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THE EFFECTS OF TEACHER CORRECTIVE FEEDBACK AND SELF-CORRECTION ON THE WRITTEN COMPOSITIONS OF ELEMENTARY STUDENTS WITH LEARNING DISABILITIES

DISSertation

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

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ABSTRACT

Studies on written expression have shown the need for increased opportunities for all students to write in order for them to improve their writing skills. The need for additional writing opportunities is particularly important for students with specific learning disabilities (SLD). Students with SLD frequently have significant deficits in writing skills. One important aspect of any writing program is the immediacy and method feedback is given. In this study the researcher compared the effects of teacher corrective feedback and self-correction on the use of punctuation, capitalization, and adjectives in writing with five SLD students, in an urban elementary resource room, in order to determine which condition students wrote best. The students first experienced writing under the teacher corrective feedback condition. In this condition the students wrote for five minutes and the experimenter provided written and verbal feedback to students. The students then wrote under the self-correction condition. In this condition the students made corrections to their story without the use of a "key". A "key" was the student's story written correctly in Standard English, by the experimenter. After making corrections on their own the students were provided a key of their story and made corrections. The results of this study were inconclusive. Although students wrote more during the self-correction condition, their correct as well as incorrect responses to each dependent variable increased showing no functional relationship between the use of self-correction and the improvement in writing using punctuation, capitalization and adjectives in their writing. There were
improvements individually in spelling, and students did produce more words in their stories. Also, the use of adjectives other than "a, an, and the" improved markedly for three of the students. Although a functional relationship was not demonstrated between the independent and dependent variables the students did express that they enjoyed writing more.
Dedicated to my wife, Cynthia
for her continual love, support, and friendship.

To Radar and Pistol
for all the pet therapy when times were tough.
To the four little angels that watch over me.
I would have loved being your Daddy.
I would like to express my sincere gratitude and love to my wife, Cynthia, for her love, support (mentally and financially), and encouragement throughout the last three years. Thank you for being my best friend.

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Finally, to God. Thank you for always being there and for listening and answering my prayers.
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CHAPTER 1

INTRODUCTION

Written expression is an essential form of communication in a literate society (Mercer & Mercer, 1993). However, teaching students to write well is one of the more difficult tasks facing educators. This is particularly true of students with a specific learning disability (SLD). One of the most frequent deficit areas for students with specific learning disabilities is written communication (Morocco, Dalton, & Tivnan, 1992). Zaragoza and Vaughn (1992) indicate that written language problems often persist throughout adulthood. Individuals with SLD often have difficulty with the language mechanics (Graham & Harris, 1993; Graham & Harris, 1992; Graham & Harris, 1988; Hillock, 1984; Sills, 1995), generating ideas (Sills, 1995), organizing concepts (Graham & Harris, 1993), as well as lack of productivity. Hillock (1984) adds that research on grammar shows that this skill taught in isolation has very little effect on improving students’ writing. Children with learning disabilities tend to write shorter sentences (Houch & Billingsley, 1989; Sills, 1995), produce fewer words that contain seven letters or more, have more sentence fragments, and have a higher percentage of capitalization and spelling errors in their writing. Students with SLD may also experience difficulty in other academic areas such as reading and math (Graham & Harris, 1993). These deficit areas play a significant role in the difficulty students with SLD experience in mastering the school curriculum (Rush & Vitale, 1994).
In light of these academic obstacles, it is not surprising that many students with SLD become frustrated and even drop out (approximately 32%) before completing high school (Lichtenstein, 1993). Students who drop out of school are at greater risk of being trapped in low paying jobs, becoming unemployed, or having long lifetime dependency on social agencies (Lichtenstein, 1993; Rumberger, 1987).

One way to improve the educational environment for students with learning disabilities is to develop instructional strategies that allow them to enjoy more academic success. Researchers have found several strategies that have improved the academic performance of students with SLD (McNaughton, Hughes, & Ofiesh, 1997). Strategies such as peer tutoring (Cook, Heron, Heward, 1983), guided notes (Courson, 1989; Pados, 1989), and response cards (Heward, Gardner, Cavanaugh, Barbeita, Grossi, & Courson 1996; Heward, 1995; Heward, 1994; Gardner, Heward, & Grossi, 1993) serve as examples.

Heward, Heron, Gardner, and Prayzer (1991) stated that one important feature of any writing strategy is the frequency of opportunities that students have to write and receive feedback. The strategy of increasing active student participation has demonstrated positive results in academic achievement of students with learning problems (Heward, 1994). Strategies such as choral responding (Sterling, Barbeita, Heward, & Heron, 1992) and response cards (Heward, Gardner, Cavanaugh, Barbeita, Grossi, & Courson 1996; Heward, 1995; Heward, 1994; Gardner, Heward, & Grossi, 1993) allow students to receive immediate feedback on their responses. In each of these strategies the students are presented with an instructional stimulus paired with the correct response before moving on to the next instructional antecedent. Researchers have found that when students are required to correct their spelling errors, the students are more likely to remember how to accurately spell the word. Heward, et al., (1991) stated that one problem is that students
have too few opportunities to write. Also, when students are given the opportunity to write the feedback they receive is delayed, nonspecific, and often punishing (Heward, et al., 1991). In addition to having the opportunity to practice, the LD student needs to receive immediate feedback on his/her written communications (Heward, 1991; Van Houten, 1984; 1980). However, when writing opportunities are increased for students, teachers may find that they are overwhelmed with student compositions thus making it difficult to return papers in a timely manner and leaving little time for other responsibilities.

Several instructional strategies have been used in an effort to improve the written expression skills of students with SLD. These strategies include the process-oriented approach (Bos, 1988; Graham & Harris, 1988; Englert & Raphael, 1988), computer-assisted approach (McNaughton, Hughes, & Ofiesh, 1997, MacArthur, 1988), whole-language approach (Goodman, 1986; Mercer & Mercer, 1993;), dialogic approach (Englert & Raphael, 1988; Langer, 1984), strategy instruction (Graham & MacArthur, 1988; McNaughton, Hughes, & Ofiesh, 1997; MacArthur, Schwartz, & Graham, 1991), behavioral (Lindsley, 1995; Lovitt, Fister, Freston, Kemp, Moore, Schroeder, & Bauernschmidt, 1995; West, Young, & Spooner, 1995; Tracy, 1990), schema-building (Englert & Raphael, 1988), skill-based (Needels & Knapp, 1994), and genre-specific strategy (Wong, Butler, Ficzere, & Kuperis, 1997).

One solution to this problem is to provide an instructional tool for students to self-correct their compositions. Self-correction has proven successful in spelling by providing immediate feedback to students with SLD and promoting higher academic performances in spelling (McNeish, Heron, & Oykere, 1992; Oykere, Heron, & Goddard, 1997; Wirtz, Gardner, Weber, & Bullara, 1996). For self-correction to be effective students must first respond to an instructional antecedent then compare their responses to an answer key.
containing all the correct responses. Students are required to correct any incorrect response that they made. Self-correction permits students to exert more control over their instruction by allowing them to have immediate feedback on their performance. This is consistent with an important goal for all students of increasing their responsibility in managing their own behavior (Cooper, Heron, & Heward, 1987; Skinner, 1953).

**Purpose of Study**

This study compared the effects of teacher corrective feedback versus self-correction on the use of punctuation, capitalization, adjectives, spelling, and number of words written by elementary-aged students with learning disabilities in writing activities.

**Research Questions**

This study was designed to produce empirical data in response to the following questions.

1) Will the students’ frequency of correctly used punctuation be higher during the teacher corrective feedback condition or self-correction condition?

2) Will the students’ frequency of correctly used capitalized letters be higher during the teacher corrective feedback condition or self-correction condition?

3) Will the students’ frequency of correctly used adjectives be higher during the teacher corrective feedback condition or self-correction condition?

4) Will the students’ frequency of misspelled words be lower during the teacher corrective feedback condition or self-correction condition?

5) During which condition, teacher corrective feedback or self-correction, will students write the most words?

6) Which condition will the teacher identify as having the greatest outcome for the quality of the students’ writing: teacher corrective feedback or self-correction condition?
7) During which condition will the students believe they did their best writing?

**Terminology**

For the purpose of this study special terms are defined as:

**Capitalization**

Capitalization was defined as the use of capital letters for the initial letter:

* in the first word of a sentence
* in words that are proper nouns
* in words which denote social or professional titles before a person’s name or in a direct address.
* in a title having a family relationship when it is used before a person’s name or as a direct address.
* in a title showing family relationships that refer to a specific person except when it follows a possessive noun or pronoun
* in the first word or key words in books, newspapers, magazines, short stories, poems, plays, movies, songs, paintings, and sculptures.
* in titles of a school course if followed by a number or in reference to a language
* in the word “I”.

**Punctuation**

Punctuation was defined as the use of periods, question marks, exclamation marks, commas, quotations, and hyphens in a sentence to provide emphasis and convey meaning.

Punctuation consists of:

* commas and ending punctuation (i.e., question marks, exclamation marks, and periods) quotations and apostrophes in a sentence.
* periods can be used at the end of declarative sentences, imperative sentences, a sentence that contains an indirect question, and after abbreviations or initials.
* question marks can be used after a sentence, or a word and phrase that asks a question.

* exclamation marks can be used at the end of an exclamatory sentence, after an imperative sentence where the sentence provided a forceful and urgent command, and after interjections when expressing a strong emotion.

* commas are used with coordinate conjunctions (e.g. and, but, for, nor, or, so, and yet) to separate two simple sentences that form compound sentences, to separate a series of words or phrases, after introductory words or phrases, to set off interrupting words and phrases, and in numbers with more than three digits.

* quotation marks are used as punctuation to enclose a person’s exact words.

* hyphens are used as punctuation for writing the numbers twenty-one to ninety-nine, when using a fraction as an adjective, but not when used as a noun, after a prefix followed by a proper noun or adjective, in words with prefixes all-, ex-, and self-, and suffix -elect, when writing some compound nouns, and to divide words between two syllables.

**Adjectives**

Adjectives are defined as words used to describe a noun or pronoun (Sebranek, Meyer, & Kemper, 1995). An example includes:

**CORRECT USE OF ADJECTIVES**

Why did ancient dinosaurs become an extinct species? *(ancient describes dinosaurs and extinct describes species)*

Were they wiped out by a catastrophic flood or a deadly epidemic? *(catastrophic describes the flood and deadly describes the epidemic)*

**INCORRECT USE OF ADJECTIVES**

Tim reads *good*. *(The word *good* would describe the verb *reads* but*
adjectives cannot modify verbs)

**Accurate Spelling**

Accurate spelling was defined as the correct sequencing of letters to form words used in sentences written by students. Words that have been spelled correctly were marked and recorded as corrects. In the instance where a student wrote a word that was spelled correctly but the way in which it was used in the context of a sentence was not correct, that word was considered an incorrect spelling. For example, if a student wrote the word “in” in place of the word “and”, the word “in” was marked as an incorrect spelling because it did not fit the context of that sentence.

**Experimenter Word Count**

Experimenter word count was defined as any word or letter that the student wrote that was meaningful to the sentence or story he or she had written. Words spelled correctly and incorrectly were counted as part of the word count. Misspelled words were also counted as part of the word count. For example, in the sentence “The boy ran to the school and then ran to the grocery store.” The total word count would be 13, the number of correctly spelled words would be 11, and the number of incorrectly spelled words would be 2. Words written in place of a word that would make the sentence complete were counted as incorrect, but remained as part of the word count. For example, if the student wrote, “My friend in I went to the store, in then to the baseball field.” The word “in” would be counted as an incorrect spelling, but would be included in the word count. If there was difficulty in understanding the student’s writing due to invented spellings, disorganized thoughts, or incomplete sentence structure, the experimenter asked the student to read his or her story aloud. The experimenter then wrote the correct word above what was originally written so that the correct form of the story could be written. This was also done to help observers, not present during the writing period, accurately
understand the students' stories.

**Student Word Count**

Student word count was defined as the total number of words written by the subjects, in their stories, during the 5 minute writing period of each session.

**Story Starter**

Story starters were defined as prompts that provide subjects with an antecedent to use in order to develop a story. The story starters came from a commercial package called 325 Prompts for Creative Writing as well as story starters developed by the experimenter (see Appendix P).

**Teacher Corrective Feedback**

Teacher corrective feedback is defined, for the purpose of this study, as the teacher providing written and verbal feedback (social praise) to students about their written compositions. For example, the student would write his or her story and then submit it to the teacher. The teacher would then make written corrections on the written story and return it to the student with verbal feedback.

**Teacher Instruction**

Teacher instruction is defined as the presentation of lessons using rules and definitions, on predetermined concepts, culminating in student practice of the skill or concept at the end of the lesson.

**Self-Correction**

Self-Correction is defined as an instructional strategy where students are provided a correct English form (a model) of the story they had previously written with which to make comparisons and corrections. Teacher corrective feedback is also present in this condition but is distinct from the teacher corrective feedback described above. In this instance the teacher corrective feedback was used in a delayed form and was composed of
a correct English form of the students' stories, which each student used to make
corrections.

Reminder Board

A response card board (3' x 2') was used throughout the study to remind students
of the target skills in the study. The board displayed the target skills (i.e., punctuation,
capitalization, and adjectives), definitions and rules related to the target skills, and
target skill in a sentence.

Response Cards

A response card is a white laminated particle board (22.9 cm by 30.5 cm) on which
the students wrote responses using a dry-erase marker.

Writing Area

Writing area is a term used for the area in the classroom where the subjects and
experimenter performed the writing study. The term is used to help the subjects identify it
as a particular place where writing is done and to provide the experimenter with an area of
the room under experimental control.
CHAPTER 2

LITERATURE REVIEW

This chapter reviews the literature on four main topics: individuals with specific learning disabilities, written expression, active student response, and self-management. This chapter also examines the various approaches and strategies that have traditionally been used to teach writing skills to children with and without disabilities. These approaches include process-oriented, strategy instruction, computer assisted, whole-language, behavioral, Direct Instruction, and skill-based. Finally, the chapter discusses the literature on the relationship between student participation during instruction and academic achievement (Greenwood, Delquadri, & Hall, 1984; Heward, 1994). As part of this discussion, self-management and its origin (Skinner, 1953), as well as self-management strategies including self-monitoring, self-recording, self-instruction, self-assessment and evaluation, and self-correction are reviewed.

Specific Learning Disabilities

Early studies related to the learning disabled developed from the work on brain damage during the 1800's (Hammill, 1993). Gall (Hammill, 1993) was one of the early practitioners who studied individuals with brain damage. Most of his studies were conducted with individuals who had sustained brain damage due to an accident. Gall studied individuals referred to now as aphasic, or those individuals displaying specific language disorders (Hammill, 1993). Various terms have been used to identify this
population of students: brain-injured (Strauss & Lehtiner, 1947), Strauss syndrome (Stevens & Birch, 1957), and minimal brain dysfunction (Clements, 1966). Educators often used the terms educationally handicapped, language disordered, and perceptually handicapped (Mercer, 1997). Samuel Kirk first coined the term “Specific” Learning Disability (SLD) in 1963. Specific Learning Disability has become the term most commonly used to describe the population of learners who have an educationally significant discrepancy existing between their estimated cognitive ability and actual performance levels (USDOE, 1994). Children identified as having a specific learning disability are the largest group of children served under a special education label (Kirk, Gallagher, & Anastasiow, 1997). The U.S. Department of Education (1994) reports that 4.09% (2,369,385) of the children and youth in the United States between the ages of 6 and 21 were identified as having a specific learning disability in the 1992-1993 school year (Mercer, 1997). This population of exceptional learners can exhibit disorders in math, reading, spoken and written language, and perceptual and motor processes (Heward, 1996; Shea & Bauer, 1997). Children with learning disabilities typically have difficulty attending to task for lengthy periods of time, easily distracted, and can exhibit the traits of being inattentive, distractible, and off task during many academic classroom activities (Reid, 1996).

According to the Ohio Department of Education Rules for the Education of Handicapped Children (1982), the definition of “Specific Learning Disability” is “a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations” (p. 12). Students with SLD have a discrepancy between their actual achievement and their perceived potential. This discrepancy requires a score of two or greater standard
deviations between intellectual ability and actual achievement in one of seven areas: oral expression, listening and written expression, listening comprehension, basic reading skills, reading comprehension, mathematics calculation and math reasoning (Ohio Department of Education, 1982).

According to Heward (1996), three criteria are often needed to operationalize the definition of learning disabilities in most states and school districts. There needs to be a discrepancy between the child’s potential and actual achievement, an exclusion criterion, and the need for special education services. The discrepancy is determined using the expected grade equivalency (EGE) formula (Heward, 1996). \[ EGE = \text{number of years in school} \times \frac{\text{IQ}}{100} + 1.0. \]

**Literacy**

Literacy skills (i.e., reading and written communication) are the most common deficit areas for students with learning disabilities (Mercer, 1997). To be literate in society, persons must be able to read and write effectively. However, to be functionally literate one must also be able to communicate in writing as well as read essential information needed for daily living. Literacy is defined by some as being able to show mastery of rules, forms or genre (Walters, Daniell, & Trachell, 1987), or it can be defined more functionally as either a tool or a reciprocal interaction between literacy and social skills (Walters, et al., 1987).

**Writing Skills and Students with Learning Disabilities**

According to Englert and Raphael (1988), the writing problems of students with special needs appear in four areas: idea generation, text organization, and metacognitive knowledge and mechanics (Bahr, Nelson, & Van Meter, 1996; Graham & Harris, 1988; Stein, Dixon, & Isaacson, 1994; Sutaria, 1986) Idea generation takes place in the planning stage of writing and entails background knowledge. The exceptional student
who is unable to plan his/her writing may have difficulty taking notes or generating ideas, and likewise may have difficulty rereading and revising what he/she has written (Bahr, et al., 1996; Englert & Raphael, 1988; Sutaria, 1986). The learner with exceptionalities may also experience problems with text organization (Bahr, et al., 1996; Graham, Harris & MacArthur, 1993; Englert, Raphael, Anderson, Gregg, & Anthony, 1989; Englert & Raphael, 1988; Sutaria, 1986). The learner may be unable to categorize a set of related ideas or generate subordinate labels for those ideas (Englert & Raphael, 1988). A third area of difficulty for the learning disabled learner is the use of metacognitive knowledge (Danoff, Harris, & Graham, 1993; Englert & Raphael, 1988). Danoff, et al., (1993) and Englert et al., (1988) believe that the exceptional learner may lack the metacognitive control related to strategy awareness, implementation, and regulation. For example, the child who is learning disabled may write and then re-write the same information without realizing that the information has previously been written. Students with learning disabilities also tend to organize ideas based on individual words rather than to an idea or structure (Englert and Raphael, 1988; Lerner, 1985). For example, the child's story may include the name of a friend or a pet throughout the story with every event involving the same character. Numerous instructional tactics have been employed by educators to meet the needs of students in general, and, specifically, to improve the writing skills of learners with special needs.

Graham, Harris and MacArthur (1993) found that children with learning disabilities tend to have written expression that is brief, loaded with mechanical errors, poorly organized, and incomplete. Graham, et al., (1993), Graham, Schwartz, and MacArthur (1993), and Wong, Wong, and Blenkinsop (1989) found that individuals with learning disabilities are less mature writers and lack skill in articulating essential components involved in composing a story. Crealock (1993) found that children with learning
disabilities have difficulty with narrative writing, specifically in the areas of idea
generation, organization, beginning writing, and revising. Although these children receive
assistance through special education and other interventions, it is likely they will continue
to have difficulties in reading and writing into their adult years (Fitzgerald, Schuele, &
Roberts, 1992). Not only will the student who is learning disabled continue to struggle as
an adult, he or she often falls behind in other academic areas that require skills in reading

Dysgraphia is a disorder in written expression that often is found in persons with
learning disabilities. Dysgraphia, also called a visual-motor integration disorder (Sutaria,
1986), occurs when the learner has difficulty forming letters, words, or numbers (Lemer,
1985; Sutaria, 1986). Dysgraphia is often specifically associated with handwriting.
Students with this disorder may have difficulty writing letters, copying letters, and
transferring visual information to written expression (Lemer, 1985). The child with
dysgraphia may also have poor visual-motor functions and activities that would require
motor and spatial judgment (Lemer, 1985). Dysgraphia may inhibit the student's ability to
clearly express himself/herself in written language.

Student Participation During Instruction

In 1980 Berliner found that the amount of time that students were engaged with
instructional materials was related to student achievement. Later Greenwood, Delquadri
and Hall (1984) coined the term “opportunity to respond”. Opportunity to respond is
defined “as the interaction between: (a) teacher formulated instructional antecedent stimuli
(the materials presented, prompts, questions asked, signal to respond, etc.), and (b) their
success in establishing the academic responding desired or applied by the materials.”
(Greenwood, Delquadri, & Hall, 1984, p. 64). A key factor in OTR is the nature of the
student response; namely that it is active. The term opportunity to respond (OTR) refers
to the opportunities students have to respond to an instructional stimulus. In these
instances the teacher provides immediate feedback to the student based on the response
given to the instructional stimulus. OTR like ALT does not provide information on the
number of discrete learning trials in which students participate (Heward, 1994). Heward
(1994) defines active student response (ASR) as the number of observable and measurable
responses made by the student to an instructional antecedent (e.g., questions posed by the
teacher, problems, or assignments). For ASR to occur successfully four components
should be present. ASR are responses made by the student to instructional material that
are able to be measured and observed as they occur. A second component is the
importance of the student practicing the target skill. The student who uses ASR should
practice the actual skill, not skills that seem to be related to the target skill. The third
component is stimulus control. Unless care is taken, something other than the written text
may be providing the answers. For example, in a book with pictures, the pictures may
provide the student with the answers to complete questions that are posed. Vargas
(1984) proposed the use of the "blackout technique" where part of instructional stimulus,
in this case the pictures that illustrate the text, are covered so that the instructor can
evaluate the students' comprehension based on what they have read and not on what they
were able to learn from the pictures. The final component feature of good ASR is to
provide feedback to students regarding their responses. Van Houten (1984, 1980)
proposed that feedback to students should be immediate, precise, differential, and paired
with positive or corrective statements.

ASR also provides two benefits for teachers and students (Heward, 1994). First,
active student response activities generate more learning for students. Second, the teacher
receives feedback about students' learning as well as his or her instruction (Gardner,
Heward, & Grossi, 1994; Heward, 1994).
ASR Across the Curriculum

Active student response (ASR) has been effective across several academic areas (e.g., science, reading). Instructional methodologies used in ASR teaching/learning include: choral responding (Sterling, Barbetta, Heward, & Heron, 1992) response cards (write-on and pre-printed) (Heward, Gardner, Cavanaugh, Courson, Grossi, & Barbetta, 1996; Heward, Gardner, & Grossi, 1994), and guided notes (Courson, 1989; Pados, 1989).

Choral responding. Choral responding (Sterling, Barbetta, Heward, & Heron, 1992) occurs when the members of the classroom respond in unison to questions presented orally by the teacher. There are several key steps in this procedure. First, the teacher prepares questions, related to presented instructional material, prior to beginning the session. At the onset of the session, the teacher informs the students that they are to respond to the teacher-posed question in unison once the verbal cue “CLASS” is presented. Next the teacher listens to the responses of the class, provides immediate feedback, and then continues on to the next question. If all or most of the students were correct for a particular question, the teacher would say “Great, Correct!” If many or most of the students were incorrect, the teacher would say, “The correct answer is . . . “.

Academically, choral responding has proved beneficial because it has increased the rate of responding by students to teacher directed questions and resulted in improved student quiz scores have improved (Sterling, Barbetta, Heward, & Heron, 1992).

Response cards. Response cards, either pre-printed or write-on (Heward, Gardner, Cavanaugh, Courson, Grossi, & Barbetta, 1996; Heward, Gardner, & Grossi, 1994), are reusable cards which students can hold up to display their answer to a teacher-posed question, after a verbal cue such as “CARDS UP” is presented. The teacher views the student response cards, provides the appropriate feedback, positive or corrective, and
asks the students to return their cards to each of their desks with the verbal cue, “CARDS DOWN”. The feedback in this strategy, like the feedback in choral responding, is also delivered immediately. For example, if all or most of the students had the correct answer written on their cards, the teacher would say, “Great, the answer was ______”. If many or most of the students responses on the cards were incorrect, the teacher would say, “No, the answer is ______”. The teacher would then repeat that question later during instruction to see if the students have learned the information. Using this exercise the teacher is able to identify two behaviors; whether the students can answer correctly, and whether the information has been presented in such a way that the students are able to show their understanding.

The use of response cards has been shown to increase the rate of academic student response by student. Gardner, Heward, and Grossi, 1994 studied the effects of response by comparing response cards to handraising with 25 students in a 5th grade inner city classroom. In both conditions, the teacher present a science lesson to the students. In the handraising condition the teacher asked questions and students responded by raising their hands and being called upon by the teacher. During the response card condition, each student was provided with a dry-erase board and marker. As questions were posed by the teacher, who provided the cue “CLASS” after each question, all students wrote an answer to the question on the board. On the cue “CARDS UP” the students would raise the boards with their responses enabling the teacher to view each of the responses. The students were then provided positive or corrective feedback, asked to put the cards down, and told to listen to the next question. The results of this study showed that students responded only 4% under the handraising condition and 68% of the time using response cards. The quiz scores of these students showed that during the handraising condition students averaged 55% with 8.8 correct responses. Using response cards the quiz average
was 70% with 11.2 correct responses.

**Guided notes.** Guided notes (Courson, 1989; Pados, 1989) are handouts that help guide the student through a lesson presented by the teacher. In this strategy, the teacher provides the student with a skeletal outline of the lesson with information missing that each student fills in as the teacher presents the information in either lecture or demonstration format. During the acquisition phase, the students begin by adding only small bits of information. As the students' skills improve at note taking, the students will add more and more of their own notes until the teacher prompts are faded, thus allowing the students to take notes without the help of a teacher cue (Heward, class notes, 1995). Students can compare what they write against a model provided by the teacher using an overhead projector and transparency. This allows any student errors to be immediately corrected. This increases the likelihood of a correct association between the antecedent stimulus and behavior.

Academic gains using guided notes has been quite impressive. Studies have shown that scores improved, note taking skills have been enhanced, and students enjoyed using the notes (Courson, 1989; Pados, 1988; Yang, 1988; and Kline; 1986). Finally, the students’ own note taking skills have been shown to improve as a function of using guided notes (White, 1991).

Each of the strategies choral responding, response cards, and guided notes allow students to receive corrective feedback during instruction. Also, each strategy provides the student the opportunity to be actively engaged in his/her learning, and sets the occasion for the student to have many opportunities to respond during instruction. Written expression is also another way for students to be actively engaged in their learning. Several approaches have successfully been implemented with students in this regard.
Writing Approaches

Writing is defined as one of the highest forms of communication, and it reflects the writer’s level of comprehension, concept development, and abstraction. Written expression is also one of the most complex of all the language arts skills, and is based on listening, speaking, handwriting, reading and spelling (Mercer & Mercer, 1985). There are several philosophical orientations about how to teach written expression. These orientations collapse into two main philosophies: whole language (Dechant, 1993; Goodman, 1986; Mercer & Mercer, 1993) and behavioral (Lindsley, 1994; Tracy, 1990), with technological philosophies being integrated within each of these. Whole language emphasizes the process of teaching the terminal skill of expressive writing and includes the process-oriented writing strategy (Bos, 1988; Englert & Raphael, 1988; Graham & Harris, 1988; Korinek & Bulls, 1996), strategy instruction (MacArthur, Schwartz & Graham 1991; Stein, et al. 1994), and the language experience approach (Lee & Allen, 1963).

The behavioral or skill-based philosophy emphasizes teaching subskills in a systematic way to improve the expressive writing skills of learners and includes selective grading (Tracy, 1990), fluency (Howell & Lorson-Howell, 1990; Miller & Heward, 1992), and Direct Instruction (Englemann & Carnine, 1982).

A third emerging philosophy related to written expression is the technological and includes computer-assisted approaches that provide students with a different medium to express their thoughts (Bahr, Nelson, & Van Meter, 1996; MacArthur, 1996; MacArthur, 1995; MacArthur, 1988; MacArthur, Graham, Schwartz, & Schafer, 1995; McNaughton, Hughes, & Ofiesh, 1997; Morocco, Dalton, & Tivnan, 1992).

Process-Oriented. Bos (1988) identifies the major features of the process-oriented approach to writing instruction. She identifies six features of the process-oriented approach that are necessary for implementation. The six features include: provision of
opportunities for sustained writing, establishment of a writing community, student choice of topics, modeling of the writing process and strategic thinking by the teacher, development of reflective thinking and a sense of audience, and learning emphasis on ownership and control.

The process approach to writing is composed of three phases including planning, drafting and editing (Bos, 1988; Englert & Raphael, 1988) or pre-writing, writing, and re-writing (Graham & Harris, 1988). In the planning/pre-writing phase, the writer is generating ideas and planning how he/she will write on the chosen topic. In the drafting/writing phase, the writer encodes the ideas he/she generated. Finally, in the editing/re-writing phase, the writer re-works his/her writing through editing and revising the manuscript. Englert and Raphael (1988) identify several advantages of using the process-approach with the exceptional learner. They perceive process writing as encouraging reluctant writers to write, using self-selected topics. Next, the students directly experience the writing process as they plan and revise their stories. Third, collaborative writing with peers provides the exceptional learner someone with whom to communicate about the information in his/her writing, and provides an opportunity for clarification as well as instructional prompts.

Manning and Manning (1994) discussed twelve guidelines to instruct writing skills, which include language-rich curricula, working between reading and writing, and using reading as a motivational source for students to write. These guidelines advocate use of literature throughout all aspects of the curriculum. Within such a literature-based approach the teacher teaches grammar strategies and skills in a mini-lesson format that takes place in the context of the literature rather than a separate lesson. Writing is perceived as a collaborative effort utilizing families and peers as resources for ideas, support and positive critical assessment of writing efforts. Further guidelines suggest the
use of a few core books, peer and teacher conferences, and the use of an index notebook for each class. Students show the process of their writing development, and their best efforts, through the use of portfolios. Finally, the idea and action of publication of work is encouraged. Manning et al. (1994) found these twelve guidelines to be helpful in improving the written expression of the students. The students were actively involved with their writing, and they received feedback often from peers, teachers, and parents.

Graham and Harris (1988) offer several recommendations for improving students' expressive writing. One recommendation offered is to allocate more time for writing instruction in the classroom. The authors recommend that children should write at least four times a week, and be exposed to a broad range of writing tasks. However the tasks should be such that they will encourage interest in writing, help develop cognitive processes needed for good writing, promote acquisition of skills for success in completing school assignments, and enable students to use writing in social, recreational, and occupational skills (Graham & Harris, 1988). There are ten other recommendations given by Graham and Harris (1988) regarding writing instruction which include: creating a social climate conducive to writing development; integrating writing into other academic areas; and assisting students in the central processes of effective writing. This includes teaching the process of pre-writing, writing, and re-writing to students. This does not mean focusing on grammar and the mechanics of writing, but to write for meaning sake and keep the mechanics of writing separate, while simply asking students not to pay attention to the mechanics, and help students develop explicit knowledge about the characteristics of good writing.

The use of models can serve as an effective means of promoting a conceptual and functional knowledge of writing in students with exceptionalities (Hillock, 1984); help students develop skills and abilities to carry out more sophisticated composing processes;
assist students in developing goals for improving their writing; and, avoid instructional practices that do not improve students writing (e.g., isolated teaching of grammar and usage, and the overemphasis of students writing errors).

To review, the process approach to writing helps the student work on prewriting as well as writing, editing, and rewriting his or her story or composition. The focus is not entirely on the mechanics of writing, but rather helping the student learn to plan and then execute each writing project, while thinking about his or her writing through editing, and then re-writing.

**Strategy Instruction.** MacArthur, Schwartz and Graham (1991) identify strategy instruction as using explicit instructions, modeling, and guided practice. Strategy instruction is embedded within a metacognitive philosophy. The authors used the Self-Regulated Strategy Development model (SRSD) for teaching writing. Within the SRDS model students learn to use semantic webbing (MacArthur, Schwartz, Graham, Mollow, & Harris, 1996), brainstorming, utilization of text structure for generation of writing content, and revision strategies for mechanics and content (Graham, Harris, MacArthur & Schwartz, 1991).

**TREE Strategy.** The TREE strategy (Graham & Harris, 1989b) was utilized to help sixth grade students with learning disabilities write opinion essays. Each student was taught to use the acronym TREE to help them generate and evaluate his or her notes prior to beginning to write. The acronym stands for: develop the Topic sentence, note Reasons to support the premise; Examine the soundness of each supporting reason; and note an Ending for the paper (De La Paz & Graham, 1997). After students used this strategy, they were able to produce papers that addressed the topic with greater detail and were more persuasive. The strategy also helped each student spend more time planning what he/she was going to write, and extended the active planning of story throughout the active
writing process.

**STOP/DARE strategy.** DeLaPaz and Graham (1997) extending the work done by Graham and Harris (1989b), investigated the effectiveness of a teaching strategy for writing opinion essays using SRDS. Three 5th-grade students with learning disabilities participated in the study. Each child had difficulty generating and organizing his or her ideas for writing. The authors taught the students to use the STOP strategy. The acronym STOP stands for Suspend judgment, Take a side, Organize ideas, and Plan more as you write. The authors also taught students the DARE strategy. This was used to remind the students to include the four essential parts of an opinion essay. The acronym refers to Develop your topic sentence, Add supporting ideas, Reject possible arguments for the other side, and End with a conclusion. In teaching both of these strategies the teacher also modeled how to use thinking aloud as a strategy for planning and writing essays. The authors found that through the use of the STOP /DARE strategies the students wrote longer essays, were able to support their ideas, and improved the quality of their writing. The changes in the students’ writing also maintained over a 6 to 8 - week period following the study.

**PENS strategy.** The PENS strategy developed by Schumacher and Sheldon (1985) is used to teach children basic skills in constructing sentences and written expression. The students follow the formula spelled out in the acronym PENS, which stands for Pick a sentence type and formula, Explore words that fit the formula, Note the words, and Search for verbs and subjects and then check. The researchers found that students who used the PENS strategy produced written projects that had 100 percent of the sentences written correctly.

**Schema building.** Another approach to writing is that of schema building. This approach presents writing in a teacher-directed manner with a focus on teaching
organizational structure in text (Englert & Raphael, 1988). This approach also helps the writer learn how to organize text and create schema. Englert and Raphael (1988) contend that the schema building approach may be beneficial to the exceptional learner who needs to improve his/her planning, organizing and monitoring abilities, as well as his/her understanding of the significance or utility of trained strategies.

**Semantic organizer.** Pehrsson and Robinson (1985) describe semantic organizers as tools to help students organize their ideas before beginning to write. The semantic organizer helps the student brainstorm the ideas he/she would include in the story and then to rehearse or write down what he/she might say in the story.

**Grid model.** The grid model (Crealock, 1993), is another process strategy that consists of nine stages. Crealock (1993) suggested that this strategy is beneficial for students with and without learning disabilities. The nine stages of this strategy are composed of choosing one of four grids (teacher directed), developing the grid, completing the planning stage, writing the first draft, completion of the first draft, writing the second draft, completing the cognitive edit, completion of the technical edit, and writing the final draft. The grids chosen by the teacher represent four levels (ultimately interwoven) of effective writing. The first level deals with concrete, primary elements consisting of main characters, setting, time, nature, and an animal. The second level includes the first level elements plus the generic plot and specific action or conflict. The third level consists of the elements in level 1 and 2 plus a title, opening and closing, emotion or mood, and a climax. The final level includes levels 1 - 3 plus the subplot, character development, and style development. After the teacher chooses which of the four grids the students will use, he/she then progresses through the rest of the nine stages listed earlier. The author found through the use of this model that students' fluency increased. He also found this strategy to be easy to implement with teachers and students.
Qualitative changes using the grid, according to Crealock (1993), would take a much longer period of time to occur.

**TOWER strategy.** In the TOWER strategy (Mercer & Mercer, 1993) the student learns to write in themes. The acronym stands for Think, Order ideas, Write, Edit and Rewrite. The student is learning to revise and edit what he/she has previously written using this strategy.

**PLEASE strategy.** The PLEASE strategy (Welch & Link, 1989) is a video assisted metacognitive strategy that helps children learn to write paragraphs. PLEASE is an acronym to help the student remember the process of paragraph development. It stands for Pick a topic, List information about the topic, Evaluate, Activate the paragraph, Supply supporting sentences, and End with a concluding sentence. Using the PLEASE strategy allows students to correct errors in their written compositions.

Welch (1992) studied the effects of the video-assisted metacognitive strategy PLEASE on seven, six-grade students with specific learning disabilities. The students were taught to use the strategy three times a week during 30-minute lessons for 20 weeks. Eleven other students in the same school district served as the comparison group. The results of this study showed that the PLEASE strategy was an effective method to develop students’ metacognitive knowledge. In addition, the study noted that the students’ attitude toward writing, writing instruction, and written expression improved due to the use of the video-assisted procedure.

In summary, strategy instruction provides the teacher and student with a model of how to write following a series of steps. The steps help the student prepare to write, and then to write, as well as to improve the quality of his or her written compositions. The use of strategy instruction will also help the student to organize and sequence the actions in his or her writing (Graham, et al., 1991).
Whole-Language Philosophy

Mercer and Mercer (1993) describe Goodman’s (1986) whole language philosophy as a framework where there is real reading and writing rather than exercises in reading and writing. The philosophy emphasizes reading for meaning rather than learning isolated decoding skills wherein the child is taught to break the code in reading within the context of meaningful content. This philosophy teaches reading in a holistic way, instead of teaching it in parts. In writing, the same emphasis exists. Some of the whole language strategies for teaching writing skills include the dialogic approach (Englert & Raphael, 1988; Langer, 1984), emergent literacy instruction (Prayzer & Pettegrew, 1996), story starters (Spaulding, 1994; Tracy, 1990), and the language experience approach (Goodman, 1986; Lee & Allen, 1963).

Dialogic approach. The dialogic approach focuses on modeling writing strategies directly in the written context through teacher dialogue or think alouds (Englert & Raphael, 1988; Langer, 1984). For example, the teacher provides a topic and the teacher and students will generate parts of the story together through discussion. Langer, (1984) and Englert et al., (1988) contend that through teacher dialogues the children hear and can then internalize the self-talk and thinking that guides writing performance in each of the writing sub processes.

Emergent literacy instruction. Prayzer and Pettegrew (1996) used the concept of emergent literacy to develop a writing center. Emergent literacy allows the student to develop reading and writing skills through his or her interactions with various materials including picture books, the alphabet and invented spellings. Fitzgerald, et al., (1992) also define emergent literacy as a way for children to develop their reading and writing skills through social exchanges in real-life situations where reading and writing occur. The child is described as an “apprentice” because he/she is being immersed into reading and writing.
through working with individuals who are proficient at reading and writing. Using emergent literacy instruction, children are able to learn to read and write within the context of real environmental situations with the mentoring of individuals who are skilled in reading and writing, instead of being confined to the practice of isolated skills. At the writing center the students use writing journals, reading response notebooks, pen pal letters, and writing notes to other classmates or to the teacher (Prayzer & Pettegrew, 1996). The goal is to have the child feel comfortable with writing as well as making it functional for his or her life. In both the Fitzgerald et al., (1992) and Prayzer et al., (1996) improvement in writing occurred due to the frequent opportunities to write and the feedback received from teachers and peers.

Language experience approach. Lee and Allen (1963) developed the language experience approach (LEA). LEA integrates the development of reading skills with the development of listening, speaking, and writing skills. There is a three-step philosophical process and grounded belief system in LEA. First, what the child is thinking about, he/she can talk about. Second, what the child talks about, he/she is able to write about (or someone can write while the child is dictating the story). Third, what the child has written (dictated), he/she is able to read (Mercer & Mercer, 1993). The COPS approach (Schumacker, 1981) is an example of a LEA strategy to assist students in checking their papers for errors. The “COPS” strategy teaches the student to evaluate his or her papers in the following areas: Capitalization, Overall appearance, Punctuation, and Spelling (Shannon & Polloway, 1993; Schumacher, 1981). In this approach, the student dictates his or her story to the teacher who transcribes the story for reading. The student is then able to revise the story.

Story starters. Story starters are defined as portions of a story, a phrase, or an idea that aids in prompting the student to develop and write a story or continuation of a story
Examples of story starters might include: “If you were left alone in your parents home over the weekend what would you do?”, “Write a story about Whales”, the use of a completion statement like “I am happiest when…”, or the student would write to complete a cliffhanger story.

Spaulding (1994) used story starters in her study using visual imagery and structure words to accelerate free writing development with fourth and fifth grade students with learning disabilities. The author used an alternating treatment design to study the effects of the three dependent variables: total number of correct and incorrect words written, descriptive words, and transitional opportunities. During baseline she provided a different story starter each session for the children. The first intervention consisted of having students develop their own story starter from a prompt. The second intervention used a different story starter each session. The third intervention used the same story starter together with structure words and visual imagery. The results of the study indicated that the most positive effect on students’ writing occurred when a story starter was used with visual imagery and structure words.

Behavioral or Skill-based Approaches

The behavioral or skill-based approach involves teaching systematically the prerequisite subskills necessary for effective writing. Needels and Knapp (1994) note that the skill-based perspective has been used primarily in reading programs where children are exposed to discrete reading skills during early training. These early reading skills, like letter identification and decoding, are used to lay a foundation for later, more-advanced reading skills. The authors acknowledge that the skill-based perspective could be used with writing. Some of the skills to be addressed in written expression would include spelling, sentence structure, grammar, sentence development, word usage, and composition. To develop specific skills students need to have numerous opportunities to
learn and practice the skills. Three behavioral or skill-based approaches that have been used with writing include selective grading (Tracy, 1990), precision teaching (Lindsley, 1995; West, Young, & Spooner, 1995), and Direct Instruction (Englemann & Gilbert, 1983; 1985; Johnson & Layng, 1994).

Selective grading. Tracy (1990) studied the effects of a selective grading procedure on the use of adjectives, adverbs, and action verbs in the daily compositions written by six, seventh grade students with learning disabilities. He was interested in the selective grading procedure's effect on the students' use of adjectives, adverbs and action verbs when only 1/4 of the compositions were graded at any one time. The students were given 20 minutes each day to write an original story from story starters that the class had selected. During each writing session, students could continue with a previous story. The teacher would review the grading criteria prior to the session. The story starter was written on the board along with the number of the writing, the story starter was discussed, and then the students were instructed to begin writing. In baseline, each student received written feedback on his or her daily composition. In the instruction-only condition the student received feedback in the form of good grades and written comments on his/her composition. In the group-contingency condition, the student continued to receive feedback through written comments. The change in feedback in this condition was through oral peer comments in addition to written feedback on the student compositions. The grading procedure was such that students received points based on the number of lines of writing in each of their journals. When selective grading was implemented, only four student papers were chosen randomly to be graded each day. The students papers were checked at least twice per week. Tracy (1990) found that: 1) selective grading improved the social climate of the classroom and motivated the students to work together, 2) the students who were writing very little at the beginning of the study began to write
more and became an integral part of the class, and 3) the amount of teacher time needed for grading students written compositions decreased markedly.

**Precision teaching.** Fluency is defined as the quantity of verbal outputs and refers to the number of words written (Mercer & Mercer, 1993). The dimensions of fluency include; retention, endurance, application, and performing to a set of standards (Johnson & Layng, 1994). Howell and Lorson-Howell (1990) suggest that fluency in written expression can be increased by increasing the fluency in students’ handwriting, spelling, and punctuation. Howell et al., (1990) also suggest that presenting story starters and topic sentences, and allowing the child time to plan what they are going to write, will also increase his/her fluency in written expression.

Miller and Heward (1992) provide several reasons for the use of fluency as a measure of students learning. First, fluency provides the teacher with a picture of student learning and performance. Second, rate per minute provides the examiner with a more sensitive measure than accuracy. Finally, fluency is important functionally for the student whether in or out of the classroom environment.

In written expression, the fluency of writing can be assessed by determining the average sentence length (ASL). The ASL is determined by counting the number of words and the number of sentences, and then dividing the number of words by the number of sentences. For example if a student wrote 120 words and there were 15 sentences then his ASL would be 8.

Precision teaching, founded and coached by Ogden Lindsley (1995), measures student performance on a regular basis to set goals for future instruction (West, Young, & Spooner, 1995). Lindsley (1995) provides those who use precision teaching techniques seven tenets or principles. Those seven principles include:

1. Teachers learn best by studying the behaviors of their students.
2. Rate of response is the universal measure of behaviors.
3. Student performances are charted on a Standard Celeration Chart.
4. Direct and continuous monitoring is emphasized.
5. Behaviors and processes are described and functionally defined.
6. Building, rather than eliminating, behaviors is emphasized.
7. Impact of environmental influences on behaviors is analyzed."

(Lindsley, 1995 p. 18)

These tenets have also been applied to writing in the precision teaching writing program Write Away (Brown, 1997). This writing program features the use of vocabulary lists, SAFMED lists, practice sheets, paragraph topics, parts of speech lessons and charts, hints for punctuation, comprehensive review sheets and hints for writing essays to help students become fluent writers by measuring their performance in order to make changes and decisions about their writing. In this program, students experience direct and daily measurement of their writing and have opportunities to practice through one-minute timings. In addition to the ability to use the parts of speech correctly, the program guarantees students will be able to develop a coherent 125 to 150 word paper with no more than three major errors.

In precision teaching, the feedback that a student receives comes from his/her use of the standard celeration chart (West et al., 1995) that allows him/her to chart his/her progress on a target skill daily. The student, through visual inspection, is able to identify aims that continue to need work (Koorland, Keel, & Ueberhorst, 1995). The use of the standard celeration chart allows the student and the instructor to make decisions about how learning is being delivered. The student also receives feedback verbally from the instructor, tutor, peers, as well as self-feedback.
Direct instruction. Direct Instruction (DI) was developed by Englemann and Carnine in 1982. Direct Instruction is an intervention that has been empirically verified. Direct Instruction arose out of the programmed instruction research and utilizes scripted lessons that produce more student responding more frequently and accurately (Greer, 1994). This form of instruction is packaged to include: pretested scripted lessons; teacher-directed, small group instruction for part of each lesson; teaching procedures which occur through choral responding on a cue and are done at a rapid pace; motivating procedures; training procedures; and formative evaluations (Carnine, Grazdin, & Becker, 1988). The essence of this instruction is that the lessons are scripted, fast-paced, and end with the students responding. The lessons also provide the students many opportunities to practice. In fact, the Morningside Model (Johnson & Layng, 1994) is an example of the Direct Instruction program that has been found to be successful in helping students learn and master skills. Englemann and Silbert (1983/1985) have developed written expression packages (i.e., expressive writing I & II) that focuses on the writing skills of students with problems in written expression.

Gleason (1995) and Shanahan and Lomax (1986) proposed that reading and writing work together to aid the child to read and write. However, writing cannot be learned without the use of direct instruction of students in the various writing skills. 

Computer-Assisted Approaches

As we become a more technological society, the use of computers in the classroom will become more readily accepted by all students, including those with special needs. Since many children with learning disabilities have difficulty with legibility, the word processor might make their writing more readable (Morocco, Dalton, & Tivnan, 1992). MacArthur (1996) describes the benefits of using the word processor with the student with learning disabilities. The use of the editing feature will allow the learning disabled
writer to make several revisions without having to rewrite the entire passage (MacArthur, Graham, Schwartz, & Schafer, 1995). Second, the word processor will allow the writer to produce a neatly written product as well as correctly spelled words (MacArthur, 1995). This allows the student with learning disabilities to be free of most spelling concerns. Third, MacArthur (1996) points out that word processors provide visibility of the text so students can see their writing. This in turn can be a springboard for promoting collaborative writing efforts with other peers, disabled or non-disabled. Finally, use of the word processor gives the student the ability to type (which may be an easier motor skill for them), instead of write. Typing frees the student to put his or her ideas on paper rather than being concerned with the formation of letters and words (Bahr, Nelson, & Van Meter, 1996; MacArthur, 1996).

Morocco et al., (1992) tested the hypothesis that the use of computers would enhance the writing process approach of students with learning disabilities. The subjects consisted of 127 fourth grade students, 29 of whom were learning disabled and 98 of whom were non-learning disabled students. The study took place in four mainstream classrooms so that the experimenters could observe the writing process of the students. After a training period on keyboarding, every student wrote, using computers, for at least three class periods a week, and printed all writings daily. The students used Apple II-e and GS computers and the Bank Street Writer program. The three school systems that participated in the study all used computers, but used different writing approaches. One wrote mostly narratives while another wrote fictional stories.

Quarterly assessment of the writing took place over the course of the year using the National Assessment of Educational Progress (NAEP). Five-hundred fifty-four writing samples were collected and scored using the NAEP criteria. Results indicated that there was no difference between treatment and comparison groups in writing quality. The
level of performance of the students with learning disabilities was less than that of the non-learning disabled students. The study indicated that for children, whether learning disabled or non-learning disabled, writing quality improved in their imaginative stories. Computers as a writing tool did not produce student improvement. However, without the use of the computer in composing and revising writing ability suffered in the students with learning disabilities.

In another project Wetzel (1996) studied whether voice-recognition technology could help three intermediate grade students who were experiencing written communication problems communicate more effectively when writing. Voice recognition technology allows the student to speak into the microphone on the computer, causing the words spoken to appear on the screen or the word processor. The three students were trained how to use the technology over a 10-week period. The experimenter used the VoiceType program. The researcher spent 20 to 40 minutes twice a week with each student. The expectation for the students was they would produce a narrative story, using the VoiceType program to input the story on the computer, and then edit the work using the keyboard. Before the students utilized the VoiceType program independently, the experimenter trained them in the program’s use in four sessions. In session one the student learned some initial skills and how to make corrections. During the second session, students learned to pause 1/10 of a second between words. During the third session, the students learned to use the “hot key” to turn the microphone off if they had to cough or talk to others. During the final training session the students learned how they could be fluent using the computer voice-recognition system.

The results of the study indicated that the student mastered the skills of pausing and speaking clearly. The voice-recognition system could support the various communication tasks the students were engaged in as long as the students spoke clearly
and the words were in the computer program. If the students did not speak clearly the VoiceType program failed to transcribe the word correctly. Finally, the teacher felt that for the one student who completed the study, the computer system did help improve his writing.

Self-Management Strategies

Like response cards, choral responding and guided notes strategies, self-management has also been demonstrated to improve students' academic and behavioral skills. Cooper et al., (1987) define self-management as the personal and systematic application of behavior change strategies that results in the desired modification of one's behavior. The strategies that make up the process of self-management include self-monitoring (Harris, 1986; Hughes & Boyle, 1991; Reid, 1996), self-recording (Blick & Test, 1987; Lloyd, Bateman, Landrum, & Hallahan 1989), self-assessment/evaluation (Grossi, 1990), self-instruction (Kosiewicz, Hallahan, Lloyd, & Bateman, 1982), and self-correction (Hayward & LeBuffe, 1985; McGuffin, 1995; McNeish, 1985; McNeish, Heron, & Okyere, 1992; Okyere, 1990; Okyere, Heron, & Goddard, 1997; Wirtz, 1992; Wirtz, Gardner, Weber, & Bullara, 1996).

Origin of Self-Management/Self-Control

Self-management came out of Skinner’s (1953) two-response system of self-control; the controlling and the controlled response. The self-management response (controlling response) is seen as the behavior the person emits to increase the probability that he/she will emit the target behavior of interest (controlled response) at a later time (Skinner, 1953). Hughes and Lloyd (1993) discuss the operant and cognitive interpretations of self-management. Operant refers to self-control (Skinner, 1953) and problem solving, and the cognitive view refers to assessing and making a decision to control one's behavior and actually perform the self-control response. For a person to
self-manage, that person must be able to identify an appropriate and an inappropriate response. The person must then evaluate his/her response and utilize corrective feedback. The authors also contend that it is reinforcement (positive or negative) that prompts the self-management response.

Ninness, Fuerst, Rutherford and Glenn (1991) studied the effects of self-management training and reinforcement on the transfer of improved conduct when three adolescent boys with severe emotional disturbances were not being supervised. The authors measured the off-task and inappropriate behaviors when the students were not supervised. The data were collected via video tape. The results showed an improvement of in-class behaviors using the self-management strategy. Outside of class, when the students were in transition, their inappropriate behaviors and off-task behaviors remained high.

Advantages of Self-Management

There are several advantages to using self-management strategies. One of the advantages is that there are instances where important behavior can be missed by external change agents. An example of this occurs when the teacher, as the external change agent, is dealing with several students simultaneously and cannot respond to other students in the classroom. Because different behaviors occur at the same time, the teacher is unable to manage them all. The use of self-management reduces the number of behaviors the teacher has to manage.

A second advantage is that self-management can be an effective method for extending the generality of the behavior change that has occurred. "A behavior change that lasts over time, occurs in settings other than the one in which it was originally taught, and/or spreads to other related behaviors is said to have generality." (Baer, Wolf, & Risley 1987; 1968; Cooper et al., 1987). If a child has learned to self-manage his "talk out"
behavior in the resource room setting, and is now able to self-manage "talk outs" in the
general education setting or at home, generality of the behavior can be claimed.

Another advantage of self-management is that certain types of behaviors do not
lend themselves to external-agent control. For example, when an individual's behavior
needs to be monitored day-to-day or minute-to-minute across environments, self-
management may be the strategy of choice (Cooper, et al., 1987). Finally, self-
management can be used to teach self control, especially with weak outcome behaviors,
and data show that self-selected standards can be imposed effectively (Felixbroad and
O'Leary, 1973, 1974). "Feeling good" about managing one's behavior has been cited as a
case of being in control of the reward.

Self-Monitoring

Self-monitoring is defined as the individual's systematic observation of his own
behavior and response to the occurrence or nonoccurrence of a specific target behavior
(Cartledge & Milburn, 1995; Cooper, Heron, & Heward, 1987; Hughes & Boyle, 1991;
Martella, Marchand-Martella, & Agran, 1993). Self-monitoring is different from self-
recording because the student is independently recording the occurrence or nonoccurrence

Reid (1996) discusses two types of self-monitoring. The first is self-monitoring of
attention (SMA) where the student is instructed to first self-assess whether he/she is or is
not paying attention and then self-record the results. The second type is self-monitoring
of performance (SMP). This occurs when the student first self-assesses some part of his
or her academic performance and then self-records the results. For example having a
student self-monitor the steps to follow in solving a division problem would be an example
of this process.
Harris (1986) studied the effects of self-monitoring of attentional behavior versus self-monitoring of productivity on on-task behavior and academic response rate among students with learning disabilities. Her study consisted of four learning disabled students ages 9-10 who were having attentional and productivity problems. During the self-monitoring of attention phase the students were trained to ask the question “Was I paying attention?” whenever a random tone was presented on a tape recorder. In the self-monitoring of productivity phase, the student was taught to count the number of times his or her spelling words had been written at the end of the time period, and then record the number on a graph. Using the self-monitoring procedures Harris (1986) found there to be a meaningful increase in on-task behavior during the self-monitoring of attention and productivity, and students preferred the productivity treatment.

Self-Recording

Self-recording is defined as a way to track the occurrence and nonoccurrence of one’s behavior. However, in self-recording, the student self-records the occurrence or non-occurrence of a target behavior after a cue (i.e., sound of a bell or beep) is given or someone prompts the student to record his or her behavior (Martella et al., 1993).

Self-recording has been shown to be an effective procedure for helping students self-manage targeted behaviors. Several studies have shown the effectiveness of the self-recording procedure with children. For example, Blick and Test (1987) studied the effects of self-recording on the off-task behavior of 12 high school students, ages 15 to 18, in three cross-categorical classrooms. The students were first taught to self-record in the presence of audible cues (tapes). This self-recording continued through a fading process until an audible cue was not presented. Results demonstrated a functional relationship between self-monitoring and recording on increasing the on-task behavior of the targeted students. Also, the students’ on-task behavior maintained a high level as the audible cue
(tape) was faded.

In another study, Lloyd, Bateman, Landrum and Hallahan (1989) used a multi-element design to study the effects of self-recording of attention on the productivity of five students, ages 10 to 11, who were either learning disabled or severely emotionally disturbed. The dependent variables were on-task behavior and correct movement per minute for arithmetic problems. Results of the study showed that positive changes in productivity occurred for each child when self-recording procedures were introduced. Also, in both conditions the on-task behavior and the number of correct movements per minute increased. The authors found no differences between self-monitoring of attention or performance.

Ballard and Glynn (1975) studied the effectiveness of self-management for increasing the quantity of material written, modifying the writing components of the number of sentences, use of different action words, use of different describing words, and on-task behavior of 14 students. The students were selected randomly from a pool of 37 children present in the classroom. There were five phases that students were involved in during the course of the study. During the baseline phase, the rates of the students' writing response and on-task behavior were established. The students then went to the self-assessment plus self-recording phase where the student had 8 minutes after writing his/her story to self-assess and record. The third phase was reinforcement contingent on the number of sentences written. The students received one point for every sentence they wrote. The students could then either spend the points or save the points to use in "hiring" someone to type the story. The fourth phase was reinforcement contingent on the number of different action words used. In this phase the students awarded themselves points for action words used in their sentences. The final phase was reinforcement contingent on the number of different describing words used. The students awarded
points to themselves only for using describing words in their sentences. The results showed that self-management procedures helped increase both writing responses and the students' ability to assess the quality of their writing. The results also showed that student use of different action words was highest with the use of contingent reinforcement. Finally, the study showed that the teacher could be freed of managing the reinforcement contingencies of each of her students.

Self-Assessment/Evaluation

Self-monitoring and self-recording have both been shown to successful in the change of behavior. Self-Assessment/evaluation is another self-management strategy that has been shown to aid in improving student behavior. For example, Grossi (1991) studied the effects of a self-evaluation treatment package on the work productivity of adults with disabilities in a restaurant training program. Cartledge and Milburn (1995) and Grossi (1991) define self-evaluation as the comparison of one's own behavior to a set of standards to determine whether various aspects of performance meet those standards. Grossi (1991) studied the rate and duration of the adult trainees' use of two or more restaurant tasks. The study was conducted with four adult males with disabilities in a cafe that was part of a vocational training program for individuals with disabilities. The trainees had to participate in three of ten stations. Each trainee was evaluated on his or her work rate, productivity, and quality. Results indicated that all four trainees improved their work performance using the self-management package. Also, each trainee was able to self-monitor his or her work performance.

Self-Correction

Like self-monitoring, self-recording, and self-assessment/evaluation self-correction sets the occasion for the learner to accept responsibility for their own learning (McNeish, Heron, & Okyere, 1992) by providing the student with a way to practice the skill and gain
immediate feedback with little or no teacher interference. Self-correction may take many different forms. One example is "match to sample" where the child looks at a correct model of a word or math problem that he/she has already completed and then makes corrections to his/her answer. Another self-correction strategy uses puzzle pieces or sentence strips in an activity where the student has to match the two pieces to obtain the answer. The use of self-correction with students is another way to help children gain self-control in learning. Several studies on the use of self-correction related to spelling and writing have shown to improve these skills for children.

A more detailed example of research on self-correction is found in Okyere, Heron, and Goddard (1997). The study looked at the effects of self-correction on the acquisition, maintenance, and generalization of written spelling of six elementary students, ages 7 to 13, who attended an after-school clinic. The experimenters wanted to determine whether the use of self-correction would improve spelling in isolation as well as in context. They also studied whether the self-correction technique affected the variations of words that the students learned. The dependent variables measured were the written spelling accuracy on weekly spelling posttests, delayed posttests, generalization of spelling scores, and social validity. The students attended spelling sessions three times per week, and were taught to use four proofreading marks prior to the self-correction intervention. During the self-correction sessions the students were provided with 15 words arranged on a five column sheet of paper. The first column contained the list of 15 words. The students would fold the first column back so it could not be seen. The students then used headphones to listen to the recording of each of their target words, which they then wrote in the second column of the self-correction worksheet. After all words were written, the students unfolded the first column and checked the accuracy of their spelling by comparing the model to their own spelling efforts, and by using proofreading marks to make corrections to the words.
written (letter-by-letter) while listening to the tape. The process was repeated two to three times using the remaining empty columns on the sheet of paper. As a generalization measure the students also wrote sentences using first the target words and then variations of the words. The results indicated a functional relationship between using the self-correction procedure and the spelling success of the six students in the study. Each student was able to spell 14 out of 15 words correctly on the end-of-session posttest. As an added note, the researchers discovered that the students preferred the self-correction procedure to other spelling strategies.

In an earlier project McNeish, Heron and Okyere (1992) studied five junior high students with learning disabilities to compare the effects of self-correction and traditional spelling methods on the acquisition, maintenance, and generalization of spelling words. The experimenters used an alternating treatments design to compare self-correction and traditional methods using 20 spelling words. The five students were already placed in the learning disabilities resource room for language arts. The experimenter compared traditional spelling techniques to that of the self-correction spelling intervention. During the traditional method the experimenter gave a pretest over 20 unlearned words, provided activities to learn those words (Monday - Thursday), and administered a posttest on Friday. The self-correction method consisted of the experimenter providing students with 20 unlearned words, as determined by a weekly pretest. The students were given 20-minute self-correction assignments each day where they were given a piece of paper with five columns. The first column was folded back, and possessed the correct form of the spelling word. The students words were dictated to them. At the end of the dictation the students flip the unfolded the first column and used this column as a model to make corrections to their self-spelled words. They would then practice the words missed in the third column, after which they would fold the answers back and the words they missed
were dictated again, repeating the procedure again. A posttest was given to the students at the end of the week. The results indicated that the use of the self-correction procedure was more effective than the traditional spelling approach since students on average learned 24 more words during the five-week period of self-correction. The students also preferred the self-correction method over the traditional method and the students had more opportunities to respond using self-correction.

Wirtz, Gardner, Weber, and Bullara (1996) studied the effects of self-correction and a traditional approach on the acquisition, maintenance, and generalization of spelling with third grade learning disabled students in a resource room setting. Six, third grade students who had difficulty with spelling participated in the study. During the traditional intervention, after the weekly pretest, the students were provided with fifteen words to spell, and one of the six students with ten words to spell. The students were given a variety of activities throughout the week aimed at helping them learn to spell their word list (i.e., write words five times each and use each in a sentence). On Friday, each student was given a posttest to determine what words he or she learned.

Under the self-correction condition the students first learned the proofreading marks they would use, as well as how to manipulate the cassette player. The students were given a list of words and a self-correction form with five columns. Column 1 was the word list, column 2 self-correction, column 3 write it right, column 4 self-correct, and column 5 write it right. The students completed this correction task Monday through Thursday. The students were given a delayed posttest every other Friday to assess maintenance in a word-sentence-word format. The results indicated that all six students spelled more words correctly using the self-correction method than they did using the traditional method. In fact over four week period, the students learned 179 words using the traditional method, but learned 276 words using the self-correction method in a four
McGuffin (1995), in a systematic replication of the McNeish (1985) study, examined the effects of self-correction on the acquisition, maintenance, and generalization of spelling words with six, third grade students in a general education classroom. The dependent variables in this study were written spelling accuracy on weekly posttests, delayed posttests, and generalization probes. The independent variable was self-correction spelling instruction. The experimenter compared a traditional method to the self-correction whole-word method of spelling. In the traditional procedure the students, after receiving their list of words, wrote each word five times each. After the 20 minute writing period the students took their spelling words with them to study. The same procedure was used each day for 20-minutes until Friday when the test was administered.

The self-correction procedure occurred in the following manner. The students used tape recorders and wore headphones to listen as their spelling words were presented in a word-sentence-word format. The students would then rewind the tape, push “play” and begin the first writing of the words. The self-correction “column sheet” of earlier studies was used. On the spelling sheet the first column was folded under so the correct spelling was not visible to the students. After listening to the word, the student would push “stop” and write the word. After writing all words the student unfolded the first column and checked his/her spelling against the correct list. If the word was wrong, the student wrote the entire word above the misspelled word. If the word was correct, the student would put the letter “C” above the word. At the end of 20-minutes the student left with his/her spelling sheet for further study. The self-correction procedure occurred daily until Friday when the posttest was administered.

The results of the study indicated that the self-correction whole-word intervention was more effective than the traditional approach since students spelled more words.
correctly. Also, five of the six students were able to maintain a higher number of words using the self-correction strategy.

Quigley (1995) studied the effects of whole word and individual letter self-correction on the acquisition, maintenance, and generalization of spelling words with elementary students, ages 7 to 10. Five of the students were typically developing, two were identified as having a learning disability, and one identified as at-risk for school failure. The dependent variables were weekly test scores, delayed posttest scores, and generalization measures (students written work). The independent variables were whole-word self-correction and individual-letter self-correction. The whole-letter self-correction method consisted of the student checking his or her spelling word to that of a model, and then marking it correct or incorrect by either writing the word correctly above the word missed or placing a check mark next to the word if it was written correctly. Individual letter self-correction consisted of the student using four editing marks in order to check his or her written words letter-by-letter.

An alternating treatments design was utilized (Cooper et al., 1987) for this study. A coin was flipped to determine which of the two methods (whole-word or individual letter) was to be used for the week. A pretest was administered on Monday to determine the list of words to be used for the week for each child. Tuesday through Thursday the students used either method as determined by the coin toss. The students had 15 minutes to complete the procedure. The whole-word procedure used the five-column sheet discussed in earlier studies. The process of writing, checking, and correcting was enacted as directed by a taped sequence. In the individual letter condition, the student was also given the list of words for the week on a sheet with five columns where the first column contained his or her list of words correctly spelled. The students then listened to a tape, wrote each word, and then self-corrected the word a letter at a time using the pre-taught
symbols to make corrections. Friday, the students were tested.

The results indicated that five of eight students performed better when the whole word self-correction method was used. The experimenter did not find one method superior to the other in terms of maintenance as shown in the delayed posttests performance.

**Self-Correction and Writing.**

The use of self-correction has provided significant improvements in the spelling literature. There is also a small body of literature related to the use of self-correction and written expression. Kosiewicz, Hallahan, Lloyd, and Graves (1982) studied the effects of self-instruction and self-correction procedures, and their combination, on the handwriting performance of a nine year old, learning disabled boy. A reversal design was used with a multiple baseline that encompassed the 11 phases of the treatment. The procedure sequence went as follows: baseline, self-instruction, self-instruction combined with self-correction, back to baseline, combination of interventions, baseline, combination of interventions, self-instruction alternating with self-correction, baseline, combination of interventions, and finally ending with baseline. The results showed that the use of self-instruction can improve student academic performance.

Hayward and LeBuffe (1985) discussed the use of a self-correction code to help students correct their own writing assignments. Instead of marking corrections directly on the sentences, the authors used a code system, placed in the margin, that students would use to identify their mistakes and then make corrections to their writing assignments. The authors also used self-correction in writing and found the procedure to be effective if the students had at least three days a week to practice.

In summary, the literature review offered information on four main areas: specific learning disabilities, written expression, active student response, and self-management.
Beyond discrete treatment of these areas, there were several studies discussing research in written expression as well as the use of self-correction. After examining the information in previous studies on written expression and self-correction in spelling, it is evident that a study using self-correction and written expression has not yet been attempted. This dissertation compared the use of teacher corrective feedback and self-correction on the written compositions of elementary school children with learning disabilities in order to see if significant changes could occur in the written expression of children using self-correction.
CHAPTER 3

METHOD

This chapter details the setting, subjects, experimenter, dependent and independent variables and the procedures used in the study. There is also a description of the training of observers and students as well as a discussion of the experimental design used in the study.

Setting

This study was completed in a learning disabilities resource room located in an urban elementary school in a large Midwestern city. The study was conducted in the back of the room where there was a table and six chairs (see Figure 3.1).

Students

The students for this study were selected based on recommendations by the classroom teacher and on individual writing samples from each student. Five students between the ages of eight and eleven years were selected for the study. The subjects of this study had a special education label of specific learning disability (SLD). Permission for each subject to participate was obtained by sending a letter and a consent form to parents explaining the study. The consent form was signed and returned for each student prior to beginning the study (see Appendix A).
Figure 3.1

Classroom Arrangement
The five students selected had difficulties in written expression and ranged in age from eight years and eight months to eleven years (Table 3.1).

<table>
<thead>
<tr>
<th>Student</th>
<th>Age</th>
<th>Grade</th>
<th>Ethnicity</th>
<th>IQ</th>
<th>Test</th>
<th>GE</th>
<th>SS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aidan</td>
<td>8</td>
<td>3rd</td>
<td>African American</td>
<td>84</td>
<td>Reading Writing</td>
<td>K.0</td>
<td>71</td>
</tr>
<tr>
<td>Allison</td>
<td>10</td>
<td>4th</td>
<td>Hispanic American</td>
<td>112</td>
<td>Reading Writing</td>
<td>K.0</td>
<td>58</td>
</tr>
<tr>
<td>Justin</td>
<td>10</td>
<td>4th</td>
<td>African American</td>
<td>93</td>
<td>Reading Writing</td>
<td>1.1</td>
<td>63</td>
</tr>
<tr>
<td>Kaitlyn</td>
<td>8</td>
<td>3rd</td>
<td>African American</td>
<td>88</td>
<td>Reading Writing</td>
<td>1.1</td>
<td>47</td>
</tr>
<tr>
<td>Michael</td>
<td>11</td>
<td>4th</td>
<td>Hispanic American</td>
<td>79</td>
<td>Reading Writing</td>
<td>1.2</td>
<td>51</td>
</tr>
</tbody>
</table>

Notes. 1 Woodcock - Johnson, 2 GE = grade equivalent, 3 SS = standard score.

Table 3.1

Student Information

Initial Subject Selection Assessment

After asking permission of the teacher (see Appendix B) and the principal of the school (see Appendix C), the initial subject selection was conducted by asking the classroom teacher to identify students in her classroom with the most severe deficits in written expression. The teacher provided the experimenter with writing samples of five students she believed might benefit the most from the study. The teacher explained that the students were experiencing problems in spelling, organization of their ideas, sentence structure, run-on sentences, incomplete or fragmented sentences, problems capitalizing,
punctuating, generating ideas to write about, and effectively using other parts of speech. The experimenter asked each of the selected students to complete two writing samples. The experimenter then reviewed each student’s writing sample to verify specific deficits in the targeted areas (i.e., use of punctuation, use of capitalization, use of adjectives and number of words written). Spelling errors were present on students’ writing samples, but were not included in Table 3.2 since they did not come under intervention during the study.

Procedure for Obtaining Written Samples

The experimenter reviewed each sample of the recommended students’ written work to verify specific deficits in the targeted areas (i.e., number of words written, use of capitalization, use of punctuation, use of adjectives, and spelling errors). Permission to view these writing samples was also requested in the parental consent letter (see Appendix A). Also the experimenter obtained two additional writing samples from each of the five students prior to beginning the study to obtain a correct record of each student’s written expression skills, and to identify the areas most in need of intervention. The subjects were asked to come to the writing area (see Figure 3.1) located at the back of the classroom. The experimenter explained that he was working on teaching writing skills and asked each student if he or she would be willing to participate in the research (see Appendix D). All five students said they would be willing to participate and were excited about being picked by their teacher.

The students were then given a piece of paper with five, numbered lines (see Appendix E) and a sheet listing three story starters. The students were asked to pick a story starter from a list of three. A timer was set for 1 minute, and the students were asked to think about what they would write. After the buzzer sounded, the experimenter told the students that “when the timer is started again you are to write five sentences
<table>
<thead>
<tr>
<th>Student</th>
<th>Sentences</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Story</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Punc</td>
<td>Caps</td>
<td>Adj</td>
<td></td>
<td></td>
<td>Punc</td>
<td>Caps</td>
<td>Adj</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>C1</td>
<td>I2</td>
<td>C</td>
<td>I</td>
<td>C</td>
<td>I</td>
<td>C</td>
<td>I</td>
<td>C</td>
<td>I</td>
</tr>
<tr>
<td>Aidan</td>
<td>0/1</td>
<td>1/1</td>
<td>1/2</td>
<td>1/2</td>
<td>2/3</td>
<td>1/3</td>
<td>0/1</td>
<td>1/1</td>
<td>2/5</td>
<td>3/5</td>
</tr>
<tr>
<td>Allison</td>
<td>2/4</td>
<td>2/4</td>
<td>4/4</td>
<td>0/4</td>
<td>0</td>
<td>0</td>
<td>2/7</td>
<td>5/7</td>
<td>7/8</td>
<td>1/8</td>
</tr>
<tr>
<td>Justin</td>
<td>0/1</td>
<td>1/1</td>
<td>3/3</td>
<td>0/3</td>
<td>2/2</td>
<td>0/2</td>
<td>0/2</td>
<td>2/2</td>
<td>5/5</td>
<td>0/5</td>
</tr>
<tr>
<td>Kaitlyn</td>
<td>0/3</td>
<td>3/3</td>
<td>3/5</td>
<td>2/5</td>
<td>2/2</td>
<td>0/2</td>
<td>1/4</td>
<td>3/4</td>
<td>6/11</td>
<td>5/11</td>
</tr>
<tr>
<td>Michael</td>
<td>3/3</td>
<td>0/3</td>
<td>4/11</td>
<td>7/11</td>
<td>1/1</td>
<td>0/1</td>
<td>1/4</td>
<td>3/4</td>
<td>3/9</td>
<td>6/9</td>
</tr>
</tbody>
</table>

**Note:** 1=C means Correct, 2=I means Incorrect.

Table 3.2

**Student Pre-Assessment Scores**
about the story starter they had chosen on the lined piece of paper in front of them." The timer was set for five minutes, the students were verbally told to "Begin Writing" and the timer was started. When the buzzer sounded, the students stopped writing and turned the writing samples into the experimenter.

A second writing sample was obtained using the same procedure, except the students were told to write a story instead of sentences. Each student was provided with writing paper with solid lines at the top and bottom and a dashed line in the middle (see Appendix E). The experimenter then gave the students a choice of three story starters and one minute to think about what they would write. The timer was set for five minutes. The students were again verbally told to "Begin Writing" and the timer was started. When the timer buzzed the students submitted their writing samples to the experimenter who coded and recorded the students responses (see Table 3.2).

The writing samples were coded and reviewed for the five students selected to participate in this study to identify which skill area was most in need of intervention. Each student is described below listing his/her present levels, full scale I.Q. and teacher recommendations.

Aidan

Aidan was eight years and ten months at the beginning of the study. He was a third grader and received all academic services (reading, math, language arts, writing and spelling) in the learning disability resource room. He did not receive any other special education services according to his Individual Education Program (IEP). Aidan has received special education services since kindergarten. The most recent cognitive evaluation in his record indicated a full scale I.Q. of 84. Scores from the Woodcock-Johnson showed Aidan’s broad reading grade equivalent to be at the beginning kindergarten level, with a standard score of 71. His broad writing grade equivalent was
K.7 with a standard score of 92 (see Table 3.1). Current grades showed Aidan had received a grade of “C” in written expression for the third grading period. The classroom teacher indicated that Aidan had problems in the following writing subskill areas: capitalization, punctuation, adjectives, organization of ideas, idea generation, sentence structure, run-on and fragmented sentences, and spelling.

As part of the initial subject selection assessment Aidan was asked to provide two writing samples. The results of those samples provided the following information about Aidan’s use of the target skills. The sentence writing and story writing assessments showed that Aidan was not consistently using capitalization and punctuation correctly. Also, he used the same adjectives repeatedly. A complete breakdown of the targeted skills can be found in Table 3.2.

Allison

Allison was nine years and eleven months at the beginning of the study. She was in the fourth grade and received all academic services (reading, math, language arts, writing and spelling) in the learning disability resource room. She did not receive any other special education services according to her Individual Education Program (IEP). Allison has received special education services since first grade. The most recent cognitive evaluation in her record indicated a full scale I. Q. of 112. Scores from the Woodcock-Johnson showed Allison’s broad reading grade equivalent to be at the beginning kindergarten level, with a standard score of 58, and her broad writing grade equivalent to be K.8 with a standard score of 80 (see Table 3.1). Current grades showed Allison received a grade of “C” in written expression for the third grading period. Allison’s classroom teacher felt the writing subskills needing intervention were: capitalization, punctuation, adjectives, organization of ideas, idea generation, sentence structure, run-on and fragmented sentences, and spelling.
As part of the initial subject selection assessment Allison was asked to provide two writing samples. The results of those samples provided the following information about Allison’s use of the target skills. The sentence writing and story writing assessments showed that Allison was not consistently using punctuation correctly. Also, she used the same adjectives repeatedly. A complete breakdown of the targeted skills can be found in Table 3.2.

Justin

Justin was ten years and nine months at the beginning of the study. He was in the fourth grade and received all academic services (reading, math, language arts, writing and spelling) in the learning disability resource room. He did not receive any other special education services according to his Individual Education Program (IEP). Justin received special education services since first grade. The most recent cognitive evaluation in his record indicated a full scale I.Q. of 93. Scores from the Woodcock-Johnson showed Justin’s broad reading grade equivalent to be at the beginning first grade level, with a standard score of 63, and his broad writing grade equivalent to be 1.1 with a standard score of 62 (see Table 3.1). Current grades showed that Justin had received a grade of “D” in written expression for the third grading period. Justin’s classroom teacher felt the writing subskills needing intervention were: capitalization, punctuation, adjectives, organization of ideas, idea generation, sentence structure, run-on and fragmented sentences, and spelling.

As part of the initial subject selection assessment Justin was asked to provide two writing samples. The results of those samples provided the following information about Justin’s use of the target skills. The sentence writing and story writing assessments showed that Justin was not consistently using punctuation correctly. The assessment also showed Justin used the same adjectives repeatedly. A complete breakdown of the
targeted skills can be found in Table 3.2.

**Kaitlyn**

Kaitlyn was eight years and eight months at the beginning of the study. She was in the third grade and received all academic services (reading, math, language arts, writing and spelling) in the learning disability resource room. She did not receive any other special education services according to her Individual Education Plan (IEP). Kaitlyn has received special education services since kindergarten. The most recent cognitive evaluation in her record indicated a full scale I.Q. of 88. There were also scores from the Woodcock-Johnson showing Kaitlyn’s broad reading grade to be equivalent to the beginning first grade level, with a standard score of 47, and a broad writing grade equivalent of K.5 with a standard score of 87 (see Table 3.1). Current grades showed Kaitlyn had received a grade of “C” in written expression for the third grading period. Kaitlyn’s classroom teacher felt the writing subskills needing intervention were: capitalization, punctuation, adjectives, organization of ideas, idea generation, sentence structure, run-on and fragmented sentences, and spelling.

As part of the initial subject selection assessment Kaitlyn was asked to provide two writing samples. The results of those samples provided the following information about Kaitlyn’s use of the target skills. The sentence writing and story writing assessments showed Kaitlyn was not consistently using capitalization and punctuation correctly. A complete breakdown of the targeted skills can be found in Table 3.2.

**Michael**

Michael was eleven years and zero months at the beginning of the study. He was in the fourth grade and received all academic services (reading, math, language arts, writing and spelling) in the learning disability resource room. He did not receive any other special education services according to his Individual Education Program (IEP). Michael
has received special education services since first grade. The most recent cognitive evaluation in his record indicated a full scale I.Q. of 79. Scores from the Woodcock-Johnson showed Michael's broad reading grade equivalent to be 1.2 with a standard score of 51, and a broad writing grade equivalent of 1.2 with a standard score of 42 (see Table 3.1). Current grades showed that Michael had received a grade of “D” in written expression for the third grading period. Michael's classroom teacher felt the writing subskills needing intervention were: capitalization, punctuation, adjectives, organization of ideas, idea generation, sentence structure, run-on and fragmented sentences, and spelling.

As part of the initial subject selection assessment Michael was asked to provide two writing samples. The results of those samples provided the following information about Michael's use of the target skills. The sentence writing and story writing assessments showed that Michael was not consistently using capitalization and punctuation correctly. A complete breakdown of the targeted skills can be found in Table 3.2.

**Experimenter**

The experimenter was a third year doctoral candidate majoring in Special Education with an emphasis in Applied Behavior Analysis at The Ohio State University. The experimenter provided the instruction to the students for all sessions during the study. He has nine years teaching experience consisting of public schools, acute inpatient treatment, and residential treatment. The experimenter taught students in grades kindergarten through twelfth grade in the areas of general education (5th grade), learning disabilities (K-12), and severe behaviorally and emotionally handicapped (4 - 12).

**Observers**

The procedural observer, defined as the individual who observes and notes if the procedure outlined by the experimenter is followed correctly, for this experiment was the
classroom teacher, who had 6 years of experience working with the learning disabled, and is a graduate student at The Ohio State University in the College of Education.

The interobserver, individual who checked the reliability of the experimenter’s data based on her own analysis of the writing samples, was also a graduate student in the College of Education and held a Bachelor of Science in developmentally handicapped education, and is certified to teach children with developmental handicaps. She was also teaching language arts and math in a Japanese school in Ohio. She was working toward a master’s degree in Early Intervention education at the time of the study.

The other accuracy reliability observer was a second year doctoral student in the College of Education working toward the doctorate of philosophy in Special Education with an emphasis on Applied Behavior Analysis. Prior to returning to higher education she taught for four years as a teacher of students with mild disabilities in Maryland. Her professional experience with writing has been extensive including helping to develop the Maryland State Performance Assessment Program’s Writing Evaluation.

Experimental Design

The experimental design selected was a multiple baseline design across behaviors (Cooper, Heron & Heward, 1987; Johnston & Pennypacker, 1993; Poling & Fuqua, 1986; Sidman, 1960). Multiple-Baseline designs involve a sequencing of A/B manipulations staggered across time. Target behaviors are recorded for either an individual subject or two or more subjects, or the same behavior for a single subject in different settings or situations (Poling et al., 1986). Experimental control in a multiple-baseline design is established through the use of prediction, verification and replication.

Definition and Measurement of the Dependent Variables

The study investigated the effects of the two experimental conditions on five dependent variables or target skill areas. The accurate use of punctuation, capitalization,
and adjectives were the three primary target skills. Data were also collected on student spelling accuracy and number of words written for each of the subjects. Frequency measures were used to evaluate differences in number of words written, punctuation, capitalization, adjectives, and spelling accuracy.

**Number of Words Written**

Students were provided a choice of three story starters during each session. After selecting a story starter, the students were given a one-minute thinking period to generate ideas about what to write prior to beginning the 5-minute writing period. At the end of the 5-minute writing period, each student counted the number of words he/she had written. After collecting each student’s writing sample, the experimenter counted the number of words written and recorded the both student’s count and his count.

**Punctuation**

For the purpose of this study punctuation consists of commas, quotation marks, and ending punctuation (i.e., question marks, exclamation marks, and periods) in a sentence. Periods can be used at the end of declarative sentences, imperative sentences, a sentence that contains an indirect question, and after abbreviations or initials. Question marks can be used after a sentence, or a word and phrase that asks a question. Exclamation marks can be used at the end of an exclamatory sentence, after an imperative sentence where the sentence gives a forceful and urgent command, and after interjections when expressing a strong emotion. Commas are used with coordinate conjunctions (e.g. and, but, for, nor, or, so, and yet) to separate two simple sentences that form compound sentences, to separate a series of words or phrases, after introductory words or phrases, to set off interrupting words and phrases, and in numbers with more than three digits. Quotation marks are used as punctuation to enclose a person’s exact words.
CORRECT USE OF PUNCTUATION
The dog and cat are friends. (Period)
How old are you? (Question Mark)
Wow! You did an awesome job on the story! (Exclamation Mark)
The car had red, white, and blue stripes. (Commas)
John said, “When is the first day of school?” (Quotation Mark)

INCORRECT USE OF PUNCTUATION
The dog and cat are friends? (Wrong ending punctuation)
The car had red white and blue stripes (Missing punctuation/commas)
John said, when is the first day of school? (Missing quotation marks)
Who is going to the movie with me (Missing punctuation)
Wow. What a great idea. (Wrong punctuation)
The car, was going very fast. (comma not needed in sentence)
A man was running to the house, next door. (The period after house
was not necessary)

Capitalization

Capitalization is defined as the use of a capital letter in the initial first word of a
sentence (e.g. The dog is waiting to be fed.), first letter of proper nouns (e.g. Mark
Twain), in words which denote social or professional title before a person’s name or in
direct address (e.g. Dr. Spock), a title having a family relationship when it is used before a
person’s name or as a direct address (e.g. Aunt Martha), a title showing family
relationships that refer to a specific person except if it follows a possessive noun or
pronoun (e.g. Ask Grandma her opinion.), the first word or key words in books, e.g.
Frog and Toad are Friends), newspapers (e.g. The New York Times) magazines, (e.g.
George), short stories (e.g. "The Raven"), poems (e.g. “Walking Through the Woods on

60
A Snowy Evening”), plays (e.g. Cheaper By the Dozen), movies (e.g. Star Wars), songs (e.g. “The Star Spangled Banner”), or in reference to a language (e.g. French I), and the letter I (e.g. I helped the teacher clean the chalkboards).

CORRECT USE OF CAPITALIZATION

Tom and Jerry went to Maine. (Tom, Jerry and Maine are all proper nouns and should begin with a capital letter).

INCORRECT USE OF CAPITALIZATION

The Dog is black and white. (Dog should not begin with a capital letter, it is not a proper noun) (unnecessary capitalization)
The boys and I are in Texas. (I and Texas should begin with a capital letter) (capitalization needed)
Our Summer house is Very Beautiful. (The M’s in summer, the V in very, and the B in beautiful should be lower case) (unnecessary capitalization)

Adjectives

Adjectives are defined as words used to describe a noun or pronoun (Sebranek, Meyer, Kemper, 1995). The following are examples of correct and incorrect use of adjectives.

CORRECT USE OF ADJECTIVES

Why did ancient dinosaurs become an extinct species? (ancient describes dinosaurs and extinct describes species)
Were they wiped out by a catastrophic flood or a deadly epidemic? (catastrophic describes the flood and deadly describes the epidemic)

INCORRECT USE OF ADJECTIVES

Tim reads good. (The word good would describe the verb reads but adjectives cannot modify verbs)
Accurate Spelling

Accurate spelling was defined as the correct sequencing of letters to form words within sentences written by students. The dictionary was used as the standard for correct orthography. Words that were spelled correctly were marked and recorded as correct. In the instance where a student wrote a word that was spelled correctly, but was used out of context, the word was considered an incorrect spelling. For example, in the sentence "The boy and his dog are best friends." if a student wrote the word "in" in place of the word "and", the word "in" was marked as an incorrect spelling because it did not fit the context/meaning of that sentence.

Word Count

Word count was defined as any word or letter that the student wrote that was meaningful to the sentence or story he or she had written. Words spelled correctly or incorrectly were counted as part of the count. Misspelled words were also counted as part of the word count. For example in the sentence "The dog and cat ran after the mouse." the total word count would be 8, the number of correctly spelled words would be 6, and the number of incorrectly spelled words would be 2. Words written in place of a word that would make the sentence complete were counted as incorrect, but remained as part of the word count. For example, if the student wrote, "My brother in I went to the baseball game, in then to Friendlies for ice cream." The word "in" would be counted as incorrect, but would be included in the word count. If there was difficulty understanding what the student wrote due to invented spellings, unorganized thoughts, or incomplete sentence structure the experimenter asked the student to read his or her story back to the experimenter. The experimenter then wrote the correct word above what was originally written so that the correct form of the story could be written, and so the observers would be able to decipher what the student had meant to write.

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Materials

Clipboards

Clipboards (21.6m x 93.5 m) were used to hold the data collection sheets and the procedural reliability sheets during the course of the experiment.

Colored Pencils

Crayola colored pencils were used during the self-correction intervention to distinguish each student’s self-corrections from his or her actual writing. The pencils were also used to help distinguish between the first and second corrections the students made to their stories.

Dependent Variable Recording Sheet

Dependent variable recording sheets were used to keep record of responses made by each student to the dependent variables (see Appendix F). The forms show the frequency of correct and incorrect use of punctuation, capitalization, adjectives, spelling, and number of words written.

Digital Timer

A Radio Shack Digital timer was used during pre-baseline, baseline and intervention phases to ensure that no more than 5 minutes were spent writing each story.

Dry Erase Markers

Expo dry-erase markers were used by the instructor during the pre-baseline lessons as a means for each student to write his/her response on the response card board.

Graph Paper

Graph paper (6 square inches) was used to provide a graphic display for each student’s response to the baseline and treatment conditions. The data were displayed on the graphs for each student each day so that decisions could be made on a daily basis regarding baseline and intervention phases.
Individual Summary Sheet

Individual data summary sheets were used to keep track of the correct and incorrect responses of individual students as the responses occurred for all dependent variables. The sheet also listed procedural integrity and accuracy measures (see Appendix G).

Lesson Plans

Lesson plans were created for each of the dependent variables, whether treated or not treated. The lessons include a goal, objective, procedures, materials, and evaluation portion. The lessons were used as part of the pre-baseline procedures. An example of the lesson plan can be found in Appendix H.

Lottery Tickets

Lottery tickets were used during teacher corrective feedback and self-correction conditions as reinforcers for student’s correctly written sentences or correct use of target skills. Each ticket had a duplicate. One ticket was given to the student, and its duplicate was placed in a container used for drawing the tickets for prizes.

Novel Story Writing Paper

During teacher corrective feedback and self-correction conditions, students were issued novel (new) story writing paper. The student’s name, date, session number, observer, and condition was listed at the top of the paper. There was also a place for a title and several complete and dotted lines for the student to write his or her story (see Appendix I).

Parental Consent Form

A parental consent form was sent to each student’s parent or guardian to obtain written consent for his/her child to participate in the initial assessment and for inclusion into the research project. The letter informed the parent about the research project and
what his/her child would be involved in during the study. The letter also informed the parent that he/she would be able to withdraw permission for his/her child to participate at any time. The parent was also provided a number to call should he/she have any questions regarding the research. A sample of this letter is provided in the Appendix A.

Principal Letter of Support

A letter of support was obtained from the principal to obtain permission conduct the study in her school (see Appendix S). The letter was one requirement, as determined by the Human Subjects Review Board, necessary to allow the experimenter to perform research in the school.

Procedural Checklist

A procedural checklist was used throughout the study for 100% of pre-baseline sessions, 60% of teacher corrective feedback sessions, and 86% of self-correction sessions for each child under each condition. The procedural checklist demonstrated that the experimenter followed the same procedure throughout the entire project (see Appendix K). The checklist was composed of a set of procedures with spaces for “yes” and “no” responses that the observer would check during the course of the session. This checklist was used to verify whether the experimenter had followed the procedure as specified during the development of the study.

Reminder Board

A response card board (91.4m x 60.9m) was used to display the dependent variables, their rules and definitions, and examples of each variable. This offered the students a prompt to view while writing (see Appendix L).

Response Cards

Response cards (a 60.9m x 35.5m laminated white board) were used by the experimenter and students to write practice sentences on and during pre-baseline lessons.
An example of these sentences can be found in Appendix M.

**Principal's Script**

The principal's script was used to provide her with a summary of the research project, and to ask her permission to conduct the research project in her school (see Appendix C).

**Student Script**

The student script was used to provide students with a summary of the research project, and to ask them to be a participant in the study (see Appendix D).

**Teacher Script**

The teacher script was used to provide the classroom teacher with a summary of the research project, as well as to ask her permission to conduct the research project in her classroom (see Appendix B).

**Self-Correction Form**

A self-correction form was used by the students after the experimenter had written a corrected form of their stories from the previous session. The correct form served as a model for students to make corrections to their stories. Once the student made corrections to his or her story, he/she would then correctly rewrite those previously incorrect portions of the story on a second piece of writing paper (Appendix N).

**Self-Correction Using the Key Recording Form**

A key recording form was used to record the initial correct and incorrect responses of students after they had completed the correction of novel (new) stories. The form lists the frequency of correct and incorrect responses to punctuation, capitalization, and adjectives. Incorrect responses in spelling, and the number of words written were also recoded on this form (see Appendix O).
Self-Correction Without the Key Recording Form

The self-correction without the key recording form was used to record the correct and incorrect responses of students after completing the correction of novel stories without using the key. The form lists the frequency of correct and incorrect responses to punctuation, capitalization, and adjectives. The form also lists incorrect responses in spelling, and the number of words written by students (see Appendix O).

Story Starters

Story starters were used during assessment, pre-baseline lessons, teacher corrective feedback, and self-correction as a medium to help students generate ideas for their stories. Examples of story starters used can be found in Appendix P.

Student Questionnaire

A 7-item questionnaire was presented to each subject individually, following the study, to determine the preferred intervention. The questionnaire also asked what the student did or did not like about the writing procedure. Each student was questioned by the experimenter individually so that independent responses could be obtained (see Appendix Q).

Teacher Letter of Support

A letter of support was obtained from the teacher to ask her permission conduct the study in her classroom (see Appendix R). The letter was one requirement, as determined by the Human Subjects Review Board, necessary to allow the experimenter to perform research in the classroom.

Teacher Questionnaire

A 13-item questionnaire was provided to the teacher at the end of the research project to obtain the teacher's view of each student's progress in writing, and to determine if the teacher would use the procedure to teach writing in the future. The questionnaire
was completed without the experimenter being present (see Appendix S).

**Ticket Drawing Container**

The ticket drawing container was a 15.2m x 15.2m x 12.7m square box that contained the duplicate ticket the students received for correct responses to target skills and sentences. The experimenter drew 5 tickets each Friday.

**Treasure Chest**

The treasure chest was the name of the container that held prizes that students could choose if their tickets were drawn from the ticket-drawing container. The treasure chest contained prizes like Match Box cars, pencils, pens, key chains, games, jewelry making kits, etc.

**Writing Paper**

Writing paper was provided for students' use in making corrections to their stories during the self-correction phase of the story. The student's name, session and date were written at the top so the experimenter could keep track of which student had written the story and when the writing occurred (see Appendix T)

**Pre-Baseline Lesson Instruction**

Prior to beginning the study, students were presented with one lesson over each of the three primary dependent variables (i.e., capitalization, punctuation, and adjectives) (see Appendix H). The experimenter presented the lessons to all five subjects simultaneously. The lesson also included a definition of each variable and rules about the appropriate use of the target writing skill. For example, when the teacher presented a lesson on adjectives, the definition and rules governing adjectives were included. An emphasis was placed on the use of adjectives as modifiers for nouns, pronouns, and other adjectives. The lesson was then followed by a review of the instructed material during which the experimenter provided correct and incorrect use of adjectives. The experimenter next questioned the students...
students about the use of adjectives and the students responded to the experimenter’s questions by using write-on response cards (see Appendix M). Next sentences were presented by the experimenter to the students. Each sentence offered an opportunity for the addition of an adjective. The experimenter then called on a student to write a sentence on his/her response card, indicate where an adjective could be placed, and offer a possible adjective for that place in the sentence. An example of this dialogue could have been, “Michael, in the first sentence where could you add an adjective to make the sentence more descriptive?” The student might then write a response regarding what needed to be corrected in each sentence. For example, given the sentence, “I have a dog.” a student might have replied, “I have a black dog.” The experimenter provided social praise for correct answers. If the student’s response was incorrect (e.g. “I have black, a dog.”) corrective feedback was given (e.g., “Good try, a better way would be to say “I have a black dog.”) Next, the experimenter modeled the appropriate response and asked the student chorally repeat the correct answer. If the student did not respond, the experimenter modeled the response (e.g., “I have a black dog”) again and then asked him or her to repeat the response. The experimenter would then move on to the next sentence and another student, continuing until all five sentences had been corrected. Finally, the experimenter passed out a worksheet, with space provided to write five sentences, to each student. The first three sentence spaces had a phrase to prompt a sentence. (e.g., “I love ________, My mother ________, I am ________). The last two sentence spaces were completely blank, and the student was asked to generate his or her own sentences (see Appendix U). The student was told to complete the first three sentences and write two of his/her own sentences using adjectives. After the experimenter completed the directions, the students were directed to complete their worksheets. Once each student completed his/her worksheet, the experimenter reviewed the answers and
provided positive/corrective feedback to each of the students. Feedback was verbal and written. After the students finished writing all five sentences, the experimenter and the students reviewed each of the sentences together. For example, the experimenter asked “Justin, how did you finish writing the sentence I love ________?” The student read his or her sentence and the experimenter provided verbal feedback, such as, “Justin, your sentence: “I love how the big, orange sun sets in Florida.” is great. You remembered to use capitals and ending punctuation.” If Justin wrote, “I love how the sun sets in Florida,” then the experimenter provided corrective feedback saying, “Justin, I like your sentence but you forgot to add adjectives to your sentence.” The experimenter then modeled the sentence for the student, thereby showing him where adjectives could have been placed in the sentence. After the experimenter and students reviewed each of the sentences, the experimenter collected the worksheets and provided written feedback to each student before the next session. The experimenter wrote words such as “good”, “great”, or “correct” on student papers when his/her responses were correct, as well as examples of how the student could improve the sentence. For example, if the sentence was “I like to eat the sandwich for lunch” the experimenter would write, “I like to eat sandwiches for lunch” above the original sentence to provide the student with a corrected example or form of the original sentence. Each lesson lasted approximately 15 to 20 minutes.

Procedures

General Procedures

Prior to the students coming to the writing area, the experimenter prepared all the materials. The materials included the reminder board of target skills, story starters, guidelines for lottery tickets, lottery tickets, checklist for procedural integrity, writing paper and timer. The sessions began with the experimenter asking the students to come to the writing area and to bring their pencils. The experimenter served as the writing area.
teacher in the study. All sessions lasted approximately 15 minutes during teacher corrective feedback sessions and 30 minutes during self-correction sessions. All novel (new) stories in both conditions were evaluated for the students' correct use of the targeted skills. There were two writing sessions each day.

The experimenter reviewed the writing target skills by verbally directing the students' attention to the reminder board which illustrated correctly written examples of each target skill (see Appendix L). The dry erase reminder board was posted near the writing area and listed each of the dependent variables (e.g., capitalization, punctuation, and adjectives), as well as the definition, rules, and examples related to each dependent variable. The students were then given a choice of three story starters and writing paper. The timer was set for a 1 minute think period. When the buzzer sounded, the timer was reset for 5 minutes. The students were told to “BEGIN WRITING.” When the buzzer sounded again, the students stopped writing, counted the number of words used in their written pieces, and recorded the number at the top of their papers. The students then turned in their papers to the experimenter and the session ended. This procedure was initiated at Session 2 and continued until the completion of the self-correction phase of the study.

Reinforcement. Tickets were used to reinforce students during teacher corrective feedback and self-correction segments of the study. The students received tickets for correctly written sentences and then used those tickets for a drawing every Friday. Each ticket chosen offered an opportunity for students to choose items from the treasure chest. The treasure chest included such items as pencils, pens, candy, erasers, race cars, jewelry kits, etc. To receive tickets the students had to adhere to the following contingencies.

During teacher corrective feedback and self-correction conditions, if the student wrote the sentence correctly the first time, he or she received 3 tickets for each correct
sentence. No tickets were distributed to the student if a sentence was not rewritten correctly, or if the sentence was not legible.

On Friday, the experimenter drew 5 tickets from a box which contained duplicate tickets to those distributed to the students. The student whose ticket matched those drawn was then able to select an item from the treasure chest. At the end of the drawing, all students discarded that week’s tickets. A student could win a maximum of two prizes per drawing. During the course of the study all students won on several occasions, and all were excited about participating. Since this reinforcement system was indiscriminable, the students continued to be excited about obtaining tickets and having their number drawn.

Teacher Corrective Feedback

Teacher corrective feedback followed all general procedures except during the initial session. In the initial session each student was given a copy of his or her paper with written teacher comments from the previous session. The experimenter presented the students with the choice of three story starters. The experimenter set the timer for one minute and told the students to think about what they wanted to write. When the buzzer sounded, the experimenter then reset the timer for 5 minutes. The students were told that when the buzzer sounded again on the timer they were to stop writing, count the number of words they had written, write the number at the top of the page, and submit their written story to the experimenter. The experimenter told all the students they had 5 minutes to write on their chosen topic. The experimenter said, “Remember, if you are not sure about how to spell a word just try your best.” “BEGIN WRITING.” The experimenter started the timer. The students wrote for 5 minutes. When the buzzer sounded, the experimenter told the students “Stop writing and count and record the number of words you wrote today.” The session ended. After this first writing session the experimenter read and provided written corrective feedback on each student’s paper.
Between each of the sessions, the experimenter graded/scored each student’s story and provided written feedback on the student’s paper. Next, the experimenter recorded “corrects” and “incorrects” on a graph. The experimenter returned each student’s corrected stories. An example of the types of feedback given is as follows:

**CORRECTIVE EXAMPLE:**

```
T
"the dog was wagging it’s tail."
```

**POSITIVE EXAMPLE:**

"The dog was wagging its tail because he was happy." (Very well written)

[An example of the feedback given to students’ stories during baseline (teacher corrective feedback) can be found in Appendix V.]

**VERBAL FEEDBACK:**

"Great work writing your stories! I really enjoyed reading each of them."

"Michael, good work! I like how you remembered to capitalize the initial letter of your sentences."

The students then wrote another story using the same procedure as before. The session ended. After the second writing session, the experimenter again provided corrective feedback to student’s writing, which was returned to the students prior to beginning the next session. The number of reinforcers earned (i.e., tickets) was minimal, except for Allison, who consistently received tickets for sentences that were written correctly the first time.

**Self-Correction**

Self-correction occurred twice each day. Between each session, the experimenter read and prepared a correct, typewritten English form of the story written by each student during the previous session. The first correct typewritten English form copy of a story for
this condition was prepared from the last session under the teacher corrective feedback condition. Appendix W displays an example of the correct English form of a student's story. The correct use of the dependent variable of interest appeared in bold lettering, and was highlighted, so that the students could use these correct forms during self-correction.

**Intervention after initial session.** On day one of self-correction, after the reminder lesson, each student was given his or her novel story from the previous day. Each student was asked to read the story, identify any errors in his or her writing, and make corrections. Each student was directed to draw a line through the error and make the correction above the marked out word(s). After the student had an opportunity to find and make corrections to errors, he or she was instructed to rewrite only those sentences where errors were discovered. Rewrites occurred on a separate piece of notebook paper (see Appendix T). After each student was provided with an opportunity to correct his/her paper, each student was given the self-correction form with his/her corrected story, space to rewrite the story, with the target skills highlighted, along with a colored pencil. The students had approximately one class period to complete the day's activities. The class period lasted approximately two hours. The students were in the class for all academic work. The sessions ran approximately 30 minutes (20 minutes of self-correction and 10 minutes for writing novel stories) depending upon how involved students became in correcting and rewriting their stories. The students were also given a colored pencil to make corrections, and they were instructed to self-correct their story using the self-correction key. The students were instructed to look for and correct only those errors that were highlighted on the correct version of their story. These highlighted words included errors in punctuation, capitalization, and adjectives. A correction that was not highlighted by the experimenter were spelling errors. Each student made edits to his or
her original paper and correctly rewrote only those sentences that had errors on the lines provided on the self-correction form (see Appendix N). Each student turned in his or her paper to the experimenter. The session ended. After the self-correction period and the novel writing period, the experimenter checked the accuracy of each student’s self-correction by reading his or her writings, recording each student’s self-corrections, and comparing the student self-corrections with those made by the experimenter. After self-correcting the previous session’s story, the students were asked to choose from three new story starters. The students then wrote a new story following the procedures described earlier (See Appendix X).

Reinforcement. The student continued to receive 3 tickets for each sentence written correctly the first time during the self-correction condition. The student also received 2 additional tickets if he or she discovered an incorrect sentence and rewrote it correctly during self-correction without a key. The student received 1 additional ticket if the sentence was rewritten correctly during self-correction using the key.

During the course of the study it became necessary (Session 30) to provide even greater reinforcement for students. The reinforcement was increased because students were not showing great increases in their responses to the dependent variables. The students still received 3 tickets the first time a sentence was written correctly during the novel story. However for the remainder of the study students would receive 2 tickets for each correction in punctuation, capitalization, adjectives, and spelling when they were given the opportunity to make corrections their stories without the self-correction key. When the students used the self-correction key and made corrections, they would receive 1 ticket for each correction.
Training of Observers

Coding Subjects' Writing

The observers were trained in how to evaluate the students' written documents. A training packet was developed to help the observers code individual student's writing (see Appendix Y). The observers were taught how to score each of the written stories using the following markings:

C = CAPITALIZATION USED PROPERLY
Example: *Tom* and *Jerry* went to *Maine.*

IC = CAPITALIZATION NOT USED OR NOT USED PROPERLY
Example: *the* boy was happy to be home.
Example: The *Dog* is black and white.

P = PUNCTUATION USED PROPERLY
Example: The water in the ocean is always moving.

IP = PUNCTUATION NOT USED OR NOT USED PROPERLY
Example: WOW. What a beautiful day.
Example: The dog, and the boy were walking home.

ADJ = ADJECTIVE USED PROPERLY
Example: A hurricane covers a larger area than a tornado.

IADJ = ADJECTIVE NOT USED OR NOT USED PROPERLY
Example: The dog good walked with me.

ISP = INCORRECT SPELLING
Example: The boy and girl were fried.

During training, the observers were provided with a sample of student writing and were told to identify the correct or incorrect use of the five dependent variables (punctuation, capitalization, adjectives, spelling, and number of words written) using the coding system.
The observer recorded their scores at the bottom of the copy of student writing (see Appendix Z). The observers marked the frequency of correct and incorrect use of each of the dependent variables in the spaces provided at the bottom of the student writing sample.

**Counting Words Training**

The observers were also trained in how to count the number of words written by students. In the training packet the experimenter included a space for the observer to write his or her word count for each story in the packet (see Appendix Y). The observers were instructed to count all words, even those that were misspelled or that were incomplete words. For example both the correct form of the word “women”, as well as the incorrect form of the same word, “womin”, would be counted. In some instances a single letter would be counted. For example, one student wrote about his friends “A” and “L”. The experimenter asked the student to tell him what the letters stood for and the student responded that those were his friends’ names. In this instance, the individual letter was counted, within the word count, as a word written because it was part of the meaning of the story. If a letter was standing alone and had no meaning, then it was not counted as part of the word count. The only exception was made for the letter “I”, “i”, or “a”.

**Procedural Integrity Training**

An observer was trained in how to use the procedural checklist for teacher corrective feedback and self-correction conditions. The procedural integrity checklist included questions and “yes” and “no” responses that the observer checked off depending on what she observed the experimenter doing during each condition. The observer was to follow the progression of the procedure and put a check mark next to “YES” or “NO” depending on whether the experimenter had followed the procedure as described.
Data Collection

Observer

The experimenter and two graduate students, master’s and doctoral-level graduate students, were trained prior to beginning the study to record “corrects” and “incorrects” using the students' written prose. The training included examples of student writing, where the observers had to identify examples and non-examples of the correct and incorrect use of the dependent variables (see training observers above and Appendix Y).

Procedural Integrity

Procedural integrity checklists were used during all phases to insure reliability (see Appendix K). The checklists consisted of a series of questions. A trained observer, not the experimenter, marked “yes” or “no” indicating whether the procedure was performed correctly by the experimenter. There were two procedural integrity observers during the course of the study. In the teacher corrective feedback condition the checklist was completed 60% of the sessions, and during the self-correction condition the checklist was completed during 86% of the sessions.

Accuracy Measures

Accuracy measures were also used since there was a permanent product; namely, the students' writing. This measure was also used because it was not necessary for those persons coding the writing to be present during the time when the writing samples were collected from students. Also utilized were independent observers who scored an unmarked writing sample for each student as well as the experimenter.

If there was a discrepancy between the experimenter and the independent observer's evaluation of the writing, the two individuals resolved the issue by looking at the writing together and making a determination on the correctness of the student response.
Social Validity

Questionnaires

Questionnaires were provided to the teacher and each student who participated in the study. The teacher questionnaire, which consisted of thirteen questions, was used to determine the teacher's perception of the study and to identify what she believed was the most effective interventions for helping students write, providing teacher corrective feedback or encouraging self-correction. The questionnaire also helped the experimenter determine what the teacher perceived to be the student's favorite way to write. (see Appendix S). The student questionnaire consisted of seven questions. The questions were used to determine which of the two writing strategies the students preferred, and to discover what each student liked or did not like about each strategy (see Appendix Q).
CHAPTER 4

RESULTS

This chapter presents the results of this study which compared the effects of teacher corrective feedback and self-correction on the written expression of elementary students with learning disabilities. Data on the frequency of correct and incorrect usage of capitalization, punctuation, and adjectives are presented. Additionally, data were collected on the number of spelling errors and the number of words written by each student across conditions. A description of the accuracy measures and procedural checklist results for each student are reported for both teacher corrective feedback and self-correction conditions. Two measures of social validity were obtained: the classroom teacher’s opinions and students’ opinion of the two expressive writing conditions.

Dependent Variables

Data were collected for fifteen sessions of teacher corrective feedback prior to self-correction being introduced for punctuation. Teacher corrective feedback was continued for the target skills of capitalization and adjectives until self-correction was intervened at Session 30 and Session 35 respectively. Results from the teacher corrective feedback and self-correction conditions are presented using descriptive information and graphs.

During the self-correction intervention on punctuation students were reinforced using tickets when they used the key. However, it was soon apparent that increased levels of reinforcement were needed as students did not use the key to make their corrections.
The number of tickets the students received when they self-corrected without using a key was increased when intervention on capitalization began. This change in reinforcement occurred starting at Session 30, and is shown on the individual student graph with a dashed line.

The next section of this chapter offers a detailed examination of each student involved in the study and the results of the teacher corrective feedback and self-correction on the target skills that were focused upon. Each student participant will be addressed individually.

**Aidan**

**Punctuation.** The teacher corrective feedback condition for punctuation lasted for 13 sessions. Aidan’s mean correct use of punctuation was .7, range 0 to 2 (see Figure 4.1). The incorrect use of punctuation averaged 1.9, range 0 to 4. His mode of correct and incorrect use of punctuation was 0/1 and 2 respectively.

There were 20 sessions during the self-correction condition for punctuation. Correct use of punctuation averaged 1.5, range 0 to 3 during the self-correction condition (see Figure 4.1). The incorrect use of punctuation averaged 2.5, range 0 to 6. His mode of correct and incorrect use of punctuation was 2 and 3 respectively.

**Capitalization.** There were 26 teacher corrective feedback sessions during which capitalization was instructed. Correct use of capitalization for Aidan averaged 2.8, range 1 to 8 during the teacher corrective feedback condition (see Figure 4.1). His incorrect use of capitalization averaged .6, range 0 to 2 (see Figure 4.1). His mode of correct and incorrect use of capitalization was 2 and 0 respectively.

Capitalization lasted for 7 sessions in the self-correction condition. Correct use of capitalizations by Aidan averaged 4.1, range 1 to 8 during the self-correction condition (see Figure 4.1). His incorrect use of capitalization averaged 3.4, range 1 to 6 (see Figure
Figure 4.1: Aidan’s correct and incorrect frequency of response for punctuation, capitalization, and adjectives in novel stories during teacher corrective feedback and self-correction conditions. SR+ is the use of tickets for reinforcement.
Adjectives. The teacher corrective feedback condition addressed adjectives for 29 sessions. The correct use of adjectives by Aidan averaged 2.2, range 0 to 5 with a mode of 2 (see Figure 4.1). The incorrect use of adjectives by Aidan averaged .1 incorrect responses, range 0 to 1 with a mode of 0 (see Figure 4.1).

Aidan participated in 4 sessions of self-correction addressing adjectives. As Figure 4.1 displays, the correct use of adjectives by Aidan averaged 3.5, range 2 to 6. His incorrect use of adjectives are displayed showing that Aidan averaged 0 incorrect responses. His mode of correct and incorrect use of adjectives was 3 and 0 respectively.

Allison

Punctuation. Allison was only absent on two occasions during the study, Session 28 and Session 39. The teacher corrective feedback condition lasted for 15 sessions for punctuation. Allison’s mean correct use of punctuation averaged 4.0, range 1 to 7 (see Figure 4.2). Incorrect use of punctuation averaged 2.1, range 0 to 5 (see Figure 4.2). Her mode of correct and incorrect use of punctuation was 4 and 2 respectively.

There were 27 sessions during the self-correction condition for punctuation. Correct use of punctuation averaged 6.4, range 3 to 12 during the self-correction condition (see Figure 4.2). Figure 4.2 shows that the incorrect use of punctuation averaged 2.5, range 0 to 7. Her mode of correct and incorrect use of punctuation was 6/7 and 1 respectively.

Capitalization. There were 28 teacher corrective feedback sessions where capitalization was instructed. Correct use of capitalization for Allison averaged 6.2, range 3 to 12 during the teacher corrective feedback condition (see Figure 4.2). Her incorrect use of capitalization averaged 1.1, range 0 to 4 (see Figure 4.2). Her mode of correct and incorrect use of capitalization was 6 and 0 respectively.
Figure 4.2: Allison’s correct and incorrect frequency of response for punctuation, capitalization, and adjectives in novel stories during teacher corrective feedback and self-correction conditions. SR+ is the use of tickets for reinforcement.
Capitalization was addressed for 14 sessions in the self-correction condition. Correct use of capitalization for Allison averaged 7.8, range 6 to 11 (see Figure 4.2). Her incorrect use of capitalization averaged 2.5, range 0 to 15 (see Figure 4.2). Her mode of correct and incorrect use of capitalization was 7/8 and 1/3 respectively.

**Adjectives.** Adjectives were instructed under the teacher corrective feedback condition for 33 sessions. The correct use of adjectives by Allison averaged 3.4, range 1 to 7 with a mode of 4 (see Figure 4.2). The incorrect use of adjectives by Allison averaged .12 incorrect responses, range 0 to 1 with a mode of 0 (see Figure 4.2).

Adjectives were intervened upon during the self-correction condition for 9 sessions. As Figure 4.2 displays, the correct use of adjectives by Allison averaged 5.2, range 2 to 10 with a mode of 2/4. In Figure 4.2 the incorrect use of adjectives are displayed showing Allison averaged .22 incorrect responses, range 0 to 1 with a mode of 0.

**Justin**

**Punctuation.** The teacher corrective feedback condition focused on punctuation for 12 sessions. Justin’s mean correct use of punctuation was 1.2, range 0 to 4 (see Figure 4.3). Incorrect use of punctuation averaged 1.3, range 0 to 3 (see Figure 4.3). His mode of correct and incorrect use of punctuation was 0/1 and 2 respectively.

The self-correction condition for punctuation lasted 25 sessions. Justin’s mean correct use of punctuation was 1.5, range 0 to 4 during the self-correction condition (see Figure 4.3). Figure 4.3 shows the incorrect use of punctuation averaged 2.0, range 0 to 5. His mode of correct and incorrect use of punctuation was 1 and 2 respectively.

**Capitalization.** There were 24 teacher corrective feedback sessions where capitalization was instructed. Correct use of capitalization for Justin averaged 2.2, range 0 to 5 during the teacher corrective feedback condition (see Figure 4.3). His incorrect
Figure 4.3: Justin’s correct and incorrect frequency of response for punctuation, capitalization, and adjectives in novel stories during teacher corrective feedback and self-correction conditions. SR+ is the use of tickets for reinforcement.
use of capitalization averaged 1.1, range 0 to 3 (see Figure 4.3). His mode of correct and incorrect use of capitalization was 2 and 1 respectively.

Capitalization lasted for 13 sessions in the self-correction condition. Correct use of capitalization for Justin averaged 3.5, range 1 to 8 during the self-correction condition (see Figure 4.3). His incorrect use of capitalization averaged 2.2, range 0 to 7 (see Figure 4.3). His mode of correct and incorrect use of capitalization was 1/3 and 3 respectively.

**Adjectives.** Adjectives were instructed under the teacher corrective feedback condition for 28 sessions. The correct use of adjectives by Justin averaged 2.3, range 0 to 5 with a mode of 2 (see Figure 4.3). The incorrect use of adjectives by Justin averaged .03 incorrect responses, range 0 to 1 with a mode of 0 (see Figure 4.3).

Adjectives. Adjectives were under the self-correction condition for 9 of Justin’s writing sessions. As Figure 4.3 displays, the correct use of adjectives by Justin averaged 3.0, range 1 to 6 with a mode of 3. In Figure 4.3 the incorrect use of adjectives are displayed showing Justin averaged .4 incorrect responses, range 0 to 1 with a mode of 0.

**Kaitlyn**

**Punctuation.** The teacher corrective feedback condition focused on punctuation lasted 15 sessions. Kaitlyn’s mean correct use of punctuation was .66, range 0 to 1 during (see Figure 4.4). Incorrect use of punctuation averaged 2.5, range 1 to 5 (see Figure 4.4). Her mode of correct and incorrect use of punctuation was 1 and 1 respectively.

There were 29 sessions during the self-correction condition for punctuation. Correct use of punctuation for Kaitlyn averaged 1.2, ranged 0 to 3 during the self-correction condition (see Figure 4.4). Figure 4.4 shows the incorrect use of punctuation averaged 4.2, range 1 to 8. Her mode of correct and incorrect use of punctuation was 2 and 2/4 respectively.
Figure 4.4: Kaitlyn’s correct and incorrect frequency of response for punctuation, capitalization, and adjectives in novel stories during teacher corrective feedback and self-correction conditions. SR+ is the use of tickets for reinforcement.
Capitalization. There were 29 teacher corrective feedback sessions where capitalization was instructed. Correct use of capitalization for Kaitlyn averaged 2.6, range 0 to 5 during the teacher corrective feedback condition (see Figure 4.4). Her incorrect use of capitalization averaged 5.3, range 1 to 11 (see Figure 4.4). Her mode of correct and incorrect use of capitalization was 2 and 4/6 respectively.

A focus upon capitalization lasted for 15 sessions in the self-correction condition. Kaitlyn’s correct use of capitalization averaged 2.4, range 1 to 5 during the self-correction condition (see Figure 4.4). Her incorrect use of capitalization averaged 6.1, range 2 to 13. Her mode of correct and incorrect use of capitalization was 3 and 4/6 respectively.

Adjectives. Adjectives were instructed under the teacher corrective feedback condition during 34 of Kaitlyn’s sessions. The correct use of adjectives by Kaitlyn averaged 2.3, range 0 to 7 with a mode of 2 (see Figure 4.4). The incorrect use of adjectives by Kaitlyn averaged 0.1 incorrect responses, range 0 to 1 with a mode of 0 (see Figure 4.4).

Adjectives were intervened upon using the self-correction condition for 10 sessions. As Figure 4.4 displays, the correct use of adjectives by Kaitlyn averaged 2.8, range 1 to 6 with a mode of 2. In Figure 4.4 the incorrect use of adjectives are displayed showing Kaitlyn averaged 0.3 incorrect responses, range 0 to 1 with a mode of 0.

Michael

Punctuation. The teacher corrective feedback condition lasted for 15 sessions for punctuation. Michael’s mean correct use of punctuation was 1.6, range 0 to 4 during (see Figure 4.5). Figure 4.5 shows his incorrect use of punctuation averaged 3.0, range 0 to 6. His mode of correct and incorrect use of punctuation was 0/1 and 2 respectively.

There were 26 sessions during the self-correction condition for punctuation. Correct use of punctuation by Michael averaged 2.6, range 1 to 6 during the self-
Figure 4.5: Michael's correct and incorrect frequency of response for punctuation, capitalization, and adjectives in novel stories during teacher corrective feedback and self-correction conditions. SR+ is the use of tickets for reinforcement.
correction condition (see Figure 4.5). Figure 4.5 shows the incorrect use of punctuation averaged 2.8 range 0 to 10. The mode of correct and incorrect use of punctuation was 1/3 and 1/2/4 respectively.

**Capitalization.** There were 29 teacher corrective feedback sessions where capitalization was instructed. Correct use of capitalization for Michael averaged 3.7, range 0 to 9 during the teacher corrective feedback condition (see Figure 4.5). His incorrect use of capitalization averaged 1.8, range 0 to 5 (see Figure 4.5). His mode of correct and incorrect use of capitalization was 3/4 and 0 respectively.

Capitalization lasted for 12 sessions in the self-correction condition. Correct use of capitalization for Michael averaged 5.5, range 3 to 11 during the self-correction condition (see Figure 4.5). His incorrect use of capitalization averaged 6.8, range 2 to 12 (see Figure 4.5). His mode of correct and incorrect use of capitalization was 3 and 7 respectively.

**Adjectives.** Adjectives were instructed using the teacher corrective feedback condition for 33 sessions. The correct use of adjectives by Michael averaged 2.9, range 0 to 6 with a mode of 2 (see Figure 4.5). The incorrect use of adjectives by Michael averaged .1, range 0 to 1 with a mode of 0 (see Figure 4.5).

Self-correction condition was used in teaching adjectives for 8 sessions. As Figure 4.5 displays, the correct use of adjectives by Michael averaged 4.38, range 3 to 6 with a mode of 3 (see Figure 4.5). In Figure 4.5 the incorrect use of adjectives are displayed showing Michael averaged .3 incorrect responses, range 0 to 1 with a mode of 0.

**Group Means and Ranges**

Table 4.1 displays the students' individual frequency and range for each variable as well as the group mean and range for each variable in the teacher corrective feedback.
<table>
<thead>
<tr>
<th>Student</th>
<th>Punctuation</th>
<th>Capitalization</th>
<th>Adjectives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CI</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>Aidan</td>
<td>0.7 1.5 1.9 2.5</td>
<td>2.8 4.1 0.6 3.4</td>
<td>2.2 3.5 0.1 0.0</td>
</tr>
<tr>
<td></td>
<td>(0-2) (0-3) (0-4) (0-6)</td>
<td>(1-8) (1-8) (0-2) (1-6)</td>
<td>(0-5) (2-6) (0-1) (0)</td>
</tr>
<tr>
<td>Allison</td>
<td>4.0 6.4 2.1 2.5</td>
<td>6.2 7.8 1.1 2.5</td>
<td>3.4 5.2 0.1 0.2</td>
</tr>
<tr>
<td></td>
<td>(1-7) (3-12) (0-5) (0-7)</td>
<td>(3-12) (6-11) (0-4) (0-15)</td>
<td>(1-7) (2-10) (0-1) (0-1)</td>
</tr>
<tr>
<td>Justin</td>
<td>1.2 1.5 1.3 2.0</td>
<td>2.2 3.5 1.1 2.2</td>
<td>2.3 3.0 .03 0.4</td>
</tr>
<tr>
<td></td>
<td>(0-4) (0-4) (0-3) (0-5)</td>
<td>(0-5) (1-8) (0-3) (0-7)</td>
<td>(0-5) (1-6) (0-1) (0-1)</td>
</tr>
<tr>
<td>Kaitlyn</td>
<td>0.7 1.2 2.5 4.2</td>
<td>2.6 2.4 5.3 6.1</td>
<td>2.3 2.8 0.1 0.3</td>
</tr>
<tr>
<td></td>
<td>(0-1) (0-3) (0-5) (0-7)</td>
<td>(0-5) (1-5) (1-11) (2-13)</td>
<td>(0-7) (1-6) (0-1) (0-1)</td>
</tr>
<tr>
<td>Michael</td>
<td>1.6 2.6 3.0 2.8</td>
<td>3.7 5.5 1.8 6.8</td>
<td>2.9 4.4 0.1 0.3</td>
</tr>
<tr>
<td></td>
<td>(0-4) (1-6) (0-6) (0-10)</td>
<td>(0-9) (3-11) (0-5) (2-12)</td>
<td>(0-6) (3-6) (0-1) (0-1)</td>
</tr>
<tr>
<td>GM</td>
<td>1.6 2.6 2.2 2.8</td>
<td>3.5 4.7 2.0 4.2</td>
<td>2.6 3.8 0.1 0.2</td>
</tr>
<tr>
<td>GR</td>
<td>(0.7-4.0)(1.2-6.4)</td>
<td>(1.3-3.0)(2.0-4.2)</td>
<td>(2.2-6.2)(2.4-7.8)(0.6-5.3)(2.2-6.8)</td>
</tr>
</tbody>
</table>

**Notes:**
1. C = Correct, 2 I = Incorrect, 3 GM = Group Mean, 4 GR = Group Range, 5 TCF = Teacher Corrective Feedback, 6 S-C = Self-Correction.

Table 4.1

The Mean Frequency and Range of Subjects Correct, Incorrect Responding for Teacher Corrective Feedback and Self-Correction for Capitalization, Punctuation and Adjectives.
Number of Words Written. The number of words written by Aidan was also counted during the 33 sessions in which he participated. The average number of words written by Aidan was 24.7, range 12 to 57 (see Figure 4.6). Aidan was present for 13 sessions during teacher corrective feedback. Aidan averaged 16.6 words in 5 minutes, range 12 to 25. In the self-correction condition, which lasted for 20 sessions, Aidan averaged 30.05 words in 5 minutes, range 15 to 57 (see Table 4.2).

Allison

Spelling. Spelling errors were counted for all 42 sessions in which Allison participated during the study. Allison’s mean number of spelling errors was 4.6, range 0 to 19 (see Figure 4.7). During the teacher corrective feedback condition, which lasted 15 sessions, Allison averaged 3 spelling errors, range 0 to 8. In the self-correction condition, which lasted 27 sessions, Allison averaged 5.5 spellings errors, range 0 to 19 (see Table 4.2).

Number of Words Written. The number of words written by Allison was also counted during the 42 sessions in which she participated. The average number of words written by Allison was 41.5, range 21 to 70 (see Figure 4.7). Allison was present for 15 sessions during teacher corrective feedback. During these sessions Allison averaged 35.7 words in 5 minutes, range 21 to 47. In the self-correction condition, which lasted for 27 sessions, Allison averaged 44.77 words in 5 minutes, range 31 to 70 (see Table 4.2).

Justin

Spelling. Spelling errors were counted for all 37 study sessions in which Justin participated. Justin’s mean number of spelling errors was 3.8, range 0 to 9 (see Figure 4.8). During the teacher corrective feedback condition, which lasted 12 sessions, Justin averaged 2.8 spelling errors, range 0 to 7. In the self-correction condition, which lasted
Figure 4.6: Aidan's number of misspellings and number of words written (NWW) during each session of teacher corrective feedback and self-correction conditions.
Figure 4.7: Allison's number of misspellings and number of words written (NWW) during each session of teacher corrective feedback and self-correction conditions.
Figure 4.8: Justin's number of misspellings and number of words written (NWW) during each session of teacher corrective feedback and self-correction conditions.
25 sessions, Justin averaged 4.4 spellings errors, range 0 to 9 (see Table 4.2).

**Number of Words Written.** The number of words written by Justin was also counted during the 37 sessions in which he participated. The average number of words written by Justin was 18.5, range 8 to 42 (see Figure 4.8). Justin was present for 12 sessions during teacher corrective feedback. In these sessions Justin averaged 17.3 words in 5 minutes, range 8 to 21. In the self-correction condition, which lasted for 25 sessions, Justin averaged 20.9 words in 5 minutes, range 10 to a high 42 (see Table 4.2).

**Kaitlyn**

**Spelling.** Spelling errors were counted for all 44 sessions in which Kaitlyn participated during the study. Kaitlyn’s mean number of spelling errors was 4.5, range 0 to 12 (see Figure 4.9). During the teacher corrective feedback condition, which lasted 15 sessions, Kaitlyn averaged 2 spelling errors, range 0 to 5. In the self-correction condition, which lasted 29 sessions, Kaitlyn averaged 5.89 spellings errors, range 1 to 12 (see Table 4.2).

**Number of Words Written.** The number of words written by Kaitlyn was also counted during the 44 sessions in which she participated. The average number of words written by Kaitlyn was 25.8, range 9 to 56 (see Figure 4.9). Kaitlyn was present for 15 sessions during teacher corrective feedback. During these sessions Kaitlyn averaged 16.5 words in 5 minutes, range 9 to 28. In the self-correction condition, which lasted for 29 sessions, Kaitlyn averaged 30.7 words in 5 minutes, range 14 to 56 (see Table 4.2).

**Michael**

**Spelling.** Spelling errors were counted for all 41 sessions in which Michael participated during the study. Michael’s mean number of spelling errors was 8.4, range 1 to 17 (see Figure 4.10). During the teacher corrective feedback condition, which lasted 15 sessions, Michael averaged 7.1 spelling errors, range 1 to 11. In the self-correction
Figure 4.9: Kaitlyn’s number of misspellings and number of words written (NWW) during each session of teacher corrective feedback and self-correction conditions.
Figure 4.10: Michael’s number of misspellings and number of words written (NWW) during each session of teacher corrective feedback and self-correction conditions.
condition, which lasted 26 sessions, Michael averaged 9.23 spellings errors, range of 2 to 17 (see Table 4.2).

**Number of Words Written.** The number of words written by Michael was also counted during the 41 sessions in which he participated. The average number of words written by Michael was 32.6, range 14 to 58 (see Figure 4.10). Michael was present for 15 sessions during teacher corrective feedback. In these sessions Michael averaged 27.1 words in 5 minutes, range 21 to 39. In the self-correction condition, which lasted for 26 sessions, Michael averaged 35.8 words in 5 minutes, range 14 to 58 (see Table 4.2).

**Group Means and Percentage**

Table 4.2 displays the group mean and range for students' incorrect spelling and the number of words written by the student during teacher corrective feedback and self-correction conditions. During teacher corrective feedback the group mean for spelling errors was 3.5, range 2.0 to 7.1. The group mean for spelling during self-correction was 6.2, range 4.4 to 9.2. The group mean for the number of words written during teacher corrective feedback sessions was 22.6, range 16.5 to 35.7. The mean number of words written during self-correction sessions was 32.4, range 20.9 to 44.8.

**Accuracy of Student’s Count of Number of Words Written**

Accuracy measures were taken on the students’ ability to count their number of words written. When the buzzer on the timer sounded, each student counted the number of words he or she had written and wrote that number at the top of the paper. The experimenter, after collecting the writing samples, counted the number of words written by each student and recorded the number on the recording sheet. The accuracy measures for each student is as follows: Aidan’s average accuracy was 99.2% with a range of 92.8 to 100. Allison’s average accuracy was 99.6% with a range of 97 to 100. Justin’s average accuracy was 94.1% with a range of 0 to 100. Kaitlyn’s average accuracy was
<table>
<thead>
<tr>
<th>Student</th>
<th>Teacher Corrective Feedback (15)</th>
<th>Self-Correction (29)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Spelling</td>
<td>NWW</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>Total</td>
</tr>
<tr>
<td>Aidan</td>
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<td>39</td>
</tr>
<tr>
<td></td>
<td>(0-11)</td>
<td>(12-25)</td>
</tr>
<tr>
<td>Allison</td>
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<td>45</td>
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<tr>
<td></td>
<td>(0-8)</td>
<td>(21-47)</td>
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<tr>
<td>Justin</td>
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<td>33</td>
</tr>
<tr>
<td></td>
<td>(0-7)</td>
<td>(8-21)</td>
</tr>
<tr>
<td>Kaitlyn</td>
<td>2.0</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>(0-5)</td>
<td>(9-28)</td>
</tr>
<tr>
<td>Michael</td>
<td>7.1</td>
<td>106</td>
</tr>
<tr>
<td></td>
<td>(1-11)</td>
<td>(21-39)</td>
</tr>
<tr>
<td>Group Mean</td>
<td>3.6</td>
<td>253</td>
</tr>
<tr>
<td>Group Range</td>
<td>(2.0-7.1)</td>
<td>(16.5-35.7)</td>
</tr>
</tbody>
</table>

**Note:** 1 NWW means Number of Words Written.

Table 4.2

Mean Frequency and Range of Spelling Errors and the Number of Words Written by Students

During Teacher Corrective Feedback and Self-Correction Conditions.
99.3% with a range of 83 to 100. Michael's average accuracy was 90.5% with a range of 0 to 100. Justin's and Michael's range of accuracy start at "0" due to the fact that each student, on one story, did not count the number of words written. This information can also be found in Table 4.3.

<table>
<thead>
<tr>
<th>Student</th>
<th>Accuracy of Counting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aidan</td>
<td>99.2% (92.8-100)</td>
</tr>
<tr>
<td>Allison</td>
<td>99.6 (97-100)</td>
</tr>
<tr>
<td>Justin</td>
<td>94.1 (0-100)</td>
</tr>
<tr>
<td>Kaitlyn</td>
<td>99.3 (83-100)</td>
</tr>
<tr>
<td>Michael</td>
<td>90.5 (0-100)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Group Mean</th>
<th>Group Range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>96.5</td>
<td>(90.5-99.6)</td>
</tr>
</tbody>
</table>

Table 4.3

Mean Percentage and Range of Students Accuracy Count for the Number of Words Written.

**Self-Correction of Stories Without and With a Key**

This section presents the results of the data collected from the students' self-corrections to their stories prior to the experimenter providing a prepared "key", as well as their correction after a "key" was provided. The initial self-correction condition (on punctuation) occurred at session 16. Results from the students' self-correction without a
key are presented on the three target behaviors, as are the results of students' self-corrections using the key. Bar graphs are used to display the percentage of individual student's self-corrections when not using or using the key. The number of corrections with a key were determined by adding the corrections made without the key to those made with the key. A third set of graphs displays the number of incorrect spellings for each student during the course of the study when a key was not present and when the key was present.

Aidan

**Punctuation.** There were 20 sessions in which Aidan had an opportunity to self-correct his stories without and with a key for punctuation. Table 4.4 shows the mean number of corrections for punctuation by Aidan averaged 1.6, range 1 to 2 during the self-correction without a key component. His mean number of opportunities to correct was 3.5, range 1 to 6. After self-correcting without the key, Aidan had a mean of 1.9 punctuation errors remaining to be corrected. Using the key Aidan made additional corrections resulting in a mean number of 0.5.

**Capitalization.** Capitalization lasted for 7 sessions in the self-correction condition without and with a key components. Table 4.4 shows the mean number of corrections for capitalization by Aidan averaged 3.5, range 1 to 6 during the self-correction without a key component. His mean number of opportunities to correct was 6.2, range 1 to 6. After self-correcting without the key, Aidan had a mean of 2.7 capitalization errors remaining to be corrected. Using the key Aidan made a mean number of 0.6 additional corrections.

**Adjectives.** Adjectives were intervened on during self-correction without and with a key component for 4 of Aidan's sessions. Table 4.4 shows the correct use of adjectives by Aidan averaged 3.0, range 2 to 4. His mean number of opportunities to correct were
Figure 4.11: Aidan’s correct self-corrections without the key and his additional corrections using a key across all target skills.
3.0, range 2 to 4. After self-correcting without the key, Aidan had a mean of 0 adjective errors remaining to be corrected. Using the key Aidan made a mean number of 2.5 additional corrections.

Figure 4.11 is a bar graph representing the difference in Aidan’s correct self-corrections without or with the key across all target skills under intervention. Aidan successfully corrected 55% of his errors without the use of the key and made an additional 6% of corrections using the key.

**Spelling.** Spelling errors were counted for all 20 sessions during the self-correction intervention Aidan participated in during the study. Aidan’s average spelling errors were 6.8, range 0 to 13 during the self-correction. Aidan made a mean number of corrections of 0.2 without a key. An additional 1.3 corrections were made using the key (see Table 4.5).

**Allison**

**Punctuation.** There were 27 sessions during which Allison had an opportunity to self-correct her stories without and with a key for punctuation. According to Table 4.4 the mean number of corrections for punctuation by Allison averaged 6.4, range 3 to 12 during self-correction without the key. Her mean number of opportunities to correct were 8.7, range 5 to 13. After self-correcting without the key Allison had a mean of 2.3 punctuation errors remaining to be corrected. Using the key Allison made a mean number of 1.6 additional corrections.

**Capitalization.** Capitalization lasted for 14 sessions in the self-correction intervention without and with a key component. Table 4.4 shows the mean number of corrections for capitalization by Allison averaged 7.9, range 6 to 11 during the self-correction without a key condition. Her mean number of opportunities to correct was 10.1, range 7 to 25. After self-correcting without the key Allison had a mean of 2.2
Figure 4.12: Allison's correct self-corrections without the key and his additional corrections using a key across all target skills.
Figure 4.13: Justin's correct self-corrections without the key and his additional corrections using a key across all target skills.
capitalization errors remaining to be corrected. Using the key Allison made a mean number of 1.5 additional corrections.

Adjectives. Adjectives were intervened on during the self-correction without a key condition for 9 sessions for Allison. Table 4.4 shows that the correct use of adjectives by Allison averaged 4.8, range 2 to 10. Her mean number of opportunities to correct was 5.1, range 2 to 10. After self-correcting without the key Allison had a mean of 0.3 adjective errors remaining to be corrected. Using the key Allison made a mean number of 2.1 additional corrections.

Figure 4.12 is a bar graph representing the difference in Allison’s correct self-corrections without or with the key across all target skills under intervention. Allison successfully corrected 78% of her errors without the use of the key and made an additional 19% using the key.

Spelling. Spelling errors were counted for all 27 sessions during the self-correction intervention in which Allison participated during the study. Allison’s average spelling errors were 3.5, range 0 to 12 during self-correction. Allison made a mean number of 0.6 corrections without a key. An additional 2.7 corrections were made using the key (see Table 4.5).

Justin

Punctuation. There were 25 sessions during which Justin had an opportunity to self-correct his stories without and with a key for punctuation. Table 4.4 shows that Justin’s mean number of corrections for punctuation averaged 1.8, range 0 to 4 during the self-correction without a key component. His mean number of opportunities to correct was 3.2, range 0 to 6. After self-correcting without the key Justin had a mean of 1.4 punctuation errors remaining to be corrected. Using the key Justin made a mean number of 1.0 additional corrections.
Figure 4.14: Kaitlyn's correct self-corrections without the key and his additional corrections using a key across all target skills.
Capitalization. Capitalization lasted for 13 sessions in the self-correction without and with the key component. Table 4.4 shows the mean number of corrections for capitalization by Justin averaged 3.2, ranged 1 to 5 during the self-correction without the key component. His mean number of opportunities to correct was 4.7, range 1 to 10. After self-correcting without the key Justin had a mean of 1.5 capitalizations remaining to be corrected. Using the key Justin made a mean number of 1.0 additional corrections.

Adjectives. Adjectives were intervened on during the self-correction without and with a key component for 9 sessions for Justin. Table 4.4 shows that the correct use of adjectives by Justin averaged 3.2, range 1 to 6. His mean number of opportunities to correct were 3.4, range of 2 to 7. After self-correcting without the use of the key Justin had a mean of 0.2 errors remaining to be corrected. Using the key Justin made a mean number of 1.0 additional corrections.

Figure 4.13 is a bar graph representing the difference in Justin’s correct self-corrections without or with the key across all target skills under intervention. Justin successfully corrected 66% of his errors without the use of the key, and made an additional 28% using the key.

Spelling. Spelling errors were counted for all 25 sessions during the self-correction in which Justin participated during the study. Justin’s average spelling errors were 3.7, range 0 to 9 during the self-correction intervention. Justin made a mean number of 0.8 corrections without a key. An additional 1.6 number of corrections were made using the key (see Table 4.5).

Kaitlyn

Punctuation. There were 29 sessions in which Kaitlyn had an opportunity to self-correct her stories without and with a key for punctuation. Table 4.4 shows the mean number of corrections for punctuation for Kaitlyn averaged 1.2, range 0 to 4 during the
Figure 4.15: Michael's correct self-corrections without the key and his additional corrections using a key across all target skills.
self-correction without the key component. Her mean opportunities to correct was 4.4, range 1 to 7. After self-correcting without the key Kaitlyn had a mean of 3.2 punctuation errors remaining to be corrected. Using the key Kaitlyn made a mean number of 3.1 additional corrections.

**Capitalization.** Capitalization lasted for 15 sessions in the self-correction without a key condition. Table 4.4 shows the mean number of corrections for capitalization by Kaitlyn averaged 3.0 range 1 to 5 during the self-correction without a key condition. Her mean number of opportunities to correct was 5.0, range 2 to 7. After self-correcting without the key Kaitlyn had a mean of 2.0 capitalization errors remaining to be corrected. Using the key Kaitlyn made a mean number of 0.5 additional corrections.

**Adjectives.** Adjectives were intervened on during the self-correction without a key condition for 10 sessions by Kaitlyn. Table 4.4 shows the correct use of adjectives by Kaitlyn averaged 3.4, range 1 to 7. Her mean number of opportunities to correct was 3.6, range 2 to 4. After self-correcting without the key Kaitlyn had a mean of 0.2 errors remaining to be corrected. Using the key Kaitlyn made a mean number of 2.5 additional corrections.

Figure 4.14 is a bar graph representing the difference in Kaitlyn’s correct self-corrections without or with the key across all target skills under intervention. Kaitlyn successfully corrected 48% of her errors without the use of the key, and made an additional 50% using the key.

**Spelling.** Spelling errors were counted for all 29 sessions during the self-correction intervention during the study. Kaitlyn’s average spelling errors were 5.9, range 1 to 13 during the self-correction intervention. Kaitlyn made a mean number of 0.7 corrections without a key. An additional 3.1 number of corrections were made using the key (see Table 4.5).
### Table 4.4

The Mean Frequency and Range of Subjects Opportunities to Correct for Self-Correction and Actual Self-Correction Without the Key and Self-Corrections Without and With the Key for Capitalization, Punctuation, and Adjectives.

<table>
<thead>
<tr>
<th>Student</th>
<th>Punctuation</th>
<th>Capitalization</th>
<th>Adjectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aidan</td>
<td>3.5(70)</td>
<td>6.2(37)</td>
<td>3.0(12)</td>
</tr>
<tr>
<td></td>
<td>1.6(33)</td>
<td>3.5(21)</td>
<td>3.0(12)</td>
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<tr>
<td></td>
<td>1.1(22)</td>
<td>4.1(29)</td>
<td>5.5(22)</td>
</tr>
<tr>
<td>Allison</td>
<td>8.7(234)</td>
<td>10.1(142)</td>
<td>5.1(46)</td>
</tr>
<tr>
<td></td>
<td>6.4(174)</td>
<td>7.9(111)</td>
<td>4.8(43)</td>
</tr>
<tr>
<td></td>
<td>8.0(216)</td>
<td>9.4(132)</td>
<td>6.9(62)</td>
</tr>
<tr>
<td>Justin</td>
<td>3.2(80)</td>
<td>4.7(62)</td>
<td>3.4(31)</td>
</tr>
<tr>
<td></td>
<td>1.8(44)</td>
<td>3.2(42)</td>
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<tr>
<td></td>
<td>2.8(71)</td>
<td>4.2(54)</td>
<td>4.2(38)</td>
</tr>
<tr>
<td>Kaitlyn</td>
<td>4.4(129)</td>
<td>5.0(75)</td>
<td>3.6(36)</td>
</tr>
<tr>
<td></td>
<td>1.2(36)</td>
<td>3.0(45)</td>
<td>3.4(34)</td>
</tr>
<tr>
<td></td>
<td>4.3(124)</td>
<td>3.5(53)</td>
<td>5.9(59)</td>
</tr>
<tr>
<td>Michael</td>
<td>5.2(135)</td>
<td>8.3(99)</td>
<td>4.5(36)</td>
</tr>
<tr>
<td></td>
<td>2.7(68)</td>
<td>5.8(69)</td>
<td>4.3(34)</td>
</tr>
<tr>
<td></td>
<td>4.0(103)</td>
<td>7.0(84)</td>
<td>6.3(50)</td>
</tr>
<tr>
<td>Group Mean</td>
<td>5.0(648)</td>
<td>6.7(415)</td>
<td>3.9(161)</td>
</tr>
<tr>
<td>Group Range</td>
<td>(3.2-8.7)</td>
<td>(4.7-10.1)</td>
<td>(3.0-7.9)</td>
</tr>
</tbody>
</table>

Notes: 1 O/C = Opportunities to Correct, 2 W/O Key = Actual Corrections Without Key, 3 W/O & W = Actual Correction Without and With Key.

**Notes:**

- **Punctuation:**
  - Aidan: 3.5(70), 1.6(33), 1.1(22)
  - Allison: 8.7(234), 6.4(174), 8.0(216)
  - Justin: 3.2(80), 1.8(44), 2.8(71)
  - Kaitlyn: 4.4(129), 1.2(36), 4.3(124)
  - Michael: 5.2(135), 2.7(68), 4.0(103)

- **Capitalization:**
  - Aidan: 6.2(37), 3.5(21), 4.1(29)
  - Allison: 10.1(142), 7.9(111), 9.4(132)
  - Justin: 4.7(62), 3.2(42), 4.2(54)
  - Kaitlyn: 5.0(75), 3.0(45), 3.5(53)
  - Michael: 8.3(99), 5.8(69), 7.0(84)

- **Adjectives:**
  - Aidan: 3.0(12), 3.0(12), 5.5(22)
  - Allison: 5.1(46), 4.8(43), 6.9(62)
  - Justin: 3.4(31), 3.2(29), 4.2(38)
  - Kaitlyn: 3.6(36), 3.4(34), 5.9(59)
  - Michael: 4.5(36), 4.3(34), 6.3(50)

Group Mean: 5.0(648), 6.7(415), 3.9(161)
Group Range: 3.2-8.7, 4.7-10.1, 3.0-7.9
Michael

**Punctuation.** There were 26 sessions during which Michael had an opportunity to self-correct his stories without and with a key for punctuation. Table 4.4 shows the mean number of corrections for punctuation by Michael averaged 2.6, range 0 to 6 during the self-correction without the key component. His mean number of opportunities to correct was 5.2, range 2 to 11. After self-correcting without the key Michael had a mean of 2.6 punctuation errors remaining to be corrected. Using the key Michael made a mean number of 1.4 additional corrections.

**Capitalization.** Capitalization lasted for 12 sessions in the self-correction without a key component. Table 4.4 shows the mean number corrections for capitalization by Michael averaged 5.8, range 3 to 12 during the self-correction without a key component. His mean number of opportunities to correct was 8.3, range 4 to 14. After self-correcting without the key Michael had a mean of 2.5 capitalization errors remaining to be corrected. Using the key Michael made a mean number of 1.2 additional corrections.

**Adjectives.** Adjectives were intervened on during the self-correction without a key component for 8 sessions. Table 4.4 shows that the correct use of adjectives by Michael averaged 4.3, range 3 to 6. His mean number of opportunities to correct was 4.5, range 3 to 7. After self-correcting without the key Michael had a mean of 0.2 adjective errors remaining to be corrected. Using the key Michael made a mean number of 2.0 additional corrections.

Figure 4.15 is a bar graph representing the difference in Michael’s correct self-corrections without or with the key across all target skills under intervention. Michael successfully corrected 63% of his errors without the use of the key, and made an additional 25% using the key.

**Spelling.** Spelling errors were counted for all 26 sessions during the self-
<table>
<thead>
<tr>
<th>Student</th>
<th>Self-Correction Without Key</th>
<th>Self-Correction Using Key</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M # of Opps</td>
<td>Total Corrections</td>
</tr>
<tr>
<td>Aidan</td>
<td>5.6</td>
<td>0.2</td>
</tr>
<tr>
<td>Allison</td>
<td>4.9</td>
<td>0.6</td>
</tr>
<tr>
<td>Justin</td>
<td>4.0</td>
<td>0.8</td>
</tr>
<tr>
<td>Kaitlyn</td>
<td>5.9</td>
<td>0.7</td>
</tr>
<tr>
<td>Michael</td>
<td>9.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Group Mean</td>
<td>5.7</td>
<td>0.6</td>
</tr>
<tr>
<td>Group Range</td>
<td>(4.0-9.0)</td>
<td>(0.2-0.8)</td>
</tr>
</tbody>
</table>

Notes: ^MU of Opps = Mean number of opportunities to correct.

Table 4.5

The Mean Frequency and Range of Subjects Opportunities to Correct for Spelling Errors and Actual Self-Correction Without the Key and Self-Corrections Without and With the Key for Spelling.
correction intervention in which Michael participated during the study. Michael's average spelling errors were 8.5, range 2 to 17 during the self-correction intervention. Michael made a mean number of 0.7 corrections without a key. An additional 4.8 number of corrections were made using the key (see Table 4.5).

**Group Means and Ranges**

Table 4.4 displays each student’s frequency and range for each variable (punctuation, capitalization, and adjectives) as well as the group mean and range for each opportunity to correct, mean without the key, and the mean without and with the key. The group mean for opportunities to correct punctuation was 5.0, range 3.2 to 8.7. The group mean for corrections without the key were 2.7, range 1.2 to 6.4, and the group mean for corrections without and with the key was 4.0, range 1.1 to 8.0. The group mean for opportunities to correct capitalization was 6.7, range 4.7 to 10.1. The group mean for corrections without the key was 4.7, range 3.0 to 7.9, and the group mean for corrections without and with the key was 5.6, range 3.5 to 9.4. The group mean for opportunities to correct adjectives showed a mean of 3.9, range 3.0 to 5.1. The group mean for corrections without the key was 3.7, range 3.0 to 4.8, and the group mean for corrections without and with the key was 5.8, range 4.2 to 6.9.

Table 4.5 displays students individual frequency and range for self-correction without and with the key showing the mean number of errors, mean number of opportunities to correct, and the total number of corrections made in self-correction without the key as well as the additional number of corrections made in self-correction using the key. The group mean for errors in self-correction without the key was 5.7, range 3.5 to 8.5. The group mean number of opportunities to correct was 5.7, range 4.0 to 9.0. The total number of corrects group mean during self-correction without the key was 0.6, range 0.2 to 0.8. The mean number of errors during self-correction using the key was 3.0,
range 1.7 to 5.3. The mean number of opportunities to correct was 5.7, range 4.0 to 9.0. Finally, the additional corrections made during the self-correction using the key group mean was 2.7, range 1.3 to 4.8.

Figure 4.16 displays a bar graph to represent the difference in all students correct self-corrections without or with the key across all target skills under intervention. As a group students successfully corrected 62% of their errors without the use of the key and made an additional 25.6% of those corrections using the key.

**Accuracy Measures**

Table 4.6 shows the group mean and range agreement for the dependent variables during the teacher corrective feedback condition. However, prior to the reliability meeting between the experimenter and observer the group mean for punctuation was 83.87%, range 65.3 to 90.8%. For capitalization, the group mean for correct capitalizations for students was 91.3%, range 86.3 to 94.2%, while group mean for correct use of adjectives was 76.7%, range 69.0 to 85.6%. In Table 4.7, which is the reliability after the meeting between the observers, punctuation shows a group mean of 98.5%, range 92.8 to 100%. For capitalization, the group mean for students was 99.7%, range 98.8 to 100%. Finally, the group mean for adjectives during teacher corrective feedback was 99.1%, range 95.6 to 100%.

Table 4.6 also shows the group mean and range agreement for the dependent variables during the self-correction condition. However, prior to the reliability meeting between the experimenter and observer, the group mean for punctuation was 87.2%, range of 79.4 to 90.8%. For capitalization, the group mean for correct capitalizations for students was 88.9%, range 77.7 to 94.6%. The group mean for correct use of adjectives was 82.5%, range 69 to 87.8%. In Table 4.8, which shows the reliability after the meeting between the observers, punctuation yielded a group mean of 99.6%, range 98.6 to
Figure 4.16: All Students correct self-corrections without the key and students additional corrections using a key across all target skills.
<table>
<thead>
<tr>
<th>Student</th>
<th>Teacher Corrective Feedback</th>
<th>Self-Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P1</td>
<td>C2</td>
</tr>
<tr>
<td>Aidan</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Allison</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Justin</td>
<td>92.8</td>
<td>100</td>
</tr>
<tr>
<td>Kaitlyn</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Michael</td>
<td>100</td>
<td>98.8</td>
</tr>
</tbody>
</table>

| Group Mean | 98.5 | 99.7 | 99.1 |     | 99.6 | 99.3 | 99.7 |
| Group Range| (92.8-100) | (98.8-100) | (95.6-100) |     | (98.6-100) | (98.3-100) | (98.9-100) |

Notes: 1 P= Punctuation, 2 C= Capitalization, 3 A= Adjectives

Table 4.6

Interobserver Agreement Measures Calculated in Total Percentages Per Student Across Conditions
100%. For capitalization, the group mean for students was 99.0%, range 98.3 to 100%.
Finally, the group mean for adjectives during self-correction was 99.7%, range 98.9 to 100%.

**Self-Correction Without and With A Key**

Table 4.7 shows the group mean and range agreement for the dependent variables during self-correction without and with a key. Self-correction without and with the key served as the first and second corrections during the self-correction intervention. Self-correction without the key showed that agreement prior to the reliability meeting between the experimenter and observer yielded a group mean for punctuation 96.9%, range of 95.8 to 98.1%. For capitalization, the group mean for capitalizations was 93.9%, range 84.5 to 100%. The group mean for adjectives was 95.0%, range 92.1 to 100%. In Table 4.9, which illustrates the reliability after the meeting between the observers, punctuation yielded a group mean of 100%, with a range of 100%. For capitalization, the group mean for students was 99.3%, range 96.6 to 100%. Finally, the group mean for adjectives during self-correction without a key was 100%, with a range of 100%.

Table 4.7 also shows the group mean and range agreement for the dependent variables during self-correction using a key. Self-correction using a key served as the second correction during the self-correction intervention. However, prior to the reliability meeting between the experimenter and observer, the group mean for punctuation was 97.3%, range 96.1 to 99.2%. For capitalization, the student group mean was 98.6%, range 96.9 to 100%. The group mean for adjectives was 94.4%, range 89.4 to 98.8%. In Table 4.9, which illustrates the reliability after the meeting between the observers, punctuation yielded a group mean of 100%, with a range of 100%. For capitalization, the group mean for students was 100%, with a range of 100%. Finally, the group mean for adjectives during self-correction using a key was 99.6%, range of 98 to 100%.
<table>
<thead>
<tr>
<th>Student</th>
<th>Self-Correction Without Key</th>
<th>Self-Correction Using Key</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P¹</td>
<td>C²</td>
</tr>
<tr>
<td>Aidan</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Allison</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Justin</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Kaitlyn</td>
<td>100</td>
<td>96.6</td>
</tr>
<tr>
<td>Michael</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Group Mean</td>
<td>100</td>
<td>99.3</td>
</tr>
<tr>
<td>Group Range</td>
<td>(100)</td>
<td>(96.6-100)</td>
</tr>
</tbody>
</table>

Notes: ¹ P = Punctuation, ² C = Capitalization, ³ A = Adjectives

Table 4.7

Interobserver Agreement Measures Calculated in Total Percentages Per Student for Self-Correction Without and Using the Key.
Integrity of the Independent Variable

Procedural integrity scores were obtained by first having the classroom teacher complete the procedural checklist for a minimum of 60 percent across all conditions (see Appendix O). Because the students were together for each condition during the study, the procedural checklist scores were obtained on the whole group instead of separately for each child.

Table 4.8 displays the procedural integrity measures for each condition of the study. During the pre-baseline lesson condition, procedural checklists were completed on 100 percent of the sessions. Procedural checklists were completed on 60 percent of the teacher corrective feedback sessions, and 86 percent of the self-correction sessions. The mean percentage for procedural integrity was 95 percent for the pre-baseline lessons, 98.6 percent for teacher corrective feedback sessions, and 99.6 percent for the self-correction sessions. The total combined mean percentage of integrity measures across all conditions was 97 percent.
### Procedural Checklist Measures for Each Condition

#### Social Validity

Two measures of social validity were taken at the completion of the study. The results of those measures are reported below. The two measures include a teacher opinion questionnaire, and a student opinion questionnaire.

#### Teacher Opinion

At the conclusion of the study, the classroom teacher was asked 13 questions regarding various aspects of the study, including her perception of student preference (see Appendix P). Table 4.9 provides her responses to several of those questions.

---

<table>
<thead>
<tr>
<th>Checklist Completed</th>
<th>4</th>
<th>9</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total # of Sessions Per Condition</td>
<td>4</td>
<td>15</td>
<td>29</td>
</tr>
<tr>
<td>Percentage of Sessions With Procedural Assessment</td>
<td>100.0</td>
<td>60.0</td>
<td>86.0</td>
</tr>
<tr>
<td>Mean Percentage of Checklist Items Completed</td>
<td>95.0</td>
<td>98.6</td>
<td>99.6</td>
</tr>
</tbody>
</table>

**Note.** 1 PBL means Pre-Baseline Lessons.

Table 4.8

Procedural Checklist Measures for Each Condition

Social Validity

Two measures of social validity were taken at the completion of the study. The results of those measures are reported below. The two measures include a teacher opinion questionnaire, and a student opinion questionnaire.

Teacher Opinion

At the conclusion of the study, the classroom teacher was asked 13 questions regarding various aspects of the study, including her perception of student preference (see Appendix P). Table 4.9 provides her responses to several of those questions.
The responses to those questions showed that the teacher perceived the students' favorite condition to be the teacher corrective feedback phase. When asked what way of teaching writing helped students write best, she stated that both teacher corrective feedback and self-correction helped the students. No clear preference was obtained.

When asked which condition helped the children write better, the teacher responded that she believed that teacher corrective feedback was better. The teacher also reported that teacher corrective feedback helped the students write more, use more correct capitalization, punctuation, and different adjectives in writing. The teacher believed that self-correction was better for helping the students write misspelled words correctly in their writing. The teacher also liked the fact that when teacher corrective feedback was in effect the students received daily feedback on their writing. She could not think of anything that she did not like about teacher corrective feedback. When asked what she liked about self-correction and story starters, she believed that this method provided the students with a way to think about their writing. She also felt that students were more attentive to their writing using this method. She could not think of anything that she disliked about the self-correction method. Finally, she felt that self-correction was a great method and that she would use it for the following school year with her students.
Table 4.9

Teacher Perception of Student Preference and Improvement in Writing.

Student Opinion

A questionnaire was also used to obtain the students' view of each of the methods as well as to see if the students preferred one method over the other (see Appendix Q). Each student was asked individually about his or her preference regarding which method he or she liked best. Table 4.10 displays students' preference for each method. When asked which of the two methods, teacher corrective feedback or self-correction, he/she liked best, 5 of 5 students preferred self-correction. When asked which of the two
methods helped them write more, 3 of 5 students preferred self-correction, and 2 of 5 perceived that teacher corrective feedback helped them write more.

Each student was then asked what he or she liked or disliked about each method. Three students liked the written comments, 2 liked the writing, and 1 student noted that he also like being timed during writing. Conversely, three could not think of anything they disliked, and 2 felt having the written comments did not give them a challenge.

The student were then asked questions about what they liked and disliked about story starters and self-correction. All 5 students liked that they could rewrite their stories. One student felt that self-correction provided a positive challenge because she had to find her errors and make corrections. On the other hand, one student did not like to rewrite her missed sentences, and 4 of 5 could not find anything they disliked about the self-correction method.

Finally, the students were asked if there was anything else about self-correction they would like to say. Two of the 5 students had nothing more to say, 1 of 5 said it was fun and she liked it. One student wondered why the experimenter went over the reminder board everyday because he (student) knew everything already. And finally, 1 out of the 5 wondered why she had to keep rewriting sentences when she knew where punctuation should go in her sentences.
Which did you like the best? 
Teacher Corrective Feedback | Self-Correction 
--- | --- 
| 0 | 5 
Which helped you the most? 
| 2 | 3 

Table 4.10 

*Student Preference for Either Teacher Corrective Feedback or Self-Correction.*
CHAPTER 5

DISCUSSION

This chapter discusses the results of the study which compared teacher corrective feedback and self-correction on the written expressive performance of elementary students with learning disabilities. The chapter begins by discussing the results of the study as they relate to the seven research questions presented in Chapter one. Also included in this chapter are limitations of the study, implications for classroom usage, and suggestions for future research.

Research Question One

Will the students' frequency of correctly used punctuation be higher during teacher corrective feedback condition or self-correction condition?

As a group, the mean number of correctly used punctuations by students was higher during the self-correction compared to the group mean during teacher corrective feedback. In self-correction the group mean for correct punctuation was 2.6, range 1.2 to 6.4. In teacher corrective feedback the group mean score was 1.6, range .7 to 4.0. This increase in the use of punctuation was also evident in the individual responses of each student. For example, Allison's mean response for correct punctuation was 4.0 during the teacher corrective feedback condition and in self-correction was 6.4, for a difference of 2.4 in favor of self-correction.

However, the number of incorrect use of punctuation also increased from teacher corrective feedback to self-correction. Incorrect group mean scores rose from 2.2, range
of 1.3 to 3.0 in teacher corrective feedback to a mean of 2.8 range 2.0 to 4.2 in self-correction. The difference being an increase of .6 incorrects. When students self-corrected using a key the group mean for incorrects was 1.02, range of .5 to 1.7, showing a decrease of 1.25 in incorrect use of capitals after using key-based self-correction.

Although student scores show an increase in correct responding during punctuation in favor of self-correction, there was no functional relationship between the use of self-correction and the increase in correct punctuations made by students. This was due to the fact that as correct responses increased in punctuation, incorrect responses also increased for each student in punctuation. There was an overlapping of data that demonstrates incorrects being higher than corrects on several occasions for students during self-correction (see Figures 4.1 - 4.5). Of the five students, Allison's performance showed the most consistency in correct use of punctuation in her stories. However, a functional relationship could not be demonstrated due to the overlapping of data between teacher corrective feedback and self-correction conditions. Aidan, Justin, Kaitlyn and Michael's punctuation responses were often more incorrect than correct demonstrating that these students had not become rule governed where punctuation was of concern in their writing.

During self-correction, the students dealt with the story for more than one session, unlike in the circumstances in the teacher corrective feedback condition where the students wrote two separate stories. Students wrote the novel story at the end of each self-correction session. The novel story was used as the self-correction story the following session. During the self-correction condition, each student would be given his / her story and asked to identify any mistakes in punctuation, capitalization, adjectives or spelling, and rewrite the sentence(s) making the appropriate corrections. Each student would then be given a key of his or her story and asked to make corrections (using the key) and
The increase in frequency of correct and incorrect punctuations during the self-correction condition over teacher corrective feedback condition may have occurred for several reasons. First, the students were writing every day and were writing more words than at the beginning of the study. This may have produced a practice effect. Therefore, students had more opportunities to use punctuation correctly or incorrectly. Second, students were provided reminder lessons on punctuation prior to beginning each novel writing session. This may have influenced them to try and include more sentences with punctuation. The students were not under stimulus control for punctuation. On some occasions, the story would reflect the correct use of punctuation showing the correct ending punctuation (i.e., periods, question marks, exclamation marks), commas, quotations, and hyphens. However this was not consistent. The next day the student was no more likely to correctly punctuate using ending punctuation (i.e., periods, question, exclamation marks), commas, quotations, and hyphens.

The students usually used periods correctly as ending punctuation. Their use of commas became more accurate, but was not consistent. Each student was able to use commas in a series most of the time. The use of commas to join two ideas with a conjunction was used inconsistently by students. This was due, in part, to the students’ practice of writing short, five or six word sentences leaving few opportunities to use commas with conjunctions to join sentences together, a point that is consistent with the literature regarding children with learning disabilities and their skills related to sentence length (Graham & Harris, 1988; Houch & Billingsley, 1989; Sills, 1995). The use of hyphens, though rare, was usually correct. Quotation marks were never used correctly during the course of the study, primarily because students did not take the time to put quotes around words or phrases spoken by another person. The students were able to tell
the experimenter when quotations should be used, but unfortunately, they did not follow through when writing their own stories. Punctuation as a whole was the most difficult skill for the students throughout the study.

Since this study intervened upon several rules in punctuation, as well as rules for capitalization and adjectives, the students may have had too many rules, causing confusion about when to use certain types of punctuation. Due to the many rules associated with punctuation, students could have benefited from more direct instruction on the types of punctuation. Perhaps providing students with more examples and non-examples to better assist them in acquiring the concepts in punctuating their sentences would have proven beneficial. Also, allowing students to respond actively during the daily instruction, rather than passively listening to the teacher or other peers explanations and examples, may have helped students learn the rules of punctuation and use those rules correctly in their stories. Limiting the number of rules on punctuation that were intervened upon may have decreased the students' confusion regarding when to use the skill in their sentences. Focusing on two or three rules of punctuation that the students used incorrectly instead of five or six rules may have eliminated this confusion.

In previous self-correction studies involving spelling students had a one-to-one correspondence between the instructional stimulus (e.g. vocal statement “cat”, “I see a grey cat.” “cat”) and appropriate response. The students were consistently more likely to spell the word correctly under self-correction conditions than other traditional conditions (McGuffin, 1995; McNeish et al., 1992; Okyere et al., 1997; Wirtz et al., 1996). However, in this study, the students were generating novel stories each session after an opportunity to correct their stories once without a key and once with a key. There might not have been enough practice opportunities of the specific rules governing when to punctuate. Also, in previous studies the student could immediately self-correct after
writing his/her response (McGuflin, 1995; McNeish et al., 1992; Okyere et al., 1997; Wirtz et al., 1996). In this study the ability to self-correct was delayed due to the need to develop a "Key" from each student's story. This may have affected the students' performance.

**Self-Correction Without A Key.** As a group, the instances of correctly used punctuation in the students' writing were higher during the self-correction without the use of a key compared to the group mean frequency in teacher corrective feedback (see Table 4.1 & 4.4). The reasons for this increase may be two fold. First, the focus of the student was only to correct errors, not to generate written language and correction. Second, the lack of a timing period during this phase may have allowed the students to be more deliberate in their task rather than rushing to finish during the 5-minute writing period.

The number of incorrect uses of punctuation also increased from teacher corrective feedback to self-correction. However, the number of incorrectly used punctuations decreased slightly when students self-corrected their stories without a key.

**Self-Correction Using A Key.** As a group, the number of correctly used punctuation in students' writing was higher during the self-correction without the use of a key compared to the group mean frequency in teacher corrective feedback. The number of incorrect use of punctuation increased from teacher corrective feedback to self-correction. However, the number of incorrect punctuation decreased slightly when students self-corrected their stories using a key (see Tables 4.1 & 4.4).

An obvious reason for this decrease in incorrects with the use of the key is that students had a model to imitate that highlighted where punctuations should be included in their story. The use of the model has also been used effectively in previous self-correction studies where the students are given the correct spelling of their words (McGuflin, 1995; McNeish et al., 1992; Okyere et al., 1997; Wirtz et al., 1996).
The information above shows that an increase of corrections was evident when students began correcting their stories without the use of the key, and even more corrections were apparent with the use of the key. In addition, the students' corrections across all target skills were compared to the number of opportunities to correct. Students performed more self-corrections using a key. While lack of a key to use in correcting was the true test of self-correction, the students showed that they were able to locate mistakes in their writing and attempt to make corrections to their stories.

**Research Question Two**

Will the students' frequency of correctly used capitalized letters be higher during teacher corrective feedback condition or self-correction condition?

As a group, the mean number of correct capitalized letters used by students was higher during self-correction compared to teacher corrective feedback. In self-correction, the group mean for correct capitalization was 4.7, range 2.4 to 7.8. In teacher corrective feedback, the group mean score was 3.5, range 2.2 to 6.2. This increase in use of capitalization was also evident in the individual responses of each student. For example, Allison's mean response for correct capitalization was 6.2 during the teacher corrective feedback condition and in self-correction was 7.8, for a difference of 1.6 in favor of self-correction.

However, like punctuation, the number of incorrect uses of capitalization also increased from teacher corrective feedback to self-correction. Incorrect group mean frequency scores rose from 2.0, range .6 to 5.3 in teacher corrective feedback to 4.2, range 2.2 to 6.8 in self-correction thus resulting in an increase of 2.2 incorrects.

Although student scores show an increase in correct responding during capitalization in favor of self-correction, there was no functional relationship between the use of self-correction and the increase in correct capitalizations made by students. This
occurred because as correct responses on capitalization increased, incorrect responses also increased for each student in capitalization. Also, there was an overlapping of data and incorrects were higher than corrects on several occasions for students during self-correction (see Figures 4.1 - 4.5). Like punctuation, Allison used correct capitalization in her writing more consistently than Aidan, Justin, Kaitlyn and Michael. However, since there was an overlapping of data between teacher corrective feedback and self-correction conditions a functional relationship could not be demonstrated in regard to self-correction.

During self-correction, the students dealt with the story for more than one session, unlike during teacher corrective feedback where students wrote two separate stories on the same day. Students wrote the novel story at the end of each self-correction session, and that story was be used as the self-correction story during the following session. During self-correction, the student would be given his/her story and asked to identify any mistakes in punctuation, capitalization, adjectives or spelling, and rewrite the sentences making the appropriate corrections. Each student was then be given a key for his or her story and again asked to make corrections (using the key) and rewrite those sentences that contained errors.

The increase in frequency of correct and incorrect capitalizations during the self-correction condition over teacher corrective feedback condition may have occurred for several reasons. First, the students were writing every day and were writing more words than at the beginning of the study, and therefore had more opportunities to use capitals correctly and incorrectly. Second, students were provided reminder lessons over capitalization prior to beginning each novel writing session which may have influenced them to try and include more words with capital letters. The students were not under stimulus control for capitalization. On some occasions, the story would reflect the correct use of capitalization showing the word “I”, proper nouns, and the first letter of a sentence.
capitalized. However, the next day, the students might and might not correctly capitalize the word “I”, proper nouns, or the first letter of the first word of the sentence.

The students usually capitalized the letter “I” when it occurred in each of their stories. Most would also capitalize the first letter of the first word of the first sentence. Allison was the only student in the study to consistently capitalize the first letter of the first word of each sentence. In terms of capitalizing proper nouns, all students had difficulty remembering to capitalize proper nouns, unless it was their own name or the name of a friend or relative.

Students could have benefited from more direct instruction on this skill. Providing students with more examples and non examples to better assist them in acquiring the concept of capitalization may have proven beneficial. Also, allowing the students to respond actively during the daily instruction, rather than passively listen to the teacher explanation, may have provided better results on the correct use of capitals in students writings. In previous self-correction studies involving spelling, students had a one-to-one correspondence between the instructional stimulus (e.g. vocal statement “window”, “The painter broke the window.” “window”) and appropriate response (i.e., spelling, “window”). The students were consistently more likely to spell the word correctly under self-correction conditions than other instructional conditions (McGuffin, 1995; McNeish et al., 1992; Okyere et al., 1997; Wirtz et al., 1996). However in this study, the students were generating novel stories each session after an opportunity to correct their stories once without a key and once with a key. There might not have been enough practice opportunities of the specific rules governing when to capitalize for the students to master the skill.

Self-Correction Without A Key. As a group, the number of correctly used capitalized letters in students’ writing was higher during the self-correction without the
use of a key than the group mean frequency in teacher corrective feedback. The reason for the increase may be twofold. First, the focus of the student was to correct errors only, not to generate the written language and make corrections. Second, the lack of a timing period may have allowed the student to be more deliberate in the task rather than rushing to finish during the 5-minute writing period.

The number of incorrect uses of capitalization also increased from teacher corrective feedback to self-correction. However, the number of incorrect capitalizations decreased slightly when students self-corrected their stories without a key.

**Self-Correction Using A Key.** In addition to the two possible advantages of self-correction without a key, a third important advantage is added by using an example or “key” to assist in making the corrections. As a group, the number of correctly used capitalized letters in student writing was higher during the self-correction using a key compared to the group mean frequency in teacher corrective feedback (see Table 4.1 & 4.4). This increase in use of capitalization was also evident in the individual responses of each student. For example, Allison’s mean response for correct capitalization was 6.2 during the teacher corrective feedback condition, while in self-correction using a key it was 9.4, for a difference of 3.2 in favor of self-correction using the key.

The number of incorrect uses of capitalization also increased from teacher corrective feedback to self-correction. However, the number of incorrect uses of capitalization decreased slightly when students self-corrected their stories using a key (see Table 4.1 & 4.4).

The use of the information above shows that students began correcting their stories without the use of the key, and that even more corrections were apparent with the use of the key. Also, the students’ corrections across all target skills were compared to the number of opportunities to correct. From this information it was obvious that students
performed more self-corrections when using a key. (see Figures 4.11 - 4.15). While ability to correct without use of a key was the true test of self-correction, the students showed that they were able to locate mistakes in their writing and attempt to make, or even make, corrections to their stories (see Tables 4.1, & 4.4).

**Research Question Three**

Will the students' frequency of correctly used adjectives be higher during teacher corrective feedback condition or self-correction condition?

As a group, the mean number of correctly used adjectives by students was higher during the self-correction compared to the group mean during teacher corrective feedback. In self-correction, the group mean for correct adjectives was 3.8, range of 2.8 to 5.2. In teacher corrective feedback the group mean score was 2.6, range 2.2 to 3.4. This increase in use of adjectives was also evident in the individual responses of each student. For example, Allison's mean response for correct adjectives was 3.4 during the teacher corrective feedback condition and in self-correction was 5.2, for a difference of 1.8 in favor of self-correction.

However, the number of incorrect uses of adjectives also increased from teacher corrective feedback to self-correction, with the exception of Aidan who did not show any incorrect responses to adjectives during self-correction. Incorrect group mean frequency increased from .1, range .03 to .1 in teacher corrective feedback to a mean of .2, range 0 to .4 in self-correction. The difference between these two conditions was an increase of .2 incorrects.

Although student scores show an increase in correct responding in favor of self-correction, there was no functional relationship between the use of self-correction and the increase in correct adjectives made by students. This was, like punctuation and capitalization, due to the fact that as correct responses increased in use of adjectives,
incorrect responses also increased for each student in his/her use of adjectives. Aidan, Allison, Justin, Kaitlyn and Michael all used adjectives correctly more than incorrectly. However, like punctuation and capitalization, there was an overlapping of data between teacher corrective feedback and self-correction conditions which made it difficult to determine a functional relationship exists using self-correction.

During self-correction, the students worked with the story for more than one session, unlike during the teacher corrective feedback condition. Students wrote the novel story at the end of each self-correction session, and that novel story would then be used as the self-correction story in the following session. During self-correction each student would be given his/her story and asked to identify any mistakes in punctuation, capitalization, adjectives or spelling, and then rewrite those sentences making the appropriate corrections. Each student was then given a key for his/her story and asked to make corrections (using the key) and correctly rewrite those sentences with errors.

Similar to punctuation and capitalization, the increase in frequency of correct and incorrect adjectives during the self-correction condition over the teacher corrective feedback condition may have occurred for several reasons. First, the students were writing every day and were writing more words than at the beginning of the study. Therefore, students had more opportunities to use adjectives correctly or incorrectly. Second, students were provided reminder lessons on adjectives, like punctuation and capitalization, prior to beginning each writing session. This reminder may have influenced students to try and include more words, in this case adjectives, in their stories. The students were not under stimulus control for adjectives. Third, the students’ individual stories did not consistently show knowledge of the rules for use of adjectives, except for the use of the articles “A, An and The”, which were used frequently in most student stories. On some occasions the story would reflect the correct use of adjectives showing
the use of articles (i.e., a, an, the), proper adjectives (i.e., Columbus Zoo), and words to
describe an object (i.e., The flag is red, white, and blue). However, during the next
session the student was no more likely to use adjectives correctly in his/her story, or use
adjectives at all.

The students usually utilized the articles "A, An and The" correctly as adjectives. The use of proper adjectives were used less frequently by most students. However, Kaitlyn, Justin, Allison, and Michael would use proper adjectives when describing a specific clothing item or television program. In terms of using words to describe objects, all students did begin to use different adjectives, other than “A, An and The.” Words like big, little, different colors (i.e., red, white, blue, green, yellow) huge, etc., began to appear in most of the student writing by the end of the study. For all students, the use of different adjectives showed the most improvement in terms of corrects with little incorrect use of adjectives under the self-correction condition. However, like punctuation and capitalization, the students could have benefited from more direct instruction on this skill. Providing students with more examples and non-examples to better assist them in acquiring the concept of adjectives would have been beneficial. Also allowing the students to actively respond during the daily instructions, on a consistent basis, rather than passively listening to the teacher explanation or their peers responses could have improved their use of different adjectives.

In previous self-correction studies involving spelling, students had a one-to-one correspondence between the instructional stimulus (e.g. vocal statement “lightning”, “A lightning bolt hit the side of the house.” “lightning”) and a correct appropriate response (i.e., spelling “lightning”). The students were consistently more likely to spell the word correctly under self-correction conditions than other instructional conditions (McGuffin, 1995; McNeish et al., 1992; Okyere et al., 1997; Wirtz et al., 1996). However, in this
study, students were generating novel stories each session after an opportunity to correct their stories once without a key and once with a key. As is the case with punctuation and capitalization, there might not have been enough practice opportunities of the specific rules governing when to use adjectives for the students to master the skill.

**Self-Correction Without A Key.** As a group, the mean number of correctly used adjectives in students’ writing was higher during the self-correction without the key than to the group mean frequency when teacher corrective feedback was provided. There may be two reasons for this difference. First, like punctuation and capitalization the students’ focus was on correcting errors, not generating written language and correction. Second, the lack of a timing period during this phase may have allowed the students to be more deliberate in the task of correction rather than rushing to finish the story during the 5-minute writing period.

However, the number of incorrectly used adjectives also increased from teacher corrective feedback to self-correction, except for Aidan who did not show any incorrect responses to adjectives during self-correction. When students self-corrected without a key the number of incorrects decreased.

**Self-Correction Using A Key.** In addition to the possible advantages of self-correction without the key, an important third advantage is added when an example or “key” is used to assist the student in making corrections. As a group, the number of correctly used adjectives in the students’ writings was higher during the self-correction using the key compared to the group mean frequency in teacher corrective feedback (see Table 4.1 & 4.4).

However the number of incorrect use of adjectives also went up in the movement from teacher corrective feedback to self-correction, except for Aidan who did not show any incorrect responses to adjectives during self-correction (see Table 4.1).
students self-corrected using a key the number of incorrects decreased (see Table 4.4).

The reason for this decrease in incorrect use of adjectives may have been a result of the fact that the “key” highlighted different adjectives, including those that originally appeared in the story for the student, so that he/she could learn to use adjectives other than “a”, “an”, or “the” in their stories. In this way the experimenter was able to model the use of different adjectives.

Students began correcting their stories without the use of the key. When they switched to using a key even more corrections were apparent. Also, the students’ corrections across all target skills were compared to the number of opportunities to correct. From this information it was obvious that students performed more self-corrections using the key. While not using a key to correct was the true test of self-correction, the students showed that they were able to locate mistakes in their writing and attempt to make, or even make, corrections to their stories (see Tables 4.1 & 4.4).

Research Question Four
Will the students’ frequency of misspelled words be lower during teacher corrective feedback condition or self-correction condition?

Although spelling was not directly instructed during the study, misspelled words were spelled correctly on the “key” for each student. While the corrected words were not highlighted, as were the other writing subskills, students did have a model of the correct spelling and measures were taken on each story identifying the number of words misspelled. Misspellings in this study included words that were written incorrectly, words that were in the sentence that did not belong (i.e. The dog did did not go home.), invented spellings (i.e., “dawg” for “dog”), and words that did not fit the context of the sentence.

The number of misspellings committed by all students increased in the movement from teacher corrective feedback to self-correction. Table 4.2 shows the number of
incorrect spellings across all sessions and during both conditions. The group mean was 5.2, range 3.8 to 8.4. During teacher corrective feedback, the mean frequency for the group was 3.6, range of 2.0 to 7.1. In self-correction, the group mean was 6.2, range of 4.4 to 9.2, a difference of 2.6 in favor of teacher corrective feedback. This finding is consistent with the literature which indicates that students with specific learning disabilities do not spontaneously correct their spelling, and that they may need direct instruction on target skills (Fitzsimmons & Loomer, 1978).

Although the data do not reflect positively on self-correction, empirical evidence of the students’ permanent writing products demonstrate improvement in spelling. For example, Michael and Kaitlyn would often use the word “in” instead of the word “and” in their stories during the teacher corrective feedback condition. An example of a sentence might be “I took my brother to the store in then to the park.” Once self-correction began, Michael and Kaitlyn began using the “and” instead of the word “in” correctly in their stories.

Another reason for the increase in misspellings, in addition to the lack of direct intervention, was the increase in the number of words the students were producing over the course of the study. As Table 4.3 shows, students on average during teacher corrective feedback wrote 22.6 words in five minutes. However, during self-correction the students wrote 32.4 words on average in five minutes. The increase in the number of words co-varies with the increase in misspellings by students (see Figures, 4.6 - 4.10).

Research Question Five

During which condition, teacher corrective feedback or self-correction will students write the most words?

Although the number of words written was not part of the intervention, a frequency count was taken on each story in the teacher corrective feedback and self-
correction conditions. The five students all increased their number of words written during the course of the study. The number of words written ranged from a low of 18.5 to a high of 41.5 across both teacher corrective feedback and self-correction conditions (see Table 4.2).

The experimenter also measured the frequency of the number of words written in each condition separately. The data for the number of words written during the teacher corrective feedback condition yielded a range of 16.5 to 35.7, whereas the self-correction condition showed a range of 20.9 to 44.8 for the group of five students. These data illustrate that self-correction produced a higher number of words written by each student (see Table 4.2). The verification for self-correction resulting in a higher frequency of words written is also evident in the individual data of students. Aidan wrote a mean of 16.6 words in teacher corrective feedback compared to 30.1 words in self-correction, with an average difference of 13.5 more words written during self-correction. Justin had the smallest increase in mean number of words written with 17.3 words in teacher corrective feedback and 20.9 words in self-correction, with a difference of 3.7 in favor of self-correction.

There are several reasons for the increase in number of words written during the self-correction condition. The story starters were used for writing instances were motivating (this also held true during teacher corrective feedback). In fact Justin often said, "O-o-o, this is a juicy one." In addition, the students became competitive with each other with respect to words written. The students would always ask how many words each of their peers had written, and on several occasions, tried to beat either the number of words used by peers or their own previous best score. Students were writing new stories every day which provided them more opportunities to write, thus helping them to become more expansive in the length of their stories. Also, having to write a different
story each day kept the students from becoming bored with the topic. Even though the experimenter tried to provide story starters that the students would like under both conditions, there may have been more story starters during self-correction that motivated students to write than during teacher corrective feedback.

Research Question Six
Which condition did the teacher identify as having the greatest outcome for the quality of the students' writing: teacher corrective feedback or self-correction condition?

Social validity data were also gathered from the classroom teacher's perspective using an experimenter-prepared questionnaire (see Appendix S). The classroom teacher, who also served as the procedural reliability observer for the study, answered 13 questions related to her perceptions of the benefits of teacher corrective feedback and self-correction and what she believed the students preferred. As Table 4.9 reflects, the teacher believed the students preferred teacher corrective feedback because the students were getting daily and immediate feedback from the teacher. She also believed that through use of teacher corrective feedback, the students wrote better, wrote more words, and used punctuation, capitalization, and adjectives correctly more often. The teacher felt that through self-correction the only perceived improvement was in spelling for the students.

In later questions regarding what she liked and disliked about teacher corrective feedback and self-correction, the teacher liked the fact that with teacher corrective feedback the students received daily feedback on their writing. She could not think of anything that she did not like about teacher corrective feedback.

However when asked what she liked about self-correction and story starters, she stated that this method provided the students with a way to think about their writing. She also believed that students were more attentive to their writing when using this method. She could not think of anything that she disliked about the self-correction method.
Finally, she believed that self-correction was a great method and that she would use it the following school year with her students, leaving this experimenter wondering why she believed teacher corrective feedback helped student target skills improve more than with self-correction.

**Research Question Seven**

*During which condition did the students feel they did their best writing?*

A questionnaire was also provided for the students in order to gain another measure of social validity for the study (see Appendix Q). This experimenter found the students responses to be honest and candid. The students were asked each question individually so that their answers were independent. As Table 4.10 displays, all five students liked the self-correction method best. When asked which of the two methods (teacher corrective feedback or self-correction) helped them the most there was some division. Two students believed teacher corrective feedback helped them write better, while three students felt self-correction helped them to perform better in writing.

The students were then asked questions about what they liked or disliked about each of the methods. Three students liked the written comments, two liked the writing, and one liked being timed when writing. Regarding things they disliked, three could not think of anything they disliked, two felt having the comments written didn’t allow them the challenge of finding the errors on their own.

The students were then asked questions about what they liked and disliked about self-correction. All five students liked that they could rewrite their stories. One student felt that self-correction challenged her because she had to find her errors and make corrections. In terms of things the students did not like about the self-correction method, one student did not like having to rewrite her missed sentences, and four of the students could not find anything they disliked about the self-correction method.
Finally, the students were asked if there was anything else about the self-correction they would like to say. Two had nothing more to say. One said it was fun and that she liked it. One kept wondering why the experimenter went over the reminder board everyday because he knew everything already, and another student wondered why she had to keep writing sentences over again when she knew where punctuation should go in her sentences (This was not evident in her writing).

In summary, the students’ responses did not reflect the teacher’s responses. The students preferred the use of self-correction, but the teacher felt the students preferred the teacher corrective feedback method. In terms of which method helped the students write better the answers are mixed. Two agreed with the teachers’ perception of teacher corrective feedback, but three students felt self-correction helped them write better.

**Limitations**

This study was limited by the following factors: subject characteristics, teacher characteristics, absences, use of story starters, ticket reinforcement, setting, time of school year, time of day, session length, and limited duration of the study.

**Subject Characteristics**

There were 15 students in the classroom, but only 5 students participated in the study. All five students were from the lower socioeconomic residential area around the urban elementary school they attended. All five students were considered minority students (2 Hispanic Americans and 3 African American). Therefore generality to other classes and racial groups is not known.

**Teacher Characteristics**

The experimenter served as the teacher. It is not known what kind of results may have occurred had the classroom teacher served as the instructor during the experiment.
Absences

Attendance was only a problem for one child during the study. He was absent for an extended period due to having the “chicken pox.” One student missed three sessions, a third missed six sessions, another missed two sessions, and one did not miss any sessions. One child was frequently late because of her driving distance to school.

Ticket Reinforcement

Tickets were used to reinforce students for correct use of punctuation, capitalization, and adjectives during self-correction without the key and self-correction with the key conditions. The tickets were also given to students during teacher corrective feedback and during the novel story portion of the self-correction condition when students wrote sentences correctly the first time. Since the tickets were used to reinforce the correct responses, it is not known if the results would have been different if tickets had not been used during the study. A ticket lottery was also being used in the classroom concurrently by the student teacher for her various activities. The use of tickets by both the student teacher and the experimenter may have impacted the results of this study.

Setting

The setting was in an urban school district in an elementary learning disabilities education classroom with students who were in the third, fourth, or fifth grade. The results of the study may have been different with other populations and settings.

Time of School Year

The study was conducted during the last grading period of the school year. Fortunately, the end of the year activities did not interfere with the study, since most activities were scheduled for late morning or afternoon. This experimenter found it surprising that there was no resistance by the students to participating in the study, even when the school year came to a close. The degree to which any of these factors affected
the results of this study is not known.

**Time of School Day**

The study was conducted during the first period after the students arrived at school each day. On several occasions, the students looked tired or were upset about something that happened at home, on the playground, or on the bus. On two occasions, one student had been in a fight and had to go to the principal's office prior to the start of the day's session. It is not known what effect these issues they may have had on the study.

**Session Length**

The length of each session lasted from anywhere between 25 and 45 minutes. As the study progressed the length of time the students were writing or self-correcting increased depending upon the length of their stories and the time taken to make corrections to their stories. The only consistent writing time was the five minute writing period for the novel story each day. The results of the study may have been different had the length of the sessions been consistent throughout the study or if the writing time had been greater.

**Limited Duration of the Study**

The study was conducted during the last two and one-half months of the school year. The study ended because the school year closed and students were not available after the last day of school. It is not known what effect an extended number of sessions would have had on the results of the study.

**Implications for Classroom Usage**

Implications for classroom usage are limited. The data from this study suggest that students did begin to make corrections to their writing when using a correct key of their story and some data suggest students began correcting their stories without the use
of a correct key.

Students with, and without, learning disabilities who are having difficulty writing and who have the opportunity to write on a daily basis in a small group in a specific area of the classroom would benefit from learning to self-correct. The gains, though small, still help students have some self-control over their writing (Skinner, 1953).

The most obvious effect for the students is that each student began consistently writing more. Also, the use of different story starters each day helped students stay motivated to write. However the story starters need to be understandable to the students and written so that they will be of high interest to students.

The students expressed that they liked participating in the study, and they never had to be persuaded to come to the writing group. The use of the tickets as reinforcers as well as the immediate feedback gained from the use of self-correction added to the students’ interest in participation. The students also expressed that the story starters made it easier to write the stories. The length, even at 45 minutes, was not an issue for the students. They were involved in the various aspects and remained focused on the task at hand with very little intervention by the teacher (experimenter).

Finally, the time it takes to prepare the materials for this self-correction procedure may keep teachers from using this writing strategy with their students. The time in writing the correct English form and returning it to the student as immediately as possible may be difficult depending upon how many students the teacher plans to include in using the strategy. The self-correction writing strategy works well with small groups of children. Further research with a larger group of children may help answer the question of the strategy’s effect and how it impacts the teacher’s time.
Suggestions for Further Research

In written expression, study after study has addressed the separation of the teaching of mechanics and the writing process (Graham & Harris, 1993; 1992; 1988; Sills, 1995). Students with learning disabilities also have difficulty generating and organizing their ideas (Bahr, Nelson, & Van Meter, 1996; Graham, Harris, & MacArthur, 1993). This present study attempted to use the children's ideas and language to help them write and then correct. However, an important step really should be addressed prior to the use of self-correction. A logical next step would be to look at the work of De LaPaz and Graham (1997) and Graham and Harris (1993) and others and begin by first helping children generate ideas and then learn to organize those ideas prior to beginning writing.

After working on and training children in how to generate ideas and organize their thoughts in a logical order, a strategy like self-correction could be employed to help students learn how to independently edit and correct their writing.

Summary

Self-correction has been shown to be effective with students with learning disabilities to teach spelling (Wirtz et al., 1996). There has not been any data-based research related to self-correction and writing. This study compared the use of teacher corrective feedback and self-correction on the written expression of elementary students with learning disabilities.

The results indicate that self-correction did not produce a functional relationship with respect to punctuation, capitalization, and adjectives. As the number of corrects increased, so did the number of incorrects. The increase may have occurred because students wrote more words. Although spelling was not a primary dependent variable, data were collected showing that across teacher corrective feedback and self-correction, errors in spelling increased. Even though the data does not reflect improvement in spellings, the
students did make improvements. Two students who, at the beginning of the study used the word "in" for the word "and" began writing "and" instead of "in". Also one student, who liked to talk about his trip to Cedar Point in several of his stories, now writes the words correctly instead of using the invented spellings he used prior to using self-correction. The students did however begin to correct their writing with and without the use of a key. Use of the key showed a much more dramatic change in self-corrections than without the use of the key. Although the increase in corrections when students did not use the key was small, it still shows that students were able to begin making corrections to their stories. However since the increase was much more dramatic using the key, it is evident that these students still need work becoming more independent when correcting writing.

The importance of feedback for students was also an important outcome of this study. Whether in the form of verbal or written responses the feedback should be delivered immediately so that the student is aware of how he or she is performing in written expression or any academic area where feedback is given.

Finally, the students felt that self-correction helped them with their writing more than the use of teacher corrective feedback. In fact, two of the students made the point that the use of self-correction provided a challenge for them because they liked being able to try and locate and correct their answers without someone pointing them out for them.
REFERENCES


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APPENDIX A

Parent Consent Form and Cover Letter
March 25, 1997

Dear ____________________

This letter is to request permission to include ______________________, in a research project, and to obtain permission to view records pertinent to your child's written language development. The study will be conducted by Gary D. Jacobs, under the direction of Dr. Ralph Gardner III, Associate Professor in the Department of Physical Activity & Educational Services. The purpose of the study is to gather information to help us understand and improve the written expression of children with learning disabilities.

Your child will write using two different strategies. This will be done to compare the effectiveness of the instructional strategies. The methods used will be the teacher corrective feedback method for teaching writing and self-correction method. In each method your child will be provided a lesson over a part of speech, given a story starter, and then asked to write for 5 minutes. Story starters are defined as portions of a story or topics that prompt students to brainstorm and then begin writing (e.g. “As I was walking to school today _____”). In the second method he/she will make corrections to their writing and rewrite the story. I will also send samples of your students writing home so you can see their progress.

Please understand that your child’s identity will not be revealed in any publication, document, audio tape, or any other form of report developed from this research. The study will last for approximately 10 weeks beginning in March, and will involve 40 minutes of your child’s day. I will also need your permission to look at your child’s relevant students files. Also understand that you may withdraw your consent for your child’s participation at any time.

If you are willing to allow your child to participate in this research project, please sign and date the form on the following page and return it as soon as possible to your child’s teacher. If you would like more information, please feel free to contact Gary Jacobs at (614) 876-8839 / 292-8148 or Dr. Ralph Gardner, III at 292-3308. We appreciate the opportunity to work with you and your child.

Sincerely,

Gary D. Jacobs, M.A.
Doctoral Candidate

Dr. Ralph Gardner III
Associate Professor

Mrs. Rhoda Clowers, BA
LD Teacher
Parental Consent Form

I agree to allow my child to be assessed for this research project. I also give permission for the experimenter to view pertinent educational records to my child’s written language development. This study will be conducted by Gary D. Jacobs, under the direction of Dr. Ralph Gardner III, in the Department of Physical Activity & Educational Services at The Ohio State University. This study will require approximately 40 minutes of your child’s school day for approximately 10 weeks.

I understand that my child’s identity will not be revealed in any publication, document, audio tape, or any other form of report developed from this research. I also understand that I may withdraw my consent for my child’s participation at any time.

If you would like more information, please feel free to contact Gary Jacobs at (614) 876-8839 or 292-8148.

______________________________  ________________________________  ____________________________
Name of Student                                      Signature of Parent or Guardian                                      Date

Gary D. Jacobs, Investigator

______________________________  ____________________________
Dr. Ralph Gardner, III                                      Date

Mrs. Rhoda Clowers, B.A.
APPENDIX B

Script to Teacher
SCRIPT TO TEACHER

My name is Gary Jacobs and I am a third year doctoral candidate in special education at The Ohio State University. I will be conducting a study at your school investigating how we might help students improve their written expression skills comparing teacher instruction using a story starter to teacher instruction using a story starter and self-correction. I understand that you may have some children that might benefit from additional instruction in written expression. If so, I would instruct students using both instructional strategies for about 30-40 minutes daily beginning in March and continuing until the end of the school year. The students will have many opportunities to practice writing and will receive direct and immediate feedback on their writing. I will be communicating closely with you and sharing your student’s progress throughout the course of the study. Your student’s participation is completely voluntary and their consent may be withdrawn at any time without penalty. Please be assured that all information will be kept confidential if the student chooses to participate. Their name will not appear in any oral or written reports. If you think this is something that would interest some of your students, I will make arrangements to talk with the students and their parents. I will also prepare consent forms to send home to the parents. Thanks for taking time out of your busy day to talk with me this afternoon.
APPENDIX C

Script to Principal
SCRIPT TO PRINCIPAL

My name is Gary Jacobs and I am a third year doctoral candidate in the College of Education at The Ohio State University. I would like to conduct a study at your school investigating two forms of writing instruction; teacher instructions using story starters and teacher instruction using story starters plus self-correction, in order to help students become better writers. I understand that you may have some children that might benefit from additional instruction in written expression. Do you think that one of your teachers and some of the students would be interested in participating in such a study? If so, I would instruct students in written expression looking at their use of adverbs, adjectives, and subject-verb agreement with story starters as the spring-board for them to begin writing. The sessions would run between 30 - 40 minutes a day beginning in March and continuing until the end of the school year. The students will have many opportunities to practice writing and will receive direct and immediate feedback on their writing. I will communicate closely with the teacher and share the student’s progress throughout the course of the study. The student’s participation is completely voluntary and their consent may be withdrawn at any time without penalty. Please be assured that all information will be kept confidential if the student chooses to participate. Their name will not appear in any oral or written reports. If you think this is something that would interest some of your students, I will make arrangements to talk with the teacher, parents, and students. I will also prepare consent forms to send home to parents. Thank you for taking time out of your busy day to talk with me this afternoon.
SCRIPT TO STUDENT

My name is Gary Jacobs and I am a student at Ohio State. I will be doing a study at your school seeing how we might help students improve their writing. Your teacher said you might like some extra help in writing. If you would like this, I would teach you every morning for about 30-40 minutes each day beginning in March and continuing until the end of the school year. We would work on writing using story starters and self-correction where you make corrections to your own writing. I will be talking to your teacher and sharing your progress throughout the course of the study. Your participation is completely voluntary and you can withdraw at any time without penalty. All information will be kept confidential if you choose to participate. If you think this is something that you would be interested in doing, talk with your parents about and I will send a permission slip home with you. Please read it carefully with your parents and sign it. Thank you for talking with me today. I look forward to working with you.
APPENDIX E

Pre-Assessment Writing Samples
SELF-CORRECTION FORM

NAME: ___________________________ DATE: 3/24/97 SESSION: P-A OBSERVER: GJ

STUDENTS SENTENCES:
1. I will feed my cat and I will give food to my cat.
2. I will feed my hand and I will give food to my hand.
3. ___________________________
4. ___________________________
5. ___________________________

MODEL:
1. ___________________________
2. ___________________________
3. ___________________________
4. ___________________________
5. ___________________________
If you could be invisible for a day, what would you do?

I will go to the store and I will take food and I will eat.

I will get a big house and I will pick up and I will get them.
APPENDIX F

Dependent Variable Recording Sheet
<table>
<thead>
<tr>
<th>Date</th>
<th>Session</th>
<th>Use of Caps</th>
<th>%</th>
<th>Use of Punc.</th>
<th>%</th>
<th>Use of Adj.</th>
<th>%</th>
<th>Spelling</th>
<th>%</th>
<th>Amt. W W</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>I</td>
<td>U</td>
<td>E</td>
<td>O</td>
<td>C</td>
<td>I</td>
<td>U</td>
<td>E</td>
<td>O</td>
</tr>
</tbody>
</table>

Dependent Variable Recording Form

Subject

Experimenter

Observer

Dates

A B Session to

Condition: B SC

173
APPENDIX G

Individual Summary Sheet
APPENDIX H

Examples of Lesson Plans Used During Pre-Baseline
Lesson Plan

Subject(s)__________________  Date_______________

Condition: BL  SC

Goal: To improve writing skills

Objective(s): The Students will be able to:
   A. Use capitalization in sentences of a paragraph with 90% accuracy.
   B. Use punctuation in sentences of a paragraph with 90% accuracy.

Procedures:
1. Teacher explains to students that today they will be writing a story
   based on a topic they pick from 3 choices, after reviewing the skills
   involving capitalization and punctuation.
2. Teacher reviews capitalization and when they should be used in a
   sentence.
   Capitals are used in a sentence:
   a. at the beginning of the sentence.
   b. when the letter “I” is used in the sentence.
   c. when a proper noun is used in the sentence.
3. Teacher presents several examples of each for students to identify.
4. Teacher then reviews punctuation and when it is used in a sentence.
   Punctuation is used in a sentence:
   a. at the end of a sentence (question, period, or exclamation)
   b. use commas to separate two ideas.
   c. use commas for a series items.
5. Teacher presents several examples of each for students to identify.
6. Teacher then provides students with 3 topics from which to choose.
7. Students write for 5 minutes.

Activity/Follow-up:
* Worksheet with a series of sentences for students to correct
  capitalization and punctuation errors.

Evaluation:
Lesson Plan

Goal: To improve writing skills.

Objectives: The student(s) will be able to:
1. Identify adjectives in a sentence with 100% accuracy.
2. Identify an article and a proper adjective in a sentence with 100% accuracy.
3. Use adjectives (article or Proper) in a sentence in 9/10 sentences they write.

Procedure:
1. Teacher explains to students that today they will again be writing a story based on a topic they pick (3 choices), after reviewing skills involving adjectives.
2. Teacher reviews adjectives (articles & proper adj.) and their use in a sentence.
   Adjectives are used to modify or describe a noun or pronoun. They are usually of two types: (1) articles-a,an, the; and (2) proper adjectives-describe specific things.
   Adjectives can be placed before a noun.
   Adjectives can be placed in the predicate of a sentence.
   Adjectives answer the questions: How many?, How much?, What kind?, and Which one?
3. Teacher presents several examples for students to identify.
4. Teacher presents students with 3 story starter choices.
5. Students write for 5 minutes.

Materials:
* Worksheet
* Story starters
* Timer
* Dry erase markers
* Dry erase boards
* Writing paper

Follow-up activity:
Worksheet on adjectives and story starter writing.

Evaluation:

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APPENDIX I

Novel Story Writing Paper
APPENDIX J

Principal Letter of Support
February 24, 1997

To Whom It May Concern,

I am writing in support of the written expression research that Gary Jacobs and Dr. Ralph Gardner, III have proposed in Leawood Elementary School, during Spring Quarter 1997. Please feel free to contact me if you have any further questions regarding this research.

Sincerely,

Sandy Trinter
Principal, Leawood Elementary
APPENDIX K

Procedural Integrity Checklist for

Pre-Baseline Lessons,

Teacher Corrective Feedback and Self-Correction Conditions
PROCEDURAL INTEGRITY CHECKLIST

SUBJECTS: ______________________ DATE: ________________

OBSERVER: ______________________ SESSION: ____________

PRE-BASELINE LESSON INSTRUCTION

1. The experimenter asks students to come to writing area.
   YES        NO

2. The experimenter provides instruction over one of the DV's.
   YES        NO

3. The experimenter provided students the opportunity to practice
   use of the elements by identifying them in sentences on a dry-
   erase boards.
   YES        NO

4. The experimenter provides student with a worksheet to practice the use
   of elements of writing.
   YES        NO

5. The experimenter provides students with feedback as they review the
   answers to the worksheet.
   YES        NO
PROCEDURAL INTEGRITY CHECKLIST

SUBJECTS _________________________________ DATE ________________

OBSERVER ________________________________ SESSION ________________

TEACHER CORRECTIVE FEEDBACK CONDITION

<table>
<thead>
<tr>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The experimenter asks students to come to writing area.</td>
<td></td>
</tr>
<tr>
<td>2. The experimenter provides instruction over one of the DV's on bulletin board.</td>
<td></td>
</tr>
<tr>
<td>3. The experimenter provides subjects with three story starters.</td>
<td></td>
</tr>
<tr>
<td>4. Experimenter provides a 1 minute think period for subjects.</td>
<td></td>
</tr>
<tr>
<td>5. The experimenter passes out notebook paper to students.</td>
<td></td>
</tr>
<tr>
<td>6. The experimenter sets the timer and verbally tells students to begin writing.</td>
<td></td>
</tr>
<tr>
<td>7. The students write for 5 minutes on chosen topic</td>
<td></td>
</tr>
<tr>
<td>8. The experimenter collects student notebooks at end of writing session.</td>
<td></td>
</tr>
<tr>
<td>9. The experimenter records correct and incorrect responses on data sheet.</td>
<td></td>
</tr>
<tr>
<td>PROCEDURAL INTEGRITY CHECKLIST</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td></td>
</tr>
<tr>
<td>SUBJECTS _____________________ DATE __________</td>
<td></td>
</tr>
<tr>
<td>OBSERVER _____________________ SESSION __________</td>
<td></td>
</tr>
</tbody>
</table>

**SELF-CORRECTION CONDITION**

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The experimenter asks students to come to writing area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. The experimenter gives original story to students and asks student to identify errors.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Student corrects and rewrites missed sentences.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. The experimenter passes out self-correction template to students.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. The students self-correct story using template for:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Punctuation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capitalization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjectives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spelling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Students rewrite missed sentences, those different from sentences corrected earlier.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. The experimenter collects story and rewrites at end of session.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. The experimenter reviews the target skills on board.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. The experimenter provides subject with three story starters.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. The experimenter provides a 1 minute think period for subjects.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. The experimenter sets the timer and verbally tells subjects to begin writing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. The subjects write for 5 minutes on chosen topic.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. The experimenter collects the subjects novel story at end of session.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX L

Example of Reminder Board
### Reminder Board

<table>
<thead>
<tr>
<th>Target Skills</th>
<th>Rules</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capitalization</strong></td>
<td>1. Initial letter of a sentence.</td>
<td>1. The chocolate bar tasted great.</td>
</tr>
<tr>
<td></td>
<td>2. Proper nouns.</td>
<td>2. Mary Jones is the president.</td>
</tr>
<tr>
<td></td>
<td>3. The word “I”</td>
<td>3. May I go with you.</td>
</tr>
<tr>
<td><strong>Punctuation</strong></td>
<td>1. Ending of a sentence.</td>
<td>1. The dog ran home.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Who’s dog is it?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wow! What a great dog!</td>
</tr>
<tr>
<td></td>
<td>3. Hyphen</td>
<td>3. My teacher is thirty-two years old.</td>
</tr>
<tr>
<td></td>
<td>4. Commas</td>
<td>4. The flag is red, white, and blue.</td>
</tr>
<tr>
<td><strong>Adjectives</strong></td>
<td>1. Articles- a, an, the</td>
<td>1. A dog went to the fair.</td>
</tr>
<tr>
<td>(modify or describe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>nouns or pronouns)</td>
<td>2. Proper adjectives</td>
<td>2. May flowers come from April rain.</td>
</tr>
<tr>
<td></td>
<td>3. Describing words</td>
<td>3. The snake was red, white, and slippery.</td>
</tr>
</tbody>
</table>
APPENDIX M

Response Card Sentences Used During Pre-Baseline Lessons
Pre-Baseline
Sentences for Response Cards

Capitalization
1. The game will not be held before noon.
2. I ate the last apple.
3. My best friend is Mary Jones.
4. I go to school at Leawood Elementary.
5. There was one player I began to watch closely.

Punctuation
1. Who left this message for me?
2. John said, “I am ready for lunch.”
3. The dress had red, white, and blue stripes.
4. Wow! You did a great job on the test!
5. Our teacher is twenty-two years old today.

Adjectives
1. The dog was big and black.
2. Red and white roses are everywhere.
3. I want the notebook.
4. I need to see a doctor.
5. April showers bring May flowers.
APPENDIX N

Example of Self-Correction Form
Self-Correction Form

Name of Subject___________________ Date____________ Session____________
Observer____________________

Correct English Form of Story

Rewrite of Incorrect Sentences:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

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APPENDIX O

Self-Correction Without the Key

&

Self-Correction Using the Key

Recording Forms
### SELF-CORRECTION RELIABILITY - WRITING 1

<table>
<thead>
<tr>
<th>SESSION</th>
<th>CAPITALIZATION</th>
<th>PUNCTUATION</th>
<th>ADJECTIVES</th>
<th>SPELLING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># C I U</td>
<td># C I U</td>
<td># C I U</td>
<td># C I U</td>
</tr>
</tbody>
</table>
Self-Correction Reliability

<table>
<thead>
<tr>
<th>Date</th>
<th>Session</th>
<th>Writing 1: STUDENT CORRECTIONS WITHOUT KEY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Caps %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C I U</td>
</tr>
<tr>
<td>SESSION</td>
<td>CAPITALIZATION</td>
<td>PUNCTUATION</td>
</tr>
<tr>
<td>---------</td>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Self-Correction Reliability

Subject ____________________________

<table>
<thead>
<tr>
<th>Date</th>
<th>Session</th>
<th>Writing 2: STUDENT CORRECTIONS USING SELF-CORRECTION KEY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Caps %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C I U</td>
</tr>
</tbody>
</table>
APPENDIX P

Story Starters
Story Starters

*If you were a teacher and the kids in your class would not listen to you, what would you do? Explain.

*What is the best trick you ever played on someone? Explain.

*Do you think boys or girls have it easier? Why?

*If you had a lot of money and could use it in any way you wanted, what would you do with it? Explain and tell why.

*If you could look into a magic mirror and see exactly what is happening anywhere in the world, where would you look and what do you think you would see?

*If you woke up tomorrow and by magic were already grown-up and had kids of your own, how would you treat them differently from the way your parents treat you?

*Would you rather be a rich and famous movie star or a great doctor who saves many lives but is not wealthy? Explain why.

*Looking quickly around she opened the bag...

*Once when I was little...

*If I could change one thing in the past...

*What is your favorite fairy tale? Write the reasons why you like it so much.

*What is the one food you would least like to give up for the rest of your life? Explain why.

*Imagine that you drank a magic potion, and then suddenly you started to grow smaller and smaller. Finally, you were no larger than a fly. What would you do?

*What do you think would happen to you if all the clocks and watches in the world suddenly started to go backwards?

*How would you feel if there was a new law forbidding the playing of any music?

*Write some sayings for fortune cookies that you would like to get yourself.
APPENDIX Q

Student Questionnaire
STUDENT QUESTIONNAIRE

STUDENT: ____________________________________ DATE: _____________________

INTERVIEWER: ___________________________________________________________

QUESTIONS:

1. Which way of learning to write did you like the best?
   _______ teacher corrective feedback _______ Self-Correction

2. Which way of writing did you feel helped you the most?
   _______ teacher corrective feedback _______ Self-Correction

3. What things did you like about teacher corrective feedback?

4. What things did you not like about teacher corrective feedback?

5. What things did you like about story starter and self-correction?

6. What things did you not like about story starter and self-correction?

7. Do you have anything else you would like to say about the way you were instructed in writing?
APPENDIX R

Letter of Support from Teacher
February 24, 1997

To Whom It May Concern,

I am writing in support of the written expression research that Gary Jacobs and Dr. Ralph Gardner have proposed in my classroom, at Leawood Elementary, during Spring Quarter, 1997. Please feel free to contact me if you have any further questions regarding this research.

Sincerely,

Mrs. Rhoda Clowers, B.A.
Learning Disabilities Teacher
APPENDIX S

Teacher Questionnaire
TEACHER QUESTIONNAIRE

TEACHER: _____________________________________ DATE: ____________________

INTERVIEWER: __________________________________________________________

QUESTIONS:

1. What did you perceive to be the students' favorite way to write?
   _______ teacher corrective feedback _________ Self-Correction

2. What way of teaching writing did you feel helped the student write the best?
   _______ teacher corrective feedback _________ Self-Correction

3. Which way of teaching writing helped the student write better?
   _______ teacher corrective feedback _________ Self-Correction

4. Which way of teaching writing helped the student write more?
   _______ teacher corrective feedback _________ Self-Correction

5. Which method helped the student use more capitalization in their writing?
   _______ teacher corrective feedback _________ Self-Correction

6. Which method helped the student use more adjectives in their writing?
   _______ teacher corrective feedback _________ Self-Correction

7. Which method helped the student use punctuation properly in their writing?
   _______ teacher corrective feedback _________ Self-Correction

8. Which method helped the student to spell often misspelled words better in their writing?
   _______ teacher corrective feedback _________ Self-Correction

9. What did you like most about teacher corrective feedback?

10. What did you like least about teacher corrective feedback?
11. What did you like most about the story starter and self-correction?

12. What did you like least about the story starter and self-correction method?

13. Do you have anything else you would like to say about using either the teacher corrective feedback or story starter and self-correction methods for teaching writing?
APPENDIX T

Example of Writing Paper Used During Self-Correction Without A Key
APPENDIX U

Worksheets Used in Pre-Baseline Lessons
Capitalization:

Directions: In the first two sentences part of the sentence is given to you. Finish the sentence making sure to add capital letters when necessary. In the last three spaces make your own sentences being sure to use capital letters where needed.

1. The teacher _____________________________
   _______________________________________
   _______________________________________

2. Our house _____________________________
   _______________________________________
   _______________________________________

3. _______________________________________
   _______________________________________
   _______________________________________

4. _______________________________________
   _______________________________________
   _______________________________________

5. _______________________________________
   _______________________________________
   _______________________________________
Punctuation:

Directions: In the first two sentences part of the sentence is given to you. Finish the sentence making sure to add punctuation when necessary. In the last three spaces make your own sentences being sure to use proper punctuation.

1. The bear is __________________________

2. Our family __________________________

3. __________________________

4. __________________________

5. __________________________
Pre-Baseline
Worksheets

Name_________________________ Date________________
Session____________

Adjectives:

Directions: In the first two sentences part of the sentence is given to you. Finish the sentence making sure to add adjectives (describing words) when necessary. In the last three spaces make your own sentences being sure to use adjectives.

1. The dog is_______________________________________________
   _______________________________________________________

2. Our sister is_____________________________________________
   _______________________________________________________

3. _______________________________________________________

4. _______________________________________________________

5. _______________________________________________________
APPENDIX V

Actual Example of Students Story with Written Feedback

During Teacher Corrective Feedback
The exciting thing is bike and a scooter and a car and a helicopter and a dog, the chimney and a Chris.
APPENDIX W

Actual Example of Self-Correction Form with Bolds and Highlights
Correct English Form of Story

I will say in the letter the name Kris Kross, and it is fun to say the word Kris Kross. I will get Kris Kross's autograph. It would be fun to meet Kris Kross.

Rewrite of Incorrect Sentences

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
One firm my friend

and we got satisfying and

we put out my bit in and

we got and jump and

we got some cool and we

got and jump and w.
APPENDIX Y

Training Packet for Observers to Learn to

Code Students Writing
TRAINING PACKET:

ASSESSING THE SENTENCES AND STORIES OF STUDENTS

BY

GARY D. JACOBS
IDENTIFYING THE USE AND NON-USE OR MISUSE OF CAPITALIZATION

Definition of Capitalization

Capitalization is defined as the use of capital letter in the initial first word of a sentence, in first letter of words that are proper nouns, in words which denote social or professional title before a person’s name or in direct address, a title having a family relationship when it is used before a person’s name or used as a direct address, a title showing family relationships that refer to a specific person except if it follows a possessive noun or pronoun, the first word or key words in books, newspapers, magazines, short stories, poems, plays, movies, songs, paintings, and sculptures, titles of school course if followed by a number or in reference to a language, and the letter I.

Rules for Capitalization

Capitalization occurs:

1. At the beginning of a sentence.
   Example: The coach benched the quarterback for throwing an interception.

2. The first word of a direct address.
   Example: John said, “Where is my football jersey?”

3. The letter “I”.
   Example: The first time I saw the dog I wanted to take him home.

4. Proper nouns- specific person, specific place or specific thing.
   Example: John and Tom went to the Columbus Museum of Art to return the Ming Vase.

5. Social and professional titles before a person’s name or in a direct address.
   Examples:
   President Clinton was re-elected in November.
Tell us, Mayor, about the new school program.

6. A title showing a family relationship used either before the person’s name or used as a direct address.

Examples:
I sent a sympathy card to Uncle Joe.
I mailed you an invitation, Grandma.

7. A title showing a family relationship that refers to a specific person except if it follows a possessive noun or pronoun.

Example:
Ask Mother her opinion of the article.

Directions: In each of the following sentences or passages the writer has either used or not used capitals or he or she has misused capitals. It is your task to first identify the use of capitals in each sentence or phrase, and then to identify if the word was correctly capitalized or should have been capitalized. If the word was correctly capitalized you will write the letter “C” above the letter. If the word was incorrectly capitalized or if the word was capitalized and should not have been you will write the letters “IC” above the letter.

CORRECT USE OF CAPITALIZATION & MARKING

C       C       C
The dog and the cat ate the African Parrot.

INCORRECT USE OF CAPITALIZATION & MARKING

IC      IC      IC
the dog and the cat ate the african parrot.
Practice Sentences:

1. The tanners went to Cedar Point on their vacation in may.
2. A major problem in Algebra I is that i don't know how to use the pythagorean theorem.
3. Dr. Johnson did a nice job cleaning your teeth.
4. We took aunt sarah to the ice cream store for a chocolate malt.
5. Henry fonda won and Academy Award for On golden pond.

Use the same code system for the following paragraph:

I would be frack tomas becous it would be fun to be a basebaull playar and be famose. If I was frack tomas I would have a hog house whit a swiming pool. I would go out to eat aver day.

Correct_____ Incorrect_____ Unnecessary_____ NWW_____

Now that you have finished identifying correct and incorrect responses use the answers at the end of the booklet to check your responses.
IDENTIFYING THE USE AND NON-USE OR MISUSE OF PUNCTUATION

Definition of Punctuation:

Punctuation consists of commas and ending punctuation (i.e., question marks, exclamation marks, and periods) quotations and apostrophes in a sentence. Periods can be used at the end of declarative sentences, imperative sentences, a sentence that contains an indirect question, after abbreviation or initials. Question marks can be use after an imperative question, or a word and phrase that asks a question. Exclamation marks can be used at the end of an exclamatory sentence, after an imperative sentence where the sentence gives a forceful and urgent command, and after interjections when expressing a strong emotion. Commas are used with coordinate conjunctions (e.g. and, but, for, nor, or, so, and yet) to separate two simple sentences that form compound sentences, to separate a series of words or phrases, after introductory words or phrases, to set off interrupting words and phrases, and in numbers with more than three digits. Quotation marks are used as punctuation to enclose a person’s exact words.

Rules for Punctuation:

1. Use periods:
   a. at the end of a declarative sentence
      Example: The dog is always barking at the birds.
   b. at the end of imperative sentences
      Example: Walk the dog after dinner.
   c. at the end of a sentence that contains an indirect address.
      Example: John asked if I could come over.
   d. after abbreviations and initials
      Example: Gov., Rd., Mr., G. D. Jacobs

2. Use question marks:
a. at the end of an interrogative sentence.
Example: Who is the President of the United States?
b. at the end of a word or phrase that asks a question.
Example: The president of the committee called a meeting. Why?

3. Use exclamation marks:
   a. at the end of an exclamatory sentence.
   Example: We won the Rose Bowl!
   b. at the end of imperative sentence that gives a forceful or urgent command.
   Example: Get me some help!
   c. at the end of interjections expressing strong emotions.
   Example: Wow! What a great game.

4. Use commas:
   a. with a coordinating conjunction to separate simple sentences to form a compound sentence.
   Example: Gary and Cynthia will be going to the ice show, and Radar and Pistol will stay home.
   b. to separate a series of words or phrases.
   Example: My favorite flavors of ice cream have been chocolate, vanilla, mint chocolate chip, butter pecan, and french vanilla.
   c. after an introductory word or phrase.
   Example: Hello, my name is Gary Jacobs.
   d. to set off interrupting words and phrases
   Example: The Super bowl, I believe, started at sin o’clock.
   e. with numbers of more than three digits.

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5. Use quotation marks:
   a. to enclose a person’s exact words
   Example: Mary said, “I have two tickets to the concert.”

**Directions:** In each of the following sentences or paragraph the writer has either used, not used or misused punctuation. It is your task to first identify punctuation in the sentence or paragraph. If the writer has used punctuation correctly place the letter “P” over the punctuation mark. If the punctuation used is incorrectly placed placed or is the wrong punctuation place the letters “IP” above the punctuation used. If punctuation wasn’t used but should have been, place the letters “IP” above that spot in the text as well.

**CORRECT USE OF PUNCTUATION & MARKING**

```
P P
```

John asked, “What are your favorite things to eat?”

**INCORRECT USE OF PUNCTUATION & MARKING**

```
IP IP IP IP
```

John asked What are your favorite things to eat.

**Practice Sentences:**

1. Gov George Voinovich resides in Columbus Ohio.
2. Who was the first ambassador to the United Nations.
3. Tom said What was your favorite thing to do as a child.
4. Goodness! You must consider the consequences.
5. Columbus Dayton, and Cleveland are cities in Ohio?
Use the same code system for the following paragraph

I think the hardest thing is having two brothers because they always beat me and throw me up and down. The worst is when they team up and start to punch me at the same time but one day I got mad and tapped my brother and grabbed his head and threw it in the corner of the fire.

Correct _____ Incorrect _____ Unnecessary _____ NWW _____

Now that you have finished identifying correct and incorrect responses use the answers at the end of the booklet to check your responses.
IDENTIFYING THE USE AND NON-USE OR MISUSE OF ADJECTIVES

Definition of Adjectives:

Adjectives are defined as words used to describe a noun or pronoun (Sebranek, Meyer, Kemper, 1995). An example includes:

CORRECT USE OF ADJECTIVES

Why did ancient dinosaurs become an extinct species? (ancient describes dinosaurs and extinct describes species)

Were they wiped out by a catastrophic flood or a deadly epidemic? (catastrophic describes the flood and deadly describes the epidemic)

INCORRECT USE OF ADJECTIVES

The stadium large. The word large would describe the stadium but there is not a verb to make the sentence complete

Rules for Adjectives:

1. Use to describe something.

   Example: I like to fish in clear, cold, deep lakes.

2. Use as articles (A, AN, THE)

   Example: The dog ran to his owner.

   The boy gave a gift to his mother.

   An ant can carry a lot of weight on its back.

3. Use of Proper Adjectives

   a. proper noun used as an adjective

      Example: April showers bring May flowers.

   b. an adjective formed from a proper noun

      Example: The American pilots were heroes in World War II.

4. Use a personal pronoun as an possessive adjectives if it modifies a noun.
a. singular
Example: Paul predicted his score in generality class.
b. plural
Example: All students can leave their tests with Dr. Gardner.

Directions: In each of the following sentences and passages the writer has either used or not used adjectives win their writing or they are used correctly or incorrectly. It is your task to first identify the use of the adjective and then to label it by placing the letters “ADJ” above the word. If the word is used correctly as an adjective you will leave the letters “ADJ” above the word. If the word is used incorrectly as an adjective then you will place the letter “I” next to the letters “ADJ”. If no adjective was used you will make no marking.

Examples:

CORRECT USE OF ADJECTIVES & MARKING

ADJ  ADJ  ADJ

The dog was black with yellow eyes.

INCORRECT USE OF ADJECTIVES & MARKING

IADJ

The stadium large.

Practice Sentences:

1. The big, black, dog is mean.
2. Flowers bloomed everywhere.
3. A house cost a lot of money.
4. My older brother is both artistic and athletic.
5. Our committee met during the Christmas vacation.
Use the same code system for the following paragraph

Today's weather it is snowy and windy and it is very chill outside slippery and foggy. It will be cold very, very cold. Not sunny icy cold. And it will be ice rain for two days. The temperature below zero. It is cloudy and nippy and ice wind. They will be dark what is news.

Correct _____ Incorrect _____ Unnecessary _____ NWW _____

Now that you have finished identifying correct and incorrect responses use the answers at the end of the booklet to check your responses.
ANSWER KEY TO PRACTICE EXERCISES

CAPITALIZATION

Practice Sentences:

C IC C C IC
1. The tanners went to Cedar Point on their vacation in May.

IC C C IC IC IC
2. A major problem in Algebra I is that I don’t know how to use the Pythagorean theorem.

C C
3. Dr. Johnson did a nice job cleaning your teeth.

C IC IC
4. We took Aunt Sarah to the ice cream store for a chocolate malt.

IC IC C C IC IC IC IC
5. Henry Fonda won an Academy Award for On Golden Pond.

Practice Paragraph:

I would be track tomar because it would be fun to be a baseball player and be famous. If I was track tomar I would have a hog house with a swimming pool. I would go out to eat over day.

Total Correct 5  Total Incorrect 5  NWW 41
PUNCTUATION

Practice Sentences:

1. Gov George Voinovich resides in Columbus Ohio.

2. Who was the first ambassador to the United Nations.

3. Tom said What was your favorite thing to do as a child.

4. Goodness! You must consider the consequences.

5. Columbus Dayton, and Cleveland are cities in Ohio?

Practice Paragraph:

I think that the hardest thing is having two brothers because they always beat me and throw me up and down. The worst is when they team up and start to punch me at the same time but one day I get mad and threw my brother up and grabbed his head and threw it in the corner of the fire.

Correct 2 Incorrect 5 Unnecessary 0
ADJECTIVES

Practice Sentences:

ADJ ADJ ADJ
1. The big, black, dog is mean.

ADJ

2. Flowers bloomed everywhere.

ADJ ADJ

3. A house cost a lot of money.

ADJ ADJ ADJ ADJ

4. My older brother is both artistic and athletic.

ADJ ADJ ADJ

5. Our committee met during the Christmas vacation.

Practice Paragraph:

Today's weather is snowy and windy and it is very chilly outside. Slippery and foggy, it will be cold very, very, cold. Not sunny, icy cold and it will de ice rain for two days. The temperature below zero, it is cloudy and nippy and ice wind. They will be back what to news.

Correct 15 Incorrect 0 Unnecessary NWW 54
APPENDIX Z

Example of Students Writing with Coding and Record of Scores
I am an adult for one day, I am going to the store.

I am at the store and I can buy things. I am going to buy a dog and a cat. This is the biggest thing.

I am going to the store to buy milk.