and copying the words a specified number of times are all examples of traditional instruction (McNeish, 1985). Spelling tests are usually given at the end of the week. Regardless of student performance on the test, a new list of words is studied the next week.

**Remedial.** Remedial methods include multisensory approaches such as Fernald (1943) and Gillingham (Gillingham & Stillman, 1970). The Fernald approach involves the use of four sensory modalities: visual, auditory, kinesthetic, and tactile (forming an acronym that results in the approach also being called the VAKT method). The teacher models the correct spelling of the word, the student traces the word while saying it aloud, and the word is then written from memory. If the word is written incorrectly the student retraces the word. Students choose the words they want to learn.
**Gillingham Method.** The Gillingham (Gillingham & Stillman, 1970) approach uses visual, auditory, and kinesthetic sensory experiences to teach letter-sound correspondence. The system emphasizes repetition and drill. Students learn one syllable words as well as isolated regularly spelled syllables. Polysyllabic words are divided into single syllables, and learned syllable by syllable. The words are carefully sequenced according to pattern. The teacher says the word, the student repeats the word and says each letter, writes the letters as the teacher says them, then reads the word she has written. Non-phonetic words are taught through drill, and words to be taught are carefully sequenced (Mercer & Mercer, 1989).

**Horn Method.** The Horn (1954) method requires students to sequentially follow the steps involving spelling recall, written orthography, word pronunciation and proofreading. For example, the students look at the word and say it to themselves, close their eyes and visualize the word, cover the word, and then write it (Weisberg, 1985.) If an error is made at any point along this continuum, the entire procedure is begun again. Words to be learned are selected from frequency lists (Heron, Okyere, & Miller, 1991).

**Specialized Approaches.** Specialized approaches are divided into teacher-directed, (e.g. modeling, spelling rules, and distributed practice), peer-mediated (e.g. peer tutoring methods) and semi-independent methods (e.g..self-questioning directed rehearsal, computer, and self-correction).

**Modeling.** Modeling is a teacher directed approach which involves student imitation of the correct oral or written spelling. Modeling has received much experimental and theoretical attention (Cooper, Heron, & Heward, 1987). The teacher can also imitate the students errors, then present the correct model (Kauffman, et al, 1979).The effectiveness of modeling is predicated on immediate feedback and praise for correct responses (Mercer & Mercer, 1989).

**Rule based instruction.** Rule based instruction is designed to enable students to learn spelling rules and generalize these rules to words with similar patterns. Spelling rules can apply to both linguistic and phonic instruction.
For example, words that follow certain patterns such as fat, rat, sat, mat, etc. are used to teach spelling generalization. Using a phonics approach, students learn to associate sounds with a particular combination of letters. For example, once the consonant digraph st is learned, the student should be able to correctly spell at least the beginning of the words star, stay, stall, stop, etc. Only those spelling rules which apply to a large number of words and have few exceptions should be taught (Mercer & Mercer, 1989).

Distributed practice. Distributed practice refers to amending the number of words given to students to learn at one time. Traditionally, students have received a spelling list on Monday containing all the words they are supposed to learn during the week. The distributed practice idea is that students learn more efficiently when a smaller number of words to be learned is given each day.

Bryant, Drabin, and Gettinger (1981) conducted a study that examined the effects of varying unit size in children with learning disabilities. The subjects were 64 children with a mean chronological age of 14.2 years who were enrolled in special education classes in a large urban school district. Students were divided into three treatment groups. The only difference in the treatment for each group was the number of words taught each day. Group A was taught three words per day, Group B was taught four words per day and Group C was taught five words per day. The data showed that Group A mastered 83% of the words common to all three groups, Group B mastered 54%, and Group C mastered 49%. These results supported the hypothesis that student spelling achievement is improved by introducing spelling words in smaller units.

Peer tutoring. Students can help each other learn to spell. The flow list method, which involves removing learned words from the spelling list and adding unlearned words, has been adapted to a peer tutoring format (Cooke, Heron, & Heward, 1983; Heron, Heward, Cooke, & Hill, 1983, Heward, Heron, Ellis, & Cooke, 1986) An additional strategy, suggested by Graham and Miller (1979), involves peer presentation of words to students, after which the students write the word while looking at it. Then, the students cover the word and write it again. Finally,
the students compare their spelling with the model.

Maheady & Harper (1987) studied the effects of peer tutoring to increase spelling scores. The subjects were eight third and fourth grade students with mild mental handicaps. During baseline, the students were assigned spelling tasks consistent with the traditional approach. On Tuesday through Thursday, the students worked independently on varied assignments such as word definitions, sentence completion tasks, unscrambling words, or a vocabulary exercise. On Fridays, the students took an oral spelling test given by the teacher. The intervention, peer tutoring, was introduced. Students from the gifted program, also third and fourth graders, served as tutors. The tutors read each spelling word aloud. The tutees wrote each word, then spelled the word orally. Two points were awarded for each correctly spelled word. Any misspelled word was spelled orally by the tutor. The subjects then corrected the word on paper, and spelled it orally. One point was awarded for each corrected word. Stickers were earned for 18 or more points. During baseline, the average weekly test score was 62.2%. After the peer tutoring program was introduced, the average test score was 87.3%. Peer tutoring, using the methods described, was shown to be an effective intervention.

**Semi-independent methods.** Semi-independent methods include self-questioning, directed rehearsal, computer, and self-correction approaches.

**Self-questioning.** Cognitive training is the foundation for the self-questioning method. Wong (1986) conducted a study which involved eight sixth graders who qualified for remedial spelling instruction. Students were taught root words and a pattern for changing the root word into another part of speech. For example, the verb *educate* can be formed into the noun *education*. In addition, students were instructed to ask themselves questions such as "Do I know this word?" "How many syllables do I hear in this word?" "Does it look right to me?" These methods emphasized both the structural analysis of words and the use of a monitoring strategy. Wong (1986) concluded that "both components-domain specific knowledge and strategies-are essential in spelling instruction" (p. 174).
Directed rehearsal. Directed rehearsal is an overcorrection procedure which involves positive practice in learning words spelled incorrectly. Students may be required to write the missed words several times, complete dictionary work, or write many sentences using the words.

Computer instruction. Computer instruction is an educational development that is becoming more common in several academic areas. Several software programs have been developed for classroom use to teach spelling. These programs employ different strategies, including spelling rules, word patterns, cloze techniques, and phonics (Mercer & Mercer, 1989).

Research on Spelling Self-Correction

Fitzsimmons and Loomer (1978) summarized experimental research on spelling self-correction by concluding, "The child correcting his own spelling test, under the direction of the teacher, is the single most important factor in learning to spell" (p.6).

T. Horn (1947) conducted one of the first studies to successfully demonstrate the effectiveness of the self-correction method. Participants included 268 sixth grade students, who were divided into three groups receiving differing spelling instruction. The students who were given a test, allowed to correct the test themselves, and then immediately retook the test, demonstrated spelling achievement superior to the other two groups.

Ganchow (1983) described a self-correction format, modified from Edlund (1979), which provides the student five trials to practice spelling the target word. The student uses three proofreading symbols, omission, insertion, and wrong letter marks, to self-correct spelling errors. The spelling words were presented orally on tape or with a language master, and the students folded the paper so that the target words could not be seen while the student was attempting to spell the word. The paper was then unfolded, and corrections made using the proofreading symbols. The student worked independently as long as required in order to learn to spell the
words. Ganchow (1983) suggested that practice sessions be held for fifteen minutes per day rather than one long session.

**McNeish study.** McNeish (1985) conducted an experimental test of Ganchow's self-correction format, and, using an alternating treatment format, compared it to the traditional approach to spelling. A twenty minute instructional time period was constant in both conditions. The participants were five middle school students with learning disabilities who were 13 or 14 years old.

Under the traditional condition, participants were given daily spelling tasks. On Mondays, students wrote the spelling words as many times as was possible during the time period. On Tuesdays, students wrote each spelling word in a sentence. On Wednesdays, they arranged the words in alphabetical order, and on Thursdays, they wrote stories using as many spelling words as they could. Fridays were reserved for testing.

Under the self-correction condition, students were taught four proofreading marks. McNeish (1985) added a symbol for transpositions to Ganchow's (1983) previously described editing marks. The words were dictated by high achieving peers. Using a five column format, students folded their paper so that the target words could not be seen. They attempted to spell the word, then unfolded the paper to reveal the correct spelling. Comparing their spelling to the model, the students corrected the word using the proofreading marks, then wrote the word correctly in the next column. They then folded the paper again, and repeated the procedure.

The results indicated that the students learned an average of 4.8 more words per week under self-correction than they learned under traditional spelling. The average correct percentage under self-correction was 86.2%, but under the traditional method, the correct percentage was only 65.6%. All five students achieved higher spelling scores under self-correction, with the percentage of increase ranging from 12% to 39% for individual students.

McNeish used delayed posttests given 10 to 15 days after the weekly tests as a maintenance measure. She retested only those words which were spelled
correctly on the weekly tests. Four of the five participants maintained more words learned under the self-correction condition than the traditional. Results indicated that students maintained an average of 59% of the words learned under self-correction, while maintaining 51% of the words learned under the traditional approach. The average per student increase ranged from 5.2% to 23.8%.

As evidence of the generality of behavior, McNeish examined the written work of participants in other subject areas such as social studies, science, and language arts. She recorded the number of spelling words used in each students written work, and noted whether or not the word was correctly spelled. The results were that students generalized 59% of their words learned under self-correction, and 41% of the words learned during the traditional spelling condition.

McNeish found that self-correction is more effective than the traditional approach in the acquisition, maintenance and generalization of spelling words.

Okyere study. Okyere (1989) replicated McNeish's study, using a population of six elementary students who were attending a university sponsored tutoring clinic three times per week. The participants ranged in age from 7 to 13 years old, and each student had demonstrated significant learning problems in the area of spelling. Okyere used essentially the same self-correction procedures as McNeish, but did not compare self-correction to traditional spelling. The baseline data were the words students could not spell correctly before intervention. Parents administered both the pretest and maintenance measure at home. The experimenter dictated the words onto audiotapes, and students used tape recorders to hear the tapes.

Results indicated that while students could not spell any of the words correctly during baseline, all participants spelled a minimum of 14 of 15 words on each post session test. On delayed posttests, the maintenance measure, all six students maintained at least 85% of the words learned after self-correction intervention. As a generalization of response measure, students wrote variations of the spelling words (e.g. attend / attendance, receive / receiving). Five of the participants were able to correctly spell 80% or more of the words, and one student spelled 73% correctly.
Self-correction in spelling was demonstrated to be a successful instructional intervention.

**Research Questions**

The following research questions were addressed in this study:

1. Will students correctly spell more words on weekly spelling tests after traditional or self-correction instruction?

2. Which instructional strategy (traditional or self-correction) will result in more correct spelling in a generalization setting?

3. Which instructional strategy (traditional or self-correction) will help students maintain the correct spelling over time?

4. Which instructional strategy (traditional or self-correction) do the students prefer?
Chapter II
Method

This section will describe the procedures used in the study. A description of the experimental design, subjects, setting, and dependent variables is included. A list and description of the materials used to conduct the experiment is also included.

Subjects
Six third grade students who have experienced difficulty with spelling participated in the study (see Table 1). The subjects, three males and three females, ranged in age from 8 to 10 years. Four students were recommended because their spelling performance was very erratic. These students sometimes did well on classroom spelling tests, but usually received unsatisfactory scores. Two of the students were consistently failing spelling.

All subjects received written parental permission to participate in the study (Appendix A). The experimenter sent a letter (Appendix B) explaining the study to each participant's parent. Also, the experimenter talked by telephone with three parents who had additional questions.

Setting
The study was conducted in an urban elementary school which is part of a large midwestern school system. The school consists of grades kindergarten through five, and has approximately 360 students. The majority of students scored in the average range of The Comprehensive Test of Basic Skills. The demographic composition of students is 51 percent males and 49 percent females, 44 percent white and 55 percent black, and 1 percent other minorities. Fifty five percent of the
## Table 1
Subject Demographic Data

<table>
<thead>
<tr>
<th>Subject</th>
<th>Gender</th>
<th>Age</th>
<th>Ethnicity</th>
<th>SES</th>
<th>Spelling(^a) (AE)</th>
<th>Spelling(^b) (GE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>9.3</td>
<td>black</td>
<td>low</td>
<td>9.0</td>
<td>3.3</td>
</tr>
<tr>
<td>2</td>
<td>M</td>
<td>8.8</td>
<td>black</td>
<td>low</td>
<td>8.0</td>
<td>2.6</td>
</tr>
<tr>
<td>3</td>
<td>M</td>
<td>10.0</td>
<td>black</td>
<td>low</td>
<td>7.3</td>
<td>2.0</td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>8.7</td>
<td>white</td>
<td>middle</td>
<td>7.6</td>
<td>2.1</td>
</tr>
<tr>
<td>5</td>
<td>F</td>
<td>10.4</td>
<td>black</td>
<td>middle</td>
<td>8.3</td>
<td>2.9</td>
</tr>
<tr>
<td>6</td>
<td>M</td>
<td>9.4</td>
<td>black</td>
<td>middle</td>
<td>8.0</td>
<td>2.6</td>
</tr>
</tbody>
</table>

\(a\) Kaufman Test of Educational Achievement, spelling subtest, age equivalent score

\(b\) Kaufman Test of Educational Achievement, spelling subtest, grade equivalent score
children live in families receiving public assistance and are eligible for reduced or free lunches.

The study was conducted in a storage and copying room, where students often receive small group tutorial help. The room measures 7x12 feet and has an oblong table with eight chairs where seatwork was conducted (see Figure 1). The room was well lit and usually free from interruption. The experimenter and students met Monday, Tuesday, Wednesday and Friday in this room from 10:00 a.m until 10:20 a.m. Because of a scheduling conflict with physical education class, sessions were conducted on Thursday from 2:45 until 3:05 p.m. (See Figure 1).

**Experimenter**

The experimenter was a graduate student at The Ohio State University, pursuing a Master of Arts degree in special education and Ohio teaching certification in specific learning disabilities. She received a Bachelor of Science degree in social studies education from The Ohio State University and is also certified in comprehensive social studies education.

**Definition and Measurement of the Dependent Variables**

The dependent variables were the words written correctly on weekly spelling tests, delayed posttests, and words correctly spelled on oral spelling trials. In addition, the spelling subtest of the *Kaufman Test of Educational Achievement* (Kaufman and Kaufman, 1985) was individually administered prior to the initial session, and after the final session, in order to assess the students' achievement in spelling using the traditional dictation format.

*Spelling accuracy* is defined as writing the letters of the stimulus words in the correct order. Homonyms as well as words or letters which were illegible were counted as incorrect. If the stimulus word included a punctuation mark, such as a capital letter or an apostrophe, the student must have included the correct punctuation in order for the word to be counted as correct.
Figure 1. Experimental Setting
Pretests are defined as assessment measures used to determine which spelling words were known and which were unknown. The experimenter read the word orally, used the word in a sentence in order to avoid any possible homonym confusion, and then read the words a second time. The student wrote the word on notebook paper. Pretests were given twice. Words spelled correctly were eliminated, while words spelled incorrectly became the list of words to be learned. If the word was correctly spelled on one pretest and not the other, the word was not added to the spelling list.

Weekly tests are defined as assessment measures used to determine whether or not the student had correctly learned to spell the target words. Weekly tests were given on Friday of each week after the student had four days of instruction and practice in either the traditional or self-correction spelling condition. The experimenter read the word, used the word in a sentence, and then read the word again. Students wrote the word on notebook paper. These posttests were used as permanent products to determine the accuracy of the response.

Delayed posttests are defined as assessment measures to determine the maintenance of the correct spelling response over time. The delayed posttest was given biweekly. Students were assessed only on words they had previously spelled correctly on the weekly tests. The experimenter again read the word, used the word in a sentence, and read the word a second time. The students wrote the word on notebook paper. These delayed posttests were used as permanent products to determine the extent to which the correct spelling has been maintained over time.

Oral spelling is defined as the student saying aloud the correct sequence of letters when presented with the stimulus word. The experimenter followed the same procedure as with written spelling in that she said the word, used it in a sentence, then said the word a second time. The student then said the word, spelled the word, then said the word again. Words were counted as correctly
spelled when the sequence of letters was correct. As with written spelling, homonyms were counted as incorrect, as were all words without correct punctuation. For example, if the stimulus word was *America*, the student must spell the word “capital A-m-e-r-i-c-a” in order to be counted correct. The word was also counted correct if the student self-corrected his spelling before he said the word the second time. For example, if the student spelled the stimulus word *hose* as *h-o-o-s-e*, but self-corrected to *h-o-s-e* before saying the word the final time, the word would be counted as correct. Oral spelling was used a generalization measure, since spelling bees are a common practice in elementary classrooms, and a regular part of the curriculum at the school in which the study was conducted.

Traditional method is defined as an instructional strategy whereby students wrote the target spelling words three times each, used the words both in sentences and in student authored stories, and arranged them in alphabetical order. Each of these learning activities was completed on different days (Monday-Thursday) and in the same sequence throughout the study.

Self-correction method is defined as an instructional strategy whereby students use proofreading marks (Appendix C) to correct their spelling errors. The stimulus words were presented on audiotape, and the students wrote the target words, proofread the words, wrote the words again, proofread the words again, and wrote the words a third time. A self-correction form is used for this purpose (Appendix D).

**Procedures to Ensure Accuracy and/or Reliability of Data**

All unmarked student tests, both weekly and delayed posttests, were photocopied. A previously prepared key was used to score the tests. The experimenter scored one copy and an independent observer, the classroom teacher, scored the other. Accuracy standards for spelling were clearly defined, and the products scored by the observer matched those scored by the experimenter 100 per cent of the time.

The independent observer, a doctoral student from The Ohio State
University, was present during 50 percent of the days when oral spelling, an assessment for generality, was in effect. The observer and experimenter, independent of one another, simultaneously recorded whether or not the word was spelled correctly. The interobserver agreement score was calculated using the following formula:

\[
\frac{\text{# of agreements}}{\text{# of agreements + disagreements}} \times 100
\]

The independent variables were monitored for consistency using a checklist (Appendix E) which outlined the steps the experimenter followed in implementing both the traditional and self-correction conditions. The observer completed the checklist on 7 of the 31 days, or 22 percent of the time, across all sessions. The interobserver agreement score was calculated using the same formula that was used for oral spelling reliability.

**Materials**

Spelling lists were derived from the McDougal-Littell Spelling Series currently in use in the classroom. In addition, the Kaufman Test of Educational Achievement (Kaufman and Kaufman, 1985) was used. Six battery operated audiocassette recorders with headphones were required. These recorders, loaned to the experimenter for use in the study, were the following brands:

- Craig AM/ FM Stereo Cassette Player
- Electro Brand stereo cassette player
- GE AM/ FM radio cassette player
- GPX personal tape player
- Sony Walkman AM/ FM cassette player (2)

Manila folders (15" x 9") were used to keep spelling work and a proofreading marks prompt was written on the inside cover. Lined self-correction forms (Appendix D), regular ruled 11" x 8 1/2" notebook paper, and number 2 lead pencils were also needed.
The experimenter used a paper lunch bag (standard size) and regular playing checkers to determine the order of treatment. An independent observer reliability measure form (Appendix E) was used.

**Experimental Design**

The alternating treatments design was chosen because it demonstrated the comparison between two independent variables. It offered the advantage of minimizing sequence effects (Cooper, Heron, & Heward, 1987). Experimental control is demonstrated if different data paths develop for each condition, show no overlap and either stable levels or opposing trends (Cooper, et al., 1987).

The order of treatments were randomly selected. Eight playing checkers, four red and four black, were mixed together in a paper sack. The experimenter, without looking into the bag, pulled out one checker at a time. Red checkers represented the traditional approach (A) and black checkers represented the self-correction method (B). The order of treatment, selected in this manner, was: A-B-A-B-A-B.

**Procedure**

**General procedures.** Students were individually given the spelling subtest of the Kaufman Test of Educational Achievement (Kaufman & Kaufman, 1985) before any treatment data was collected.

An instructional time of twenty minutes was constant across both the traditional and self-correction conditions. A timer was set at the beginning of the instructional session and when the time period had elapsed, the session was ended, regardless of student progress on the task. If a student finished the task before the time period elapsed, he was asked to begin the task again until the twenty minutes had expired. This procedure was implemented to ensure that students were spending an equal amount of time on spelling tasks in each condition. It also eliminated the possibility that students would rush through the task in order to spend their time on something else.
If the student worked very slowly and it appeared that he would not complete the assignment, the experimenter prompted the student to work at a faster pace (i.e. "Try to work a little faster so you can have lots of practice before your spelling test.").

Students were instructed to print rather than write in cursive handwriting on all pretests and posttests. This procedure was adopted because cursive handwriting was a newly acquired skill, and students were making many handwriting errors. This eliminated the problem of incorrect letter formation or confusion causing the student to misspell the word, and improved the legibility of the students' writing.

Students who were absent during an instructional day (Monday-Thursday) skipped that day's assignment. This was necessary because make-up work could not be completed under proper experimental control. If the student was absent on Friday, when posttests were given, the posttest was given on Monday before instruction began on the next week's spelling list.

Words to be learned were compiled from the McDougal-Littell spelling series currently in use in the classroom. Students were exposed to these words only during the twenty minute instructional time. Students were not permitted to take the lists home and the experimenter collected all assignments and folders at the end of each session.

**Weekly pretests.** Weekly pretests were conducted in both conditions in order to develop a pool of unknown words. Each subject was given a weekly spelling list of fifteen words, with the exception of Subject 3 who was given a list of ten words. (Because of his difficulty in spelling, Subject 3 had been given a reduced list by his classroom teacher for the entire year.) Each student listen to a dictated list of approximately thirty words. The experimenter closely observed the students while they are writing the dictated words. When it appeared that enough words have been misspelled to comprise a weekly list (ten words for Subject 3 and fifteen words for all other subjects), the experimenter ended the pretest before all thirty words had been given. These pretests were given on Thursdays after the instructional period was over. They were given a second time on Friday following
the weekly posttest. Words must be misspelled twice in order to be added to the student's list of unknown words. If the student missed a word on either pretest, it was not added to the unknown words list. This procedure ensured that the words were unlearned prior to intervention.

**Weekly tests.** Students were given a posttest on Fridays in order to assess student learning. In both conditions, the experimenter recorded the words on audiocassette tapes. The words were given the the word-sentence -word format described in the definition of dependent variables section. The students listened to the words using the cassette tape player with headphones, and wrote each word on notebook paper. Since each student had a different word list, this procedure allowed all six participants to take the posttest at the same time.

**Traditional Instruction.** Each student received a typewritten list of unknown words selected after pretesting. The students were given a different assignment each day (Monday-Thursday) in order to practice spelling the words. These assignments have traditionally been used to teach spelling, and included writing the word at least three times each, alphabetizing the words, and writing the words in original sentences and stories.

On Monday, students were given their list of words to be learned. They wrote each word three times each. If time remained, they wrote the words on the list an additional time until the timer sounded.

On Tuesday, students arranged the words in alphabetical order. If this task was completed before time expired, they copied the words over in alphabetical order.

On Wednesday, students wrote original stories using as many target words as possible. If time remained, they wrote another story using words they had not used in the first story.

On Friday, students were given the posttest to determine the number of words they have learned.

**Self-correction.** In this condition, the experimenter first instructed the students on the use of proofreading marks. The students were given examples of when to
use and when not to use the four proofreading marks. (See Appendix C). A manila folder with the proofreading marks copied on the inside cover served as a prompt for correct use of the marks as well as a place to keep completed self-correction sheets.

The experimenter also instructed the students in the use of the cassette tape players, including how to start, play, rewind, and eject the tape. Each student demonstrated mastery of these skills by correctly executing the procedures two consecutive trials after training.

Each day, Monday through Thursday, students completed the same assignment. They were given a handwritten list of the target words to be learned during the week. The list was written on the self-correction form (Appendix D) by the experimenter. The form has five columns: word list, self-correct (A-1), write it right (A-2), self-correct (B-1) and write it right (B-2). Using cassette players with headphones, the students listened to the experimenter-dictated words on audiotape. Folding back the word list column so the students could not see the written words, the students wrote the word in the A-1 column. After they had written all the dictated words, they unfolded the word list column to expose the correct spellings. They compared their spelling to the correct spelling. Using proofreading marks, they edited their spellings. If the word was spelled correctly, they placed a checkmark in column A-2. After self-correcting, they wrote the words correctly in column A-2 while checking both the word list and column A-1 to make sure they were writing the words correctly. The students then brought the form to the experimenter to make sure the words are written correctly in column A-2 and to help fold the paper so that only columns B-1 and B-2 are exposed. The students again listened to the dictated words on audiotape and followed the same procedure in writing and proofreading in columns B-1 and B-2 as they did in columns A-1 and A-2. On Friday, student learning was assessed using posttests.

**Delayed Posttests.** Students were given delayed posttests every other Friday during the experiment. In order to assess the maintenance of the learned words over time, each student was asked to spell all the words he had spelled
correctly during the previous two week period. The experimenter recorded each word on the student's audiocassette. The procedure used was the same word-sentence-word format as used with the weekly posttests. Using the cassette tape player with headphones, the student listened to the stimulus words and wrote them on notebook paper.

**Generalization Measure.** Students were given the opportunity to orally spell twenty randomly chosen words which they had learned over the course of the study. Ten words were chosen which were learned under the traditional condition, and ten learned under the self-correction condition. (The procedure was modified for Student 3 because he learned only 7 words under the traditional condition. He was given the same number of words to spell as the other participants, but a maximum of 7 words could be counted as correct for words learned during traditional spelling.) The participants were divided into two groups of three to complete the oral spelling exercise. This was done in order to keep the pace lively and avoid having participants listening to the others spell aloud for a long period of time. The experimenter called on each student in a round robin fashion. The student stood up. The experimenter said the stimulus word, used it in a sentence, then said the word again. The student then repeated the word, spelled the word, and repeated the word. This procedure was similar to a spelling bee format. The student then sat down, and the experimenter called on the next student. Each student spelled one word at a time, regardless of whether or not the word was spelled correctly. The experimenter provided no feedback as to the accuracy of the student's response, but did praise each student for attempting to spell each word. Students were given five seconds to make a response. If they self-corrected the word after fewer than three errors, the response was counted correct.
Social Validity

In order to help evaluate the social validity of the study, students were asked to complete a questionnaire (Appendix). Because of the participant's reading level, the experimenter read the questions to each student individually, and recorded their answers on the questionnaire. They were asked the following questions:

1. Which method, self-correction or traditional, did you like better?
2. Why?
3. Which method, self-correction or traditional, helped you to learn your spelling words better?
4. Why?
5. Do you think you could use the self-correction method on your own?
6. (If yes) How?

The questionnaires were completed three days following the study.
Chapter III
Results

The purpose of this chapter is to present the results of the study. The chapter begins with the results of the accuracy and reliability measures. This is followed by the results of each subject's spelling performance on weekly tests and delayed posttests, as well as a group summary. The results of the generalization measure are presented. Finally, the results of the social validity measure is presented.

Reliability Measures

Accuracy Scores

The experimenter photocopied all weekly tests and delayed posttests. The independent observer scored one copy and the experimenter scored the other. If a discrepancy occurred, the permanent products were compared to resolve the discrepancy. Agreement was 100%, with no unresolved discrepancy.

Interobserver Agreement

Using the formula described in Chapter 2, a perfect reliability score of 100% was obtained for the independent variable. The experimenter followed all five procedures outlined on the interobserver reliability measure (Appendix E) each time she was observed. The observer was present 22 per cent of the time when instruction was taking place.

The observer was present during 50 per cent of the oral spelling, the generalization measure, phase of the study. The experimenter and observer
simultaneously recorded the accuracy of student responses. Using the same formula as with the reliability measure, agreement was 95% for Student 1, and 100% for the other five subjects.

**Weekly Test Scores**

All participants were given two pretests each week in order to ensure that all the words on their spelling lists were unlearned prior to intervention. On Friday of each week, students were given a test over the words on their spelling list they had received on Monday. Traditional spelling was the experimental condition during weeks 1, 3, 6, and 8. Self-correction was the experimental condition on weeks 2, 4, 5, and 7. The results for each student are summarized in Table 2.

**Student 1**

During the four weeks of the traditional spelling condition, Student 1 spelled 39 of 60 words correctly (65%). This is a mean of 9.75 words learned per week, and a range of 5 to 13 correct responses. During the four weeks of the self-correction condition, Student 1 spelled 51 of 60 words correctly (85%), for a mean of 12.75 words learned per week, and a range of 11 to 15 correct responses.

**Student 2**

During the four weeks of the traditional spelling condition, Student 2 correctly spelled 20 of 60 words correctly (33%). This is a mean of 5 words learned per week, and a range of 3 to 8 correct responses. During the four weeks of the self-correction condition, Student 2 spelled 39 of 60 words correctly (65%), for a mean of 9.75 words learned per week, and a range of 4 to 15 correct responses.

**Student 3**

During the four weeks of the traditional spelling condition, Student 3 spelled 7 of 40 words correctly (18%). This is an mean of 1.75 words learned per week, and with a range of 0 to 4 correct responses. During the four weeks of the self-correction condition, Student 3 spelled 26 of 40 words correctly (65%), for a mean of 6.5 words learned per week, and a range of 11 to 15 correct responses.
### Table 2
Weekly Test Results for Individual Students
Number of Words Spelled Correctly

**Treatment Condition: Traditional Spelling**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Week 1</th>
<th>Week 3</th>
<th>Week 6</th>
<th>Week 8</th>
<th>Total</th>
<th>Average&lt;sup&gt;1&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12 / 15</td>
<td>9 / 15</td>
<td>13 / 15</td>
<td>5 / 15</td>
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<td>10 / 15</td>
</tr>
<tr>
<td>3</td>
<td>0 / 10</td>
<td>2 / 10</td>
<td>1 / 10</td>
<td>4 / 10</td>
<td>7 / 40</td>
<td>2 / 10</td>
</tr>
<tr>
<td>4</td>
<td>8 / 15</td>
<td>7 / 15</td>
<td>10 / 15</td>
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<td>30 / 60</td>
<td>8 / 15</td>
</tr>
<tr>
<td>5</td>
<td>7 / 15</td>
<td>13 / 15</td>
<td>12 / 15</td>
<td>10 / 15</td>
<td>42 / 60</td>
<td>11 / 15</td>
</tr>
<tr>
<td>6</td>
<td>9 / 15</td>
<td>15 / 15</td>
<td>7 / 15</td>
<td>10 / 15</td>
<td>41 / 60</td>
<td>10 / 15</td>
</tr>
</tbody>
</table>

**Treatment Condition: Self-correction**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Week 2</th>
<th>Week 4</th>
<th>Week 5</th>
<th>Week 7</th>
<th>Total</th>
<th>Average&lt;sup&gt;1&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>14 / 15</td>
<td>15 / 15</td>
<td>11 / 15</td>
<td>11 / 15</td>
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<td>2</td>
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<td>15 / 15</td>
<td>10 / 15</td>
<td>10 / 15</td>
<td>39 / 60</td>
<td>10 / 15</td>
</tr>
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<td>4 / 10</td>
<td>9 / 10</td>
<td>9 / 10</td>
<td>4 / 10</td>
<td>26 / 40</td>
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<td>15 / 15</td>
<td>14 / 15</td>
<td>12 / 15</td>
<td>53 / 60</td>
<td>13 / 15</td>
</tr>
<tr>
<td>6</td>
<td>14 / 15</td>
<td>15 / 15</td>
<td>14 / 15</td>
<td>13 / 15</td>
<td>56 / 60</td>
<td>14 / 15</td>
</tr>
</tbody>
</table>

<sup>1</sup>Averages are rounded to the nearest whole number
Figure 2. Student 1's spelling performance on weekly tests. All words were unknown prior to intervention.

Figure 3. Student 2's spelling performance on weekly tests. All words were unknown prior to intervention.
Figure 4. Student 3's spelling performance on weekly tests. All words were unknown prior to intervention.

Figure 5. Student 4's spelling performance on weekly tests. All words were unknown prior to intervention.
Student 4

During the four weeks of the traditional spelling condition, Student 4 spelled 30 of 60 words correctly (50%). This is a mean of 7.5 words learned per week, and with a range of 5 to 10 correct responses. During the four weeks of the self-correction condition, Student 4 spelled 52 of 60 words correctly (87%), for a mean of 13 words learned per week, and a range of 10 to 15 correct responses.

Student 5

During the four weeks of the traditional spelling condition, Student 5 spelled 43 of 60 (72%) words correctly. This is a mean of 10.75 words learned per week, and with a range of 7 to 13 correct responses. During the four weeks of the self-correction condition, Student 5 spelled 54 of 60 words correctly (90%), for a mean of 13.5 words per week, and a range of 12 to 15 correct responses.

Student 6

During the four weeks of traditional spelling, Student 6 spelled 41 of 60 words correctly (68%). This is a mean of 10.25 words learned per week, and a range of 7 to 15 correct responses. During the four weeks of the self-correction condition, Student 6 spelled 56 of 60 words (93%), for a mean of 14 words learned per week, and a range of 13 to 15 correct responses.

Group Summary

The six participants in the study learned a total of 179 words during the traditional spelling condition. The students learned a total of 276 words during the self-correction condition. This means that the participants learned 97 more words during self-correction, or a mean of 16 more words per student over the course of the study. Overall, the students learned 53% of the words during the traditional condition. During the self-correction condition, the students learned 81% of the words. (See Figure 8.)
Figure 6. Student 5's spelling performance on weekly tests. All words were unknown prior to intervention.

Figure 7. Student 6's spelling performance on weekly tests. All words were unknown prior to intervention.
Figure 8. Group summary of student performance on weekly tests. All words were unknown prior to intervention.
Delayed Posttest Scores

Delayed posttests were used as a measure of spelling performance over time. Students were given delayed posttests seven to fourteen days after the weekly posttest. Only words correctly spelled on the weekly posttest were retested on the delayed posttest. Table 3 presents individual results of the maintenance measure.

Student 1

As reported in the previous section, this student correctly spelled 39 words during the traditional spelling condition. Of these words, she spelled 29 correctly (74%) on delayed posttests. She correctly spelled 51 words on weekly tests after self-correction. Of these, she spelled 37 (73%) correctly on delayed posttests. Although she learned and maintained more words during the self-correction condition, she maintained a greater percentage (74% compared to 73%) of words learned during traditional spelling.

Student 2

This student correctly spelled 20 words during the traditional spelling condition. Of these words, he spelled 8 correctly (40%) on delayed posttests. He correctly spelled 39 words on weekly tests after self-correction. Of these, he spelled 28 correctly (72%) on the delayed posttests.

Student 3

This student spelled 7 words correctly during the traditional spelling condition. Of these words, he spelled 1 correctly (14%) on delayed posttests. He correctly spelled 26 words on weekly tests after self-correction. Of these, he spelled 18 correctly (69%) on the delayed posttests.
Student 4

This student correctly spelled 30 words during the traditional spelling condition. Of these words, she spelled 16 correctly (53%) on delayed posttests. She correctly spelled 51 words on weekly tests after self-correction. Of these, she spelled 36 correctly (71%) on the delayed posttests.

Student 5

This student spelled 42 words correctly during the traditional spelling condition. Of these words, he spelled 31 correctly (74%) on delayed posttests. She correctly spelled 53 words on weekly tests after self-correction. Of these, she spelled 43 correctly (81%) on the delayed posttests.

Student 6

This student correctly spelled 41 words during the traditional spelling condition. Of these words, he spelled 29 correctly (71%) on delayed posttests. He correctly spelled 56 words on weekly tests after self-correction. Of these, he spelled 47 correctly (84%) on the delayed posttests.


**Table 3**  
**Delayed Posttest Results for Individual Students**  
**Number of Words Spelled Correctly**

**Treatment Condition: Traditional Spelling**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Week 1</th>
<th>Week 3</th>
<th>Week 6</th>
<th>Week 8</th>
<th>Total</th>
<th>% Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9 / 12</td>
<td>6 / 9</td>
<td>10 / 13</td>
<td>4 / 5</td>
<td>29 / 39</td>
<td>74%</td>
</tr>
<tr>
<td>2</td>
<td>2 / 5</td>
<td>0 / 4</td>
<td>5 / 8</td>
<td>1 / 3</td>
<td>8 / 20</td>
<td>40%</td>
</tr>
<tr>
<td>3</td>
<td>0 / 0</td>
<td>1 / 2</td>
<td>0 / 1</td>
<td>0 / 4</td>
<td>1 / 7</td>
<td>14%</td>
</tr>
<tr>
<td>4</td>
<td>1 / 8</td>
<td>4 / 7</td>
<td>6 / 10</td>
<td>5 / 5</td>
<td>16 / 30</td>
<td>53%</td>
</tr>
<tr>
<td>5</td>
<td>5 / 7</td>
<td>7 / 13</td>
<td>12 / 12</td>
<td>7 / 10</td>
<td>31 / 42</td>
<td>74%</td>
</tr>
<tr>
<td>6</td>
<td>3 / 9</td>
<td>11 / 15</td>
<td>7 / 7</td>
<td>8 / 10</td>
<td>29 / 41</td>
<td>71%</td>
</tr>
</tbody>
</table>

**Treatment Condition: Self-correction**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Week 2</th>
<th>Week 4</th>
<th>Week 5</th>
<th>Week 7</th>
<th>Total</th>
<th>% Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9 / 14</td>
<td>14 / 15</td>
<td>5 / 11</td>
<td>9 / 11</td>
<td>37 / 51</td>
<td>73%</td>
</tr>
<tr>
<td>2</td>
<td>3 / 4</td>
<td>12 / 15</td>
<td>5 / 10</td>
<td>8 / 10</td>
<td>28 / 39</td>
<td>72%</td>
</tr>
<tr>
<td>3</td>
<td>4 / 4</td>
<td>8 / 9</td>
<td>3 / 9</td>
<td>3 / 4</td>
<td>18 / 26</td>
<td>69%</td>
</tr>
<tr>
<td>4</td>
<td>6 / 10</td>
<td>13 / 15</td>
<td>10 / 13</td>
<td>7 / 13</td>
<td>36 / 51</td>
<td>71%</td>
</tr>
<tr>
<td>5</td>
<td>9 / 12</td>
<td>14 / 15</td>
<td>10 / 14</td>
<td>10 / 12</td>
<td>43 / 53</td>
<td>81%</td>
</tr>
<tr>
<td>6</td>
<td>8 / 14</td>
<td>15 / 15</td>
<td>12 / 14</td>
<td>12 / 13</td>
<td>47 / 56</td>
<td>84%</td>
</tr>
</tbody>
</table>
Generality Measure

All students orally spelled twenty words that they had correctly spelled on written weekly tests. For all students except Student 3, ten words were randomly selected from words learned during traditional spelling and ten learned during self-correction. Over the course of the study, Student 3 learned only 7 words during traditional spelling. All seven of these words were used in the generality measure.

Each student, except Student 6, correctly spelled more words learned during self-correction than those learned during traditional spelling. Student 6 correctly spelled the same number of words from each condition. Individual results are summarized in Table 4.

**Table 4**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Traditional Spelling</th>
<th>Self-correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6 / 10</td>
<td>7 / 10</td>
</tr>
<tr>
<td>2</td>
<td>2 / 10</td>
<td>8 / 10</td>
</tr>
<tr>
<td>3</td>
<td>3 / 7</td>
<td>7 / 10</td>
</tr>
<tr>
<td>4</td>
<td>5 / 10</td>
<td>6 / 10</td>
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<tr>
<td>5</td>
<td>6 / 10</td>
<td>9 / 10</td>
</tr>
<tr>
<td>6</td>
<td>6 / 10</td>
<td>6 / 10</td>
</tr>
</tbody>
</table>
Kaufman Test of Educational Achievement

Participants were given the spelling subtest of the Kaufman Test of Educational Achievement (Kaufman & Kaufman, 1985) both before and after the study was conducted. The purpose of the test administration was to obtain descriptive information regarding each participant’s level of spelling achievement (see Table 1), rather than an effort to measure any change in spelling proficiency as a result of the study. Results are summarized in Table 5.

Social Validity

Students were asked a series of questions concerning their opinion about the traditional method and the self-correction method. The experimenter read the questions to the students individually, and wrote their responses on the questionnaire.

Question 1. Which method, self-correction or traditional, did you like best?

All six students said that they liked self-correction spelling best.

Question 2. Why?

Five of the six students mentioned that they liked the headphones or cassette tape players. They pointed out that they could concentrate better, and were not distracted by others when using the headphones. Student 6 said that he felt self-correction was quicker and did not waste time. Student 2 liked to correct himself without the teacher telling him what was right or wrong.

Question 3. Which method, self-correction or traditional, helped you to learn your spelling words better?

The six students were equally divided on this question, with three answering self-correction and three answering traditional spelling.

Question 4. Why?

The three students who believed that they learned better during traditional spelling had various reasons for their answer. Student 6 said, “After I write for a long time I get the hang of it.” Student 3 believed that traditional spelling was easier,
Table 5
Results
Spelling Subtest
Kaufman Test of Educational Achievement

First Administration (pre-intervention)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Age</th>
<th>Standard Score</th>
<th>AE&lt;sup&gt;1&lt;/sup&gt;</th>
<th>GE&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9.3</td>
<td>96</td>
<td>9.0</td>
<td>3.3</td>
</tr>
<tr>
<td>2</td>
<td>8.8</td>
<td>93</td>
<td>8.0</td>
<td>2.6</td>
</tr>
<tr>
<td>3</td>
<td>10.0</td>
<td>75</td>
<td>7.3</td>
<td>2.0</td>
</tr>
<tr>
<td>4</td>
<td>8.7</td>
<td>87</td>
<td>7.6</td>
<td>2.1</td>
</tr>
<tr>
<td>5</td>
<td>10.4</td>
<td>82</td>
<td>8.3</td>
<td>2.9</td>
</tr>
<tr>
<td>6</td>
<td>9.4</td>
<td>86</td>
<td>8.0</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Second Administration (post-intervention)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Age</th>
<th>Standard Score</th>
<th>AE&lt;sup&gt;1&lt;/sup&gt;</th>
<th>GE&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9.5</td>
<td>103</td>
<td>9.9</td>
<td>4.4</td>
</tr>
<tr>
<td>2</td>
<td>8.10</td>
<td>89</td>
<td>8.0</td>
<td>2.4</td>
</tr>
<tr>
<td>3</td>
<td>10.2</td>
<td>71</td>
<td>7.0</td>
<td>1.7</td>
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<tr>
<td>4</td>
<td>8.9</td>
<td>85</td>
<td>7.6</td>
<td>2.1</td>
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<td>10.6</td>
<td>87</td>
<td>8.9</td>
<td>3.3</td>
</tr>
<tr>
<td>6</td>
<td>9.6</td>
<td>84</td>
<td>8.0</td>
<td>2.6</td>
</tr>
</tbody>
</table>

1 Age equivalent score
2 Grade equivalent score
because “all you have to do is write.” Student 2 said that he believed the traditional method was more effective because it is not as much fun.

Of the three students who felt they learned to spell better during self-correction, Student 5 could not give an answer to the question “why?” Student 1 said that she believed the proofreading marks “help me to pay attention to the letters.” Student 4 said self-correction was more effective because she “fixed the words right away.”

**Question 5. Do you think you could use the self-correction method on your own?**

All six participants responded that they felt they could use the procedure on their own.

**Question 6. If yes, how?**

The students offered various methods for using the procedure on their own. Four participants suggested that a parent or sibling could dictate their words to them. Five also said they could record the spelling words on audiotapes themselves at home, and another student said he could record them on the classroom tape recorder. All the students mentioned that they could fold regular notebook paper and use it in place of the self-correction form.
Chapter IV
Discussion

Chapter IV will discuss and summarize the results of the study based on the research questions presented in Chapter I. In addition, the limitations of the study, implications for classroom application, and suggestions for future research are discussed.

Discussion of Specific Research Questions

Question 1

Will students correctly spell more words after traditional or self-correction instruction?

All six students spelled more words correctly after self-correction instruction than after traditional instruction. Student 1 and Student 5 learned 11 more words during the self-correction condition, or an average of 3 more words learned per week. Student 2 and Student 3 learned 19 more words during self-correction, or an average of 4.75 more words learned per week. Student 4 learned 21 more words during self-correction, or an average of 5.25 more words per week. Student 6 learned 15 more words during self-correction, or an average of 2.75 more words learned per week.

The students learned a total of 179 words during the four weeks of traditional spelling, or an average of 30 words per student. The students learned a total of 276 words during self-correction spelling, or an average of 46 words learned per student. This means that the students learned 97 more words during the self-correction condition, or an average of 16 more words learned per student. Results indicate that, on average, the participants learned 7.5 words per week during traditional
spelling and 11.5 words per week during self-correction spelling. This is an average of 4 more words learned per week during self-correction spelling than during traditional spelling. In order to quantify the improvement this may mean over the course of the school year, the number of additional words learned per week during self-correction (4) is multiplied by the number of weeks (36) in a school year. Extrapolated over the course of a school year, this indicated that, on average, students had the potential to learn 144 more words per school year. These findings are similar to those of McNeish (1985) who, using the same formula, speculated that the learning disabled middle school students who participated in that study would learn 172 more words over the course of the school year. These findings also support those of Horn (1947) Ganchow (1983), and Okyere (1989).

**Question 2**

Which instructional strategy (traditional or self-correction) will result in more correct spelling in a generalization setting?

Oral spelling was used as a measure of response generality. Self-correction instruction resulted in more words generalized to oral spelling than traditional instruction. When asked to spell the target words aloud, all participants except Student 6 (who spelled the same number of words in both conditions) correctly spelled more words learned in the self-correction condition than in the traditional condition. This data, while limited by the number of words and opportunity for generalization, is important because it demonstrates that words learned under self-correction can be generalized to other spelling responses. Because oral spelling is often required of students (e.g. spelling bees, telling others how to spell a word), it is significant that self-correction resulted in more correct oral spelling than did traditional spelling. McNeish (1985) and Okyere (1989) measured the generality of words learned under self-correction by examining other written work for correctly spelled target words. Their findings, (i.e. the majority of subjects successfully generalized words learned under self-correction to other written work) is consistent with the findings of this study.
Question 3
Which instructional strategy (traditional or self-correction) will help students maintain the correct spelling over time?

Each student, except Student 1, correctly spelled more words learned under self-correction than under traditional spelling on the delayed posttests. This was true even though all six students learned more words during self-correction instruction than during traditional spelling, and therefore had more words to remember. Student 1 maintained virtually the same number of words during both conditions (74% of words learned under the traditional condition and 73% of the self-correction spelling words). Student 2 maintained 32% more words learned during self-correction, Student 3 maintained 54% more self-correction words, Student 4 maintained 18% more self-correction words, Student 5 maintained 7% more self-correction words, and Student 6 maintained 13% more self-correction words than words learned during traditional spelling. Since each student learned more words during self-correction spelling, each also had more words to remember on delayed posttests. Even so, five of the six students had superior performances on the maintenance measures for words learned under self-correction. This demonstrates that the self-correction strategy was more effective than the traditional in helping students maintain the correct spelling over time, and confirms the findings of McNeish (1985) and Okyere (1989).

Question 4
Which instructional strategy (traditional or self-correction) do the students prefer?

All six students preferred the self-correction method over the traditional method. This confirms the results of both McNeish (1985) and Okyere (1989), who also found that students liked the self-correction approach. Self-correction is an effective procedure, at least in part, because students like to use it. All participants in this study cited the use of the audiocassette players as a reason why they liked the method. Previous researchers had not used audiocassette players as a means
of word dictation. Students liked to use them because they were “fun”, and more importantly, their use helped students stay focused on the task at hand because extraneous noise was shut out by the headphones. The headphones were thus an aid to student concentration. It is interesting to note that three of the subjects said that they learned their spelling words better using the traditional approach, although the data reveals that this is clearly not the case. These students pointed out that the traditional method was not as much fun to use, so it must be superior in terms of actually learning to spell. These participants equated good instruction to boring instruction.

Limitations of the Study

Limitations of the study include the time of year, inadvertent exposure to the stimulus words outside experimental control, student absences, the time frame used in the maintenance measure (delayed posttests), the length of the experiment, the number and population of participants, and a possible novelty effect.

Time of year

The study was conducted during the last ten weeks of school. An extended spring break (six school days), as well as the Memorial Day holiday, interfered with the continuity of the experiment. End of the year parties, award assemblies, and field trips contributed to a general atmosphere of end-of-the-year excitement and possible lack of attention to academic tasks.

Inadvertent exposure to stimulus words

The experimenter and classroom teacher attempted to limit exposure to the stimulus words to the twenty minute instructional time. For example, the teacher made sure that spelling words for the students not involved in the experiment were not listed on the chalkboard or bulletin boards. It is probable, however, that students were exposed to at least some of the words used in the experiment while reading or working on language arts assignments. The classroom teacher did not conduct spelling class while the participants were in the room, but it is possible that
participants could have had some exposure to the spelling lists of the other students. Some of the words on these lists were also used as stimulus words for the participants. Because the participants' lists of stimulus words were not the basic lists from the spelling series, but were comprised solely of words each participant had misspelled twice, this limitation was probably not of major significance.

**Student absences**

Student 3 was absent six times during the course of the study. Since three of the absences occurred during the self-correction condition and three during the traditional condition, the comparative effects are negated. However, he did not have as much opportunity to practice the spelling words as the other participants. Student 1 and Student 6 were absent once during the self-correction condition and Student 2 was absent once during the traditional condition. Because of the reduced opportunity to practice the stimulus words, these absences definitely could have an effect on the number of words learned during that week. Student 4 was absent on a Friday (a weekly test day) during the traditional condition, which resulted in a two day delay in taking the weekly test. This could have affected her weekly test score.

**Maintenance measure time frame**

Delayed posttests were given biweekly. This means words learned were tested after one or two weeks. For example, words learned during week 1 were retested after two weeks had elapsed, but words learned during week 2 were retested after only one week had elapsed. Words learned after one week are more likely to be maintained than words learned after two weeks. The delayed posttest data supports this observation (see Table 3), because students remembered more words when the delayed posttest was given one week after the initial weekly test. The one and two week delays were constant across conditions. This means that words learned under both the self-correction and traditional conditions were retested after one week two times and two weeks two times.
Length of the experiment

The study was conducted over the course of the Spring academic quarter, which is a ten week period. Additional time would have been beneficial in order to collect more data. The case for a functional relationship between the dependent and independent variable in the alternating treatment design would be strengthened if additional data points confirming this relationship could be demonstrated.

Number and population of participants

The participants were six third grade students who were experiencing difficulty in spelling. A greater number of participants would more significantly demonstrate the effectiveness of each instructional procedure. Additionally, students who were normal or high achieving spellers would have expanded the experimenter's ability to evaluate the effectiveness of each instructional procedure with different populations of students.

Novelty effect

The use of audiocassette tape players with headphones was certainly a procedure which the participants were unfamiliar with as an instructional tool. Four of the students had used tape players to listen to tapes or the radio outside of school. They are commonly used, especially by teenagers, as entertainment devices. It is possible that the novelty effect of using the audiocassette tape players contributed to student achievement in self-correction spelling, and that such an effect may have diminished had the study been of a longer duration.

Implications for Classroom Application

The experiment was conducted with third grade students who have experienced difficulty in spelling. The results of the study indicate that students learn to spell more words correctly using self-correction than using the traditional method of spelling instruction. Self-correction instruction was also more effective, for five of the six participants, in terms of maintenance and generalization of words learned. These results suggest that self-correction can be a valuable instructional strategy in the
The self-correction procedure can be used in many ways and in many subjects. In order to establish experimental control, the experimenter twice pretested each student to be certain the words were unknown prior to instruction. This procedure involved many hours of experimenter time, both because it became more difficult to find enough words to make a weekly spelling list and because words were often correctly spelled on one pretest and not on the other. Because of the demands on teacher time, this procedure is too time consuming for practical classroom use. The nature of the self-correction method also makes it unnecessary. Using the self-correction form, students will correct only those words that they did not spell correctly. Words that are already known could be deleted from the list and new words added. This is an improvement over the traditional method, where students practice spelling the words on their list even though they may already know how to spell them. This time could be better spent practicing words they do not know how to spell correctly.

Additional experimenter time was required to record the weekly spelling words onto audiotape. This procedure could be easily made less demanding in terms of teacher time by allowing each student to record his own words onto the audiotape. Another benefit to this change would be an additional student exposure to the spelling word, and this would be a task most students would likely enjoy. If all students have the same spelling list, another possible option is for the teacher to record the words on a few tapes, and students could check out these tapes for use. The cassette tape recorders and head phones could be used at each student's desk or at a learning station, while other students are engaged in the same or another activity. The weekly tests could also be completed using the audiotapes, which would free the teacher to work on other tasks. This also would be helpful in assisting students who need to make up spelling work or tests because of absences.

The self-correction procedure is well suited to use in a peer tutoring situation. The tutor could dictate the words, the student could correct his own work, and the tutor could then read the words the second time. The students could then reverse roles,
with the tutee becoming the tutor.

Self-correction has the added benefit of requiring students to attend to the correct orthography of the word. The use of proofreading marks makes student attention to the correct placement or use of the marks within the sequence of the letters necessary. The result is that students are less likely to practice errors. The proofreading marks can also be generalized to other subject areas as an efficient method of editing written text.

Self-correction provides an easy and effective way to deliver instructional feedback. Immediate, precise, and differential feedback positively affects student learning (Van Houten, 1980), and the self-correction procedure provides all three types of feedback to the student. It is immediate because the student checks his accuracy directly after attempting to spell the word. It is precise because the use of the proofreading marks specifies exactly what is correct and incorrect. The feedback is differential because it demonstrates to the student how his performance is different from his previous attempts.

The self-correction procedure used in this study can easily be adapted to fit into other instructional strategies as part of a spelling program that includes more traditional methods. Using self-correction can be an additional method to practice correct spelling. It also can be used at home, either with the student recording his own spelling words and using an audiotape to deliver the target words, or a parent, sibling, or friend could perform this function.

Finally, self-correction requires students to assume responsibility for their own work. This is an important factor in not only their educational experience, but in their future work and life experience as well.

Suggestions for Future Research

The use of the self-correction procedure has been demonstrated to improve spelling performance. Further research is needed to discover if self-correction is also effective in other subject areas. The use of the procedure in learning math facts, sight
words, and word meanings are possible areas for study.

A longer period of time to conduct the experiment would more effectively demonstrate whether or not a functional relationship exists between the dependent and independent variable, and would negate any novelty effect with the self-correction procedure.

The generalization of words learned during self-correction to written work in other subject areas such as social studies, creative writing, and other classroom work is an area for future study. A manageable and effective means of identifying and locating these words will be required to more effectively study generalization of behavior in this area.

Research involving different student populations, including students who are high and normally achieving spellers, is indicated in order to measure the self-correction procedure's effectiveness with a larger group of students.

Finally, a comparison of the self-correction method of teaching spelling with other remedial (e.g. Fernald, Gillingham, Horn), specialized (e.g. peer tutoring, rule based instruction) or semi-independent (self-questioning, cognitive training, computer) spelling instructional methods is indicated. Studies have demonstrated the effectiveness of other specialized approaches, but, to this experimenter's knowledge, studies have not been done which compare one specialized method to another. Such research would have practical applications for classroom use. If one specialized method is demonstrated superior to another, the superior method would be a logical way to begin remedial spelling instruction.

**Summary**

Spelling is important to student academic achievement. Accurate spelling is crucial not only to the production of written information, but the expression of the writer's thoughts and feelings. Since many students have difficulty in learning to spell, effective teaching methods are essential. The purpose of this study was to compare the traditional method, some form of which is used in most classrooms, and
a self-correction spelling method. In order to determine which method is more effective in terms of learning spelling words, maintaining learned words over time, and generalizing the words learned, student scores on weekly spelling tests, delayed posttests, and oral spelling were compared.

The subjects were six third grade students who had demonstrated significant problems learning to spell. The study was conducted in a copying and storage room, often used for remedial instruction, within an urban elementary school. Interobserver reliability was established for both the independent and dependent variables. The classroom teacher scored photocopies of permanent products (weekly tests and delayed posttests), with an accuracy score of 100%. A doctoral student from Ohio State University served as the interobserver on the independent variables and the generality measure. Procedural reliability scores on both the traditional and self-correction spelling methods were 100%. The observer and the experimenter achieved a 95% reliability score on the generality measure (oral spelling).

In order to assess social validity, a questionnaire was given to each student at the conclusion of the study. All six students reported that they preferred self-correction to the traditional method. They also said they could envision ways they could use the self-correction method on their own.

Results on weekly spelling tests clearly indicated that the self-correction method was more effective in improving spelling performance than the traditional method. Each participant learned more words during the self-correction condition, five of six participants maintained more words learned during the self-correction condition over time, and five of six subjects generalized more words learned under the self-correction condition to oral spelling.
REFERENCES


REFERENCES


Hull, M. (1976), Phonics for teachers (2nd Ed.) Columbus, OH: Merrill.


APPENDIX A
PARENTAL PERMISSION FORM
Parent Consent Form

I agree to allow my child to participate in a research study investigating the effectiveness of two instructional approaches to the teaching of spelling, a traditional approach and a self-correction approach. This study will be conducted by Connie L. Wirtz, under the direction of Dr. Ralph Gardner, and will require approximately 25 minutes per school day for about 8 weeks. I understand that my child's identity will not be revealed in any publication, document, recording, video tape, photograph, computer storage, or any other form of report developed from this research. Additionally, I understand that I may withdraw my consent for my child's participation at any time.

______________________________
Name of Student

______________________________
Signature of Parent or Guardian

______________________________
Date

______________________________
Connie L. Wirtz, Researcher

______________________________
Date
APPENDIX B

LETTER TO PARENTS
Letter to Parents

Dear Parent,

I am a graduate student at the Ohio State University conducting educational research involving the effectiveness of spelling teaching methods. I will be investigating whether a traditional spelling approach or a self-correction approach results in more student learning. Both instructional strategies have been very successful. Students chosen for this project will receive small group instruction in spelling each day for a twenty minute period.

Your son or daughter has been chosen to participate in the study by his or her classroom teacher, Judy Mustaine. The study will be conducted under the supervision of Dr. Ralph Gardner, who is an Associate Professor of Education at Ohio State. Please feel free to call me at home (890-6965) should you have any questions or concerns. Please sign the permission slip to allow your child to participate.

Sincerely,

Connie L. Wirtz

Ralph Gardner, III

Associate Professor
Ohio State University
College of Education
APPENDIX C
PROOFREADING MARKS
Proofreading Marks for Self-Correction

^ Insert a letter(s): Write the letter(s) above the carat mark.
O Omit a letter(s): The circled letter(s) should be deleted.
/ Wrong letter(s): The correct letter(s) should be written above the incorrect letter
~ Reverse letter(s): The order of the letter(s) should be reversed.
APPENDIX D

SELF-CORRECTION FORM
### SELF-CORRECTION FORM

**NAME:**

**DATE:**

<table>
<thead>
<tr>
<th>Word List</th>
<th>Column A-1</th>
<th>Column A-2</th>
<th>Column B-1</th>
<th>Column B-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write it right</td>
<td>Self-correct</td>
<td>Write it right</td>
<td>Self-correct</td>
<td>Write it right</td>
</tr>
</tbody>
</table>
APPENDIX E
INDEPENDENT OBSERVER RELIABILITY MEASURE
Independent Observer Reliability Measure

Circle One:

Self-Correction Condition

Traditional Spelling Condition

Was the timer set for twenty minutes? yes no

Did the experimenter end the session when the timer sounded? yes no

Did the experimenter collect both the word lists and the spelling activity? yes no

Are students writing the spelling words at least three times each, in alphabetical order, in sentences, or in an original story? yes no n/a

Are students self-correcting using the self-correction form? yes no n/a

Observer ____________________________

Date ___________
APPENDIX F
STUDENT QUESTIONNAIRE
Student Questionnaire

Verbal directions: Think about the way you learned to spell these last eight weeks. Sometimes you used the self-correction method where you corrected the words using proofreading marks and then you wrote them correctly. Sometimes you used the traditional method where you wrote the words three times each, put them in ABC order, and wrote them in sentences and stories.

1. Which method, self-correction or traditional, did you like best?

2. Why?

3. Which method, self-correction or traditional, helped you learn your spelling words better?

4. Why?

5. Do you think you could use the self-correction method on your own?

6. (If yes) How?