ABSTRACT

Title of Dissertation: The Effects of Strategy Instruction with a CDO Procedure in General Education Settings

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The purpose of this study was to evaluate a revision strategy for middle school students in a three general education classrooms. Three teachers and 23 sixth-graders in an elementary school in an urban school district in the Northeast participated in this study. Classroom teachers were trained in the revision strategy and provided instruction to their respective students. Although all students received instruction, data was collected on four pairs of students from each class (2 high-achieving, 2 average achieving, 2 low achieving, and 2 students with learning disabilities). This study examined the effects of a Compare-Diagnose-Operate (CDO) procedure (using the acronym FIX) embedded within a self-regulation strategy (SRSD) to allow students the opportunity to internalize the elements of revising. The strategy emphasized the need for students to (a) examine their draft, focusing specifically on the essential elements or parts of an essay, (b) identify problems in their essay between what they wanted to write versus what was actually written, and (c) act on, or execute necessary changes to the draft in response to specific problems they had identified. Improvement in students' writing and revising skills was

based on number of meaningful changes, quality of changes between first and second drafts, and holistic quality of the students' revised essays. The effects of teaching the revising strategy were assessed using a multiple-probe design with multiple probes at baseline. The results of this study showed that all students regardless of achievement level benefited from instruction. Students showed significant gains in the number of meaningful changes made from baseline to postinstruction. In addition, holistic quality ratings doubled for students across all achievement levels. The findings emphasize the importance of providing strategy instruction in the classroom and the need for future research in this area.

THE EFFECTS OF STRATEGY INSTRUCTION WITH A CDO PROCEDURE IN GENERAL EDUCATION SETTINGS

by

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List of Abbreviations

AA:	Average-achieving writers
ACT:	American College Test
CDO:	Compare-Diagnose-Operate
CSIW:	Cognitive Strategy Instruction in Writing
DC-CAS:	DC Comprehensive Assessment System
ELL:	English Language Learner(s)
ESL:	English as a Second Language
GED:	Grade Equivalent Degree
GRE:	Graduate Record Exam
HA:	High-achieving writers
LA:	Low-achieving writers
LD:	Learning disability(ies)
NAEP	National Assessment of Educational Progress
SAT:	Scholastic Aptitude Test
SRSD:	Self-Regulated Strategy Development
SSAT:	Secondary Scholastic Aptitude Test
TOWL-3:	Test of Written Language

CHAPTER ONE

Introduction

The number of students who are writing below their grade level and who are considered poor writers is discouraging, whether the news comes from local, state, or national sources. According to a 2007 statistic from the National Assessment of Education Progress, only 33% of eighth graders and 24% of twelfth graders scored at or above a proficient writing level on a nationally representative writing assessment (National Center for Education Statistics, 2007). This assessment was administered in more than 7,640 schools. Approximately 140,000 eighth graders and 27,900 twelfth graders participated in this assessment. The percentage of students identified as proficient writers indicates that only 24% to 33% of students who were evaluated could write a well-organized narrative or essay using well-developed details, good sentence structure, and age-appropriate word choices with minimal errors in grammar, spelling, and punctuation.

Even more alarming is the fact that since 1998 only 1-2% of American high school seniors could write a persuasive paper at an advanced level; and the percentage of twelfth graders performing at an advanced level was lower in 2007 than in 2002 (National Center for Education Statistics, 2002; 2007). The few writers who accomplished this were able to develop a well-organized essay with well-chosen details, using transitions to lead the reader from one part of the essay to another. These students also consistently varied their sentence structure and made good word choices with minimal errors. The majority of high school seniors (82%) scored at or above a basic writing level. These students showed only partial mastery in responding to a task and

providing supporting details. They also lacked appropriate language, logical organization, and critical thinking skills (National Center for Education Statistics, 2007). Unfortunately, students who are classified as basic writers in high school are the same students who are often considered to be "poor" writers in college (Butterfield, Hacker, & Albertson, 1996; McCutchen, Hull & Smith, 1987).

Written language is a difficult skill to teach because it is such a complex form of communication. It is the result of multiple interactive processes, which cognitive theorists have labeled broadly as planning, translating, and reviewing (Flower & Hayes, 2003; McCutchen, 1995; McCutchen, Teske, & Bankston, 2006) and, within each, involves simultaneous use of recursive skills and the coordination of cognitive subprocesses (Beal, 1989; Flower & Hayes, 1980; Marchisan, 2001).

In this chapter, an overview of the study is provided. First, a prominent theoretical model of writing that led to the framework for this study is discusssed. Second, developmental views of writing are discussed along with ways to scaffold the revising process that will be under scrutiny in the current study. Third, contrasts between experts and novice writers are provided, which give brief sketches on several major instructional approaches that will be elaborated on further in Chapter Two. Fourth, an overview of the purpose and methodology is provided as well as the research questions and design in this study. Finally, the potential significance of this study to the field of special education is proposed.

Cognitive Process Model

Flower and Hayes' seminal work in the early 1980s launched a new way of thinking about how people compose based on a cognitive processing perspective that was

revealed by a close analysis of think-aloud protocols of adult expert writers (Flower & Hayes, 1980). Their resulting theory centered on a fundamental concept that writing requires a coordinated set of thinking processes that writers organize in recursive rather than linear stages. To illustrate, the execution of one set of cognitive processes (e.g. planning), may be influenced by the writer's own network of rhetorical and content-related goals, and any subprocess (e.g., organizing) can interrupt or incorporate another subprocess (e.g., brainstorming; Flower & Hayes, 1980).

Three major elements are reflected in a cognitive process model: the task environment, the writer's long-term memory, and the writing process (Flower & Hayes, 1981). The task environment includes factors that are external to the writer but influence the writing task. This includes the rhetorical problem, or school assignment, and eventually includes the text that is produced. The writer's long-term memory consists of the writer's stored knowledge of the topic, the audience, and various writing plans. The final component of the model involves the writing process, which contains the basic processes of planning, translating, and reviewing (Flower & Hayes, 2003; Graham, 2006).

In 1996, Hayes revised the original model put forward by Flower and Hayes (1980) and proposed that working memory be included as a key component in the writing model. Hayes' working memory model consists of phonological memory, which temporarily stores verbal information; a visuospatial sketchpad for storing visual information; and semantic memory, which is our memory of fact and meanings, our understanding of words, and our knowledge of the world around us. He explained that working memory is used throughout the writing process and because writers draw on the

same limited working memory when writing and revising, the processes often interfere with one another. When expanding upon the cognitive description, Hayes proposed that an overall task schema guides the cognitive processes, which are influenced by working memory and long-term memory resources. Planning was included under the broader label *reflection*, which encompasses problem solving (including planning), decision-making, and inferencing. Translating was reconceptualized as *text production*. The original reviewing process was expanded to include *text interpretation* as well as embedded *reflection* and *text production*. Also new in the 1996 model were specifications of goals, predispositions, beliefs, and social environment (Hayes, 2006; McCutchen et al., 2006).

Every element of composing is valuable to the writing process. Planning involves a number of subprocesses (generating ideas, organizing, and goal setting) and is believed to hold a vital role in the generation of written expression (Brodney, Reeves & Kazelskis, 1999; Spandel, 2001). Murray (1982), a prominent and early advocate of the writer's workshop movement in America, recommended that about 70% of writing time should be spent on planning. Translating entails generating grammatical, coherent sentences that represent the writer's plans and rhetorical goals. Reviewing (or revision) is considered an important aspect of the writing process because it can affect writers' knowledge and improve compositions (Fitzgerald & Markham, 1987; Scardamalia & Bereiter, 1986). The revising component of the writing process depends on two subprocesses—evaluating and revising—and involves evaluating text for clarity and content (i.e., detecting and diagnosing problems) and making any necessary changes. "Revision means making any changes at any point in the writing process. It [also] involves detection of mismatches

between intended and instantiated text, decisions about how to make desired changes, and making the desired changes" (Fitzgerald & Markham, 1987, p. 4).

One distinction of a cognitive process model is its recursive framework which depicts a constant interactive process between planning, translating, and reviewing (Flower & Hayes, 1981; 2003). For example, writers may spend a considerable amount of time planning what they want to write; however, planning is not a unitary stage, but a thinking process that can be used repeatedly throughout the translating phase. Similarly, knowledge from memory can be used in the planning process, and information from planning can flow back to other processes.

As stated earlier, Hayes (1996) proposed how working memory and long-term memory influence the cognitive processes involved in writing. Working memory is, in fact, related to text generation in a number of writing tasks (McCutchen, 1995). Furthermore, successful execution of the cognitive processes during writing depends on the availability of sufficient resources within working memory (McCutchen et al., 2006). Fluent text generation is, therefore, extremely important because during complex tasks such as writing, cognitive processes compete for limited resources within working memory (Hayes, 2006). As a result, inefficient processes at one level (e.g., spelling, handwritten transcription, or text generation) can consume resources that are needed for higher level processes such as planning and revising (Flower & Hayes, 2003; McCutchen, 1995; 2006). This may contribute to young children's limited use of planning and revising strategies and increased reliance on knowledge telling (Bereiter & Scardamalia, 1987). In addition, children often use a schema for revision that focuses on surface revisions rather than revisions of text meaning (McCutchen, 2006). Effective

strategy instruction can minimize resource demands by explicitly scaffolding components of the writing process (De La Paz & Graham, 2002; MacArthur, Graham, & Harris, 2004; McCutchen, 2006).

Compare-Diagnose-Operate

In contrast to Flower and Hayes' theory of adult expert writing, Scardamalia and Bereiter (1983; 1985) focused on children's writing processes from a developmental perspective (McCutchen, 2006). They describe children's writing as knowledge telling rather than a planning-translating-reviewing process used by expert writers (McCutchen et al., 2006). Scardamalia and Bereiter (1985) argue that a more sophisticated approach to writing (i.e., generating ideas, revision, and sustained thought) is not typical for novice writers. They see writing as an extremely complex activity in which children cannot attend to all the necessary requirements simultaneously (Scardamalia & Bereiter, 1983). To help students manage/orchestrate the subprocesses involved in revision, Scardamalia and Bereiter (1983; 1985) developed a framework they referred to as "Compare, Diagnose, Operate (CDO)." *Compare* involves identifying where a revision is needed, *diagnose* determines the problem, and *operate* specifies and executes the intended revision (Graham & Harris, 2005). This framework guides students through elements of the revision process that they may not be able to access on their own and structures the revision process so that the individual elements of revising are coordinated and occur in a regular way and at the right time (Graham & Harris, 2005). Furthermore, CDO helps students with learning disabilities (LD) move beyond the typical way they approach revising (De La Paz, Swanson & Graham, 1998).

Through the use of evaluation cards, which function as procedural facilitators, students are prompted to consider each sentence in relation to the overall purpose of the paper, evaluate their sentences, then decide on and execute any needed changes. The CDO procedure has made a significant difference in the number and quality of revisions in students' stories and essays (De La Paz et al., 1998; Graham, 1997; Scardamalia & Bereiter, 1983). Students also indicated that the CDO strategy made revising easier for them.

Skilled Writers vs. Inexperienced Writers

Skilled writers tend to be knowledgeable and proficient in the cognitive process of writing (Englert, Raphael, Fear, & Anderson, 1988; Flower & Hayes, 1981). They devote a considerable amount of time and effort to planning and thinking about their initial draft by setting high-level goals, generating ideas, and organizing ideas into a written plan (Bereiter & Scardamalia, 1987; Flower & Hayes, 1980, 1981, 2003; Graham & Harris, 2002; McCutchen, 2006).

During the translating process, skilled writers have little difficulty with the cognitive demands of writing. Tasks such as sentence construction and letter formulation come automatically to efficient writers; thus allowing them to focus on getting their thoughts on paper (Flower & Hayes, 2003; Saddler & Santangelo, 2008).

During the revision phase of the writing process, successful writers consciously evaluate and revise what they have written (Flower & Hayes, 2003). They expand or clarify ideas, discover new connections, delete irrelevant information, as well as reorder and condense what they have transcribed (Hayes & Nash, 1996; Spandel, 2001). This

reviewing phase often leads to new cycles of planning and translating (Flower & Hayes, 2003) and continues until writers feel their essays are adequate.

In contrast, beginning and struggling writers have a limited understanding of the writing process and a limited capacity to self-regulate their written output (Ferretti, MacArthur & Dowdy, 2000; Graham, 1990). While young writers improve with age and ability in their capabilities to write expository paragraphs (Englert, Stewart & Hiebert, 1988), these students (or, students who struggle with writing) are less likely to include conceptual planning in their writing or revise for meaning (McCutchen, 2006). For example, when comparing persuasive essays of 4th and 6th graders, the younger students—regardless of achievement level and goal conditions—often produce essays with fewer essay elements (Ferretti et al, 2000). One possible explanation is that younger students have difficulty establishing appropriate subgoals to support their overall goal of persuading an audience (Ferretti et al, 2000). The same may be said for struggling writers who are unsure how to plan and write a report and express uncertainty about the writing process (Graham, Harris & MacArthur, 2006). This is particularly true for students with LD. These writers typically do little or no planning before writing a first draft (De La Paz, 1999; De La Paz & Graham, 2002; Graham & Harris, 1997; Graham et al, 2006; Lienemann, Graham, Leader-Janssen & Read, 2006; McCutchen, 1995; Thomas, Englert & Gregg, 1987).

During translating, emerging and struggling writers with and without LD also devote much of their conscious attention to the mechanics of writing (letter formulation, spelling and grammar; Berninger et al., 2002; Graham, 1999; McCutchen, 1995; 2006). These types of cognitive demands can interfere with the writing process and result in a

child forgetting what he wanted to say (Flower & Hayes, 2003; Graham, 1999; Graham, Berninger, Abbott, Abbott, & Whitaker, 1997; Torrance & Galbraith, 2006).

Revision is especially difficult for struggling writers and students with LD for several reasons. To begin, poor writers focus on low-level goals such as finishing a sentence or correcting a misspelled word (Flower & Hayes, 2003). In fact, when asked how they could revise their paper to make it better, most inexperienced writers focus on surface features such as spelling, capitalization, punctuation, and handwriting (Butterfield, Hacker & Plumb, 1994; Englert et al., 1988; Faigley, Cherry, Jolliffee, & Skinner, 1985; McCutchen, 1995). This misconception of the revision process is revealed in papers which contain superficial changes or minor word and phrase changes that neither affect meaning nor improve quality (Graham et al., 2006; MacArthur, Schwartz, & Graham, 1991; McCutchen, 2006). Moreover, students with LD frequently have difficulty detecting their own errors when rereading their work, and when they do, their revisions are usually surface changes that are rarely meaningful or improve content (Beal, 1989; Butterfield et al., 1994; Ellis & Colvert, 1996; Englert, Hiebert, Stewart, 1988; Scardamalia & Bereiter, 1983; Wong, Wong, Darlington, & Jones, 1991). Previous studies have also shown that even when students can detect that something is wrong with their paper, they are unable to determine the source of the problem and therefore have difficulty applying a problem-solving strategy when revising (Scardamalia & Bereiter, 1983; 1985).

Instructional Approaches to Improving Writing

Although students with LD may have difficulty with written language, struggling writers with or without LD can improve the quality of their written language with explicit

instruction and assistance in planning, writing, and revising (Gersten & Baker, 2001; Harris, Graham, Mason, & Saddler, 2002; Troia & Graham, 2002; Zipprich, 1995). In these studies where students with LD were taught how to plan before they write, results show increases in the amount of time spent planning, increases in the length of narratives and essays, and improvement in overall quality. During revision instruction, students who were taught how to identify inadequacies in their texts and make the appropriate revisions in their narratives and essays showed improvement in diagnosing inadequacies, improvement in the quality of revisions, and in some cases made more meaningful revisions.

Several instructional approaches have addressed the writing needs of students with LD. These research-based interventions have primarily focused on improving the length, structure, and quality of students' narratives, stories, and essays by teaching students more sophisticated approaches for planning and/or revising. Some of the most common forms of effective writing instruction have focused on planning or revising, and include direct instruction, strategy instruction, peer conferencing, and a process approach to writing instruction.

Direct Instruction

Direct instruction may be the most popular scientifically-based teaching strategy used by teachers to facilitate learning (Marchand-Martella, Martella, & Ausdemore, 2005; Swanson & Deshler, 2003). A typical lesson includes explicit and carefully sequenced instruction provided by the teacher along with frequent opportunities for students to practice their skills over time. Direct instruction begins with an introduction or review of the topic. Teachers then provide clear explanations, descriptions, examples,

or models of what is to be learned while evaluating their students' understanding through questioning. Through guided practice, teachers offer assistance to students who have not yet mastered the material and who may need more explicit instruction. Assignments are given as independent practice to reinforce what students' have learned (Marchand-Martella, Slocum, & Martella, 2004).

Direct instruction has benefited students with LD who wrote longer and better papers after receiving explicit instruction in planning strategies (Troia & Graham, 2002). The same type of teacher-directed instruction has also been effective in teaching average writers to revise and improve the quality of their compositions (Fitzgerald & Markham, 1987). Additional studies in writing instruction have compared direct instruction to strategy instruction, in component analyses, for example (Graham & Harris, 1989), or as a form of instruction relegated to control groups. Rather than review these studies separately, in this section, they will be reviewed under the primary heading that is more appropriate (e.g., strategy instruction with self-regulation).

Strategy Instruction

Strategy instruction involves explicitly teaching students how to independently use strategies for writing and revising text. The benefits of this approach are revealed in an analysis by Graham and Perin (2007) where they examined investigations that used an experimental or quasi-experimental design. Graham and Perin reported that the average weighted effect sizes for struggling writers (1.02) exceeded that of students in a general education classroom (0.70). Strategy instruction has also benefited students without LD (Danoff, Harris & Graham, 1993; De La Paz, 1999; De La Paz, 2005; De La Paz & Felton, 2010; De La Paz & Graham, 2002; Englert, Raphael, & Anderson, 1992; Yeh,

1998). Strategy instruction provides writers with procedures they can use to organize and sequence actions for attaining their goals (Graham & Harris, 1993; Harris & Graham, 1996). The primary goal of strategy instruction is teaching thoughtful and independent use of task-specific strategies that students need for planning and revising text (Graham, 2007; Graham & Perin, 2007; MacArthur et al., 1991); for example, planning a composition in advance of writing by brainstorming and organizing ideas (Graham, 2007). Strategy instruction typically involves think-aloud demonstrations by teachers, modeling the strategies with inner talk related to the writing process, teacher-directed instruction with instructional scaffolding, student collaboration, and self-regulation (De La Paz, 2007; Englert, Raphael, Anderson, Anthony, & Stevens, 1991). With self-regulated strategy instruction, students are taught strategies for planning and revising text in combination with procedures for regulating these strategies and the writing process (Graham & Harris, 1993).

Self-regulated strategy instruction also requires teachers to play an active, facilitative role in developing students' writing skills through activities such as conferencing, modeling, prompting, and dialogue (Harris & Graham, 1996). What makes this self-regulated instructional approach unique from strategy instruction is its focus on students self-regulating their behaviors and internalizing what they have learned through six stages of instruction: develop and activate background knowledge, discuss the strategy, model the strategy, memorize the strategy, support the strategy, and perform independently. During each stage, strategies for planning, writing and revising narrative or expository compositions are presented through the use of instructional prompts and mnemonics (Graham, 2006). A basic premise in self-regulated strategy instruction is

providing students with temporary and adjusted assistance in using a strategy. This scaffolding helps students learn independently what they were not able to do without assistance. The teacher begins by providing explicit instruction and support in implementing strategies through modeling and guided instruction. Support is gradually withdrawn as students become more independent at applying, monitoring, and evaluating the strategies and self-regulating procedures (Graham & Harris, 2005). The stages of the self-regulation model are criterion-based, meaning skills must be mastered and criteria met before students move on to later stages (Graham & Harris, 1993).

Planning and revising strategies often encapsulate entire sets of subprocesses of writing by using mnemonics and directives, which help students think about the writing task in an logical manner. It also helps them focus on the important aspects of the writing task. In addition, asking students to create written notes during planning and revising provides a visible record of their thoughts, making it easier for teachers to provide ways for students to organize their ideas (Harris & Graham, 1996). Procedural facilitators such as written notes, cue cards, mnemonics, think sheets, and graphic organizers are used in conjunction with strategy instruction to make the elements of the activity more visible and enhance writers' performance (De La Paz, 2007; Englert, Mariage, & Dunsmore, 2006). Procedural facilitation can scaffold academic performance by reminding students of the procedural steps or higher order strategies they can use to plan and revise their compositions (Baker, Gersten, & Scanlon, 2002; Englert, Mariage, & Dunsmore, 2006).

Procedural Facilitation

Procedural facilitation is based on research that seeks to identify the executive procedures used in writing and their main points of difficulty (Scardamalia & Bereiter,

1985). It involves providing students with external supports (e.g., guides, prompts, and templates) designed to facilitate the planning and/or revising process of writing (Graham & Perin, 2007). The CDO procedure developed by Scardamalia and Bereiter (1983) is an example of a procedural facilitation. This external support can be used to cue students to perform certain writing or self-regulatory processes (Englert et al., 2006).

Peer Conferencing

The concept of peer support is based on theories of social learning that emphasize mental sharing and collective thinking in the undertaking of demanding or complex tasks (Hastie & Pennington, 1991). Peer conferencing is conducted through interactive dialogues between student peers (Wong, Butler, Ficzere, & Kupris, 1996). It involves working together to plan, transcribe, or revise narratives and essays (Graham & Perin, 2007). Through dialogue, teachers involve students in the writing process and help them to realize the ambiguities in their writing (Wong et al., 1996). For the most part, peer conferencing involves teachers and/or students reading an author's paper as they point out ambiguities and ask for clarification (Wong et al., 1991; 1994; 1996). Revision questions can also be provided (e.g., "Is there anything that is not clear?") which provide additional assistance in locating ambiguities (MacArthur et al., 1991). Peer conferencing has been effective in enhancing specific aspects of students' performance in both instructed and uninstructed genres (Graham, Harris, & Mason, 2005). Adding a peer support component to strategy instruction can facilitate maintenance and generalization to a regular classroom, as well as have positive effects on the performance of struggling writers (Harris, Graham, & Mason, 2006).

Process Approach

In earlier years, a process approach to writing instruction involved teachers facilitating the writing process rather than providing direct instruction (Hillocks, 1984). Since the 1980s, the process approach to teaching writing has become the primary model of instruction in K-12 classrooms; however, the instructional strategies associated with the process model now include explicit instruction in strategies such as self-regulation, searching prior knowledge, and goal setting (Pritchard & Honeycutt, 2006). This new approach allows students to engage in the cycles of planning, translating, and reviewing, and take ownership of their writing (Graham & Perin, 2007). An example of a process approach to writing is the Writer's Workshop (Atwell, 2002; Routman, 2004). Although process approaches such as Writer's Workshop have emerged as the primary paradigm to teach writing, few studies have assessed the relation of the process instructional approach to quality of writing and even fewer have used an experimental design (Pritchard & Honeycutt, 2006).

More importantly, in the absence of professional development, process writing instruction had a smaller effect on the quality of students' writing compared to instruction with teachers who had professional development (ES = .32 and .46, respectively; Graham & Perin, 2007). Furthermore, researchers have varying views and definitions of what the process approach entails (Pritchard & Honeycutt, 2006).

Conclusion

Need for instruction in revision strategies in general education. Over the years, various methods of instruction have been used to teach students to become better writers and several have been effective in improving written language. However, we

have still have a large percentage of students who cannot write at a proficient or advanced level. Perhaps struggling writers and students with LD have done well in learning how to plan and write longer essays, but also need strategies that help them revise their compositions. It would also be more practical if instruction to teach revision skills were provided in a general education setting. A recent review of the literature indicates that most of the research on improving length and quality of narratives and essays has focused on teaching students planning strategies through individualized instruction (De La Paz & Graham, 1997a; Graham & Harris, 1989; Graham, MacArthur, Schwartz and Page-Voth, 1992; Harris & Graham, 1985; Lienemann et al., 2006; Troia, Graham & Harris, 1999) in paired or small group settings (Danoff et al., 1993; De La Paz & Graham, 1997b; Glaser & Brunstein, 2007; Graham et al., 2005; Harris et al., 2006; Monroe & Troia, 2006; Saddler, 2006; Saddler, Moran, Graham & Harris, 2004; Sawyer, Graham & Harris, 1992; Sexton, and Harris & Graham, 1998; Troia & Graham, 2002), or in resource rooms (Chalk, Hagan-Burke & Burke, 2005; Deatline-Buchman & Jitendra, 2006; Welch, 1985; Wong et al, 1996). In only a few studies has planning instruction been provided in a general education setting; although to be fair, in some cases the interventions included a revising component (De La Paz, 1999; 2005; De La Paz & Graham, 2002; De La Paz & Felton, 2009; Englert et al, 1991; 1992; and Yeh, 1998).

Direct instruction, procedural facilitators, and strategy instruction have also been used to improve the revision skills of students as well as the quality of narrative and expository text. However, in contrast to the many studies on planning strategies, only four published studies have used strategy instruction in revision to improve students' writing skills (Graham & MacArthur, 1988; MacArthur et al., 1991; and Wong et al,

1991; 1994). Furthermore, not one of these studies took place in a general education setting. Of even greater importance, Scardamalia and Bereiter's groundbreaking work in procedural facilitation (1983; 1985) appears to hold potential for students with LD (De La Paz et al., 1998; Graham, 1997), yet it has not been validated as a tool that students can self-regulate without adult assistance. Strategy instruction appears to be a logical vehicle for teaching students to internalize more sophisticated revising behaviors.

Purpose of the Study

Given the statistics that indicate the number of poor writers in our schools (National Center for Education Statistics, 2007) and the evidence supporting strategy instruction as an evidence-based approach (Baker, Chard, Ketterlin-Geller, Apichatabutra, & Doabler, 2009), it seems logical that strategy instruction be provided to all students; not simply struggling writers or students in resource classrooms. De La Paz (1999) suggested that "given the realization that many regular education students (in addition to those with LD) need to improve their writing skills, it is essential for researchers in writing intervention research to validate instruction for mainstream settings, with regular education teachers providing the instruction" (p. 105). Given the effectiveness of two instructional approaches (CDO and SRSD), there appears to be a need to combine procedural facilitation with self-regulated strategy instruction. CDO has been effective in guiding students through the revision process but has done so with procedural facilitation only. SRSD will provide the foundation for students to use the CDO procedure while regulating their behavior, setting individual goals, and internalizing the elements of the revision strategy.

Therefore, the primary purpose of this study was to evaluate a revision strategy for all writers in general education classrooms that emphasizes the need for students to (a) detect mismatches between the mental representation of the actual composition and of the intended composition, (b) identify and explain all the problems they had detected, and (c) choose to change text by changing wording, deleting or adding on. This three-step sequence was called "Compare-Diagnose-Operate" by Scardamalia and Bereiter (1983). Importantly, whereas the original authors and others (De La Paz et al., 1998; Graham, 1997) have examined the effects of modified CDO procedures using direct instruction and procedural facilitation as a mode of teaching, this study employed self-regulated strategy instruction as the teaching model. This is an important difference, as prior work did not establish student independence in using the CDO procedure. The acronym FIX was used in this study as the CDO procedure, which reminded students to (a) **Focus** on essay elements, (b) **Identify** problems, and (c) **Execute** changes. Providing the CDO strategy with self-regulation across several stages of instruction in general education classrooms gave students the opportunity to internalize these elements of revising after teachers modeled and provided them with opportunities to practice skills they had learned. By examining the strategy in general education settings, this study allowed an opportunity to measure the progress of students from every achievement level (high-, average, and low-achieving students, as well as students with LD). This also allowed me to compare students' scores and assess to what degree low-achieving students and students with LD approximated the scores of their average- or high-achieving peers.

Research Questions

The following research questions were addressed:

1. Will instruction in a modified CDO procedure using SRSD result in improvement in students' ability to make revisions leading to (a) increased number of meaningful changes, (b) revisions that improve text, and (c) qualitative improvements in their expository essays with an academically diverse group of students (including those who are high-achieving, average-achieving, low-achieving writers, and students who are identified with a learning disability)?
2. Will instruction in a modified CDO procedure using SRSD improve posttest scores of students with LD to the point of approximating or surpassing the pretest scores of high-achieving or average-achieving students?
3. Will instruction in a modified CDO procedure using SRSD improve posttest scores of low-achieving students to the point of approximating or surpassing the pretest scores of high-achieving or average-achieving students?

The effects of teaching the modified CDO strategy was assessed using a multiple-probe design with multiple probes in baseline (Horner & Baer, 1978) as demonstrated by De La Paz (1999). This design is ideal for working in academically diverse classrooms and in situations in which there is little to no funding. Experimental control can be achieved, and the effectiveness of the intervention can be determined for each type of student (those who are high achieving, average achieving, low achieving, and those who are identified with LD in writing).

Significance of the Study

This study has the potential to contribute the following information to the field of special education. If the CDO procedure can be internalized by students through the SRSD strategy instruction (i.e., make quality revisions independently while regulating their own behavior) then this study will further support the idea that even in a general classroom setting, the writing performance of inexperienced writers—regardless of achievement level—can be improved by teaching them strategies for revising. This is particularly important for students who need to focus on their compositions beyond the planning phase. If teachers and students find the modified CDO strategy is helpful and a viable means to teach and learn then this strategy may be recommended as beneficial to emerging writers, particularly those with learning disabilities.

Because SRSD instruction is a multi-faceted, complex form of intervention, it is possible that should negative results occur, it might be difficult to determine why the strategy is not successful. Fortunately, a strength of single subject design is that the first iteration of the strategy instruction (i.e., its test in the first classroom) allows a great degree of latitude in fully developing the revising lessons. After the instruction has been implemented in the first classroom, the strategy and how it is implemented can then be evaluated for replication in the second and third classrooms.

CHAPTER TWO

Review of Literature

Research has shown that a diverse population of students with and without LD have greatly benefited from cognitive strategy instruction (Baker, Fien, & Baker, 2010; Danoff et al., 1993; De La Paz, 1999; De La Paz, 2005; De La Paz & Graham, 2002; Englert et al., 1992; Yeh, 1998). Direct instruction and procedural facilitators are also popular teaching strategies to facilitate learning (Fitzgerald & Markham, 1987; Swanson, 2001). Interactive dialogue between teacher and student or between students and proficient peers is also associated with improved outcomes for students in reading and writing (Crockett, 2004). Therefore, the purpose of this chapter is to review instructional approaches that were found to be effective in improving the written language of struggling writers with and without LD. As such, the following topics will be explored: (a) direct instruction, (b) procedural facilitation, (c) strategy instruction, (d) peer conferencing, and (e) self-regulated strategy development (SRSD). These instructional approaches use modeling, think-alouds, scaffolding, peer conferencing, procedural facilitators and/or self regulation to teach students methods for planning, revising and improving writing quality. The following is a description of the method and results of the literature search.

Search Methods

In gathering information related to strategy instruction in writing, an electronic search was conducted of relevant periodicals using Education Research Complete (EBSCO), ERIC, and PsycINFO. When looking for planning and revising strategies, these data bases were explored using multiple key words. The most productive search

terms were prewriting, strategy instruction, planning, writing, revising, interactive dialogue, writing instruction, peer conferencing, and learning disabilities. In addition, references of articles, literature reviews and meta-analyses of writing instruction were checked to discern additional studies of interest.

Based on the results of the electronic search, an ancestral search from 2006 to 2009 of the following periodicals was conducted to locate the most recent articles dealing with strategy instruction in planning, writing, and/or revising: *Journal of Learning Disabilities, Learning Disability Quarterly, Exceptional Children, Journal of Educational Psychology, and Learning Disabilities: Research and Practice.*

The criterion for identifying relevant research—electronically and ancestrally—was based on an interest in locating studies where researchers employed cognitive strategy instruction or self-regulated strategy instruction in planning and revising as a means to improve the writing skills of struggling writers in elementary to middle school. Because students who were English Language learners (ELLs) participated in this study, I also reviewed studies that focused on providing writing instruction to ELL students.

The results of this review revealed methods of instruction that included (a) direct instruction, (b) procedural facilitation, and (c) strategy instruction based on a theoretical framework of modeling, guided instruction, scaffolding, and use of procedural facilitators. In the end, 39 articles were located that examined methods of instruction effective in improving student's ability to plan, write, and/or revise a composition. Articles that included variables that were deemed irrelevant to the study were eliminated (e.g., word processing, handwriting, or sentence-combining). Similarly, studies that examined the effect of strategy instruction on populations that were not relevant to the

current study (e.g., gifted students or students with language disorders, developmental disabilities, or attention deficit disorders) were excluded. Twenty-eight studies reviewed and presented here examined the effects of strategy instruction on planning; eleven on revision. Given that planning and revising are critical to the writing process, this review focused on strategy instruction in these two areas of the writing process.

Results

A number of approaches for teaching students strategies for planning and revising narratives and essays are reviewed. Approaches include direct instruction, procedural facilitation, strategy instruction, and SRSD. An outline of each approach is provided in Table A1. In the following sections an overview of the instructional approaches that led to the current study is provided. Each approach is first defined and described. Then the research that has been done using that approach to improve students' planning, writing, and/or revising skills is discussed. When applicable, information regarding whether instruction was provided through individual, small group, or classroom instruction is shared. Finally, a summary is given at the end of each section. The chapter ends with a synopsis of the results.

Direct Instruction

Direct instruction is guided instruction that is characterized as a bottom-up processing approach (Swanson, 2001). It involves a graduated sequence of steps with multiple opportunities to practice and learn targeted skills. Direct instruction primarily focuses on isolated skills through fast-paced, well sequenced, and highly focused lessons. The lessons are usually taught to small groups of students who are given several opportunities to respond and receive feedback. With direct instruction, discussion of

processes and use of general rules is minimized. Other characteristics of direct instruction include (a) breaking down a task into small steps, (b) administering probes, (c) administering feedback repeatedly, (d) providing a pictorial or diagram presentation, (e) allowing for independent practice and individually paced instruction, (f) teachers modeling a skill, (g) teachers presenting materials and asking questions, and (h) teaching skills to mastery criterion (Swanson & Hoskyn, 1998; Swanson & Sachse-Lee, 2000).

Planning. Troia and Graham (2002) anticipated that teacher-directed strategy instruction would be more effective in teaching story writing than process writing instruction. In their study, 20 fourth and fifth graders with LD were randomly assigned to experimental and comparative treatment groups. To provide background instruction, a mnemonic for each genre was introduced to provide students with the basic structure and components of narratives and opinion essays. During the instructional phase, students in the experimental treatment group received advanced strategy training using two additional mnemonics. Dependent measures for both stories and essays included length, quality, and planning time. Results indicated no statistically significant differences in story length in pretest/posttest scores or between groups. However, the authors reported a statistically significant difference in story quality between the treatment groups. Story quality improved by 10% at posttesting (ES = 1.00) and 14% during maintenance (ES = 2.05) for students in the experimental group. In contrast, quality scores actually dropped for students in the comparative group. There was no significant difference in story length between groups during posttest; however, that was not the case during maintenance as students receiving strategy instruction wrote substantially longer stories at maintenance than at pretest (ES = 2.87). There were no significant differences between groups for

essay quality or essay length. However, the authors reported significant group differences in the time students spent planning their narratives following instruction: students in the experimental group spent up to 6 minutes planning compared to students in the control group who spent less than a minute. Planning time was not significant for either group during essay writing as neither group spent more than 40 seconds planning at any time.

Revision. Fitzgerald and Markham (1987) investigated the possibility that direct instruction in the revision process would improve children's ability to identify inaccuracies and make revisions on paper. Thirty 6th graders—considered to be average writers who rarely revised their papers—were randomly assigned to an experimental or a control group. Students in both conditions received thirteen 45-minute lessons over a one-month period. Instruction for the experimental group focused on teaching revision as a problem-solving process (i.e., detecting mismatches, deciding how changes could be made, and actually making changes). A trained instructor described aspects of the revision process, modeled the revision process while thinking aloud, and led the group in revising a paper collaboratively. In the days that followed, pairs of students practiced the revision process and revised a story provided by the teacher. During this instructional phase, students also wrote and revised their own story. They were asked to write a story and read it silently to themselves. Instructors then asked students questions to uncover students' knowledge about mismatches between intended and instantiated text and about how to make desired changes (e.g., "Is there anything that could be changed in your story?" and "How could or should it be changed?") During the post-instruction phase, students were given 30 minutes to write their best story. On a subsequent day, they were

given 40 minutes to reread their story, make desired changes on the original paper, and write another draft on a clean sheet of paper.

Students in the control group read good literature silently and in pairs. Readings were followed with group discussions facilitated by the teacher. In the end, students in the control group wrote their own story, discussed what they liked and did not like about their story, and were then given an opportunity to revise what they had written.

Dependent variables included (a) student's knowledge about the revision process (i.e. ability to detect mismatches and ability to know how to make desired changes); (b) students' ability to make revisions on paper (total number of revisions as well as number of surface changes, meaning changes, additions, deletions, and substitutions); and (c) overall quality.

Instruction did affect students' knowledge of the revision process. Students' ability to detect mismatches between intended and instantiated text was measured by number of spots suggested for revision as well as the average specificity of goals for particular revisions. For each area of text identified for revision, a score of 0, 1, or 2 was given (no goal, vague goal, and specific goal, respectively). Results indicated that students in the experimental group averaged more revisions than students in the control group (1.54 vs. 0.86; ES = .64); however, among those detected mismatches, there was no significant difference between groups for the degree to which goals for revisions were specified (ES = .43). Students' ability to know how to make desired changes was measured by the average specificity of suggested changes. For each area of text identified for revision, a score of 0 indicated no suggestion given, a score of 1 indicated a vague suggestion, and a score of 2 indicated a specific suggestion. A large effect size

(ES = .79) revealed a significant difference between groups, as students in the experimental group were more specific about the revisions they made than students in the control group. Follow-up analysis also revealed no difference in surface changes between students in either treatment group (ES = .02); however, significant differences were seen in meaning changes between the two groups (ES = .85). Post hoc Tukey tests showed no significant differences in quality between the two conditions; however, mean scores revealed that students in the experimental group improved in quality (24.13 and 30.27, respectively; SDs = 7.76 and 8.74) while the quality of students' stories in the control group remained the same (27.67 and 27.27 respectively; SDs = 9.24 and 10.08).

Summary. Direct instruction has benefited students with LD who wrote longer and better papers after receiving explicit instruction in planning strategies (Troia & Graham, 2002). This teacher-directed instruction has also been effective in teaching average writers to revise and improve the quality of their compositions (Fitzgerald & Markham, 1987). Fidelity of treatment strengthened the validity and reliability of these studies due to instructors who were trained in implementing the instructional procedures. In addition, lessons were all tape recorded and one third of the lessons were randomly observed by one of the authors.

Procedural Facilitation

In the mid 1980s, researchers realized that explicit instruction was not sufficient for teaching many students with learning disabilities more complex learning activities such as writing (Baker, Gersten, & Scanlon, 2002). One feature that characterized good strategy instruction for students with and without LD was the provision of scaffolded instruction, which included temporary and adjustable support to scaffold a student's

development of learning new skills (Englert et al., 1991). Teachers could scaffold learning and help students carry out sophisticated writing strategies through procedural facilitation (Scardamalia & Bereiter, 1986). Procedural facilitators are a set of instructional approaches in the form of questions, written prompts, think-sheets, or simple outlines that teach processes such as spontaneously organizing unfamiliar material, monitoring writing, and transferring approaches or strategies to novel situations to students with learning disabilities (Bereiter & Scardamalia, 1987; Englert et al., 1991; Graves & Montague, 1991). The goal is to provide students with a method for attacking a particular task as well as a system for providing ongoing feedback and support (Baker et al., 2002).

Planning. Welch (1992) used a mnemonic to cue seven 6th graders with learning disabilities through the process of writing a paragraph. Two trained resource teachers provided instruction to their students in 30-minute sessions 3 times a week for approximately 20 weeks. Eleven additional students from a nearby school served as a comparison group receiving instruction through their regular curriculum. Welch conducted a brief survey to assess students' attitudes toward writing as well as their knowledge of paragraphs and the metacognitive writing process. He also obtained writing samples before and after treatment that were scored based on correct use of grammar as well as presence of a topic sentence, supporting sentences, and a concluding sentence. Points were also given for sentences that were grammatically correct. An analysis of variance revealed statistically significant differences between the treatment groups. The experimental group demonstrated greater metacognitive knowledge of a paragraph at postesting with a mean score that was 21 times greater than scores during

pretesting. The comparison group on the other hand showed no improvement in this area (ES = 15). Following instruction, students in the experimental group showed a 103% improvement in their paragraph writing compared to a 30% improvement from students in the comparison group (ES = 2.3). Finally, attitudes towards writing improved by 35% for those in the experimental group; no improvement was reported for those in the comparison group (ES = 1.25).

Teachers completed a one-week summer workshop which strengthened the study's fidelity of implementation based the adherence and quality of delivery criteria set forth in O'Donnell's (2008) description of fidelity of implementation. The presence of a comparison group also strengthened the validity of the study. There were, however, a few limitations in this study: (a) the overall quality of the paragraphs was not assessed; (b) teachers instructed and scored the data; and (c) interrater reliability was only .77.

Revision using CDO procedures. The CDO process (Scardamalia & Bereiter, 1985) is a part of the composing process which begins with a comparison between written and intended text. When a mismatch is detected via a *compare* prompt (e.g., People may not be interested in this.), attention focuses on *diagnosing* or searching for the cause of the mismatch. During the *operate* phase, students choose to make a revision (e.g., word change, deletion, or add on) or leave the text as it is. The CDO model is cyclical in that students are to return to *compare* and continue through this cognitive process until all mismatches are removed (Scardamalia & Bereiter, 1983).

Scardamalia & Bereiter (1983) used an Alternating Procedure—a reduced and simplified model of the CDO process—to lessen "the executive burden of implementing the CDO process while producing an observable trace of its main stages" (p. 71). Ninety

4th, 6th, and 8th graders—30 from each grade—composed and revised short opinion essays. Half the students in each grade (the "on-line" group) went through the CDO process using the Alternating Procedure. This entailed writing a sentence then selecting one of eleven evaluations to facilitate the Compare operations (e.g., "People won't see why this is important"). The student then had to verbally explain how the evaluation applied (Diagnose). Next, the student chose one of six directives (e.g. "I think I'll leave it this way" or "I'd better say more"), giving them a tactic with which to make a revision (Operate). The procedure was repeated as each sentence was written throughout the essay. The other half of the students (the "evaluation after" group) wrote their essays first and then applied the Alternating Procedure sentence by sentence. Results indicated that albeit tedious, the Alternating Procedure was helpful to the students and did not affect length in the younger students' essays, even those students in the on-line group. Essays written by fourth and sixth graders in the "on-line" condition were of equal length to their peers in the "evaluation after" condition. The eighth graders in the "on-line" condition wrote significantly less than their peers in the "evaluation after" condition. It is also interesting to note that only 6 of the 90 students—four of those six being fourth graders--consistently chose a "by-pass" strategy (e.g., "I think I'll leave it this way."). Follow-up interviews revealed that all students felt the Alternating Procedure helped them; 74% felt the procedure made the writing process easier. Scardamalia & Bereiter also found that while students were able to detect their inadequacies, they were less able than experts to diagnose or identify the cause and, in fact, often did nothing about it.

Scardamalia & Bereiter (1985) applied their CDO model via individualized instruction to 20 sixth graders and 16 twelfth graders. Students were divided between

experimental and control subjects. During the Compare phase, all students were asked to read through their essays and place markers where they detected inadequacies. Students placed a green marker if they were sure of the problem and a red marker if they were not. During the Diagnose phase, experimental students were provided with 13 diagnostic cards to aid in their text analysis. When considering each of the diagnostic cards, students could decide if a particular card(s) applied to the entire text or to a specific part. During the Operate phase, these students provided verbal suggestions for the revisions. Control students, on the other hand, were simply asked to identify and explain any problems they detected. Students revised a total of five essays. The fifth essay was revised without the use of diagnostic cards and was thus used as a transfer measure. Student's ability to diagnose problems was compared to that of a professional editor. Although data was not available to calculate effect size, the authors reported a significant treatment effect in students' ability to identify problems that corresponded with diagnoses made by the professional editor. These results transferred to 12th graders in the experimental group. Using a 5-point scale, the quality of suggested revisions was scored on students' own essays and on their transfer essay. Again data was not available to calculate effect size; however, results showed that the sixth graders in the experimental group scored higher on their own essays than their peers in the control group. There was no difference between groups in the 12th graders' own essays. On the transfer essays, both 6th and 12th graders in the experimental group did slightly better than students in the control group.

Reynolds et al. (1988) used similar evaluative and directive phrases developed by Bereiter and Scardamalia (1982), along with the COPS strategy (Schumaker et al., 1981)

to teach revision strategies to 54 middle school students with LD. Instruction took place in their resource rooms with an average class size of seven students. Classes were assigned to one of three groups: (1) The first group received instruction in Evaluative and Directive Phrases followed by COPS; (2) the second group was introduced to COPS then the Evaluative and Directive Phrases; and (3) a third group received no instruction in either revision strategy. With teachers modeling, each group received instruction in prewriting and drafting using the acronym TRIPE. Instructors for Groups 1 and 2 modeled the use of COPS and Evaluative & Directive Phrases sentence by sentence. Students practiced as a group and individually, and then revised their own paragraphs. Students in the control group were asked to revise their draft as if they were submitting it for a grade. A 5-point analytic scale was used to measure content (ideas, organization, wording, and flavor) and mechanics (usage, punctuation, spelling, and handwriting). Results indicated that mechanics scores for the experimental groups were higher than the scores for the control group regardless of the order of the instruction. The researchers also found that students scored significantly higher in mechanics than they did in content, indicating that the revision strategies improved mechanics but not content. This finding was substantiated by results which showed no differences in content scores across groups.

Graham (1997) examined the role of executive control in the revising difficulties of fifth and sixth graders who were struggling writers. Twelve students with LD participated in this study and received individual instruction from a trained teacher. Students' writing skills were analyzed by comparing students' revising under normal conditions to their revising when using the CDO procedure. The completion of each

condition occurred one week apart. During the first session in both conditions, students were asked to write a story in response to a picture prompt. During the second session in the normal revising condition, students were asked to revise their story to "make it better." During the second session of the CDO condition, students were given a series of index cards introducing them to the CDO procedure. White index cards summarized the basic steps of the revision process. Blue index cards provided evaluative sentences to facilitate the "compare" step of the CDO procedure. After choosing an evaluative statement, students were asked to "diagnose" the revision by explaining why the evaluation applied. Finally, yellow index cards provided directives used to facilitate the "operate" step of the procedure. The teacher modeled the CDO procedure sentence by sentence using a think-aloud strategy to make the processes of comparing, diagnosing, and operating more visible. After practicing this procedure, students were asked to read the first draft of their story and revise it to "make it better" using the CDO procedure. Dependent measures included number of changes between first and final drafts, changes in quality, and overall quality. Students were also interviewed to obtain their evaluations of the procedure. Results from this study revealed a significant difference in the number of pretest to posttest non-surface meaning-preserving revisions using the CDO procedure (ES = 1.20). Conversely, the number of nonsurface revisions that changed the meaning of the text was not influenced by the CDO procedure. There was a significant difference in the quality of nonsurface revisions. Students made more nonsurface revisions that improved the quality of the text when using CDO (ES = .68). The overall quality of students' revised stories was low and was not statistically influenced by the CDO revising condition. Ten of the 12 students indicated that the CDO procedure made

revising easier and made their papers better. Researchers also reported that none of the students were unable or unwilling to use this procedure.

De La Paz, Swanson and Graham (1998) replicated and extended Graham's (1997) study. They used a CDO procedure to teach a revising strategy to 12 eighth graders with LD. Students were asked to write and revise their essays in two revising cycles under two conditions (normal revising condition and CDO condition). In both conditions, students spent the first session writing their essays in response to a specific prompt. In the first revising cycle of the normal revising condition, students were asked to carefully read their essay and revise it to "make it better." The second revising cycle required students to read their essay a second time and make additional revisions without worrying about any mechanical or surface errors. In the CDO condition, students were introduced to the five basic steps of the CDO procedure which guided them through the revising process. Each step and evaluation option from both revising cycles were described and modeled by the examiner. The first step (compare and diagnose phase) helped students attend to overall text problems by asking them to select one of four evaluation cards (e.g., too few ideas) that were applicable to their paper. In the second step—the operation phase—students were prompted to rewrite, delete, add, or move text. During step three students followed through with the directives from step two. Steps four and five of the CDO procedure were part of the second revising cycle. This compare phase (step 4) required students to reread their essays and highlight areas that still needed revision. The final diagnose and operate phases were included in the fifth step. For each highlighted area, students chose one of six evaluation options (e.g., this part is not clear) and one of four directives (rewrite, delete, add, move) to revise their essays.

Essays were scored based on type of revision, quality, and length. Revisions were categorized by (a) surface level (capitalization, spelling, etc) or nonsurface revisions (word, phrase, and T-unit); (b) type of operation (additions, deletions, substitutions, and rearrangements); and (c) meaning-preserving or meaning-changing. Students made more surface-level revisions as well as word, phrase, and T-unit revisions using the CDO procedure; however, the differences were not statistically influenced by the revising conditions. Differences in the amount of nonsurface meaning-preserving revisions were statistically significant (ES = 1.93) as were differences in the number of nonsurface, meaning-changing revisions (ES = .66); both favoring use of the CDO condition over the normal-revising condition. Although, there was considerable variation in how students revised, substitutions were the most common nonsurface changes in both conditions (40%) followed by additions and deletions (25%). No rearrangements were made during normal revising, but accounted for 13% of the nonsurface CDO revisions. Essays revised using the CDO procedure increased the length of students' papers but the difference was not statistically significant (ES = .23). There was, however, a statistically significant difference between the revising conditions when it came to quality. When revising with the CDO procedure, students were more likely to improve the quality of their essays than under normal conditions. The nonsurface, meaning-preserving revisions tended to improve quality when using the CDO procedure; nonsurface, meaning-changing revisions appeared to lower quality. Change in quality for CDO papers were rated as "somewhat better" than the normal papers. It is interesting to note, however, that none of the essays were rated as much better or much worse for either condition. In the end, students were

also interviewed to obtain their evaluation of the CDO procedure. All but one student reported that the CDO procedure made revising easier.

In 2006, Monroe and Troia (2006) taught students with LD strategies for planning and revising opinion essays and stories. The purpose was to determine if students could be taught to use multiple strategies for planning, revising, and self-regulating. Three middle school students received 45 minutes of instruction twice a week for 7 weeks. Two mnemonics were used to help students remember the organizational structures of an opinion essay and a fictional narrative as they planned what to write for each genre. The CDO strategy was used in the revision process to help students determine whether their sentences and paragraphs met with their expectations and to help them make any necessary changes. A third mnemonic was also introduced which provided a revising and editing checklist as students revised their essays. Finally, students generated self-questions and self-instructions to foster self-regulation. Three other students who were also classified as LD participated in one of two control groups as they were only taught planning strategies using the first two mnemonics. They received only two 45-minute sessions of instruction. These students wrote one opinion essay and one fictional story during the preintervention phase, and then wrote an additional essay and story during the postintervention phase. Six additional students were randomly selected from three general education classrooms to represent a general education social validity control group. They received no instruction and were asked to write one opinion essay during the final phase of the study.

A 6-point analytic scale was used to score all essays and narratives across five dimensions of writing quality (content, organization, sentence fluency, word choice, and

conventions). The persuasive essays were also scored for presence of functional elements (premise, reason, elaboration, and conclusion). A comparison of pre-and posttreatment instructional group mean scores showed improvements in the quality of students' writing across all five quality traits. All three students in the treatment group produced slightly higher quality papers than the students in the special education control group while two of the trained students wrote essays of similar quality as students in the general education group. Students in the treatment group also showed improvement in the average number of functional elements in their essays; but remained below those of the general education group. Finally, results of a transfer task showed no change for one student and considerable drops for the other two students.

Summary. For the most part, the CDO procedure proved to be effective in teaching students to diagnose inadequacies and in some instances improve the quality of revisions. Furthermore, improvements in dependent variables using CDO as a procedural facilitator were fairly consistent across studies. It is important to note that even when significant improvements in quality were not observed, students reported that the CDO procedure made writing easier and changed their attitudes toward revising. Studies by Graham (1997) and De La Paz et al. (1998) demonstrated strong fidelity of treatment by ensuring teachers were trained in strategy instruction, providing daily lesson plans, and tape recording sessions. Furthermore, experimental procedures were reported to have been conducted as planned. Monroe & Troia (2006) provided detailed instructions and check lists for their teachers. They also observed and took notes during each session to determine the fidelity with which each student used the writing strategies. Interrater reliability was also strong with percentages of agreement for meaning and quality falling

between 81 and 84% in two studies (De La Paz et al., 1998; Graham, 1997). A third study (Monroe & Troia, 2006) reported interrater reliability scores for five quality traits which ranged from 62% to 87%. Individual instruction was provided to students in most of these revision studies, which leaves a question as to whether or not this type of instruction can generalize to a classroom setting. The fact that the revision strategies improved mechanics but not content in one study (Reynolds et al., 1988) is further evidence that more needs to be done to improve students' revision skills.

Strategy Instruction

In its broadest context, strategy instruction is based on research from behavior and cognitive psychology and is a coordinated model for instruction (Ellis & Lenz, 1989). The goal is to identify effective strategies that will help students meet the demands of current and future tasks. When first conceived by Deshler and colleagues for application with adolescents with LD, strategies were thought to specify not only the sequence of actions to complete a task, but also provide guidelines and rules that help students make decisions during a problem-solving process (Deshler & Lenz, 1989). The approaches they developed centered on students acquiring strategies for content learning (Baker, Gersten, & Scanlon, 2002). The most significant contribution of these approaches has been the Strategies Intervention Model (SIM). This model has eight stages of instruction that teachers follow to teach specific strategies to their students: (a) pretest and make acquisition commitment, (b) describe, (c) model, (d) verbal practice, (e) controlled practice and feedback, (f) advanced practice and feedback, (g) posttest and make generalization commitments, and (h) generalization (Ellis, Deshler, Lenz, Schumaker, & Clark, 1991; Baker et al, 2002). Their approach included many aspects of cognitive

behavior modification and reciprocal teaching and was based on three instructional areas for effective instruction: (a) identifying general and specific strategies for learning targeted content; (b) providing explicit instruction in effective and efficient strategies that students are unable to acquire or generalize on their own; and (c) providing a learning environment that facilitates and enhances strategic learning across all educational settings (Ellis & Lenz, 1996).

Researchers have subsequently developed methods to teach writing strategies and self-regulation procedures to students with and without LD in an effort to improve the quality of their writing. Englert and her colleagues designed an instructional intervention that incorporated many features of effective strategy instruction including the development of students' metacognitive knowledge about writing strategies (Englert, 1992). Through modeling, scaffolding, procedural facilitation, and peer conferencing they emphasized the role of dialogue, the provision of scaffold instruction, and the transformation of writing from a solitary to a collaborative activity (Englert et al., 1991). Graham and Harris (2005; Harris & Graham, 1996) developed a self-regulating strategy development (SRSD) model. This cognitive strategy instructional approach combines explicit instruction in task-specific strategies with general metacognitive strategies for self-regulation. Strategies for self-regulation include self-reinforcement, self-monitoring, and goal setting which are integrated into their model. Through modeling, scaffolding, and guided instruction, this approach emphasizes strategies for planning, revising, and directing the writing process as well as more explicit strategy instruction in teaching students procedures for regulating use of the strategy, the task, and undesirable behaviors that impede performance (De La Paz, 1999; Graham & Harris, 2005; Harris & Graham,

1996). Wong and her associates (Wong et al., 1991, 1994) used modeling and think-alouds to introduce a three-step strategy for planning which involved memory access, reliving an event through visual and auditory imagery, and reactivating events associated with their long-term memory. Their revision strategies focused on peer conferencing.

Cognitive Strategy Instruction in Writing (CSIW). CSIW is based on four central principles drawn from a sociocultural theory of instruction (Englert & Mariage, 2003). The framework (a) emphasizes the importance of immersing writers in a cognitive process of planning, organizing, writing, editing, and revising expository texts (Englert, 1992); (b) stresses the importance of teachers modeling aloud strategies for these cognitive processes (Englert, 1990; Englert & Raphael, 1988); (c) emphasizes the use of peer conferencings in which teachers prompt, scaffold, and guide students through the application of the strategies (Englert, 1990; Englert & Mariage, 1991); and (d) encourages teachers to make the writing process and the strategies for performing the processes visible through a series of think-sheets that provide students with structural or procedural support at each stage of the writing process by using graphic organizers, prompts, and questions that cue strategy application and self-regulation (Englert, 1990; Raphael & Englert, 1990). Each think sheet contains questions and instructions to promote an inner dialogue and invite students to participate in a collaborative social dialogue (Englert et al, 1991). Instruction for each text structure is taught in four phases: text analysis, modeling the writing process, guided practice, and independent use of strategies.

Englert, Raphael, Anderson, Anthony and Stevens (1991) measured the effects of CSIW on students' abilities to produce well-organized expository essays. One hundred

eighty-three 4th and 5th graders in 12 schools participated in the study. One hundred twenty-eight regular education students were identified as either low-achieving or high-achieving students; 55 students were identified as LD. Classrooms were randomly assigned to experimental and control conditions. Students in the control classrooms participated in their regular writing lessons and activities. Instruction in CSIW took place in the classrooms for a period of six months; however, there was no mention of the number of sessions or duration of each session during that time. The set of strategies used was referred to by the acronym "POWER." It included think sheets that guided students through each subprocess of the writing process (*plan, organize, write, edit/editor, and revise*).

The first phase (text analysis) began with teachers presenting writing examples and nonexamples of the target text structure while leading a think-aloud discussion of the text structure features and quality of the writing sample. Through interactive dialogue, students were invited to analyze passages of varying quality. Teachers introduced the plan think sheet and modeled how to plan an explanation paper using self-talk, planning questions, and strategies. Students were later invited to participate in a dialogue about the writing process as teachers provided guided practice sessions. All think sheets were introduced in a similar manner with teachers encouraging dialogue and collaboration among the students. Students eventually moved toward independence in their writing as they wrote their own papers and took responsibility for self-questions and strategies related to planning.

Students in the control group participated in their regular writing activities. These students wrote two to three essays per week as part of the curriculum requirements. They were also allowed to write on a topic of their choice.

Measures to assess the effects of the writing intervention included (a) a test of metacognitive knowledge about the writing process; (b) direct measures of students' abilities to compose an explanation essay and a compare/contrast essays; and (c) a near transfer measure to evaluate students' abilities to write an expository essay on a topic of their choosing. Although data was not provided to calculate effect size, results indicated no significant interaction between treatment and group effects; however, the CSIW students gained significantly greater knowledge of the writing process and strategies for writing than students in the control group. Direct measures for writing performance were measured based on holistic scores, primary traits, productivity and reader sensitivity.

Results revealed an overall main effect for treatment and were attributed to gains in students' holistic ratings, primary traits, and sensitivity to their readers. Students in the CSIW treatments showed increasing mastery in these areas compared to students in the control group. Finally, MANCOVA results of the near transfer measure revealed a large main effect for treatment as well as a statistically significant main effect for group, but no significant group x treatment interaction. In the end, CSIW students improved in their ability to generate their own text structures on self-selected topics while students in the control group showed a decrease in this ability over time. These treatment effects were consistent across all three treatment groups.

The effects of the CSIW program was again examined (Englert, Raphael & Anderson, 1992) to determine whether students' metacognitive knowledge about writing

was affected by their participation in a socially mediated intervention that focused on strategy instruction and one-on-one dialogues about writing. Sixty-three 4th and 5th graders were divided into two groups based on previous participation in the CSIW intervention (Englert et al., 1988). Thirty-one students were assigned to the "No Intervention" group and 32 to the "Intervention" group. Each group contained an even distribution of regular education students and students with LD. Students in the intervention group participated in a socially mediated writing intervention that emphasized the writing process, writing strategies, and the role of dialogue. Participants were presented with hypothetical situations of students with writing problems and were asked to offer suggestions in helping these students generate ideas or write and edit expository text. The three vignettes provide a framework of questions to analyze students' metacognitive knowledge of the writing process as well as their knowledge about organization. Students were also assessed on their ability to write explanatory and compare/contrast essays. Instruction in CSIW included the same series of think-sheets and four phases of instruction as in the previous study by Englert et al. (1991).

Results of a MANOVA revealed significant main effects for treatment and ability, with no significant ability x treatment interaction. In other words, students' knowledge of the writing process differed significantly across treatment and ability levels. The second analysis which examined students' knowledge about text organization revealed significant main effects for treatment, ability, and a significant ability x treatment interaction. The final analysis examined the effects of CSIW on the performance of students with LD and students without LD. Results from a *t* test revealed that students from the intervention group, regardless of achievement level, demonstrated more

metacognitive knowledge, vocabulary, and language about the writing process than the non-intervention group. A correlational analysis suggested that knowledge about writing and a student's ability to articulate that knowledge were related to writing achievement. An equally important finding is the fact that the "talk" of the "intervention" students with LD was not significantly different from their nonLD peers.

In 1996, Hallenbeck adapted the CSIW program for an older population of students. Seven junior and high school students with LD who demonstrated difficulties with written expression, participated in this study. Students were introduced to CSIW over the course of a school year using think sheets and the acronym POWER to write explanation and expert essay papers. During the prewriting phase, Hallenbeck amended the traditional CSIW procedure by using colored markers to organize brainstorming ideas into groups. Explanation papers emphasized explaining how to do something. An expert paper required students to discuss what they knew about a topic with which they were very familiar. Pretest and posttest papers were scored for the following elements: (a) overall quality, (b) primary trait score, (c) number of words, and (d) reader sensitivity. Interrater reliability for the explanation papers was 90% and 91.7% for pretest and posttest trait scores, respectively; 100% and 88.2% for pretest and posttest expert trait scores, respectively. A comparison of pretest and posttest papers indicated improvement by every student in every scoring category. In both explanation and expert essays, students went from writing one paragraph papers to writing papers with multiple paragraphs. What's more, each essay demonstrated a command of the specific text structures with legitimate introductions and conclusions. Although generalization scores were not obtained, students reportedly found uses for CSIW techniques in other classes

and formats. Three years later, one student was still using elements of the strategy in his technical college program.

Hallenbeck (2002) again examined how CSIW helped a group of seventh graders with LD take responsibility for their own writing performance and scaffold one another's writing development. Four 7th-graders received instruction during a scheduled class period two to three times a week throughout the school year. Following preinstruction in paragraph, narrative and essay writing, the teacher introduced the CSIW essay text structure through modeling, think-alouds, and scaffolding. After the teacher modeled each step of the writing process (i.e., planning, organizing, writing, editing, and revising), students chose their own topic and completed the same steps while writing their own essay. Pairs of students also collaborated on two papers during the course of the year; taking turns on being primary and secondary authors. The primary author took the lead in topic selection and made all final decisions while the secondary author contributed extensively during all stages of the writing process. Pretest papers were written in September and posttest papers were written in May. Papers were scored on the following essay elements: (a) overall quality; (b) primary-trait score representing scores for introduction, definition of categories, development within categories, development across categories, use of key words, and organization; (c) number of words; and (d) reader sensitivity. Interrater reliability was 100% for pretest primary-trait score, 80% for pretest reader sensitivity score, 93.75% for posttest primary-trait score, and 90% for posttest reader sensitivity score.

Pretest and posttest analysis revealed improvements in three of the students' expository writing. These students received higher holistic ratings, primary-trait totals,

and reader sensitivity totals. The number of words written for the three students increased by 138-193%. Transcript analysis suggested that these students had internalized the thinking processes modeled by their teacher and were able to incorporate these processes into their writing as well as the writing of their partners. The fourth student's posttest results were in stark contrast to his peers; however, his comments indicated growth in his understanding and construction of written language.

Summary. Students in all CSIW studies were provided with a structured writing curriculum where teachers in the experimental conditions were observed weekly. Hallenbeck (2002) documented his observations through fieldnotes, and tape-recorded all instructional sessions and student conversations. However, even though all teachers met the minimum requirements, there was no mention of teachers being trained in CSIW and the authors reported variation in the implementation of instruction (Englert et al., 1992). Interrater reliability strengthened the validity as metacognitive questionnaire scoring in both Englert studies was high (98% and 90%, respectively) and reliability scores for direct measures in Englert et al. (1991) was 80%. Hallenbeck reported interrater reliability scores that ranged from 87.5% to 100% in 1996 and 80% to 100% in 2002. Results of these studies also indicated that all students regardless of achievement level benefited from instruction using the CSIW model. In all cases, students produced better-organized papers and seemed to have gained more insight and knowledge of the writing process.

Peer conferencing. This approach draws on the cognitive theoretical framework of writing as it relates to planning, reviewing, and translating thought into text (Flower & Hayes, 1980). It is also based on the premise of sociocultural theory which emphasizes

the importance of guided instruction and social interaction when directing students through the writing process (Daniels, 2001; Englert et al., 2006; Vygotsky, 1978). Guided instruction and social interaction include the use of cognitive guidance, modeling, think-alouds, teacher feedback, scaffolding, and procedural facilitators when teaching strategies (Englert et al., 2006). Wong et al. (1997) noted that students with LD experience difficulties with both the mechanics of writing as well as knowledge of the procedures used by skilled writers. They hypothesized that peer conferencings would help students see their thoughts and write from another's perspective. Subsequent studies have used peer conferencing to attend to the surface features of writing (e.g., spelling and punctuation) as well as to the presentation of ideas (Gersten, Baker, & Edwards, 1999).

MacArthur, Schwartz, and Graham (1991) combined strategy instruction with peer interaction and investigated the impact of a reciprocal peer editing strategy on students with learning disabilities' knowledge about writing and revising, and its effect on the quality of their writing. Their study included 29 fourth, fifth, and sixth graders with LD from four self-contained classrooms. Each classroom was randomly assigned to strategy instruction or control conditions. Students in the control group continued with their regular instruction during writers' workshop. For six to eight weeks, students in the Student Editor Strategy condition received strategy instruction from teachers who explained and modeled the peer editing strategy. Students practiced the strategy before working with a peer. Each peer editor listened and read along while the author read aloud. The editor told the author what the essay was about, discussed what he/she liked about it, re-read the paper, made notes according to revision questions ("Is there anything that is not clear?" and "Where could more details and information be added?"), and

discussed suggestions with the author. The students then switched roles and repeated the peer editing process. Students rewrote their papers then met again to edit each other's papers for mechanical errors. Writing samples and metacognitive interviews were collected before and after instruction. Students were asked to write three drafts of their personal narrative. The first draft served as a baseline. Changes from the first draft to the second draft represented revisions made alone. The third and final draft represented revisions made with peer support.

Narratives were analyzed based on method of revision as well as overall quality and change in quality. Revisions were categorized by level (surface or non-surface), impact on meaning (preserved or changed), and quality (better, no change, or worse). An ANOVA revealed that students in the strategy instruction condition made more revisions from pretest to posttest (ES = 1.29) and; at posttest, made more revisions than the students in the control condition (ES = 1.44). A significant increase in nonsurface and surface revisions from pretest to posttest was also found for students in the experimental group (.64 and 1.41, respectively). More importantly, quality scores increased from pretest to posttest for students in the experimental group, and the experimental group received higher scores than the control group (ES = 1.19). Finally, audiotaped dialogues of the peer editing sessions indicated that all of the pairs of students used the majority of the steps in the revision strategy.

Wong and her colleagues (1991) used an interactive teaching process to teach high school students with LD how to revise a reportive essay. Their first study included five high school males. A second study replicated the first, but included six adolescents with LD (4 male and 2 female). In both studies, students received training in groups of 2

or 3, three times a week for approximately two months. They also received keyboard skills training and explicit instruction in a three-step planning strategy. When students showed mastery of the planning process, they wrote two essays—one assigned and one of their own choosing. During training, the experimenter-teacher read each essay in the presence of the student, asking questions for clarity or elaboration, and making recommendations, along the way. The experimenter-teacher then focused on thematic salience at the beginning and end of the student's essay before helping students with spelling and grammar. During posttesting, students highlighted problematic areas on their own essays and offered suggestions to make their paper better. They were then provided with essays from their peers and asked to do the same. The same procedure was followed during maintenance.

Data was collected during pretesting, posttesting, and maintenance (one week following instruction) using a five-point rating scale to score clarity and thematic salience. Comparisons were also recorded on the number of times students and teachers predicted when parts of an essay would be difficult to understand. Students then rated the quality of their suggestions for revision for their own essays as well as their peer's essays.

Substantial improvements in clarity and thematic salience were reported in both studies; however, statistical significance was inconsistent. Gains in clarity and thematic salience were maintained in Study 1, but were not reported in Study 2. In both studies, poor matches were found between student and experimenter predictions due to the fact that students were unable to identify ambiguities in their own essays. With peers' essays, students focused on spelling errors and choice of words as sources of comprehension difficulties.

Wong and her colleagues (1994) continued their efforts by comparing dyadic student-student peer conferencing conditions with teacher-student conditions. Thirty-one 8th and 9th graders participated in this study. Three students were ESL and 28 were students with LD; 13 of whom participated in the control group and received a modified course in their English resource class. Similar to Wong's (1991) previous study, the importance of planning was first discussed with all students. Teachers (in this case, the researchers) used modeling and think-aloud to demonstrate the planning strategy and students followed the think-aloud planning. Students spent three class periods thinking their plans aloud. During training, students were taught to revise through teacher-student peer conferencing (i.e., teacher-student condition). The teacher read the student's first draft aloud and identified sentences that needed clarification or elaboration. The teacher would get the student to clarify and elaborate what he had in mind, often suggesting ways to make revisions. Together teachers and students then worked on revisions to improve clarity and thematic salience. When students had written four reportive essays, they were paired with a student of similar skills (or progress in writing intervention) and were taught to use the peer conferencing. Students alternated roles as teachers monitored them in their dyadic peer conferencing condition. Students wrote 12 essays before posttests began. During posttesting, students were given two periods to write an essay and repeated the procedure the following week as they wrote a second essay. One week later, students wrote a third essay for the maintenance test.

Two dependent measures of essay quality—clarity of writing and thematic salience—were scored on a five-point scale. Self-efficacy and attitude questionnaires were also obtained from each student as was a metacognitive questionnaire. Results

indicated a significant main effect in essay quality from pretest to posttest but no main effect between groups. In other words, students in the intervention conditions improved in both measures of quality and maintained their gains. Both treatment groups performed better than students in the control group (ES for clarity = .95 and 1.57, respectively; ES for thematic salience = 1.57 and 1.88, respectively), but did not differ from each other. When comparing the two intervention groups with the control group on questionnaire measures, researchers found no main effect for attitudes (ES = -.01 and -.20) and metacognition (ES = .24 and .34). In contrast, data on self-efficacy yielded a significant main effect of groups (ES = 1.97 and 1.61).

Wong, Butler, Ficzere, and Kuperis (1996) assessed the effectiveness of peer conferencings in teaching students to plan and revise their essays. A trained learning assistance teacher taught 18 middle school students—4 identified as low achievers (LA) and 14 students with LD—to plan, write, and revise opinion essays using peer conferencing and a think-aloud (or self-talk) strategy. These students received 50 minutes of instruction 3 times a week for a period of 6 weeks. The teacher modeled the planning process, guided students through the usage of a planning sheet, and provided explicit instruction through the writing phase. Students were then divided into pairs and through peer conferencings helped each other generate arguments that supported their viewpoint before transferring their ideas onto planning sheets. During the revising phase, students alternated between critic and writer as they evaluated essays for clarity. The critic identified ambiguities and asked for clarification from the writer. With help from the teacher-researcher, students helped each other make appropriate revisions. The teacher-researcher helped each student with cogency and then used the COPS strategy to

check conventional errors. Twenty other students (15 with LD and 5 LA) participated in a control group and were given no training in the writing process. They wrote one opinion essay during posttesting and another during the maintenance phase.

The results of the study indicated that after intervention trained students wrote opinion essays that were significantly better in clarity and cogency. Their clarity improved by 105% and cogency by 190% from pretest to posttest (ES = 2.17 and 2.74, respectively). Results also indicated that gains were maintained two weeks following intervention. Statistically significant differences were also reported between the trained and untrained groups as clarity and cogency scores were three times greater for students in the trained group than students in the control group (ES = 2.55 and 2.52, respectively). Separate analyses were run on three dependent measures of attitudes toward writing, self-efficacy, and metacognition in writing at pretest and posttest. The results were not significant for attitude and metacognition (ES = .12 and .61, respectively); however, there was a significant finding for self-efficacy in writing (ES = .70).

Extending the work of Wong et al. (1996), Deatline-Buchman and Jitendra (2006) used peer conferencing and planning sheets with younger students and minimized the use of writing scaffolds so that students were better able to apply the writing procedure in varied contexts. Five 4th graders identified as LD were asked to plan, write and edit argumentative essays. Students received 45 minutes of instruction, 3 times a week for the first 6 weeks then twice a week for the final two weeks. Similar to the instructional procedures in Wong et al (1996), a trained teacher used peer conferencing and a think-aloud procedure to model the writing process for argumentative writing. Planning sheets provided a means for the teacher and students to list both sides of the argument.

Information from the planning sheet was used to draft the essays. Students worked in pairs when planning and revising their essays—using a strategy checklist to edit and revise—then completed each writing assignment independently. Fading of instruction included no peer feedback and elimination of planning or editing sheets when writing essays.

Notable improvements were reported on all dependent measures: number of words written, time spent planning, and time spent writing, quality, clarity and cogency. During posttesting, improvements were observed in the number of words written (360%), planning time (364%), and composing time (415%). Generalization scores decreased slightly but still showed improvements of 262% in words written, scattered improvement in time spent planning (295% to 685%), and a 300% improvement in time spent writing. Improvements were also reported in clarity, cogency, and quality; however, gains were minimal (M = 1.0 at pretest and 2.6 at posttest; SD = 0.0 and .49, respectively) and did not generalize to other essays (M = 1.60; SD = .62). Two students received a quality score of 3 during posttesting; three received a score of 2. Generalization scores dropped to a score of 2 for one student and a score of 1 for the remaining four students. The quality scoring index used in this study characterized writing scores of 2 and 1 to be at basic and below basic levels, respectively. This is important to note because it has been suggested that the weakest writers are categorized as basic writers (Shaughnessy, 1977). Furthermore, while interrater reliability scores for number of words, planning time, and composing time were 100%, scores for quality ranged from 40% to 100%. A breakdown of the scores was not provided; however, the authors explained that the low reliability

scores may have been due to a discrepancy in raters determining "scorable" essays. In any event, this may cause one to question the validity of the quality scores.

Graham, Harris and Mason (2005) examined the effectiveness of SRSD using two genre-specific strategies. They also examined if peer-assistance would enhance writing performance, especially during the maintenance and generalization phases. Seventy-three 3rd graders, who were considered to have difficulty learning to write, were chosen to participate in this study. Twelve of these students were classified as LD; four had speech and language difficulties. Students were randomly assigned to three conditions—SRSD instruction only, SRSD plus peer support (PS), and comparison—and then paired with another student in their same strategy condition. A Writer's Workshop model was used in the comparison condition and delivered to students by their regular teacher. Students in both instructional groups were taught to generate possible ideas for stories and persuasive essays through the use of mnemonics and prompts. They received 20 minutes of instruction 3 times a week for approximately 5 to 6 weeks. The only difference between the two instructional conditions was that during the first stage (Develop background knowledge), students in the SRSD with peer support were introduced to the concept of acting as partners to help each other apply the strategies to other situations and in other classes. Dependent measures included time spent writing, number of words written, story elements, and quality. Following instruction, students in the comparison group made little to no improvement on any measure.

While there were no statistically significant differences between the two SRSD groups, students in both treatment conditions performed better than students in the comparison group. They spent more time writing (ES = 2.17 for SRSD only and 1.73 for

SRSD + PS), wrote twice as many words (ES = 3.23 for SRSD only and 2.29 for SRSD + PS), and doubled their use of elements in their stories and persuasive essays (ES = 1.79 for SRSD only and 1.76 for SRSD + PS). These effects were maintained for story writing and generalized to informative writing. The authors reported statistically significant improvement in the quality of students' writing following instruction. Again, there was no difference between treatment groups; however, SRSD only and SRSD plus peer support outperformed students in the comparison group (ES = 2.42 and 1.90, respectively). Quality in writing was maintained and replicated to persuasive writing. Generalization of SRSD effects was obtained for one uninstructed genre, informative writing. In the end, researchers reported that students in the SRSD with peer support condition benefited from instruction similar to those students in the SRSD only condition.

Harris, Graham, and Mason (2006) again studied the effects of SRSD with and without peer support using the same mnemonics and prompts. This time, 66 second graders were randomly assigned to one of three conditions: SRSD instruction only (n = 22), SRSD plus peer support (n = 22), and comparison (n = 22). Seven had speech and language difficulties, three were classified as having LD, and all were considered to be poor writers. Over the course of a 2- to 3- week period, trained instructors provided instruction to pairs of students in both SRSD conditions three times a week for 20 minutes a session. SRSD plus peer support took slightly longer than SRSD only because it incorporated additional activities to promote maintenance and generalization of strategy effects. Similar to their previous study, students in the SRSD plus peer support were introduced to the concept of acting as partners. Students in the comparison group were

taught writing skills by their regular teachers through various methods of Writers' Workshops and mini-lessons.

Students' writing skills were assessed in four different genres: story, persuasive, personal narrative, and informative writing. The following measures were collected for each paper: (a) time spent planning, (b) length/number of words written, (c) and overall quality. Because students in both SRSD conditions worked in pairs, the unit of analysis was the pair's mean performance. As expected, students in both SRSD conditions spent more time planning than students in the comparison group following instruction (Effect size for SRSD only = 1.83 and 1.95 for story and persuasive, respectively; Effect size for SRSD + PS = 0.97 and 1.95, respectively). This pattern was maintained (ES = 1.95 for both) and generalized to informative writing (ES = 1.95 for SRSD only; and 1.93 for SRSD + PS). Students in both SRSD conditions both wrote papers that were greater in length (ES = 1.41 for SRSD only; and .94 and 1.27 for SRSD + PS), had more basic elements in their stories and persuasive essays (ES = 1.52 and 1.68 for SRSD only; and 1.79 and 1.64 for SRSD + PS), and were better in overall quality (ES = 0.81 and 1.31 for SRSD only; and 0.87 and 1.63 for SRSD + PS). Story length was maintained, but did not generalize to the classroom; basic elements generalized to the classroom in persuasive writing as well as narrative writing; and quality was maintained and generalized to the classroom in persuasive as well as informative writing.

The authors reported that although there were no statistically significant differences between the two SRSD conditions on the majority of writing variables, adding the peer support component to the SRSD model was advantageous for four reasons. Students who received peer support (1) wrote longer and qualitatively better

posttest stories, (2) included more basic elements in their persuasive essays than did students in the SRSD-only condition, (3) demonstrated better generalization to the regular classroom in writing persuasive essays, and (4) included more story elements in their posttest narratives than did SRSD-only students, and wrote qualitatively better informative papers than did comparison students.

Summary. With overall improvement in quality reported in five out of six studies, peer conferencing appears to be an effective method in teaching students to revise and improve the quality of their essays. More importantly, according to three studies (Graham et al., 2005; Harris et al., 2006; and Wong et al., 1994), it did not matter whether the interaction was between teacher-student or student-student; both showed improvement from pretest to posttest. It was also reported, however, that students often had difficulty diagnosing their own mistakes. In addition, while one study reported an increase in nonsurface revisions, another study stated that students focused more on spelling errors and choice of words rather than meaning. Interrater reliability was strong across all studies with scores ranging from .83 to .99. It was useful to see that peer conferencing was effective across different genres (e.g., stories, narratives, persuasive essays, opinion essays, and informative essays).

Self-Regulated Strategy Development (SRSD)

The Self-Regulated Strategy Development (SRSD) was designed by Graham and Harris and colleagues (Graham, Harris, MacArthur, & Schwartz, 1991) to focus on the development of composition and self-regulation strategies (Harris et al., 2002). The SRSD framework is based on a cognitive-behavior modification approach (Meichenbaum, 1977) and is comprised of six stages of instruction: develop background

knowledge, discuss the strategy, model the strategy, memorize the strategy, support the strategy, and independent performance.

The goal of the SRSD approach is for students to internalize and generalize specific writing strategies and the writing environment so they can monitor and manage their own writing (Harris et al., 2002). SRSD instruction promotes students' independent use of specific writing strategies and accompanying self-regulation procedures (i.e., goal setting, self-monitoring, self-reinforcement, and self-instruction). Instruction is scaffolded so that responsibility for using these strategies and self-regulation procedures gradually shifts from teacher to students. Students are treated as active collaborators in the learning process, and the role of student effort in learning the strategies is emphasized and rewarded. In elementary settings, feedback and instructional support are individualized by the instructor so that they are responsive to students' needs. Furthermore, instruction is criterion-based rather than time-based (Graham & Harris, 2003). With an average effect size of 1.4 compared to the effect size of other strategy instructional approaches (.62), SRSD has since proven to be an effective tool for improving written language through the use of strategy instruction for planning and revising texts (Graham & Perin, 2007; Harris et al., 2002).

Individual instruction in planning. In studies where students received one-on-one instruction, strategy instruction has proven to be an effective method for improving writing skills. Harris and Graham (1985) studied the effectiveness of their self-regulation instructional approach on two 12 year-old students with LD. Two trained instructors provided 45 minutes of one-on-one intervention two to three days a week for a period of 3½ months. A five-step prompt provided students with a strategy for writing a good

story. Data were collected on number of words written, length of composition, and quality. Both students demonstrated considerable improvement in their use of action words, action helpers, and describing words. Use of action words and action helpers generalized to other narratives; however, use of describing words did not. Neither student demonstrated an ability to maintain the use of the strategies they had learned. Consequently, significant declines in performance were observed 14 weeks following treatment. An 8-point rating scale based on "originality and ideation" was used to assess quality. Mean quality scores more than doubled in the first treatment phase (e.g., 3.0 to 7.0), were maintained in the second phase, and declined only slightly during the third treatment phase (5.0).

Graham and Harris (1989) examined the effectiveness of strategy instruction on students' ability to facilitate the generation, framing, and planning of text. A trained instructor provided strategy instruction to three 6th-graders with LD on a one-on-one basis. The instructor used a mnemonic to discuss the components of an essay and introduced a three-step strategy for writing a good essay. Dependent measures included essay/story elements, coherence, number of words, prewriting time, and quality. Following instruction, all students used more functional essay elements in their writing (premise, reasons, conclusions, and elaborations) and spent more time planning. Planning time increased from an average of less than 12 seconds to 8 and 9 minutes. Similar results were reported when generalization probes were administered in the resource room. Coherence was rated by each student's ability to successfully order all functional elements. Two students showed improvements in their coherence; however, one student's coherence score remained the same. Essay length was inconsistent as the

average number of words doubled for one student, increased slightly for another, and dropped for the third. Using an 8-point holistic rating scale, improvements in quality were replicated with ratings rising from an average score of 2.7 to 5.4 at posttreatment; however, the students' performance did not generalize to narrative writing as quality scores remained basically unchanged from those at baseline.

In a related study by Graham, MacArthur, Schwartz and Page-Voth (1992), four 5th graders with LD used a mnemonic and a prompt to set goals as a planning strategy and to break down a writing task into more manageable parts. Two trained graduate students served as instructors. Similar to the study by Graham and Harris (1989), dependent measures included essay/story elements, coherence, number of words, and quality. All of the students showed considerable increases in number of words written and use of functional essay elements. Maintenance scores for elements dropped slightly but remained well above each student's baseline scores. While 75% of all functional elements were coherently ordered in students' baseline essays, improvements in posttreatment scores ranged from 120% to 230%. Improvements generalized to storywriting in number of words written and use of story grammar elements. All four students also showed improvement in the quality of their essays; however, only minimal improvement was observed during generalization and interrater reliability for quality (.74) was relatively low.

In a study by De La Paz and Graham (1997), a series of mnemonics was used as a planning strategy to help students remember the essential parts of an opinion essay. Students were asked to be more reflective in generating ideas when writing their opinion essays. Individual instruction was provided to three 5th graders with IQs ranging from 64

to 128 and whose learning disabilities ranged from mild to severe. Instruction took place during 45- to 55-minute sessions until each student demonstrated independent use of the strategy for three consecutive sessions (8, 4, & 7 sessions, respectively). Following instruction, only two students used the planning strategy STOP to develop their essays and only used the fourth step (plan more as you write). The student with the most severe learning disability did not use the strategy at all and spent no time planning. He did, however, spend more time writing his essay and had the largest increase in functional elements. All students made substantial increases in the length of their essays and in their use of functional elements. Those improvements were maintained six weeks following instruction. Holistic quality scores doubled for all three students—with scores ranging from 2.0 to 5.33 out of a possible 8.0—and were maintained for two of the students. It is interesting to note that the student with the lowest IQ and the most severe learning disability made the greatest gains from the baseline phase to the posttreatment phase without using the mnemonics provided. He reported that he did not think planning was necessary for writing essays, but wrote essays that were three to four times longer and with more essay elements. He also improved the quality of his writing from a baseline score of 1 to posttreatment and maintenance scores of 2. The two other students with above average and average IQs improved the quality of their essays twofold with scores as high as 5.33 and 5.1, respectively.

Troia, Graham & Harris (1999) modified certain features of the SRSD model to enhance students' mindfulness during instruction. Three 5th graders with LD received seven 60-to-90 minute instructional sessions over a period of three weeks. Mnemonics were used to help each student remember to set goals, brainstorm, and sequence their

ideas. While there was no overt evidence that students actually used the strategies they were taught, students spent much more time planning what they would write. Following instruction, students spent more time writing stories and essays which obviously led to an increase in the length of each paper. In contrast, there was no replication and minimal improvement in overall quality in both stories and essays following instruction; however, improvements in quality were observed and replicated during maintenance. Story and essay elements were another area where minimal improvement was observed. Students scored no better than an 11.3 out of a possible score of 21 following instruction and gains were not maintained by all students. In contrast to the previous study, it was the student with the highest reading and writing scores that actually had the lowest baseline scores and in some cases made the least amount of progress; specifically in the area of overall quality.

Lienemann, Graham, Leader-Janssen and Reid (2006) examined the effects of explicit instruction on six at-risk second graders. The six students were divided into two groups to avoid prolonged baselines. Within each group, 30 to 45 minutes of SRSD instruction was introduced to one student at a time over six to eight sessions. Mnemonics were used to help students organize the planning and writing process and to remind them to generate notes for each of the seven basic parts of a story. Following instruction, all students showed noticeable improvement in their writing skills. Five out of six students showed considerable improvement in number of words and story length. They also included most, if not all, story elements; however, overall presence of elements was not maintained. Finally, posttest results showed improvement in quality replicated in five of the students' essays. Replication was maintained for three of those students.

Summary. Overall, one-on-one instruction using the SRSD method appeared to be successful even when students did not demonstrate evidence of using the prewriting strategies. In all six studies, improvements were seen in number of words written, length, and time spent writing. Furthermore, studies showed noteworthy improvements in students' use of story and essay elements. Improvements in quality of writing were replicated and maintained in five of the six studies; however, did not always generalize to other genres. The quality of delivery and adherence to the instructional programs was important to the fidelity of treatment of each study. Each study had trained teachers with detailed lesson plans delivering instruction. Participation responsiveness may weaken the fidelity of treatment because researchers were often not certain students were implementing a particular planning strategy (O'Donnell, 2008). More importantly, on two occasions, participants stated they spent no time planning. Interrater reliability and overall structure of strategy instruction make the results of each study reliable; however, one would have to question how well one-on-one instruction would generalize to a classroom setting given the number of students who lack the necessary skills to be good writers.

Individual instruction in revising. Graham and MacArthur (1988) used the SRSD approach and the mnemonic SCAN to improve the revising behavior and essay quality of three 5th and 6th graders with LD. Students received individualized instruction for revising three days a week in the resource room. No assistance or feedback on quality was provided. Students were administered three to four posttreatment probes within three weeks of instruction and typed their essays on word processors. Maintenance probes were presented four, five and nine weeks later. Generalization data were also

collected, but this time students wrote their essays rather than using a word processor. Dependent measures included types and purpose of revision; the number of words written; spelling, punctuation, and capitalization errors; quality; and self efficacy.

Following instruction, an increase in the total number of revisions was replicated and generalized across two students. However, the percentage of revisions for T-unit changes increased by almost 30% and the results were maintained and generalized. Eighty-four percent of the revisions were additions, with 60% of those revisions affecting textual meaning. The number of words written also increased following instruction from 55% to 141%. No improvements were observed in spelling, punctuation, or capitalization. First and second drafts were assessed to determine change in overall quality using points ranging from -2 to +2. An 8-point holistic rating scale was used to evaluate overall quality of the second, or final, draft of each essay. Following instruction, quality-change ratings improved with scores ranging from 1.7 to 2.0. In addition, improvements in overall quality were replicated and maintained for all students. As in all studies using the SRSD approach, trained teachers, daily lesson plans, check lists, and high interrater reliability (.74 and .91) increased reliability and fidelity of treatment in this study.

Paired instruction in planning. In 1997, De La Paz and Graham examined the effects of explicit instruction in advanced planning on the dictation and writing of persuasive essays by students with LD. Forty-two 5th, 6th, and 7th graders with learning and writing problems were randomly assigned to four instructional conditions: (a) advanced planning and dictation, (b) advanced planning and writing, (c) comparison and dictation, and (d) comparison and writing. Four trained instructors were randomly

assigned to each condition and provided daily instruction to small groups of 2 or 3 students. All students were taught the basic structure and components of a good essay. Following this pre-instruction, students assigned to the advanced planning conditions were introduced to the SRSD model along with the mnemonics STOP and DARE. They were taught a specific strategy for developing, evaluating, and organizing ideas for their essays in advance of writing. Students in the comparison conditions received instruction on the characteristics of good essays, read and revised essays for meaning structure, and composed and shared their own essays with peers. Half of the students in each condition planned and composed their essays orally; the other half wrote their plans and essays. Student performance was measured based on planning, transformations, essay length, essay elements, coherence, quality, rate, and strategy usage.

At posttest and maintenance, students in the advanced planning conditions spent more time planning than students in the two comparison conditions (ES = 4.59 and 2.17, respectively). There was no significant difference in planning between students in the advanced planning conditions who dictated from those that did not (ES = .05). Transformations between students' plans and their final compositions included deletions, additions, elaborations, integrations, inversions, and meaning changes. Students in the two advanced planning conditions generated an average of 48.5% transformations at posttest and 48.7% during maintenance. An analysis of scores from the essay variables revealed that students in the advanced planning conditions performed better than students in the two comparison conditions; however, the combination of dictation and advanced planning instruction had an even more positive effect. Students in this latter condition even outperformed students in the comparison group who also dictated their essays (ES =

1.18 in length, 1.13 in elements, .55 in coherence, .96 in quality, and .81 in rate). More importantly, these results were maintained two weeks following instruction. Records of student plans indicated that 95% of students in the two advanced planning conditions used the planning strategy during posttesting and 91% used it when composing their maintenance essay.

Sawyer, Graham and Harris (1992) used a mnemonic and a five-step strategy to compare the effects of SRSD instruction among 43 fifth and sixth graders with LD. These students were randomly assigned to four different conditions: three strategy conditions—SRSD, SRSD without explicit self regulation (SRSD-WESR), and direct teaching—and a practice-control condition. Direct teaching taught students the five-step strategy but without the use of modeling, collaboration, feedback, or explicit self-regulation procedures. Students in the practice-control condition wrote three stories independently with no instruction in the writing strategy. Thirteen additional students were randomly selected to a normative comparison group and assigned to the same three strategy instruction conditions described above. Trained instructors delivered 20-56 minutes of strategy instruction to small groups of 2-3 students three times per week for up to three weeks. Dependent measures included story grammar elements, quality, and use of strategy.

Results indicated two significant pairwise differences in terms of story grammar elements: (1) students in the full SRSD group showed a 45% improvement in story grammar scores over practice-control students; and (2) students in the normally achieving SRSD-WESR groups received higher story scores than students in the practice-control condition. When looking at story quality, only one pairwise difference was significant:

the normally achieving students received quality ratings that were two points higher than students with LD in the practice-control condition. Notes and written stories were compared to determine if students actually used the writing strategy. Researchers found that only 44% of students in the direct teaching condition, 55% in SRSD-WESR instruction, and 57% in full SRSD showed written evidence of using the written strategy. In the end, full SRSD was more successful in promoting generalization than the other two strategy instruction conditions.

Saddler, Moran, Graham and Harris (2004) examined whether supplemental strategy instruction in planning would improve the writing skills of six 2nd graders who were identified as struggling writers. Students were randomly assigned to three instructional pairs and received 25 minutes of instruction three days a week for up to four weeks. A mnemonic and prompt were used to help students organize the planning and writing process and to help them identify basic parts of a story. Dependent measures included number of words written, number of story elements, and quality. Following instruction, scores for story elements more than doubled for five out of six students and generalized to personal narratives; however, improvements were only maintained by two students. Four out of six students demonstrated 130-250% improvement in story length. While improvement in length generalized to personal narratives for 4 students, only two students maintained those improvements. Improvements in quality ranged from 144-400% for the majority of students and were generalized to personal narratives. These improvements were maintained for story writing but not for personal narratives.

Saddler (2006) extended the previous Saddler and colleagues' (2004) study by including writers who presented with even lower subtest scores on the Woodcock-

Johnson III Test of Achievement than those in the 2004 study. Saddler examined whether supplemental strategy instruction in planning would improve the writing skills of six 2nd graders with LD. Students were randomly grouped into pairs and received 30 minutes of instruction three times a week for approximately 3-4 weeks. Mnemonics and prompts were used to help students organize the planning and writing process as well as generate notes for each of the basic parts of a story. Extra strategy instruction in planning showed replication and improvement in three out of four dependent measures: story elements, number of words written, and overall quality. These effects were maintained over time with two students receiving quality scores of 5 and 6 and the other students averaging a score of 3.8. There was no replication in time spent planning.

Summary. Fidelity of treatment strengthened the validity and reliability of these studies due to instructors who received training in the SRSD model, used a checklist with step-by-step instructions, and often recorded 30% of their lessons. Interrater reliability was also high. Paired instruction in the SRSD approach resulted in an increase in time spent writing, number of words written, and presence of basic elements. Statistically significant improvements were also reported in the quality of students' stories and essays with improvements often maintained and generalized to other genres. Similar to findings in individual instruction, fidelity of treatment could be compromised due to poor participant responsiveness (O'Donnell, 2008). In studies that assessed use of strategy, Saddler et al. (2004) reported only one student continued to use the strategy and Saddler (2006) reported variability in the level of strategy acquisition among students. In addition, one must consider if the results of paired instruction can be generalized to a classroom setting.

Classroom instruction in planning. In a study by Danoff, Harris and Graham (1993), a special education teacher used a mnemonic and a five-step narrative writing strategy to provide instruction to students in three inclusive classrooms. Data were collected on two 4th graders and four 5th graders. One 4th grader and two 5th graders, identified as having a learning disability, were paired with a normal-achieving student in each of three classrooms. Dependent measures included story elements, story parts, number of words written, and quality. Students doubled—and in some cases tripled—their use of story grammar elements, story grammar parts, and the length of their essays following instruction. For the most part, gains were not only replicated but were maintained at two and four weeks following instruction and generalized to story writing when probes were later administered by the general classroom teachers. Four students showed improvement and replication in the quality of their stories following instruction. One fifth grader with LD made no improvements during postinstruction (4.5 at baseline and posinstruction), but did improve during generalization (5.5) and maintenance (6.8). Results in quality were maintained for all four 5th-grade students and generalized to story writing for three of them. Interrater reliability scores for quality were low (.77) compared to scores for elements and words (.97 and .99, respectively).

In another inclusion model where students routinely worked in teams, researchers paired six 5th and 6th graders with LD into three groups and provided instruction using a three-step prompt and a mnemonic for writing an opinion essay (Sexton, Harris & Graham, 1998). The three pairs of students received 40 to 50 minutes of instruction for 8-10 sessions. The primary variable of interest was number of functional essay elements, which improved for all six students (160% to 375% improvement), and was maintained

by half of them. Increases in the number of functional elements were accompanied by increases in essay length (120% to 290% improvement). Other dependent variables of interest included quality, time spent planning, and strategy use. Five of the six students spent more time planning following instruction and demonstrated evidence of using the planning strategy. Improvement in the quality of students' essays were replicated with increases ranging from 151% to 344% during posttreatment, with no overlap between baseline and postinstruction scores for five of the students. These gains were not maintained three and eight weeks following instruction. Improvement in quality was generalized for the two students who were administered opinion essay probes by their general education teacher. This measure of generalization may be interpreted as lacking validity given the fact that only two students received generalization scores and were asked to write an essay from the same genre.

De La Paz (1999) modified the SRSD model of instruction to meet the needs of students in inclusive regular education classrooms by emphasizing strategies that were appropriate for the entire class. Three regular education teachers presented mnemonics for planning and writing expository essays to their respective seventh-and eighth-grade classrooms. Each class met four times per week for a period of four weeks. While all students were provided strategy instruction, only 22 students of varying achievement levels were chosen to participate in this study. Six students were identified as learning disabled. The regular education students were randomly selected and identified as low (n = 6), average (n = 6), and high achieving (n = 4). Dependent measures included time spent planning, essay elements, essay length, and quality.

Following instruction, replication and improvement was observed across all dependent variables. Students spent more time planning what they were going to write, doubled and maintained their usage of essay elements, and substantially increased the length of their essays. The students with LD demonstrated a 250% increase in essay length of from baseline to postinstruction. Low- and average-achieving writers doubled the length of their essays while the length of essays written by high-achieving students increased by 215%. Similarly, significant improvement was observed in the quality of students' papers with holistic scores more than doubling from baseline to postinstruction for all students and remaining consistent during maintenance. It is important to note that while the students with LD may not have ended up with scores as high as their low-, average-, and high-achieving peers; they had the lowest mean scores across all variables (i.e., length, elements, and quality), but their degree of improvement was equal to if not better than their peer groups' scores.

Again using the SRSD model, De La Paz and Graham (2002) studied the effectiveness of teaching seventh and eighth graders strategies for planning, drafting and revising. Five middle school teachers from two schools were taught to teach the SRSD model to their ten language arts classes. These teachers were randomly assigned to experimental or control conditions. Three 8th grade classes and three 7th grade classes were assigned to the experimental group; two classes from each grade were assigned to the control condition. While classes were randomly assigned to each treatment condition, students were drawn from their intact classrooms. Based on the number of students in each teacher's class, a stratified random sampling was used to select students. In the end, 58 students—30 in the experimental group and 28 in the control group— were chosen to

participate in this study for a period of six weeks; none were receiving special education services. Students in the experimental group used mnemonics and self-regulation strategies for planning, drafting and revising an expository essay. Students in the control group participated in a traditional writing curriculum. Data for planning time, length, vocabulary, and quality were assessed at pretest, posttest, and maintenance. Results of the study indicated that while the majority of all students utilized some type of specific planning during posttest and maintenance, students in the experimental group produced plans that were better developed (posttest ES = 1.17; maintenance ES = 1.04). Students in the experimental group also wrote papers that were significantly longer than students in the control group (posttest ES = 0.82; maintenance ES = 1.07), used more advanced vocabulary (posttest ES = 1.13; maintenance ES = 0.94), and wrote papers that were of higher overall quality (posttest ES = 1.71; maintenance ES = 0.74). For the most part, the effects of instruction were maintained and scores remained significantly higher for students in the experimental group.

Chalk, Hagan-Burke, and Burke (2005) replicated and extended work based on the SRSD model to determine its effectiveness with 15 high school sophomores with LD. These students received five 20-25 minutes of instruction in three different special education resource classes. A mnemonic was used to teach students the basic framework of an essay and a written prompt introduced them to a self-regulated strategy. Dependent measures included essay length and quality. Following instruction a significant main effect was found using a repeated-measures analysis of variance. Length improved by 144%, was maintained, and generalized to a practice exam essay. Overall quality improved by 118% and was maintained over time.

Summary. Fidelity of treatment was evident throughout these studies as teachers were provided with instructional procedures and were asked to check off the procedures as they completed each daily lesson plan. Results once again showed improvements in the areas of planning time, length, story/essay elements, and quality. More importantly, improvements in dependent measures in these studies replicated improvements across previous studies, regardless of sample size. As seen in previous studies, not all students appeared to use the strategies they were taught (Danoff et al. 1993). It seems apparent that teachers cannot control whether or not students show evidence of their use of the planning strategies. This may be due to students' internalizing the strategy and no longer needing external structures to show evidence of their planning. Anecdotal evidence from discussions with students supports the idea that as students gain competence in composing (and as they get older), they generate fewer written plans.

Classroom instruction in revising. MacArthur, Schwartz, Graham, Molloy, and Harris (1996) presented a case study, which was part of a larger study on implementation of strategy instruction in a whole language classroom environment. This study focused on two teachers and a class of nine 4th graders who were identified as in need of special education services. The teachers were active leaders in promoting whole language instruction, but were open to incorporating strategy instruction into their writers' workshops. They taught students a strategy designed to help them write reports that required reading for information. Semantic mapping was the most prominent part of the strategy; however, other components included brainstorming to activate prior knowledge, paragraph writing, revision, and self-monitoring components. Semantic maps were used to organize brainstormed information into main ideas and details. The SRSD model was

introduced to the teachers who discussed ways in which they could implement the strategy in their classes. Twenty-seven hours of instruction was provided over a 12 week period. Data was gathered through field notes, tape recorded sessions, and informal interviews with students and teachers. Students also wrote reports using their own knowledge and information from a brief article. Pretest and posttest reports were assessed for improvement in overall quality, content, organization, and sentence structure. Qualitative analyses revealed that the teachers (a) maintained the reading and writing workshop format while teaching the strategy, (b) anticipated that strategy instruction would provide needed intensive support, (c) pushed for students' rapid transfer of control over the strategy due to their belief in the value of student ownership, (d) felt their interactive style of teaching and emphasis on individual conferencing fit smoothly with the use of the strategy, and (e) developed an understanding of strategy instruction. A quantitative analysis revealed significant improvements in quality, organization, and content. Observations and inspections of students written plans indicated that all students used the strategy to plan, write, and revise their papers.

Summary. Interrater reliability scores for the dependent measures were not as high as seen in other studies (.71, .71, .67, and .76 for overall quality, organization, content, and sentence structure, respectively); however, students nevertheless benefited from strategy instruction. Similar to the earlier study by MacArthur et al. (1991), this study demonstrates the way in which strategy instruction can effectively be combined with other strategies and/or incorporated into other methods of instruction. Both studies also demonstrated that students with LD actively used the strategies and, more importantly, significantly benefited from strategy instruction; even in a classroom setting.

Research with English Learners

There is a paucity of research studies on cognitive strategy approaches that have included EL students. Some research has examined the affects of strategy instruction on writing abilities; however, none specifically on revising. Moreover, none have involved SRSD. In general, there are English-only strategies that use a Sheltered Instruction Observation Protocol or Specially Designed Academic Instruction in English (Moughamian, Rivera, & Francis, 2009). These approaches emphasize the need for students to use their first language in order to clarify academic concepts in their second language. This approach combines instructional techniques that represent what educators consider good teaching practices with instruction specially designed to meet the linguistic and educational needs of second-language learners (Hansen-Thomas, 2008). One feature of sheltered instruction includes explicit teaching and implementation of learning strategies. There are also dual language strategies such as Bilingual Cooperative Integrated Reading and Composition as well as Improving Literacy Transitional Instructional Program (Moughamian et al, 2009).

Allison and Rhem (2007) found that the most effective writing strategies for bilingual classrooms involve authentic tasks in cooperative learning settings that build both language and content skills in multidisciplinary thematic units of instruction. Support is scaffolded in that teachers model the desired behavior and strategies. Students then practice the strategy with teacher support until they are able to apply the strategies on their own. Although language is not the primary focus, students work out refining their academic language proficiency in both their first and second languages.

Using a cognitive strategies approach to reinforce the reading/writing connection for ELL students, Olson and Land (2007) conducted a study in a large, urban, low-SES school district over an eight-year period. This intensive professional-development program was called the Pathway Project. Ninety-three percent of the students spoke English as a second language. Fifty-five secondary teachers implemented a cognitive strategies approach to reading and writing instruction for approximately 2000 students each year. Pathway teachers were paired with a control teacher at the same school with a class at the same ability level. Olson designed a model of cognitive strategies that students used as a reader's and writer's tool kit. Teachers were taught to scaffold their approach to strategy instruction in order to link reading and writing and facilitate student learning. They provided explicit instruction, modeling and guided practice in their approach to strategy instruction. Teachers provided "cognitive strategies sentence starters" (e.g., "My purpose is…" or "This could be more effective if…") to provide guidelines for students as they met in writing groups to comment on each other's writing. The basic unit of measurement was pre- and post-timed analytic writing assessments. Qualitative data included teachers' and students' written reflections as well as discussions of the quality of their experience and analyzing their growth over time. Results of the study indicated that students who received cognitive strategy instruction made significantly more gains on holistically scored assessments than students in the control group. Overall gains from pre- to post-test favored students in the treatment group and were statistically significant for seven consecutive years (ES = .34, ranging as high as .64). Pathway students averaged over 32% improvement in writing assessments, and in the best year had an 86% greater success rate than students in the control group. When

comparing post-test scores across eight years, Pathway students again received higher scores (M = 6.7) than their peers in the control classes (M = 5.51).

Summary. Although research in writing instruction for ELL students is limited and does not include any examples of SRSD, the few studies here suggest that in strategy instruction can be effective in improving students' reading and writing skills. Moreover, effective components such as cooperative learning are embedded in SRSD. Therefore, the findings for this population of learners suggests that the instruction in the current study is likely to be effective for English learners, as with students who are not learning a second language.

Synopsis

The results from these studies demonstrate the importance of explicit instruction, regardless of the instructional approach. Students seemed to benefit in some degree to the various approaches and all made strides at becoming better writers. Direct instruction benefited students with LD (Troia & Graham, 2002) as well as average writers (Fitzgerald & Markham, 1987); both saw improvements in story quality after instruction. The CDO procedure was most effective in teaching students to diagnose inadequacies and in some cases improved the quality of revisions. In one study, for example, the revision strategy improved mechanics but not content (Reynolds et al., 1988). Englert and her colleagues (Englert et al., 1991; 1992) found that all students benefited from instruction using the CSIW model by producing better-organized papers. Peer conferencing was effective in teaching revision strategies and ultimately improving the quality of students' essays (Graham et al., 2005; Harris et al., 2006; and Wong et al., 1994). Finally, studies using SRSD resulted in improvements in planning, writing, and

revising whether students had individual instruction (De La Paz & Graham, 1997; Graham et al., 1992), paired instruction (Saddler et al., 2004; Sawyer, Graham & Harris, 1992), or classroom instruction (Danoff, Harris & Graham, 1993; MacArthur, 1996). In addition, many of the studies, regardless of which instructional approach they were using, demonstrated strong fidelity of treatment (Chalk, Hagan-Burke, and Burke, 2005; De La Paz & Graham, 1997; De La Paz et al., 1998; Graham, 1997; Graham, 2005; Graham & Perin, 2007; Hallenbeck, 2002; Harris et al., 2006; MacArthur et al., 1991; Monroe & Troia, 2006; Saddler, 2006; and Swanson & Hoskyn, 1998).

A fair number of research studies have focused on direct instruction, procedural facilitation and strategy instruction to help students achieve academic success. Through the use of procedural facilitators and strategy instruction, the SRSD approach has been effective in helping students internalize and generalize specific writing strategies.

This review confirms the idea that the focus of most investigations is on planning strategies. While planning is a critical and necessary part of the writing process, students are less likely to produce an excellent narrative or essay without also developing or improving their strategies for revision. Moreover, the available research on revising interventions suggests that…leading to the need for the current study. Furthermore, most of the available research on planning or revising has been conducted in individual or small group settings. In contrast, instruction has rarely been provided to students with and without disabilities in general education or to an entire classroom. Another reason for the current study is to examine the effects of SRSD with students who are ELL. Hence the need to evaluate a revision strategy in general education classrooms, with students who exhibit a broad range of learning abilities, that emphasizes the processes

and strategies for students to (a) examine their draft in comparison to what they intended to write, (b) diagnose, or identify mismatches between the two, and (c) act on, or make changes to the draft in response to specific errors using self-regulated strategy instruction as the teaching model. Procedural facilitation combined with self-regulated strategy instruction is likely to help students better diagnose more of their own errors, make meaningful rather than surface or mechanical changes, and ultimately enable students with varying initial levels of writing ability to produce better quality essays.

The effects of a modified CDO procedure has been examined using direct instruction and procedural facilitation as a mode of teaching; however, self-regulated strategy instruction has not been used as a teaching model. As a result, students did not internalize how to compose and revise their essays. The current study aims to address this limitation in the literature by employing self-related strategy instruction as a teaching model in the hopes of helping students establish independence in using the CDO procedure and to internalize what they have learned. By examining the strategy in general education settings, this study is intended to capture the progress of students from different achievement levels, and evaluate the success of students with LD in a general education setting.

CHAPTER THREE

Method

The methodology for the current study is outlined in this chapter. The following methodological elements are described: (a) the setting, the participants and selection process; (b) the experimental design; (c) general procedures; (d) instructional procedures, including the phases of baseline, instruction, post-instruction, and maintenance; and (e) analysis of dependent variables including fidelity of implementation procedures.

Setting

The study took place in a public charter (PK-6) elementary school in an urban school district in the Northeast. Students at this school were taught to think, speak, read, write and learn in two languages: English and French or English and Spanish. The school had a population of 320 pre-kindergarten through sixth grade students; 47% were African American, 44% were Hispanic, 9% were White, and 1% was Asian American. Eleven percent of the students received special education services. Approximately 80% of students in the school were students with English as a second language (ESL) or English language learners (ELL). Forty-five percent of these ELL students were from homes in which a language other than English (including Spanish, French, Amharic, Woolof, Arabic, Chinese, and Yoruba) was spoken. It is important to note, however that all students, regardless of being labeled ELL, were considered by school personnel to be proficient in the English language. Parents chose for their children to attend the target school to take advantage of its dual language approach to instruction.

In terms of socio-economic status, the majority of students from this school were from low-income families (84%); however, information from the school district's

Assessment and Accountability Data reported that 90% of the students tested at the school were considered "economically disadvantaged." These figures are considerably higher than the entire school district (66%).

Regardless of their socio-economic status, the school district's standardized reading assessment revealed that 58% of students at this charter school were identified as proficient readers compared to only 44% in the entire school district. Even more interesting was the difference in scores for African American students as 71% of students at this charter school were identified as proficient readers compared to 39% in the district. This percentage is second only to a highly academic charter school where 77% of their students were identified as proficient readers.

Forty-two percent of the Hispanic students at this charter school were identified as proficient readers. This is slightly lower than the 45% of proficient readers in the district's public school and considerably lower than the 51% of proficient readers from another high quality charter school whose mission is to serve the most impoverished and underserved communities. However, the percentage of proficient readers from this charter school (45%) is considerably higher than a bilingual charter school (30%) where 100% of the students are Hispanic.

In sum, these descriptions indicate that students at the participating school were in some ways more proficient in terms of literacy than other students in the overall school district. In addition, while the vast majority of students at the target school were English learners, with the exception of students who were Hispanic, most were proficient in reading, according to district standards. Certainly, the overall population of students were typical of many schools both in the school district as well as in neighboring school

districts. Thus, this was an appropriate setting for testing the effects of the strategy instruction in CDO.

Two ELL/general education sixth-grade teachers (Bruce and Khazin[1]) agreed to participate in this study. Both teachers were certified. Bruce had two years experience teaching sixth grade. He also had four years experience teaching U.S. history and math to middle school students and served as Dean of Students where he was responsible for program management and student discipline. Khazin had five years experience teaching sixth graders. His previous experience included a year as the lead teacher in English and Social Studies at a clinical day program for transitioning high school students with emotional or behavioral disabilities. Khazin also worked for four years as an independent educational consultant, assisting with standardized test preparation for students taking the SAT, ACT, GRE, GED, SSAT, SAT-9 and DC-CAS.

As part of the school's team-teaching model, Bruce and Khazin shared instructional responsibilities with co-teachers who taught all subjects in Spanish and French, respectively. The co-teachers were also certified. Their dual immersion model required language arts and math to be taught equally in both languages. In addition, they used project-based learning as their primary teaching method in science and social studies. The charter school provided educational services for students with LD through an inclusion model. With the exception of weekly special education lessons, students typically received a full day of instruction in their general education classroom. Depending on the students' needs, special education teachers occasionally sat in class and

[1] pseudonyms

provided assistance to students with LD by way of clarifying directions, re-explaining concepts, and modifying assignments.

Bruce and Khazin provided a standards-based curriculum for language arts instruction. That is, they aligned their curriculum to meet the school district's standards. Grammar, vocabulary, spelling, and composition were taught as distinct skills as well as within the context of a writing exercise. Teachers taught writing in some capacity every day, whether it was through students responding to open-ended questions, writing a journal entry, or working on their research papers. For expository writing, the teachers provided outlines, webs, and graphic organizers to help scaffold and guide their students through the writing process.

The two general education teachers agreed to redefine their existing two classes into three smaller classrooms due to the need for three replications with the writing intervention.

Hence, the 36 students were randomly assigned to one of three separate classrooms, based on information about students' initial writing abilities as follows. All students were administered the Spontaneous Writing subtest from the third edition of the Test of Written Language (TOWL-3; PRO-ED, 1996). The TOWL is a comprehensive test for evaluating writing language. The Spontaneous Writing subtest of the TOWL focuses on different aspects of the quality of a student's spontaneously written story: (a) Contextual Conventions, (b) Contextual Language, and (c) Story Construction. Students were asked to write a story in response to a stimulus picture. For Contextual Conventions students received points satisfying specific requirements relative to capitalization, punctuation, spelling, and other elements in writing (e.g., paragraph indents). For the

Contextual Language subtest, students' stories were evaluated relative to the quality of their grammar, vocabulary, and sentence structure. For the Story Construction subtest, students' stories were evaluated relative to the compositional aspects, plot, prose, development of characters, and creative elements of the story.

After all tests were scored, students without disabilities were then categorized as low-, average-, or high-achieving writers based on their performance on that subtest. Students who received composite quotient scores that were one standard deviation below the mean (70 - 85) were identified as low-achieving participants for this study (M = 80.5; SD = 3.64). Students whose scores ranged from 86 to 115 were considered average-achieving writers (M = 96.33; SD = 3.64), and students with standard scores above the average range (116 - 130) were considered high-achieving writers (M = 117; SD = 1.80). When scoring was completed, students identified as having a learning disability (n = 5; see below for criteria establishing disability), students who were poor writers (n = 6), average (n = 6), and high achieving (n = 6) were randomly selected as participants from each group. This was done based on the need to manage data, since scoring all 36 students was not feasible or necessary for the single subject design. Whereas all students received the target instruction, only 23 students were considered participants for data collection. Students were randomly paired by ability level then randomly assigned to one of three classrooms.

Thus, Khazin provided instruction to 12 students in his classroom, and Bruce provided instruction to 12 students in his respective classroom. As there was no other teacher available from the school to teach the remaining students, I taught a third group of 12 students in another room at the school. Moreover, each classroom was comprised

of 12 students with 7 or 8 of those students targeted for data collection. Khazin and Bruce (Group A and B, respectively) each had LD (n = 2), low (n = 2), average (n = 2) and high achieving students (n = 2) from which data were collected. The third class (Group C) had one student with a learning disability, two students who had poor writing ability, two students who had average writing ability and two students who were high achieving in writing from which data were collected. Instruction took place three times a week during the sixth graders' language arts block. Students received 45 minutes of instruction on each scheduled day for 4 weeks.

Participants

Appropriate approval was acquired from the University of Maryland's Institutional Review Board, the principal of the charter school, and all classroom teachers. Additionally, parent permission forms were sent home with students and returned during the first week of school. Data were collected and analyzed from students with consent. Only two parents declined permission for their children to participate in the study; one was a student with LD.

Five students with LD participated in the study and met the following criteria: (a) identified by the school district in accordance with the federal guidelines; (b) had a verbal IQ score between 85 and 125 on an individually administered norm-referenced intelligence test within the past three to five years; (c) achievement at least 1 standard deviation below average in writing, as measured by the TOWL-3 (M = 78.8; SD = 4.75); and (d) absence of other handicapping conditions. In addition, teachers reported that all students with LD had difficulty with writing.

Eleven of the students participating in this study were boys and 12 were girls. The sample was culturally diverse (56.5% African American and 43.5% Hispanic), and was fairly representative of the school (47% African American, 44% Hispanic, 9% White, and 1% Asian) and somewhat representative of the cultural demographics of the city (79% African-American, 12% Hispanic, 7% White, and 2% self-declared as Other). Seventy-eight percent of the students participating in this study received free or reduced lunch. This percentage was slightly lower than the school's average (84%) and higher than the average for the entire school district (66%). Students in the participating school district took part in mandated yearly comprehensive assessments. This test measures reading and math proficiency of students in grades 3 – 12. The results are compared against annual performance targets to determine whether the school, LEA, or state has made adequate yearly progress (AYP). Forty-three percent of those students scored at the basic reading level, 35% were proficient, and only 22% were advanced. (*Basic* was defined as a student showing basic grade-level knowledge and skills, *proficient* shows competent and proficient performance with effective application of grade-level knowledge and skills, and *advanced* shows exceptional and exemplary performance with distinctive application of grade-level knowledge and skills.) Performance levels for four students with LD were basic and one was proficient. Students who were poor writers were all basic readers; three average writers were proficient readers, one was advanced and one was proficient; and the more skilled writers were also the better readers (two advanced, two proficient, and one basic). Additional information relevant to this population includes whether the students were native English speakers. Fifty percent of the 23 participants were students with English as a second language. Three out of eight

participants in Khazin's class were ELL (one student with LD, one low-achieving student, and one high-achieving student). Five out of eight participants in Bruce's class were ELL (one student with LD, both average students, and both low-achieving students). Finally, four out of seven students were ELL in the third class (one student with LD, both low-achieving students, and one high-achieving student). All ELL students were judged as proficient English speakers. Grammatical errors were occasionally evident in both oral and written language (e.g., "she don't like to go" or "[people] should not do drug"); however, overall, ELL and non-ELL students' writing revealed content that was more consistent with their standardized writing scores than with their ELL status with far more spelling than grammatical errors. Information on characteristics and writing performance of students is presented in Table 1.

Experimental Design

The effects of teaching the revising strategy were assessed using a multiple-probe design with multiple probes in baseline (Barlow & Hersen, 1984; De La Paz, 1999; Horner & Baer, 1978; Lienemann et al., 2006; Saddler et al., 2004). A criterion (or mastery level) was determined for number of meaningful changes students made when revising their essays. Data was collected at baseline from participating students in each classroom. Intervention began for each group of students only when baseline data was stable. Intervention ended when all students in each classroom reached mastery level. The same behavior (i.e. number of revisions) was measured not simply across students but across groups of students at different achievement levels. What made this study unique was that typical multiple baselines measure behaviors across subjects that are not in classrooms (c.f., De La Paz, 1999). In the case of this study using a multiple-probe

design, treatment was systematically and sequentially introduced one classroom at a time. Prior to the introduction of intervention, each student's ability to revise their essays was measured over time to establish a stable baseline of typical writing performance in terms of number of meaningful changes. The primary variable of interest was the number of meaningful changes made to each essay. Meaningful changes were defined as any change that is made to make the essay better. Students were instructed that a "meaningful change" did not simply mean the addition or deletion of a word or phrase as defined in a study by Graham (1997). A meaningful change had to indicate that they were making an attempt to improve the quality of their text. Examples and explanations were provided of changes that were and were not considered meaningful changes (e.g., *it buys me time* → *it gives me enough time to give my dog food and water* was considered a meaningful change; *who are driving while they are drunk* → *who drive and they are drunk* was not considered meaningful changes). Surface changes (e.g., capitalization, punctuation, and spelling) were also not considered meaningful changes. The following conditions were in effect during the study.

Baseline essay probes. During baseline, pairs of students' pretreatment response rates (at each ability level) were established for each teacher's classroom. Students wrote essays in response to a prompt and were then asked to make revisions to their essays. Teachers explained the difference between a revision and an edit, stating that surface changes (edits) such as spelling, punctuation, and capitalization would not be considered a meaningful change. Revisions made by each pair of students were averaged, graphed and used for subsequent analysis. Thus, revisions made by two students with LD were scored based on the number of meaningful changes and the average score was graphed.

Table 1
Characteristics of Participants by Teacher

	Khazin	Bruce	Cindy
Students with LD (n = 5)			
TOWL-3	81	81	70
Gender			
Male	1	2	1
Female	1	0	0
Age (years: months)	11:5	11:10	11:3
Ethnicity			
Black	1	1	0
Hispanic	1	1	1
ELL	1	1	1
Low-achieving writers (n = 6)			
TOWL-3	79	83	79.5
Gender			
Male	2	0	1
Female	0	2	1
Age (years: months)	12:2	11:7	12:3
Ethnicity			
Hispanic	1	2	2
Black	1	0	0
ELL	1	2	2
Average-achieving writers (n = 6)			
TOWL-3	94.5	95.5	99
Gender			
Male	2	1	1
Female	0	1	1
Age (years: months)	11:5	12:2	11:8
Ethnicity			
Hispanic	0	2	0
Black	2	0	2
ELL	0	2	0
High-achieving writers (n = 6)			
TOWL-3	118	115	119
Gender			
Male	0	1	2
Female	2	1	0
Age (years: months)	11:3	11:3	11:7
Ethnicity			
Hispanic	0	0	1
Black	2	2	1
ELL	0	0	1

If only one student's score was obtained, the individual score was entered. The same procedures were in effect for students who were low-achieving (LA), average-achieving (AA), and high-achieving (HA) writers.

As required by the design, all students received Prompt 1 on the same day and were asked to revise their essays the following day. Students in Group A received two additional prompts and made their revisions over the next five class periods. Baseline was stabilized after three prompts with each student pair averaging only 0.5 to 1.5 meaningful changes per essay (see Table 2 in Results section). One additional baseline prompt was required for students in each successive classroom. Therefore, students in Group B received four baseline prompts over a three-week period. Baseline data was shown to be stable after four prompts with student pairs averaging no more than one meaningful change (0 – 1) per essay. Students in Group C received five baseline prompts and baseline data was again evident as stable throughout the five prompts as student pairs averaged 0 – 2 meaningful changes per essay. All baseline prompts were administered within one week prior to the start of instruction.

Instruction. Students in Group A began receiving instruction in the writing strategy after a stable baseline was established for all target students. Instruction began for students in Group B when they achieved a stable baseline and after students in Group A received their second post-instruction prompt. Identical procedures were used when introducing and terminating instruction for students in Group C. Instruction in each group continued until all students demonstrated mastery (independence) of the revision strategy by making a minimum of five meaningful changes without teacher guidance or assistance during one instructional session.

Post-instruction essay probes. Three additional prompts were given to each group within one week following instruction. Students were asked to respond to the prompt by writing and revising their essays under the same conditions as during baseline.

Maintenance essay probe. A maintenance essay probe was administered four weeks following instruction for students in each classroom. Again, students were asked to respond to a prompt by writing and revising their essays.

General Procedures

Teacher preparation. Teachers received an instructor's manual with detailed lesson plans (see Appendix B), sample essays, and other instructional materials to guide their teaching of the revising strategy. They learned how to teach the revising strategy using the SRSD model of instruction in two afternoon workshops as well as through weekly review sessions. The first afternoon of the workshop was spent providing teachers with an overview of the revising strategy, modeling the strategy, and explaining the SRSD model of instruction. The next afternoon, teachers spent time going over lesson plans, asking questions, and practicing the steps of the revising strategy. Teachers used the checklist from each lesson plan when practicing their instruction to ensure they met the criteria for performance. Once instruction began, each teacher met at the beginning of the week to review upcoming lessons and go over the steps of the revising strategy that were to be introduced that week.

Materials. The genre of expository essays was chosen for sixth graders because it was age appropriate and met the school district's current language arts goals. Students were also required to write a research paper by the end of the school year, therefore, teaching them strategies for writing and revising expository essays provided an

appropriate context for this year-long assignment. Before the study began, teachers examined 37 expository essay prompts taken from *Blowing Away the State Writing Assessment Test* by Jane Bell Kiester and recommended which were appropriate in terms of interest for their sixth graders. Twelve expository topics were chosen using this feedback. After random assignment, each topic was used to solicit writing and revising samples for baseline, postinstruction, and maintenance probes. Students answered the prompts in the same order, allowing comparisons across classes and conditions.

Writing probes. Baseline, postinstruction, and maintenance writing probes were given to all students in the identical manner. Teachers administered probes to their respective students. This may have biased the students in some way; however, the impact would have been very limited given that in a single subject design students act as their own control. Students were given the 45-minute class period to write their essays by hand; no time limit was given. Teachers provided students with lined paper and a copy of the prompt; read the topic aloud, asked students to provide a written response to the prompt, and read the following directions:

> Read the prompt and write an expository essay. A well-written essay usually has an introduction, provides an explanation, and ends with a conclusion. Use paragraphs to help you organize your essay. Pay attention to the prompt and write the best essay you can.

During the next class period, teachers provided students with their original essays and asked the students to revise their essays using a red pen. They provided the following directions:

> Remember what you know about revising. Read your draft carefully and make the necessary changes to make your essay better. Use the red pen when making changes. Do not scribble anything out. Instead, mark a line through anything you want to change.

No assistance was given in understanding the prompts, or providing spelling or grammatical information. Feedback was not provided to students about the content or quality of their papers.

Instructional Procedures

General writing instruction. When teachers were not teaching the strategy, they covered grammar, reading skills, research skills, and research report writing in accordance with the school curriculum. In grammar students focused on writing compound and complex sentences, avoiding adjective/adverb confusion and verb conjugation mistakes, and the use of adverbial and adjectival prepositional phrases. Reading skills taught varied according to student needs and ran from teaching students to find books that they might enjoy and be able to comprehend, to oral reading fluency in order to support reading enjoyment, to teaching comprehension strategies in order to support understanding. Research skills taught focused on identifying good sources for research, using rubrics and prompts to guide research, and using research notes to create an outline. Writing skills included writing from an outline, revision and editing multiple drafts and reviewing the work of one's self and classmates.

During baseline, teachers handed out the writing prompts. Students would write their essay on one day and revise it during the next class period. Khazin's class (Group A) wrote and revised their essays three times. Bruce's students (Group B) wrote and

revised their essays four times, with an essay prompt being introduced each week. The third class (Group C) wrote and revised their essays five times. Four weeks after instruction in the revising strategy, students received their maintenance prompt. The prompt was given during one class period and students revised it during their next language arts class. On either day when students were done writing and revising, they read independently. When all students had completed the task, teachers resumed instruction according to the language arts curriculum.

Strategy instruction. Students were taught a strategy for revising their essays. The independent variables were strategy instruction combined with a modified CDO procedure using self-regulated strategy instruction as the means for instruction. As reviewed in Chapter Two, this approach combines explicit instruction in task-specific strategies with general metacognitive strategies for self-regulation including self-reinforcement, self-monitoring, and goal setting. Through modeling, scaffolding, and guided instruction, this approach emphasizes strategies for planning, revising, and directing the writing process as well as more explicit strategy instruction in teaching students procedures for regulating use of the strategy, the task, and undesirable behaviors that impede performance (De La Paz, 1999; Graham & Harris, 2005; Harris & Graham, 1996). Self-regulated strategy instruction is comprised of six stages of instruction: develop background knowledge, discuss the strategy, model the strategy, memorize the strategy, support the strategy, and independent performance (Graham, 2006). The following description will highlight the revising strategy and explain how instruction occurred in each stage of instruction.

In addition to using self-regulated strategy instruction, other features of good writing instruction reviewed in Chapter Two were incorporated in the design of the intervention. Procedural facilitation was implemented using the acronym FIX as students received colored cue cards to help them execute the strategy steps. Using a "stop light" analogy, students first used "red" cards, to slow them down and think or **Focus** on important essay elements in expository writing. A yellow highlighter and yellow cue cards were also given to students as they were cautioned to think about the source of problems in their papers and asked to **Identify** problems in their essays. Finally, green cards served as a reminder for students to **Execute** changes to improve their papers. Interactive dialogue was present throughout this intervention as teachers prompted and guided students in the application of the revising strategies by asking questions for clarification and elaborations as well as using cognitive guidance, modeling, thinking out loud, teacher feedback, scaffolding, and procedural facilitators. In general, this process did not differ from teacher to teacher.

Develop and activate background knowledge. Teachers provided students with handouts and reviewed with students the definition, functional essay elements, and examples of expository writing (see Appendix C). Teachers then provided students with a template for expository writing (see Appendix D) along with a sample essay (see Appendix E) and pointed out the parts of an expository essay.

Sample paragraphs were then used to teach students how to make meaningful changes using the "add," "move," "delete," and "rewrite" revision strategies following guidelines from Fitzgerald and Markham (1987). Teachers reminded students that the goal in revising is to make meaningful changes. They discussed the importance of self-

instruction, self-monitoring and self-reinforcing procedures to attain that goal. For each revision strategy, teachers presented students with a prompt and a sample paragraph via an overhead projector. Teachers modeled self-instruction procedures while executing changes. Students were then given the opportunity to make meaningful changes to their own sample essays. While thinking aloud, teachers first used self-instructions to model ways in which they could add information to the paragraph to make at least one meaningful change (see Appendix F). Teachers then presented students with their own prompt and paragraph and asked the students to add at least one sentence in order to make a meaningful change to that essay (see Appendix G). Teachers followed the same format when modeling how to move at least one item in an essay in order to make a meaningful change (see Appendix H). An example of a self-instruction when moving text was provided to the teachers for their use (Appendix I). Students were then given their own essay and were asked to move at least on item in the essay in order to make a meaningful change (Appendix J).

Teachers used additional essays to model how to execute changes using the "delete" and "rewrite" options that are part of the revising strategy. Examples of self-instructions were provided. Teachers asked students to revise a different sample essay to make it better by deleting at least one sentence that they felt constituted a meaningful change. The same instructions were provided when students were given another essay and asked to rewrite at least one sentence in the essay (see Appendices K – P).

Discuss the strategy. As a review, a well-written expository essay was provided to the students (Appendix Q). Teachers and students collaboratively identified and underlined each functional essay element. Teachers then introduced the mnemonic FIX

and the revising strategy that would guide students through the revision phase of writing. They explained the rationale for how to FIX expository essays. Teachers showed students a chart with the three strategy steps that made up the FIX strategy: (1) **Focus** on essay elements; (2) **Identify** problems; and (3) **Execute** changes (see Appendix R). The significance and benefits of the revising strategy were discussed. Teachers explained that as part of the revising process, students would revise their essays with the help of colored cards that would remind them to (a) examine their draft, focusing specifically on the essential elements or parts of an essay, (b) identify problems in their essay between what they wanted to write versus what was actually written, and (c) act on, or execute necessary changes to the draft in response to specific problems they had identified.

Teachers then distributed red, yellow, and green cards to each student as well as yellow highlighters. The red card contained self-statements that helped students focus on the essay elements (see Appendix S). The yellow card contained self-statements that helped students identify problems (see Appendix T). Teachers explained that the highlighters would be used in conjunction with the yellow cards to identify problems. Finally, the green cards listed the four options students had to execute changes during the revision process (see Appendix U).

Model the strategy. Teachers spent two sessions modeling how to use the FIX strategy. They focused on two essay elements during one session and two essay elements in a subsequent session. During each session teachers modeled how to focus on essay elements, identify problems, and execute changes.

To model the strategy, teachers presented a sample essay to the students (see Appendix V) and while thinking aloud, employed appropriate self-talk, self-instructions,

and self-monitoring procedures (see Appendix W) while making revisions on an overhead (see Appendix X). Teachers began modeling the FIX strategy by focusing on the essay elements of an expository essay. Teachers began by reading the essay aloud and identifying the essay elements using the corresponding self-statements on the red card. Then teachers modeled how to identify problems while using the self-statements on their corresponding yellow card, reviewing each sentence in turn. Teachers highlighted sentences they perceived as having a problem and modeled the appropriate self-statement. Teachers then referred to their green card for help in carrying out and executing changes. Each teacher made a minimum of two substantive changes using the red cards and two changes using the yellow card. Finally, teachers made sure their essay made sense. They also edited the essay for spelling, grammar, capitalization, and punctuation; explaining why editing is done after using the strategy. Students then received a clean copy of the revised essay (see Appendix Y).

After analyzing the teacher's performance, the teacher and students collaborated on how to change the strategy to make it more effective or efficient. Each student developed and recorded self-statements he or she planned to use. These self-statements were designed to regulate strategy use, the writing task, or interfering student behavior.

Memorize the strategy. During this stage, students were asked to memorize the steps in the revising strategy and the meaning of the mnemonic FIX. Teachers reviewed the revision process with students and asked the students to recite the self-statements that were part of the FIX strategy. Teachers then distributed various essays to students and guided students through each step of the strategy as students practiced this three-step strategy alone or with a partner. Teachers provided clarification and prompting as

necessary. Once the strategy was memorized, students were allowed to paraphrase the self-statements as long as the meaning remained intact. Students were also asked to memorize and write down at least one self-instruction they used when using the strategy.

Support the strategy. To support the strategy and scaffold students' strategy use, teachers began this phase of instruction by providing students with another sample essay (see Appendix Z) and worked with students in revising the essay. Teachers asked students to focus on the premise and identify whether or not the premise got the readers attention. Students in each class agreed that the premise should be rewritten, so the teachers and students collaboratively rewrote the premise to make it better. The teachers then took the reasons that were written into one paragraph and showed students how each reason could be made into three separate paragraphs (see Appendix AB). Once sentences were rewritten and new paragraphs created for each reason and the conclusion, students were asked to provide their own elaborations to finish the story. Students used the revising strategy, self-instructions, and other self-regulation procedures as they wrote their essays. Once their essays were complete, students practiced using the revision strategy, self-statements, and any other self-regulation processes (e.g., progress monitoring and goal setting), receiving help from the teacher or peers only when necessary.

In subsequent sessions, students were given typed copies of their pretest essays and were asked to use the revision strategy, self-statements, and self-regulation processes to make meaningful changes to their essays. Since most students averaged only one change in their pretest essays, students were asked to set a goal to make at least five meaningful changes when revising their essays. Additional self-regulation procedures,

such as goal setting, self-monitoring, or self-reinforcement, were discussed, determined, and initiated. Teacher support ranged from direct assistance in applying the strategy, to remodeling, to corrective feedback, to praise. Support from teachers, as well as instructional aids (e.g., self-statement lists or strategy reminder charts), were faded after three to four sessions and students were encouraged to begin using personal self-statements independently.

Independent performance. During the final sessions students were asked to use the revising strategy and self-regulation procedures independently. Plans for maintenance and generalization were implemented. These included: (a) identifying opportunities to use the revising strategy with other genres outside of the instructional setting and in the students' research papers; (b) examining how to modify the writing strategy for the situations identified; (c) setting goals to use the revising strategy with new tasks; (d) discussing the results of using the strategy with these tasks; and (e) encouraging teachers to comment on exactly how the strategy improved the students' writing.

Instruction was discontinued once teachers observed that all students were able to: (a) recite from memory the steps of the strategy; (b) use the strategy independently twice without relying on yellow, red, or green cue cards; (c) generate essays that include all the characteristics of an expository essay (either before or after revision); and (d) make at least five meaningful changes.

Treatment Fidelity

To ensure that instruction was delivered as planned, the following steps were taken. To begin with, teachers learned the FIX revising strategy. Teachers participated

in a two-day training session at the beginning of the school year. Each training session lasted approximately three hours. During the two-day training session at the beginning of the year the instructional approaches for each day were modeled and the teacher checklist was reviewed. Teachers were then given the opportunity to practice each daily approach by following the daily lesson plans. At the end of the two afternoon sessions, teachers demonstrated complete understanding and confidence in implementing the revising strategy.

Individual meetings were also held with each general education teacher every week during the intervention to answer questions and review the lesson plans and strategies for the week. Teachers were given instructional manuals, lesson plans, checklists and sample essays. Each lesson plan explained the purpose of the lesson and provided step-by-step instructions on how to present the FIX strategy and use the six stages of SRSD. The lesson plans were not scripted per se, but instead provided instructions telling teachers what to say rather than how to say it. Checklists were provided with each lesson plan to ensure that teachers were consistently following the appropriate instructional procedures. Similarly, teachers appeared confident with the lesson plans and in implementing the revising strategy during our weekly review sessions.

Third, each stage of instruction (e.g., modeling the strategy and independent practice) was monitored for the first and second implementations. Khazin and Bruce were observed during their instructional sessions at least once a week. A copy of the lesson plan and checklist was used to document completion of strategy steps. During each observation, teachers consistently followed the lesson plans and instructional

procedures accurately; and in fact, both teachers enhanced the lessons by integrating personal knowledge of functional essay elements into the revision process.

Finally, a graduate student who was unfamiliar with the design of the study listened to a random sample of 25% of the tapes and documented fidelity of treatment using a rubric designed for this purpose (see Appendix AC). Under the respective columns, the graduate student documented the degree to which the lesson plan was followed by indicating the number of items on check list that were addressed by the three teachers. From that data, the percentage of instruction completed was calculated. The number of inconsistencies with the lesson plan was documented and noted. A + or – was entered indicating adherence to instruction. If a – was entered, student provided an explanation under "program differentiation." Finally, the duration of each session was recorded and the graduate student rated the quality of delivery and student responsiveness as very good, good, or needs improvement. The sessions were randomly chosen for review to determine whether or not the intervention script and instructional procedures were followed with fidelity in all three classrooms. On average, 97% of the steps were completed across the three classrooms (range = 91% - 100%). Most errors were in adherence to instruction. This only occurred when teachers added to or modified the way in which instruction was presented. For example, an instruction in a daily lesson plan may have been provided in quotes and the teacher paraphrased the quote. Or when defining the meaning of "revision" teachers provided definitions and explanations that were different from what was written on the lesson plan, but more appropriate for their students. Khazin and Bruce offered examples of revision as it applied to students'

research papers and other in-class writing assignments. None of these changes seemed to affect the essence of the lesson plan; it likely enhanced it.

Analysis

Several dependent measures were analyzed to determine the effectiveness of the FIX strategy. These included the number of meaningful changes, the number of revisions that improved meaning, change in quality, and holistic quality of their expository essays. Each variable was analyzed within each subgroup (high achieving, average achieving, low achieving, and students who have been identified as having a learning disability). These variables are described below and in each case, scoring followed procedures outlined by Bridwell (1980), Faigley and Witte (1981), and MacArthur and Graham (1987). All changes between the first and final drafts were counted as revisions. A first draft was produced during the first composing session of each condition, whereas the final draft is the revision of this initial paper during the second composing session for each condition.

Number of meaningful changes. The number of meaningful changes was chosen as the variable for making decisions such as when to end instruction. Thus, student performance was calculated based on the average of each pair and the resulting information was graphed after every second draft (revision). As mentioned earlier, students were instructed that a "meaningful change" did not simply mean the addition or deletion of a word or phrase. A meaningful change had to indicate that they were making an attempt to improve the quality of their text. The change had to make affect the semantics of the proposition (See Appendix AD for an example of meaningful changes

made by an average-achieving writer first and Appendix AE for an explanation of those meaningful changes.)

Number of revisions that improved meaning. Revisions were first identified and categorized according to syntactic level: surface (capitalization, spelling, etc.), word, phrase, or T-unit. A T-unit is defined as a main clause plus any subordinate clauses (e.g., "Chores is one of the jobs I will have when I grow up"). Surface revisions included capitalization, punctuation, spelling, or morphological changes. Revisions involving more than one consecutive T-unit were counted once for each T-unit involved. Second, all changes except surface revisions were coded by type of operation undertaken: addition, deletion, substitution, or rearrangement. Third, all revisions were scored as meaning-preserving (e.g., "My chore that I do at home is..." → "My chores at home are….") or meaning-changing (e.g., "Plus you might get sent to the principal for cheating" → "Plus you might have to sit out of the games for cheating."). Revisions were scored as meaning changing only when they altered the meaning of the text. Thus, adding a T-unit (e.g., "Like it would solve the problem of girls showing off for boys") that paraphrased the preceding unit of text (e.g., "It would solve some problems like boys showing off for girls, or vice versa ") was scored as a meaning-preserving revision. Fourth, each revision was rated as better, no change, or lower.

A graduate student unfamiliar with the design and purpose of the study and I independently scored papers to identify and categorize all surface changes and revisions. The student was given the writer's hand-written paper with revisions that were made in red pen. He was also given a form to score each essay for number of revisions (see Appendix AF). The student and I practiced scoring six essays together. Training

included defining T-units, explaining meaning changing and meaning preserved, and discussed scoring improvement as better, no change, and lower. The student then practiced scoring ten essays on his own. A criterion of 100% agreement on three consecutive essays was set before the student independently scored 25% of randomly selected essays on his own. Any identification information was replaced with the student's school identification number. Therefore, the graduate student was unfamiliar with the identity of the writer. The percentage of agreement [agreements/(agreements + disagreements)] for identification and categorization of level of revisions was 96%. The percentages of agreement for meaning and quality were also calculated (83% and 82%, respectively).

Change in Quality. Using procedures developed by Scardamalia and Bereiter (1983), two middle school language arts teachers who were unfamiliar with the purpose, design, and students in the study independently rated the change in quality from the first to the final drafts. Both teachers were male; one taught 7th grade and the other 8th grade. The 7th grade teacher has been teaching English for 32 years and is considered by teachers, students, and administrators as one of the best and most challenging teachers in the school. This is only the 8th grade teacher's second year teaching English in a middle school. Previously, he was a police officer who used to teach writing to underprivileged students. He was recently given the responsibility of rewriting the 8th grade language arts curriculum. Sample essays were used to provide benchmarks for scoring the essays as *much better*, *better*, *the same*, *worse*, or *much worse* than the comparison essay. Both teachers had similar expectations about what makes a good essay and they were in agreement 90% of the time.

The first and final drafts of papers were typed and any identification information was replaced with the student's identification code. The raters were unfamiliar with the code and thus unable to ascertain either the identity of the writer or the condition (first or final draft) under which the papers were written or revised. Before scoring, the first and final drafts of each paper were paired in random order so that raters could not tell which draft is the final one. Raters were instructed to use the first paper in the pair as the standard by which to rate the second paper. Points were assigned ranging from 2 (the second paper was much better than the first) to -2 (the second was much worse). Scores were later adjusted so that a positive score always indicated improvement from first to final draft. The scores for the two raters were averaged and interrater reliability (Pearson *r*) for the quality change measure was .77

Holistic Quality. Two weeks after change in quality scores were completed, the same two teachers assessed holistic quality. A traditional holistic quality scale was used to assess quality. Final essays were typed and any identification information was replaced with the student's identification code. Each rater was asked to consider the ideas and development of the essay, its organization, coherence, as well as quality of sentence structure and vocabulary in the composition. Two or more criteria for each of these traits and a representative sample of compositions were provided for low-, average-, and high-scoring essays to use as guides or anchor points for scoring. Essays were rated from a low score of 1 to a high score of 7, representing the reader's general impression of overall quality (1 = seriously deficient, 2 = deficient, 3 = minimally competent, 4 = competent, 5 = proficient, 6 = very proficient, and 7 = outstanding). The scores for the two raters were averaged and interrater reliability (Pearson *r*) for holistic quality was .76.

Social Validation

Teachers and students were interviewed to determine their perceived usefulness of the FIX strategy. During the study, teachers noted students' comments concerning their impressions of the revising strategy and the instructional process. After completing the maintenance essay probe, teachers interviewed the students for their evaluations of the revising strategy as well as information concerning their perceptions of the effectiveness of the intervention. All interviews were audiotaped. Questions focused on the how the procedures affected their revising and writing, their recommendations for teaching the procedure to other students, and what they liked and did not like about the procedure. Teachers were also interviewed to discuss their opinion of the revising strategy and effectiveness of the intervention. Teachers were asked how they perceived the usefulness of the FIX strategy. (See Appendices AG and AH for interview questions for students and teachers, respectively.)

CHAPTER FOUR

Results

This chapter provides an overview of the findings from this study. A summary of the treatment fidelity results is provided first as verification that the intervention was delivered as planned. Results are presented for each phase of the study, including baseline, post instruction, and maintenance. Findings are presented within each phase for each dependent measure with relevant figures and tables. These measures relate to (a) meaningful changes, the variable used to make decisions regarding when to make changes from one phase of instruction to another, (b) nonsurface revisions of "better, no change, or lower," or the variable that indicates the effect of the revision at the sentence level, (c) change in quality from the first to second draft, and (d) holistic quality. The chapter ends with results related to social validity.

Treatment fidelity

All three teachers demonstrated 100% accuracy in adhering to the lesson plans and using the checklists to guide their instruction. They also demonstrated 100% accuracy in using sample essays to model and teach the FIX strategy. During our weekly sessions, questions were discussed and teachers reviewed lesson plans for the week. Khazin and Bruce demonstrated confidence and 100% accuracy in their approach as they rehearsed the instructional steps.

Khazin and Bruce were observed on days when they introduced the strategy, modeled instruction, and provided guided instruction. On days they were not observed, sessions were tape recorded and reviewed by a graduate student who was unfamiliar with the study, teachers and students. On average, teachers demonstrated mastery of the

stages of instruction and FIX strategy. Each teacher provided instruction with good fidelity as defined by the percentage of steps followed. To illustrate, they were able to make appropriate modifications when necessary. For example, when asking students to write goals for themselves, one lesson plan suggested teachers ask students to "make sure I have enough details in each paragraph." Rather than using that sentence, one teacher suggested a goal that better met the needs of the students (e.g., "Make sure I don't get distracted until I have used my red card to check for essay elements."). All sessions lasted 45 minutes and teachers averaged 93% accuracy (range = 80% - 100%) in completing instruction. Analysis of lesson checklists showed that the lower levels of fidelity were due to lesson plans that took more than one session and thus resulted in a final instructional step being carried over to the next session (e.g. "Ask each student to select his or her favorite essay."). The high percentage of completion and accuracy across all remaining checklists ensured that students received quality instruction in the FIX strategy.

Attendance was not a problem at this school and any days missed did not affect instruction. Moreover, absenteeism did not vary by achievement level. During guided instruction, students worked collaboratively or on their own as they practiced and worked on memorizing the FIX strategy. All students met criterion for memorizing the strategy (range = 90-100% accuracy) and independently revised three essays. Students were also given written quizzes which required them to write the meaning of the FIX mnemonic, the essay elements, and directives that were listed on each card. Again students demonstrated 90% - 100% mastery.

Baseline

Meaningful changes. See Figure 1 for visual presentation of the results for this variable. Before learning the FIX strategy, students—regardless of achievement level—made few or no changes to their essays. With the exception of one pair of average-achieving writers who made 2 meaningful changes, all other student pairs averaged 0 to 1.5 changes on any baseline essay. Interestingly, the high-achieving writers made the fewest number of meaningful changes to their essays (see Table 2 for means and standard deviations).

Number and quality of nonsurface revisions. On average, students made fewer than 4 nonsurface revisions regardless of achievement level during baseline. Although one pair of high-achieving writers averaged 7.5 nonsurface revisions on one essay, 10 out of 12 baseline scores from student pairs at this achievement level ranged from 0 to 2. As a result, the high-achieving writers collectively made the fewest revisions. The average-achieving writers averaged less than 3 nonsurface revisions; one pair averaged 7 revisions and the remaining baseline scores revealed no more than 3 revisions per essay. The low-achieving writers averaged the greatest number of nonsurface revisions (3.6) with one pair of students averaging 7 revisions and their remaining baseline scores ranging from .5 to 5.5 revisions. Finally, the students with LD averaged fewer than 3 nonsurface revisions at baseline with one pair of students averaging 6 nonsurface revisions and the remaining students averaging 1 to 5 revisions per essay.

When looking at the impact of the nonsurface revisions, the high- and average-achieving writers made more revisions that improved text (44% each) compared to the low-achieving writers and the students with LD (34% and 28%, respectively).

Conversely, the low-achieving writers and the students with LD made more revisions that did not change the quality of their text (40% and 52%, respectively) compared to the high- and average-achieving writers (37% and 34%, respectively).

Change in Quality. Change in quality measures ranged from +2 to -2, with +2 indicating the second essay was much better than the first and -2 indicating the second essay was much worse than the first. Before instruction, quality change measures were fairly low across achievement levels. Mean scores indicated that students rarely produced a second essay that was better than the first before instruction (see Table 2 for means and standard deviations).

Holistic Quality. Scores for holistic quality ranged from 0 to 7. Holistic ratings for students were weak at baseline but did improve slightly by achievement level (students with LD = 1.85, low achieving = 2.17, average achieving = 2.38, high achieving = 2.71).

Summary. Overall, students' baseline scores were uniformly low at baseline. Ninety-eight percent of all participating students made fewer than 2 meaningful changes. Surprisingly, the least number of meaningful changes and nonsurface revisions came from the high-achieving students. Although high- and average-achieving writers received higher holistic quality scores and made nonsurface revisions that improved text 44% of the time, there was less than a one point difference between their scores and the scores received by low-achieving students and students with LD.

Instruction

Students generally responded very quickly to instruction. They understood the basic format of a good expository essay and easily identified and underlined the

functional elements of an essay (i.e., premise, reasons, elaborations, and conclusion). With instruction, students were better equipped at differentiating between a reason that supports the premise and elaborations. Students occasionally had different opinions regarding which text was a reason and which was an elaboration—as reasons sometimes came at the end of the paragraph--but this created an opportunity for teachers to discuss different writing styles. During the modeling stage of instruction, students collaborated with teachers offering suggestions to make an essay better. When working collaboratively as a class, students were almost unanimous in identifying problems and offering ways to execute changes. As students began practicing the FIX strategy with peers or on their own, a significant shift in their number of revisions was observed. Most students from all ability levels consistently made 10 to 20 revisions on their essays. On occasion, the low-achieving writers or students with LD made only 5 to 10 revisions, but that was still an improvement over what they had done at baseline. Students responded well to using the cards and had them on hand at the start of each session. As they used the red cards to "focus on essay elements" students began to make sure their essays had a premise, at least three reasons, and a conclusion. The red cards became the easiest for students to use because they clearly knew when and where essay elements could be added. When using the yellow cards, most students felt their premise got the reader's attention so few made changes to, or elaborated on, the premise. They did, however, use the yellow cards effectively to identify problems within the remainder of their composition. They most frequently identified problems stating, "This doesn't sound right or does make sense," "My reader needs more information," and "I need to elaborate more." When practicing the strategies on their own, students more often executed changes by adding or rewriting

information. Only when a sentence completely made no sense did they delete it. Rarely did students move text around when revising. See Appendices AI and AJ for samples of students' revisions during instruction.

Table 2

Mean Performance Scores of Students During Baseline

Groups	M	SD
Students with LD		
Meaningful Changes	.33	.39
Nonsurface Revisions	2.61	2.38
Better	1.42	.79
No Change	2.61	1.94
Lower	1.00	0.00
Change in Quality	.35	.42
Holistic Quality	1.85	.41
Low-achieving writers		
Meaningful Changes	.88	.53
Nonsurface Revisions	3.58	2.83
Better	2.15	1.14
No Change	2.59	1.75
Lower	1.67	1.00
Change in Quality	.19	.43
Holistic Quality	2.17	.59
Average-achieving writers		
Meaningful Changes	.67	.65
Nonsurface Revisions	2.71	1.95
Better	2.00	1.24
No Change	1.56	.81
Lower	1.00	0.00
Change in Quality	.60	0.00
Holistic Quality	2.38	.48
High-achieving writers		
Meaningful Changes	.25	.45
Nonsurface Revisions	1.95	2.79
Better	2.38	1.51
No Change	2.00	1.41
Lower	1.00	0.00
Change in Quality	.25	.34
Holistic Quality	2.71	.66

Postinstruction

After learning the FIX strategy, all pairs of students made improvements in (a) number of meaningful changes, (b) number of nonsurface revisions, and (c) both quality measures (see Table 3).

Meaningful changes. The increase in number of meaningful changes made by students after instruction revealed impressive gains. This is noteworthy as it demonstrated a conscious effort by students to use the FIX strategy to make changes they had not made previously. High-achieving writers made the greatest gains with a 31% increase in the number of meaningful changes. Students with LD increased their number of meaningful changes by nearly 23%, average-achieving writers by almost 11%, and low-achieving writers by just under 8%. The percentage of nonoverlapping data points (PND) was also used to establish the significance of the number of meaningful changes from baseline to post-instruction. PND is a method used for analyzing data when using single-subject experimental designs. PND is calculated by counting the number of data points that did not overlap, dividing that number by total number of data points, and multiplying by 100 to get the percentage. For number of meaningful changes in this study, PND was 100% for all pairs of students (see Figure 1 and Tables 3 & 4).

Number and quality of nonsurface revisions. After learning the FIX strategy, students made over two to three times more revisions than they had made during baseline testing. PND for nonsurface revisions was 78% for low-, average-, and high-achieving students and 67% for students with LD (percentages are averages from across all classrooms). The students with LD actually made the greatest number of revisions during

posttesting; however, scattered baseline scores made by students in the first and third classrooms resulted in fewer non-overlapping data points.

Further analysis of students' nonsurface revisions revealed an improvement in their ability to make changes that improved the quality of their text. All students more than doubled the number of revisions that made text better. Eighty percent of the revisions made by high-achieving writers improved text, followed by students with LD (65%), average-achieving writers (57%), and low-achieving writers (56%). All students reduced or eliminated the number of revisions that lowered the quality of their text. Low- and average-achieving writers reduced the percentage of time their revisions lowered text quality by half (12% and 11%, respectively). The students with LD and the high-achieving writers were both successful in not making any revisions that lowered the quality of their text (see Table 5).

Word, phrase, and T-unit revisions. Although students made more word, phrase, and T-unit revisions following instruction, their increase in word and phrase revisions did not appear to be meaningfully influenced by the FIX strategy (see Table 6). Students did, however, make more T-unit revisions following instruction regardless of their achievement profile.

Students with LD more than doubled their use of T-units; low-, average, and high-achieving writers made even greater gains. Low-achieving writers made nearly 5 times the number of T-unit revisions, average writers made 8 times as many changes, and high-achieving writers made 11 times as many T-unit revisions than they did at baseline.

Figure 1. Number of Meaningful Changes

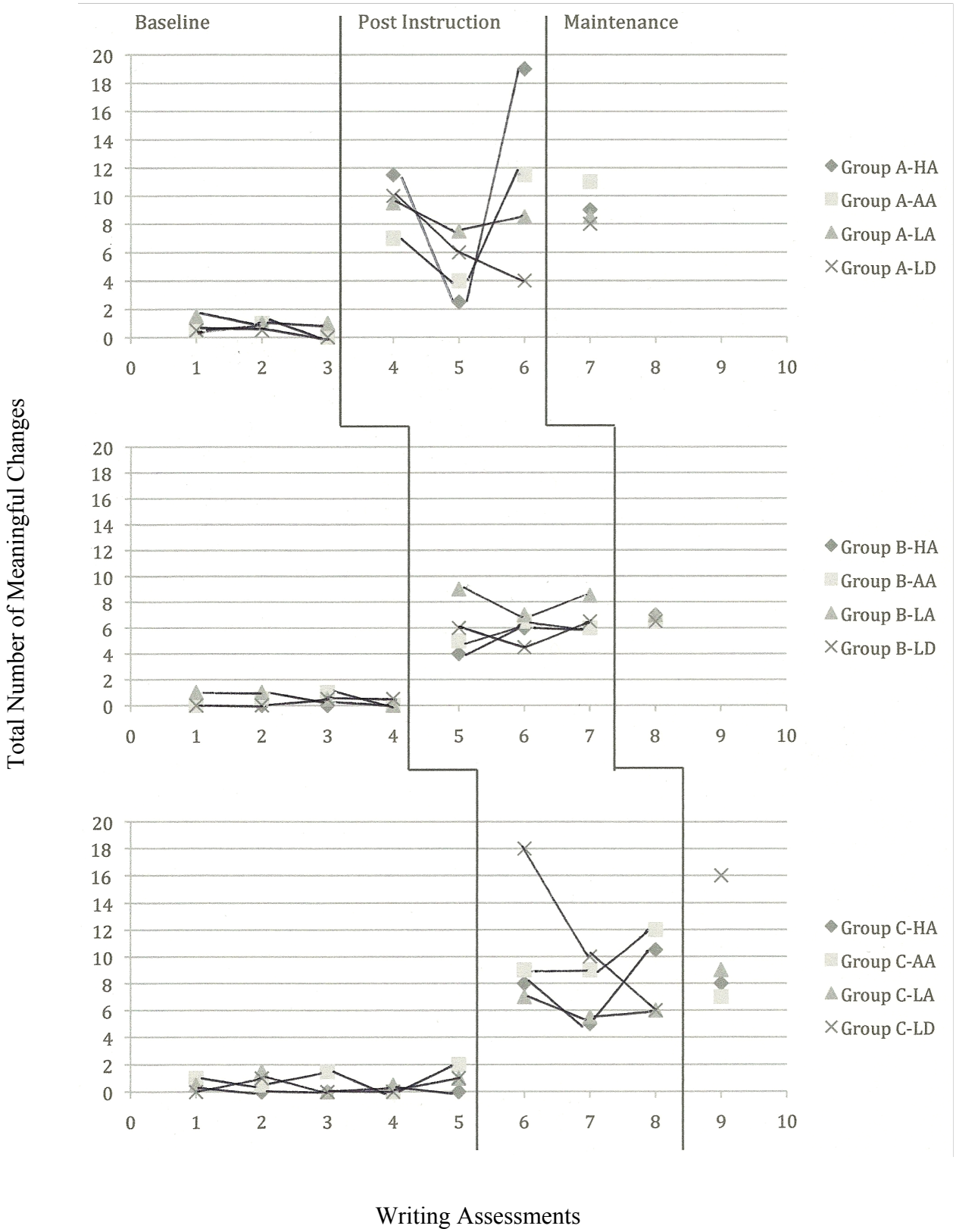


Table 3
Mean Performance Scores of Students After Instruction

Groups	M	SD
Students with LD		
Meaningful Changes	7.89	4.33
Nonsurface Revisions	8.73	6.03
Better	6.45	5.41
No Change	3.43	2.37
Lower	0.00	0.00
Change in Quality	1.14	0.38
Holistic Quality	2.89	0.61
Low-achieving writers		
Meaningful Changes	7.61	1.36
Nonsurface Revisions	8.00	3.26
Better	5.53	2.43
No Change	3.08	2.61
Lower	1.20	0.44
Change in Quality	0.94	0.30
Holistic Quality	3.22	0.61
Average-achieving writers		
Meaningful Changes	7.78	2.79
Nonsurface Revisions	7.47	3.20
Better	5.27	2.31
No Change	3.10	2.13
Lower	1.00	0.00
Change in Quality	0.86	0.31
Holistic Quality	3.89	0.66
High-achieving writers		
Meaningful Changes	8.05	5.03
Nonsurface Revisions	7.20	4.02
Better	6.33	3.70
No Change	1.63	0.92
Lower	0.00	0.00
Change in Quality	0.92	0.33
Holistic Quality	3.61	0.50

Table 4
Number of Meaningful Changes

Students	% Increase	PND
LD	23%	100%
LA	8%	100%
AA	11%	100%
HA	31%	100%

Table 5

Number and Quality of Nonsurface Revisions

Students	% Increase in Quality	PND
LD	65%	67%
LA	56%	78%
AA	57%	78%
HA	80%	78%

Nonsurface revisions by operation. The means and standard deviations for adding, deleting, rewriting, and moving text are presented in Table 7. The most common nonsurface change was addition, accounting for 45% of the revisions before instruction and 47% of the revisions after instruction in the FIX strategy. Rewriting was the next most common revision (37% before instruction and 39% after instruction), followed by deleting (18% and 13%, respectively). Rarely did any of the students move words, phrases or T-units when making revisions. This only occurred 1% of the time after instruction.

Change in Quality. With improvements observed in number and quality of revisions, it is not surprising that the quality of students' essays improved as well. The quality change measure results indicated that students improved in their ability to make their final essay somewhat better than the first (Range = +2 to -2). Scores for this variable were extremely low at baseline with average-achieving writers receiving the highest average score of 0.60. These students also made the least improvement with a postinstruction score of .86. Other student pairs had lower baseline scores but more than tripled their scores after instruction. Students with LD went from a baseline score of .35 to a postinstruction score of 1.13, low-achieving students went from 0.19 to 0.94, and high-achieving students went from a baseline score of 0.25 to 0.92 after instruction. PND

for quality change measure was 89% for low-achieving writers, 78% for high-achieving writers, 55% for students with LD, and 33% for average-achieving writers (see Table 8).

Table 6

Nonsurface Revisions by Type

Type	Baseline M (SD)	Postinstruction M (SD)	Maintenance M (SD)
Students with LD			
Word revisions	2.00 (1.05)	2.38 (0.92)	1.50 (0.71)
Phrase revisions	1.90 (1.60)	3.00 (2.78)	2.75 (1.50)
T-unit revisions	2.00 (1.00)	5.10 (5.49)	4.50 (2.65)
Low-achieving writers			
Word revisions	1.13 (1.15)	2.12 (2.42)	2.33 (2.25)
Phrase revisions	1.67 (1.61)	2.23 (1.92)	2.67 (2.50)
T-unit revisions	0.75 (1.15)	3.65 (3.08)	3.17 (3.19)
Average-achieving writers			
Word revisions	1.61 (1.83)	2.27 (1.44)	1.80 (1.30)
Phrase revisions	0.67 (0.80)	1.67 (1.50)	1.60 (1.52)
T-unit revisions	0.43 (0.68)	3.47 (2.10)	4.00 (3.24)
High-achieving writers			
Word revisions	1.05 (1.88)	2.00 (2.03)	1.83 (1.83)
Phrase revisions	0.57 (0.98)	1.56 (2.00)	2.17 (1.33)
T-unit revisions	0.33 (0.66)	3.63 (3.74)	3.33 (1.97)

Holistic Quality. Holistic quality ratings for students' final drafts increased by at least 1 point after instruction across all achievement levels. Ninety-six percent of postinstruction ratings were equal to or greater than students' highest baseline scores. PND for average-achieving writers was 100% and these students averaged the highest holistic quality scores with one pair receiving a rating of 5. PND was 78% for all other achievement levels and in only one instance did a score drop below the baseline score; in this case the drop was by 0.25 points (see Table 9).

Table 7

Nonsurface Revisions by Operation

Type	Baseline M (SD)	Postinstruction M (SD)	Maintenance M (SD)
Students with LD			
Add	1.86 (1.46)	4.54 (2.84)	6.00 (1.73)
Delete	1.50 (0.55)	3.00 (2.45)	1.33 (0.58)
Rewrite	2.09 (1.38)	3.88 (3.83)	2.50 (1.73)
Move	.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Low-achieving writers			
Add	1.75 (1.42)	3.71 (1.96)	4.67 (1.97)
Delete	.33 (0.76)	0.59 (1.28)	0.33 (0.52)
Rewrite	1.46 (1.41)	3.59 (2.98)	2.83 (3.76)
Move	.04 (0.20)	0.12 (0.33)	0.33 (0.82)
Average-achieving writers			
Add	1.60 (1.31)	4.00 (2.17)	4.60 (3.78)
Delete	.19 (0.40)	0.60 (1.30)	0.40 (.89)
Rewrite	1.00 (1.14)	2.73 (2.76)	2.40 (2.79)
Move	.00 (0.00)	0.07 (0.26)	.00 (0.00)
High-achieving writers			
Add	.90 (1.79)	3.63 (2.45)	3.83 (0.75)
Delete	.38 (0.80)	0.25 (0.58)	1.00 (0.82)
Rewrite	.57 (1.12)	3.00 (3.72)	2.50 (2.59)
Move	.00 (0.00)	0.31 (0.79)	2.00 (0.00)

Table 8

Change in Quality

Students	Increase in Measure	PND
LD	.35 to 1.13	67%
LA	.19 to .94	89%
AA	.60 to .86	33%
HA	.25 to .92	78%

Maintenance

A maintenance writing prompt was administered to students in each classroom four weeks after their respective last day of instruction. All student pairs maintained their gains from the postinstruction phase and dependent measures remained well above the

baseline scores (see Table 10). Scores for meaningful changes were 10 to 30 times higher than scores at baseline across all achievement levels. Students with LD not only maintained their ability to make meaningful changes, their average score improved by 29% one month after instruction. On average, 75% of the students' nonsurface revisions (LD = 76%, LA = 85%, AA = 68%, HA = 67%) made their text better.

In fact, scores for change in quality increased during maintenance at every achievement level (students with LD = 10%, LA = 15%, AA = 16%, HA = 27%). Holistic quality scores also remained close to or better than posttest levels, but in every case, above baseline scores. Students with LD and low-achieving writers' scores remained close to posttest levels and above baseline scores. Average-achieving writers actually improved their gains in holistic quality by 14%.

Table 9
Holistic Quality

Students	Increase in Quality	PND
LD	1.85 to 2.89	78%
LA	2.17 to 3.22	100%
AA	2.38 to 3.89*	100%
HA	2.71 to 3.61	100%

*Increased to 4.42 at Maintenance

Summary. On the whole, the FIX strategy was an effective method for teaching students the skills they needed to revise their essays. Students made considerable gains in their ability to make meaningful changes that improved the quality of their essays. PND was 100% for number of meaningful changes with increases seen for all students from pre- to post-instruction (LD = 23% increase, LA = 8% increase, AA = 11% increase, HA = 31% increase). Regarding number of nonsurface revisions, PND was 78% for all regular education students and 67% for students with LD. The number of

those nonsurface revisions that improved the quality of students' text doubled (LD = 65% increase, LA = 56% increase, AA = 57% increase, and HA = 80% increase). Most importantly, holistic quality ratings improved by at least 1 point across all achievement levels after instruction. PND was 100% for average writers and 78% for all other student pairs. Moreover, students maintained their gains across nearly all variables.

Table 10
Mean Performance Scores of Students At Maintenance

Groups	M	SD
Students with LD		
Meaningful Changes	10.17	5.11
Nonsurface Revisions	8.00	4.69
Better	6.50	4.12
No Change	2.00	1.41
Lower	1.00	0.00
Change in Quality	1.25	.66
Holistic Quality	2.75	.66
Low-achieving writers		
Meaningful Changes	8.17	1.04
Nonsurface Revisions	8.17	3.13
Better	7.50	2.66
No Change	1.33	.57
Lower	5.19	1.33
Change in Quality	1.08	.14
Holistic Quality	2.75	.43
Average-achieving writers		
Meaningful Changes	8.17	2.40
Nonsurface Revisions	7.40	2.30
Better	5.60	2.70
No Change	2.67	.58
Lower	1.00	0.00
Change in Quality	1.00	0.00
Holistic Quality	4.42	.72
High-achieving writers		
Meaningful Changes	8.00	1.00
Nonsurface Revisions	7.17	2.23
Better	5.00	2.19
No Change	2.40	1.67
Lower	1.00	0.00
Change in Quality	1.17	.29
Holistic Quality	3.50	.66

Social Validation

Students and teachers received questionnaires once the maintenance phase had ended (see Appendices DD and EE, respectively). During a regular class period, Khazin and Bruce distributed questionnaires to the students in the respective classrooms. Students had the option of putting their names on the questionnaire or leaving it anonymous. As it related to the writing process, students had the following comments: "Writing isn't that hard now"; "This helped me cause it made writing easier"; It helps me organize my thoughts"; "I love writing now"; "What I liked is that it told me what to do in each step"; "It was helpful because it was in the order we were supposed to do things"; "Now I know what to do in an essay"; It was helpful because when you're writing essays and you revise you need to know when to revise and how to"; and "This method of revising changed how I feel about writing."

Students made the following statements when asked about the method of revising: This method was helpful because now I know what to do when I am stuck"; "It made the process faster and simpler"; "I liked the cards that helped us memorize FIX"; "Now I understand what I am suppose to check on"; I used to hate revising. It took so long. Now I like it much more"; "It was helpful because I learned a new way to revise"; "This method of revising is helpful because you follow specific steps and every step includes every little detail"; "I felt the directives on the yellow card did help me diagnose my problem"; "This method has changed the way I feel about revising an essay"; "It was helpful because I didn't know how to revise my essays that well"

Only two somewhat negative comments were made: "I liked the revising. I did not like the writing"; and "I liked how it made writing seem easy, and I didn't like the

writing. The same student who made the latter comment also answered "Nope" when asked if the directives on the yellow evaluation cards helped and if the method of revising changed how he felt about writing and revising. This student did, however, state that he would recommend teaching this method to other students.

Teachers made the following comments: "I do feel that this procedure made revising easier for my students. Teaching revising as a separate skill with specific mini lessons and a grade-wide vocabulary allowed teachers from either class to discuss revision of any document throughout the year with students with little confusion. In the past, little time had been spent on revision as a specific skill; revision was taught only as a task in the larger writing process. I intend to teach the FIX process next year as well."

"What I liked most was the combination of composition by students for revision with revision practice on already written work from other students. This allowed students to work on revision as a skill without feeling tied to their writing while also viewing revision as an integral part of the writing process."

"I felt that the emphasis on a few critically important ideas followed by lots of practice was very helpful. The entire unit focused on the four essay elements and on the FIX technique steps. A lot can be covered using these few topics, but using them as the coordinating concepts allowed students to really hang onto the ideas."

"Students were noticeably more able to carry out revision tasks at the end of instruction compared to the beginning of instruction. Additionally, students in this academic year were noticeably more able to carry out revision tasks than were students who did not go through specific revision instruction last academic year."

"The only changes I would suggest relate to a wider variety of prompts and the use of a wider selection of essays for revision."

Summary. Comments from both teachers and students were extremely positive and encouraging. In general, students felt the FIX strategy gave them the tools they needed to make writing and revising easier, and changed the way they felt about revising. The only negative comments were from two students who said they liked learning the strategy, but still did not like to write. Teachers commented that they liked the way the strategy was presented, that instruction helped students to differentiate between editing and revising, and that they felt students had generalized what they learned to other writing assignments.

CHAPTER FIVE

Discussion

The major purpose of the present research was to examine the effects of revising instruction, which emphasized a metacognitive strategy for students with and without learning disabilities. A summary of the major findings will be presented in response to the research questions posed at the beginning of this thesis, followed by an overall discussion of the results. The next section of this chapter will address how the results of this investigation relate to what is known of the composing and revising process of students with and without LD. Finally, limitations in the current findings will be acknowledged, along with recommendations for teaching revising to students and calls for future research.

Purpose

The primary purpose of this study was to evaluate a revision strategy for middle school students in general education classrooms that emphasized the need for students to (a) examine their draft, focusing specifically on the essential elements or parts of an essay, (b) identify problems in their essay between what they wanted to write versus what was actually written, and (c) act on, or execute necessary changes to the draft in response to specific problems they had identified. This three-step sequence was called "Compare-Diagnose-Operate" by Scardamalia and Bereiter (1983). The relevance of this approach is important in the area of revising research because these theorists were the first to call attention to the role of executive control in students who have difficulty in writing. Scardamalia and Bereiter's initial research demonstrated that the CDO routine made the process of revising easier for beginning writers because it provided cues for students to

move from one focus within revising to the next and limited the number of evaluative and strategic decisions made by students.

Importantly, whereas this approach has been validated by subsequent researchers (De La Paz et al., 1998; Graham, 1997) with struggling writers, the current study adds to the literature by employing self-regulated strategy instruction as the teaching model. A CDO procedure (using the acronym FIX) was embedded within a self-regulation strategy to teach sixth grade students revision strategies. The current findings show that students in the current study reached independence in using the CDO procedure, presumably because instruction included several stages of instruction that emphasized a transfer of knowledge from teachers to students, along with self-regulation. Students learned to internalize important revising elements after teachers modeled how to make changes to an essay and provided them with opportunities to practice skills they had learned. Another focus of the present research was to evaluate the FIX strategy in general education settings to compare the progress of students from four achievement levels (high-, average, and low-achieving students, as well as students identified with LD). This design provided an opportunity to compare students' revising performance and assess to what degree low-achieving students and students with LD approximated the skills of their average- or high-achieving peers. Finally, the study provides evidence that the SRSD writing instruction was also beneficial for students who are ELL.

Major Findings

Problems with executive control likely contributed to the revising difficulties encountered by students in this study. All students—included the two who said they still did not like to write—reported that the FIX strategy (or CDO procedure), an approach

that simplified and coordinated the revising elements, made the process of revising easier by giving them the knowledge they needed to implement the steps of the revising process. This support not only made the process of revising easier for the students, it completely changed their revising approach. Students increased the number of nonsurface revisions they made, but more importantly increased the number of meaningful changes that ultimately improved the quality of their essays. And, although all students benefited from using the FIX strategy, the most important finding that came out of this study was that students with LD and low-achieving writers were extremely successful in increasing their number of meaningful changes and improving the quality of their essays even when instruction was provided in a general education setting.

Self-instructional strategy training procedures like SRSD continue to show potential for achieving maintenance of training effects. Results from this study support this proposition. Students with LD continued to show improvement during the maintenance phase when their number of meaningful changes increased by more than 2 points one month after instruction ended. The low-achieving writers increased their number of meaningful changes by half a point. These same students also made improvements in the overall quality of their essays as evidenced by the 1-point increases in their holistic quality scores from baseline to postinstruction. Most importantly, the students that struggled most with writing did nearly as well as their high achieving peers in producing higher quality essays after instruction.

Students who appeared to be high-achieving writers made a 31% increase in the number of meaningful changes. Students with LD made 23% more meaningful changes after instruction, students who were identified as average-achieving writers made 11%

more meaningful changes to their papers, and low-achieving writers made 8% more changes. PND was 100% for students at all achievement levels. In addition, students more than doubled the number of revisions that improved the quality of their text and used more T-unit revisions when making changes to their text (i.e., simple and compound sentences). Students also showed improvement in making final essays better than the first (i.e. change in quality). Baseline scores were low with average scores at or below 0.60, and average-achieving writers made the least amount of gains (from 0.60 to 0.86), but scores for students in the other three achievement levels more than tripled. Finally, overall quality of students' essays improved as well – at approximately one full point on the holistic measure from before to after instruction.

The posttest scores of students with LD not only surpassed pretest scores of high-achieving and average-achieving writers, they surpassed high and average-achieving writers' posttest scores on every measure but two: (a) high-achieving writers averaged 8.05 meaningful changes after instruction, while students with LD averaged 7.89, and (b) high- and average- achieving writers' scores for holistic quality were 3.61 and 3.89, respectively; students with LD received an average score of 2.89. In comparison to posttest scores of high-achieving writers, students with LD averaged more revisions that made text better, and received higher scores in quality change measure. It is important to note that PND was 100% for students with LD and average-achieving writers, but was lower (78%) for students from other achievement levels. Perhaps this could have been because the students with LD had room for greater improvement, but nevertheless, these students made observable gains and did so in the company of their peers and in a regular classroom.

Students with writing abilities in the low-average range also surpassed average- and high-achieving writers' pretest scores on every dependent measure. After instruction, the low-achieving writers averaged more nonsurface revisions and higher quality change measure scores than students from the higher achievement levels at post-instruction. They made more revisions that improved essay quality compared to the average-achieving writers, and slightly fewer than the high-achieving writers. Scores for other dependent measures (meaningful changes and holistic quality) approximated that of their average- and high-achieving peers.

General Discussion

The results from this study indicate that students from every achievement level benefited from instruction in the FIX strategy on all dependent measures. Improvements were made in the number and type of revisions as well as in both measures of quality.

Meaningful changes and nonsurface revisions. Meaningful changes was the criteria and variable used to determine when instruction should be discontinued. Instruction ended after students met criterion by demonstrating being able to independently and consistently make at least five meaningful changes when revising their essay. Students uniformily averaged only .53 meaningful changes at preinstruction compared to an average of 7.8 during postinstruction. Moreover, students maintained these results and students with LD as well as low- and average-achieving writers showed even better performance one month after instruction ended.

Students were also successful in making more nonsurface revisions and maintaining their gains. Collectively they averaged 2.71 nonsurface revisions before instruction and 7.85 after instruction. Low-achieving writers and students with LD made

even more nonsurface revisions one month following instruction. This increase in nonsurface revisions is consistent with results obtained by other researchers who used the CDO procedure to teach revising strategies to students with LD (De La Paz et al., 1998; Graham, 1997; and MacArthur et al., 1991). These same students more than doubled the number of nonsurface revisions that made the quality of the text better. They also reduced or eliminated the number of revisions that lowered the quality of their text. Students averaged 1.98 revisions that made text better compared to 6.11 revisions after instruction. The high-achieving writers made the highest percentage of revisions that improved text, followed by students with LD. These findings are consistent with the results obtained by Graham (1997) whose students with LD made more nonsurface revisions that improved the quality of the text. Scardamalia and Bereiter (1985) had similar results with average-achieving students who, like the participants in Graham's study, received individual instruction in the CDO procedure and saw an increase in the quality of their revisions. Similarly, Fitzgerald and Markham (1987) found that teaching a revising strategy to a classroom of regular education students resulted in more revisions that changed the meaning of text.

Quality measures. One purpose of teaching the FIX strategy was to see how much it improved the quality of students' essays. One may question why students who were categorized as advanced writers still had relatively low quality scores at baseline and post-instruction. One reason could be the different genre that was used to determine achievement levels. The TOWL-3 asked students to write a story in response to a pictured prompt. Students at this age are more adept at writing narratives (e.g., National Center for Education Statistics, 2007); plus, the picture provided a visual image that

possibly elicited more creative writing. More importantly, as De La Paz (1999) discussed, many regular education students (in addition to those with LD) need to improve their writing skills. In any event, quality was measured by change in quality from first to final drafts and in holistic quality of the final paper. Quality change measures improved after instruction indicating that students' final drafts were better than their first drafts after learning the FIX strategy. Only one student pair received a score of 2 indicating the final essay was much better than the their first draft. All other students made improvements and received averaged scores indicating final essays were "somewhat better." This is consistent with results obtained by De La Paz et al. (1998) where the change in quality for CDO papers was rated as "somewhat better" than students' first papers.

An important finding in this study is that instruction in the FIX strategy resulted in holistic quality scores that nearly doubled for all student pairs. This is consistent with results obtained by Monroe and Troia (2006) where students who were taught the CDO strategy made notable gains in each of five quality traits for which their papers were scored. In comparision, Graham's study (1997) indicated that the CDO procedure made revising easier and made their papers better, but their overall writing quality was not meaningfully influenced by the CDO procedure.

As mentioned earlier, explicit instruction using the FIX strategy was embedded within a self-regulation strategy instruction. The findings reported here are consistent with results obtained by Graham and MacArthur (1988) who also investigated the use of mnemonics with SRSD and saw an increase in the total number of revisions and more T-unit changes following instruction. Improvement in quality was also confirmed as all

three students in Graham and MacArthur's study made gains in their quality change measures and in holistic quality by at least one point. In addition, recent meta-analyses of single-subject design studies (Graham & Perin, 2007; Rogers & Graham, 2008) confirm that explicit instruction (strategy and direct instruction) are effective approaches to writing instruction. Similar to this study, Graham and Perin were interested in identifying practices that were used in regular education settings, and included students with LD. For the three studies that graphed quality, PND was high, averaging 91%. Rogers and Graham's meta-analysis looked at studies that assessed elements and quality and reported PND of 100% for quality.

Social Validation. Students' level of participation was measured by attendance, number of independent essays completed, and memorization of the FIX strategy. Students actively participated in the instructional sessions and willingly completed all prompts during instruction. In the end, students commented on how they benefited from instruction and how it changed their opinion of writing and revising. Teachers also said the procedure made revising easier for the students and intended to teach the FIX strategy in the next school year.

Limitations

Missing Data. Two students with LD (one from the first class and another from the second) were often so far behind in their regular schoolwork that the teacher was unable to get revised essays from both students on any postinstruction prompt. Thus, postinstruction information about students with LD could have been stronger, since the reported scores are based on an average of two participants' scores for other phases of instruction. However, this was not much different than the individual score obtained

from Group C who only had one student with LD. One data point for each dependent measure was still recorded even when a student was absent from school or unable to complete a probe.

Generalizability. For at least 50% of the students in each class, English was not their first language. This may have resulted in less proficient writing in English than what is typically regarded for students who are not ELL. Therefore, the results from high- and average-achieving writers may not generalize to a typical population of equally skilled writers. One teacher did suggest instruction could have been improved with a wider variety of prompts (students may have tired from the similar format). Lastly, when considering both ethnicity and academic proficiency, in this sample there were a higher number of students with free and reduced lunch relative to the city's school district or surrounding school districts, yet the African American students received higher reading proficiency scores than most other African American students in the school district. Therefore, the demographic characteristics of the students in this school may not reflect the population of poor urban youth, thus limiting the generalizability of the findings.

Researcher bias. Finally, the fact that the third replication of the intervention was administered by the researcher may cause some to fault the generalization of the results. While this may be true to some degree, in the current study it was the only way to ensure three replications of the intervention. In addition, efforts were made to mitigate the problems this might cause by analyzing fidelity for the third classroom in the same manner as the first two, and by having all qualitative data (quality measures) scored by independent readers who were blind to the writer's ability level, classroom (A, B, or C) and phase of instruction.

Implications for Practice

The findings of this study have important practical implications for teaching revision strategies to struggling writers and students with LD; particularly since this study adds to the literature comparing the effects of instruction with students with LD and low-achieving writers and their more capable peers in general education settings. To begin, students can benefit from external support aimed at helping them better understand how to organize and manage the elements of the revision process. This support can range from teachers incorporating evidence-based strategies into their instruction (e.g., CDO procedure) to teaching students self-questioning and self-instruction routines. Techniques that help students set goals for themselves can also be helpful. Finally, students' competence in using the strategies and techniques that they learn need to be strengthened. One way to accomplish this is for teachers to provide explicit instruction on ways to carry out specific elements of the revision process and then provide the scaffolding and guided instruction needed to assist students in internalize those elements. Teachers should also consider each student's writing performance as they plan their instruction. Struggling writers may need to spend more time using procedural facilitators before they master the revising strategy.

The results of this study show that students who struggle most can learn important writing processes without requiring instruction in designated special education settings. Students and teachers' comments support the positive effects of the revising strategy as well. As many students stated, "it changed their feelings about writing and revising." However, there remains considerable room for improving holistic quality scores.

Therefore, strategy instruction needs to be one part of a strong writing program in order to refine students' writing skills in the classroom.

Implications for Research

Additional research is needed to replicate and expand upon the findings from this study and to address any limitations. To begin with, research on English language learners is extremely limited. Although results from this study are preliminary, they are certainly encouraging and warrant further research on instructional strategies for an under-researched yet growing population. In addition, research should continue to integrate SRSD instruction in process writing programs as MacArthur and his colleagues (1996) have done by incorporating strategy instruction into writers' workshops. The more research proves that self-regulated strategy instruction is effective and can easily be imbedded into other instructional approaches, the more teachers in general education will accept this method of instruction. It is, therefore, equally important that researchers validate the findings of this study by having regular education teachers provide instruction in a general education setting. And, the validation of these findings should not be limited to just middle school students who struggle with revision, but with high school students as well.

Replication in utilizing student independence in strategies such as the CDO procedure with other genres, such as persuasive essays, is also needed. This is particularly true given the NAEP results that indicate only 1% of seniors can write a persuasive essay at an advanced level. Therefore, further research that focuses on revising instruction for persuasive, informative, and argumentative for older students is highly recommended.

Writing instruction is worthy of future research because of its importance to academic success. With the addition of the writing section to the SAT, being an effective writer is more important than ever. Research should continue to include students who learn in general education classrooms particularly as struggling writers and students with learning disabilities receive most of their writing instruction in these settings in secondary classrooms.

Appendices

Appendix A

Table 1

Writing Instruction Treatments That Include Planning and Revising Strategies

	Design/Primary Questions	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Direct Instruction										
Troia & Graham, 2002	Experimental/Does teacher-directed strategy instruction have a more positive impact on the story writing performance of students w/ LD than process writing instruction?	20 4th&5th graders w/ LD randomly assigned to exp. or comparative tx groups *WISC-III*, achievement discrepancy at least 1 SD in reading or writing; English as primary language, ability to write 4 coherently connected sentences.	Paired instruction in a quiet room; for each condition	9.3 – 10.7 hrs for exp. group; 9.1 – 10.8 hrs for comp. group	*Planning Strategy* ▪ SPACE & DARE to all students during pre-instruction phase ▪ SRSD w/ STOP & LIST for exp group ▪ Curriculum/process writing instruction for comp. group	▪ Story/essay length ▪ Quality (organization and appeal for stories; org. and clarity for essays) ▪ Planning time	Trained instructors, lesson plans w/ checklists, weekly meetings, 1/3 of sessions observed, sessions taped, 97.7% lessons complete No scoring reliability	T test results TX = C story length essay length essay quality time spent planning essay TX sig > C story quality (ES = 1.0) story quality maintained (ES = 2.05) story length maintained (ES = 2.87) time spent planning story (ES = 1.36); not maintained	16-point rating scale	Results did not generalize to essay writing

Table 1 (*continued*)

	Design/Primary Questions	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Direct Instruction										
Fitzgerald & Markham, 1987	Posttest-only/Does direct instruction in the revision process improved children's ability to identify inaccuracies and make revisions?	30 6th graders randomly assigned to exp. or control group Students identified as average writers who do not revise selected from two homogeneously grouped LA classrooms.	Classroom	Thirteen 45 min. lessons over a one-month period.	*Revising Strategy TX group*: Revision taught as a problem-solving process through modeling, think-alouds, and collaboration. *Control group:* Read good literature silently and in pairs.	▪ Knowledge of the revision process ▪ Ability to make revisions ▪ Quality	Trained instructors & lessons tape recorded Interrater reliability ranged from .71 - .99	TX = C ▪ Knowledge of the revision process TX > C ▪ # revisions (ES = .64) ▪ Specificity of revisions (ES = .79) ▪ Meaning changes (ES = .85) ▪ Quality (24.13 → 30.27)	8 subscores: (sequence, story development, organization, word choice, details, flavor, sentence structure, and punctuation); each scored from 1-6; possible range of 8-48.	Large range of interrater reliability scores

	Design/Primary Questions	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Procedural Facilitation										
Welch, 1992	Quasi-experiment/ Is the PLEASE strategy an effective metacognitive strategy for teaching students with LD to write paragraphs?	Seven 6th graders w/ LD; 11 w/ LD in comparison group; *WISC* (74-109) and Written Expression subtest of *W-J* (4.8–2.5); discrepancy software program used to determine eligibility	Resource room used for both groups. Teachers provided instruction.	*TX group*: 30 hours of instruction (3 x/week; 30-min. sessions; 20 weeks) *C group*: 26.7 hours of curriculum instruction (4 x/week; 20-min. sessions; 20 weeks)	*Planning Strategy* PLEASE—Pick, List, Evaluate, Activate, Supply Supporting Sentences, End, and Evaluate. Instructional video used to show each step.	▪ Survey of metacognitive knowledge ▪ Writing sample (topic, supporting, & concluding sentences, grammatical correctness, & function ▪ Attitude measure	▪ Teachers completed a one-week summer workshop ▪ Reliability 77%	TX sig > C ▪ Metacognitive knowledge (ES = .988) ▪ Writing sample (ES = .513) ▪ Attitude (ES = .474)	Not assessed.	▪ Quality not assessed; ▪ Teachers instructed and scored data (threat to internal validity) ▪ Interrater reliability 77%

Table 1 (*continued*)

Procedural Facil (cont.)	***Design/Primary Questions***	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Scardamalia & Bereiter, 1983	Quasi-experiment/ Will a simplified model of CDO simply executive simplify executive routine for sentence-by-sentence eval & revision & reduced executive control problems?	▪ 90 4th, 6th, & 8th graders (30 from each grade) ▪ ½ students in each grade went through CDO sentence by sentence ▪ ½ students wrote essays then applied CDO	Classroom	Instruction time not indicated	*Revising Strategy* ▪ Simplified model of CDO (Alternating Procedure)	▪ Length ▪ # of changes ▪ Type of revisions ▪ Quality	▪ Fidelity and reliability not indicated	Length ▪ 4th = 6th graders: On-line = eval. after ▪ 8th graders: On-line < eval. after # of Changes ▪ 4th grade: 20% made no changes compared to 40% from NAEP. ▪ 8th grade: 7% made no changes compared to 22% from NAEP Type of Revisions ▪ changes for the better = changes for worse ▪ No difference in quality	Rank-ordered on rater's overall impression of quality.	▪ Fidelity and reliability not indicated
Scardamalia & Bereiter, 1985	Quasi-experiment/ Will instruction using the CDO model improve the quality of diagnoses to the extent that subject's diagnoses agree with those of a professional editor?	20 6th graders & 16 12th graders Each grade divided b/w exp. & control groups	Individualized instruction	Instruction time not indicated	*Revising Strategy* *TX group*: CDO model *Control group*: explained & identified problems they detected.	▪ Quality of diagnoses ▪ Quality of suggested revisions ▪ Transfer effect	▪ Fidelity and reliability not indicated	Quality of diagnosis ▪ TX > C (both grades) ▪ Transfer to TX (12th) Quality of revisions ▪ TX > C (6th) ▪ TX = C (12th) ▪ Transfer to TX (6th and 12th)	Overall quality not assessed	▪ Fidelity and reliability not indicated

Table 1 (*continued*)

Procedural Facil (cont.)	***Design/Primary Questions***	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Reynolds et al., 1988	Quasi-experiment/ What are the effects of instruction in two different revision strategies on the content and mechanics of students' paragraph writing?	54 students w/ LD from 8 classes (five 6th, 29 7th, 20 8th graders) Classes assigned to 1 of 3 groups: Group 1 – Eval & Dir. Phrases plus COPS Group 2 – COPS then Eval & Dir. Phrases Group 3 – control group	4 resource rooms; mean class size was 7 students	Not mentioned	*Revising Strategy* Similar instruction during prewriting using TRIPE *TX groups*: COPS and Evaluative and Directive Phrases sentence by sentence *C group:* Revised paper as if submitting for a grade.	· Content (ideas, organization, wording & flavor) · Mechanics (usage, punctuation, spelling, handwriting)	· Teachers followed script · Reliability not indicated	Content Group 1 = Group 2 = Group 3 Mechanics Group 1 > Group 3 Revision strategies improved mechanics; not content	5-point analytic scale measured content	· Standardized achievement scores on written expression not obtained · No evaluation made of student writing prior to instruction · Reliability scores not indicated
Graham, 1997	Quasi-experiment/ Will use of the CDO procedure reduce problems w/ executive control when revising and allow students to carry out more successful revisions?	12 5th & 6th graders w/ LD *WISC* (85-116); identified as LD by school district; at least 2 yrs below grade level in reading or math; no other handicapping conditions	Individual instruction	Intervention duration not specified	*Revising Strategy Normal condition:* students rewrote paper to "make it better." *CDO condition:* used sentence-by sentence evaluation	· # of changes · Changes in quality · Overall quality	· Teachers trained · Sessions tape recorded · 1/3 of sessions randomly selected for review · All sessions conducted as planned · Reliability range (.80 - .86)	Non-surface meaning preserving revisions: CDO > Normal (ES = 1.20) Non-surface meaning changing revisions: CDO = Normal Changes in quality CDO > Normal (ES = .68) Overall quality CDO = Normal	Change in quality from 1st to final draft (scores ranged from +1 to -1)	· Small sample size

Table 1 (*continued*)

Procedural Facil (cont.)	***Design/Primary Questions***	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
De La Paz et al, 1998	Quasi-experiment/ Will use of the CDO procedure result in an increase in the number of revisions rated as improving text? Will students make more revisions using CDO?	12 8th graders w/ LD *WISC* (85-116); identified as LD by school district; all had difficulty with writing; written expression subtests (1 SD or more below the mean)	Individual instruction	Intervention duration not specified	*Revising Strategy Normal condition:* students rewrote paper to "make it better." *CDO condition:* used sentence-by sentence evaluation	▪ # and type of revisions ▪ Length ▪ Quality	▪ Teachers trained ▪ Sessions tape recorded ▪ Logs kept	CDO > Normal # of nonsurface meaning-preserving revisions (ES=.93) # of nonsurface meaning-changing revisions (ES=.66) Quality CDO = Normal Quality of nonsurface meaning-changing ▪ Length	Change in quality from 1st to final draft (scores from fro +2 to -2)	▪ Many problems of revision remained when students used the CDO procedure. ▪ Students did not internalize the revising procedures
Monroe & Troia, 2006	Quasi-experiment/ Qualitative: Can students benefit from short-term, explicit instruction in a set of writing strategies that targets multiple aspects of the writing process and the characteristics of good writing?	3 middle school students w/ LD in treatment group (TX) 3 students w/ LD & 3 in control group (SpEdC); 6 random gen. ed. students supplied writing samples (GenEdC) TX group: LD in reading and writing; IQ scores ranged from 80-93; written expression score of 90 or below on CIBS-R. SpEdC group: LD in writing; IQ scores 78-97; written expression score 94 or below on CIBS-R.	Quiet room in the school	TX group: 10.5 hours of instruction (45 mins; twice a week for 7 weeks)	*Planning Strategy* *TX group: DARE to plan opinion essay; SPACE to teach structure of fictional narrative; CDO (Strategy (Compare, Diagnose, Operate) and SEARCH (Set goals, Examine paper to see if it makes sense, Ask if you said what you meant, Reveal picky errors, Copy over neatly, Have a list look for errors) to revise.* *C group: DARE and SPACE*	▪ Quality (traits = content, organization, sentence fluency, word choice, conventions) ▪ Functional elements (premise, reason, elaboration, and conclusion)	▪ Detailed instructions, lesson plan check list, observation notes; ▪ Reliability 62-87%	TX group made modest gains in each of the 5 quality traits from pretest to posttest (range = .58 to 1.5 points) TX group made modest gains in functional elements pre to post TX > SpEd C ▪ Quality (minimal) TX = SpEd C ▪ Funct. Elements TX < GenEd C ▪ Quality TX < GenEd C ▪ Funct. Elements	6-point scale for each dimension of writing quality (content, etc.)	▪ Small sample sizes ▪ No statistical analysis ▪ Interrater reliability ranged from 62% to 87% for the five quality traits

Table 1 (*continued*)

	Design/Primary Questions	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Strategy Instruction/ CSIW										
Englert et al., 1991	Experimental (Teachers w/in school randomly assigned to TX or C groups)/ How effective is instruction that incorporates dialogue, scaffolded instruction, and collaborative activity on students' abilities to produced well-organized expository texts?	183 4th & 5th graders from 12 schools (128 LA & HA; 55 LD) LA, HA & LD students assigned to experimental (CSIW) and control conditions. LA = at or below 39th %ile in subtest of *Stanford Achievement* Test; HA = at or above 56th %ile; LD = receptive & expressive language below expectations, no other disability. students selected based on teachers' participation.	Classrooms	*CSIW group*: 6 months; 4 phases for each text structure. *C group*: regular instruction.	*Planning Strategy* CSIW – think sheets that promote inner dialogue, self-talk, and text structures of the writing process; Acronym "POWER" (plan, organize, write, edit, revise) that guides students through each structure of the writing process; Four phases: text analysis, modeling, guided practice, independent use of strategies	Metacognitive knowledge Writing assessment (Explanation & Comp/contrast) --Quality --Primary trait --Productivity --Reader sensitivity "Expert" paper on a topic of their own choosing (near transfer)	▪ Structured curriculum; teachers in exp. conditions monitored weekly ▪ Reliability above 80%	TX sig > C ▪ metacognitive knowledge ▪ writing assessment ▪ near transfer HA sig > LA&LD ▪ metacognitive knowledge ▪ writing assessment ▪ near transfer LA = LD ▪ metacognitive knowledge ▪ writing assessment ▪ near transfer CSIW group: ▪ LD = 1.27 ▪ LA = 1.76 ▪ HA = 2.06 C Group ▪ LD = 1.10 ▪ LA = 1.67 ▪ HA = 1.85	3-point holistic score	No evidence regarding relationship b/w treatment effects and teacher assignment or teacher implementation.

Table 1 (*continued*)

CSIW (cont.)	***Design/Primary Questions***	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Englert et al., 1992	Experimental/ Do strategy interventions promote students' abilities to articulate their knowledge about text?	63 4th & 5th graders; (1/2 LD and nonLD) from 1991 study; 31 had no prior intervention; 32 had prior CSIW intervention; nonLD was comparison sample.	Classrooms	*CSIW group*: 6 months at least 2-3 x/week	*Planning Strategy* CSIW (see above)	Metacognitive knowledge of writing process & organization Correlation of knowledge with writing & reading performance T test comparison of Intervention LD and No Intervention NLD	▪ Researchers observed instruction once each week; fidelity not quantified ▪ 90% reliability for both primary trait and holistic score	TX sig > nonTX ▪ Knowledge of writing process ▪ Knowledge of org. strategies Significant correlations b/w writing ability and 6 of 9 knowledge variables Sig. correlation b/w reading and all 9 knowledge variables Int LD = NoInt NLD ▪ knowledge of writing process	3-point holistic score	Fidelity of treatment might be questioned as there was no mention of adherence to intervention or quality of delivery.

Table 1 (*continued*)

CSIW (cont.)	***Design/Primary Questions***	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Hallenbeck, 1996	Quasi-experiment/ What is the effectiveness of CSIW on the writing performance of adolescent students with LD?	7 students w/ LD (two 7th graders, two 10th, one 11th, two 12th) *WISC* (84-98); identified as LD by school district; all had difficulty with writing; below grade level on written language scores from *W-J Psycho-Educational Battery*	Resource room	2 to 3 class periods a week for 1 school year	*Planning Strategy* CSIW Strategy using think-sheets, self-talk, and text structures visible to students; Acronym POWER represented subprocesses in the writing process.	· Overall quality · Primary trait score (e.g., introduction, use of key words, organization)	· Structured curriculum · Reliability ranged from 87.5% to 100%	· Improvement by every student in every scoring category	3-point scoring criteria (0-3)	· Small sample size
Hallenbeck, 2002	Quasi-experiment/ Can CSIW enable students w/ LD to take responsibility of their writing & scaffold one another's writing development?	Four 7th graders w/ LD; all experienced difficulty with expository writing	Resource room in school	2 to 3 times/week during a class period at the beginning of the school year; more often in the latter part of the year.	*Planning Strategy* CSIW strategy using modeling, think-alouds, scaffolding, and think sheets.	· overall quality · primary-traits · number of words · reader sensitivity	· 100% for pretest primary-trait score · 80% for pretest reader sensitivity score · 93.75% for posttest primary-trait score · 90% for posttest reader sensitivity score.	· 3 students improved in all dependent measures; 4th student did not	Rubric used for scoring dependent measures	· No statistical analysis · No effect sizes provided · Small sample size

Table 1 (*continued*)

	Design/Primary Questions	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Strategy Instruction/ Peer Conferencing										
MacArthur et al, 1991	Quasi-experiment/ What is the impact of a reciprocal peer editing strategy on LD students' knowledge about writing and revising, their actual revising activity, and the quality of their writing?	29 4th, 5th, & 6th graders w/ LD randomly assigned to strategy instruction or control conditions	Classroom and paired instruction	6-8 weeks of strategy instruction. Control group continued regular writing workshop	*Revising Strategy* Student Editor Strategy – meetings b/w students emphasized revision and correction of mechanical errors.	▪ Total revisions ▪ S-Revisions ▪ NS-Revisions ▪ Quality	▪ Teachers trained; lesson plans ▪ Reliability = .99, .97, .89, & .89	▪ Total revisions (ES = 1.29) ▪ S-Revisions ▪ (ES = 1.41) ▪ NS-Revisions (ES = 0.64) ▪ Quality ▪ (ES = 1.19)	Change in quality b/w draft 1 and draft 3	▪ Weak transfer effects for substantive revisions and quality. Students unable to apply knowledge outside interview session.
Wong et al., 1991	Quasi-experiment/ Will facilitative effects of interactive teaching improve clarity and thematic salience in reportive essays in adolescents with learning disabilities?	Five high school students w/ LD	Paired instruction (2 or 3/group)	3 x/week for 50 minutes; instruction lasted 2 months	*Revising Strategy* Importance of planning explained using 3-step strategy. Repetitions of interactive teaching process used to revise essays. Teachers focused on salience of theme; then spelling & grammar.	▪ Clarity of writing ▪ Thematic salience ▪ Student predictions vs. exp. predictions ▪ Quality of revisions	▪ Reliability ranged from .86 - .93	Essay 1 Clarity; gains maintained Essay 2 Thematic salience; gains maintained ▪ Poor match b/w student/exp. predictions	Quality assessed in terms of clarity and cogency on a 5-point scale.	▪ Instructional efforts to foster student development of metacognition about audience needs in writing was indirect/ implicit.

Table 1 (*continued*)

Peer Conf (cont)	***Design/Primary Questions***	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Wong et al., 1991	Quasi-experiment/ Can the facilitative effects of interactive on adolescents with learning disabilities be replicated?	Six high school students w/ LD	Paired instruction (2 or 3/group)	3 x/week for 50 minutes; instruction lasted 2 months	*Revising Strategy* Importance of planning explained using 3-step strategy. Repetitions of interactive teaching process used to revise essays. Teachers focused on salience of theme; then spelling & grammar.	· Clarity of writing · Thematic salience · Student predictions vs. exp. predictions · Quality of revisions	· Reliability ranged from .86 - .93	Essay 1 Clarity Thematic salience Essay 2 Improvements but not statistically significant · Poor match b/w student/exp. predictions	Quality assessed in terms of clarity and cogency on a 5-point scale.	· Instructional efforts to foster student development of metacognition about audience needs in writing was indirect/ implicit.
Wong et al., 1994	Quasi-experiment/ How would performance of students w/ LD in a dyadic student-student interactive dialogue training condition compare to those in the teacher-student interactive dialogue training condition?	31 8th and 9th graders (3 ESL; 28 LD) 13 of the 28 with LD in control group 2 intervention conditions · Student-teacher · Dyad	Classroom instruction	3 class periods spent on think-aloud planning; other instruction time not specified.	*Revising Strategy* Importance of planning explained using 3-step strategy. Students taught to revise through interactive dialogue b/w teacher & student. Teachers focused on salience of theme. Students then paired & taught to use interactive dialogue Students in control condition received a modified course in English	· Clarity of writing · Thematic salience · Self-efficacy · Metacogntitve	· Reliability scores (essay clarity .85; theme .88; metacognitive .93; self-efficacy 100%)	Clarity TX > C (ES = .95 & 1.57) Salience TX > C (ES = 1.57 & 1.88) posttest > pretest Self-efficacy TX > C (ES = .1.97 & 1.61) Metacogntion · TX = C	Quality assessed in terms of clarity and cogency on a 5-point scale.	· Lack of randomization in paring students in the dyad situation · Small sample size

Table 1 (*continued*)

Peer Conf (cont)	***Design/Primary Questions***	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Wong et al., 1996	Quasi-experiment/ After receiving strategy instruction, would students demonstrate significant improvement in their opinion essay writing from pretest, to posttest; would improvement be maintained; would writing skills be better than a control group.	18 middle school students (4 LA & 14 LD) from intact classrooms; 20 students (5 LA & 15 LD) in control group. *LD* – adequate intelligence, significant academic underachievement, no other problems. *LA* – grades of C-, D's and F's.	Intact classroom; divided into pairs to plan and revise opinion essay.	*TX group*: 15 hours of instruction (3 x/week; 50-min. sessions; 6 weeks) *C group*: no intervention.	*Planning & Revising* Prompt sheet for planning; Planning strategy modeled via think alouds; Revisions taught through interactive dialogues w/ teacher and peer. Prompt cards w/ signal words and phrases.	▪ Clarity and cogency ▪ Attitudes ▪ Self-Efficacy ▪ Metacognition	85% Reliability	TX sig > C ▪ Clarity & cogency (ES = 2.17 & 2.74, respectively); results were maintained ▪ Self-efficacy (ES = .70) ▪ Metacognition (ES = .87) ▪ Quality maintained but scores slightly lower than posttest scores. TX = C ▪ Attitude	Quality assessed in terms of clarity and cogency on a 5-point scale.	▪ No taped recording of interactive dialogues; ▪ Maintenance 2 weeks after intervention and 1 week after posttest

Table 1 (*continued*)

Peer Conf (cont)	***Design/Primary Questions***	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Deatline-Buchman & Jitendra, 2006	Quasi-experiment/ qualitative What is the effectiveness of a writing intervention that emphasizes argumentative text structure and the writing process in conjunction with collaborative planning and revising by peers?	Five 4th grade students w/ LD Identified LD based on discrepancy b/w achievement and intellectual ability; teacher interview, at least 2 of 5 subtest scores on TOWL-2 was one or more SD below the mean; students reading at least at a 2nd grade level.	Resource room in the school	16.5 hours of instruction (45 min sessions 3x/ week for 6 weeks, then 2x/week for last 2 weeks)	*Planning Strategy* Planning sheets, think aloud, and interactive dialogue for argumentative essays. COPS strategy checklist to edit & revise	▪ # of words ▪ Planning time ▪ Composing time ▪ Quality (4-pt scale) ▪ Clarity & cogency (5-pt scale)	Lessons scripted, checklists, observations; 95% fidelity of treatment 100% reliability for # of words, planning time, & composing time 86% mean reliability for quality (range = 40% - 100%)	▪ 360% improvement in # of words; generalized to argumentative essay ▪ 364% improvement in planning time; generalized to argumentative essay ▪ 415% improvement in composing time; generalized to argumentative essay ▪ Improvements in quality ranged from index scores of 1.6 – 2.6; gains did not generalize ▪ 2.60 improvement in clarity & cogency; gains did not generalize	4-point scale for focus, content, organization, style, & conventions	Small sample size only 2 students w/ adequate improvement no control group no statistical analysis teacher had minimal teaching experience.

Table 1 (*continued*)

Peer Conf (cont)	***Design/Primary Questions***	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Graham, Harris & Mason, 2005	Experimental/ Can SRSD instruction improve struggling young writers' strategic behavior and knowledge of the writing process?	73 3rd grade struggling writers (12 LD, 4 S&L) randomly assigned to 3 conditions: SRSD only, SRSD + peer support (PS), and Comparison (C) group Scored 2/3 of a SD below the mean on subtest of the *TOWL-III*,; identified as struggling writers; 2/3 of a SD below the mean in Writing Fluency subtest of *W-J*	Paired instruction; comparison group in classroom	5 – 6 hours of instruction (20 min; 3 x/ week)	*Planning Strategy* SRSD only ▪ POW, WWW, What=2, How=2, & TREE (SRSD only) SRSD + PS ▪ POW, WWW, What=2, How=2, & TREE (SRSD only) ▪ concept of acting as partners introduced Comparison group ▪ Writers Workshop	▪Time spent writing ▪# of words ▪Story elements ▪Quality	Trained instructors, weekly meetings, lesson plans w/ checklists, 30% of lessons recorded, 95-97% completion Interrater reliability for time and # of words = 99% Interrater reliability for story, persuasive, narrative, and informational quality = .87, .93, .89, & .72	SRSD only & SRSD+PS sig > C ▪ Time spent writing; maint. & generalized ▪ # of words; maint. by SRSD only ▪ Story elements; pattern maint.; gen. by SRSD+PS ▪ Quality (ES = 2.42 for SRSD only & 1.90 for SRSD+PS); maintained by SRSD but not generalized SRSD only = SRSD+PS ▪ time spent planning ▪ # of words ▪ Story elements ▪ Quality	8-point rating scale	Students in comp. group may have been negatively affected by student instructors who were not their regular teachers.

Table 1 (*continued*)

Peer Conf (cont)	***Design/Primary Questions***	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Harris, Graham, & Mason, 2006	Experimental/Will adding peer support to strategy use, maintenance, and generalization would augment performance effects?	66 2nd graders assigned to 1 of 3 conditions: SRSD instruction only (n = 22), SRSD plus peer support (n = 22), and comparison (n = 22). (7 had speech and language difficulties, 3 classified as LD) Scored two thirds of a SD or more below the mean on Story Construction Subtest from the Test of Written Language 3 (*TOWL-3*); Identified as a struggling writer	Paired instruction	20 min.; 3 x/week for 2-3 weeks.	*Planning Strategy* SRSD Only ▪ POW and WWW, What=2, How=2 to write stories ▪ POW and TREE to write persuasive essays SRSD + PS ▪ POW and WWW, What=2, How=2 to write stories ▪ POW and TREE to write persuasive essays ▪ concept of acting as partners introduced Comparison group ▪ Writers Workshop ▪ Mini-lessons	▪ Time spent planning ▪ Length/# of words ▪ Quality ▪ Elements (story, narrative, & persuasive)	Trained instructors, weekly meetings, lesson plans w/ checklists, 30% of lessons recorded, 95-97% completion Interrater reliability for time and # of words = .99 Interrater reliability for story, persuasive, narrative, and informational quality = 91, .91, .85, & .79 Elements for story, narrative & persuasive = .88, .84, & .83	SRSD only & SRSD+PS sig > C ▪ Time spent planning; pattern maintained ▪ Length	8-point rating scale	Two components common to the SRSD model were removed in the SRSD-only condition: overt encouragement by the instructor for students to use the learned strategies outside the instructional setting and discussion about when, where, and how to use the strategies outside this setting.

Table 1 (*continued*)

Strategy Instruction/ SRSD	***Design/Primary Questions***	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Harris & Graham 1985	Single subject design (SSD)/ Is a self-control strategy training procedure effective in improving learned disabled students' compositions?	· Two 12 year-olds w/ LD *Slosson IQ Intelligence* and *Peabody Picture Vocabulary Test*; 2 years below grade/age level in 2 or more academic areas; identified as struggling writer; *TOWL*	Individual instruction	45 min.; 2-3 x/ week; duration not mentioned	*Planning Strategy* · Provide def. & examples · Review current level of performance · Describe 5-step strategy · Model strategy · Master strategy · Controlled practice	Use of different action words, action helpers, & describing words # of words Quality	Trained instructors; 92% and 83% reliability	Replication and substantial increases in all areas, not maintained after 14 weeks. Quality: 3.0 → 7.0 from 1st to 2nd treatment phase; 5.0 during 3rd phase	8-point rating scales based on "originality and ideation"	Quality not tested at maintenance; No replication at maintenance
De La Paz & Graham, 1997	SSD/ Can students with more varied learning problems benefit from a multiple perspective planning strategy for writing opinion essays?	· Three 5th graders w/ LD WISC-III, W-J Psychoeducational Battery, Test of Written Lang.-2; identified as struggling writers	Individual instruction	Approx. 6, 3, & 5.25 hours of instruction, respectively (45-55 min.; 8, 4, & 7 sessions)	*Planning Strategy* · SRSD (develop & activate background knowledge, discuss the strategy, model it, memorize it, support it, independent performance · mnemonics STOP and DARE	Time spent planning # of ideas on planning sheet Time spent writing Length of essays # of essay elements Coherence Quality	Trained instructors, scripted lesson plans, check list, instructional sessions recorded Pearson product-moment reliability coefficient = 80%	No replication in time spent planning (only 2 used strategy and only step 4) Replication and improvement in all other dependent measures	8-point rating scale	Small sample size

Table 1 (*continued*)

SRSD (cont.)	***Design/Primary Questions***	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Troia, Graham & Harris, 1999	SSD/Can a modified version of SRSD provide an effective approach for facilitating the acquisition, maintenance, and generalization of planning strategies important for writing?	▪ Three 5th graders w/ LD *WISC-III*, achievement at least 1 SD below the mean in reading and writing on *WRMT-R* and *TOWL-2*	Individual instruction	7 – 10.5 hours of instruction (60-90 min.; 7 sessions for 3 weeks)	*Planning Strategy* · SRSD using mnemonics STOP & LIST	▪ Time spent planning ▪ Use of strategy ▪ Time spent writing ▪ Length of story ▪ Story elements ▪ Quality · Generalization to essays (same measures)	Trained instructors, scripted lesson plans, check list, instructional sessions recorded & 1/3 examined; 100% of lesson plans completed. No scoring reliability	Replication and improvement in planning, strategy use, writing & length; scores maintained; improvements generalized and replicated to essays but not consistently maintained Replication and improvement in story elements, but not maintained. Replication and improvement in quality at maintenance; did not generalize to essay	8-point rating scale	▪ Minimal improvement in quality with poor replication across students · "Booster sessions" provided for students who did not show improvement post-instruction
Lienemann, Graham, Leader-Janssen & Read, 2006	SSD/Can explicit instruction teach at-risk 2nd grade writers, including children with disabilities, how to plan and draft stories in order to improve their story writing as well as their recall for narrative reading material?	Six at-risk 2nd graders Identified as struggling writers, 25th %ile or below on *Story Construction* subtest of *TOWL-3*	Individual instruction	Approx. 3, 3.5 & 4 hours of instruction (30-45 min; 6, 7, & 8 sessions)	*Planning Strategy* · SRSD using POW & WWW, What = 2, How = 2	▪ Story elements ▪ # of words · Quality	Detailed lesson plans, trained instructors, check list w/ step-by-step instructions; 25% of all lessons observed by 2 individuals; Fidelity was 100% No scoring reliability	Replication and improvement in story elements; replication not maintained. Replication and improvement in # of words for 5 students; replication not maintained. Replication and improvement in quality for 5 students; replication maintained for 3	7-point holistic scale	▪ No report on interrater reliability for quality; · Maintenance probes spanned only 4 weeks

Table 1 (*continued*)

SRSD (cont.)	***Design/Primary Questions***	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Graham & MacArthur, 1988	SSD/ Is self-instruction strategy training effective in improving learning disabled students' revising behavior and the essays they compose on a word processor?	Three 5th & 6th graders w/ LD	Individualized instruction	3 days/week	*Revising Strategy* SRSD w/ mnemonic SCAN	▪ Types & purpose of revisions ▪ # of words ▪ spelling, punctuation & capitalization errors ▪ Quality ▪ Self-efficacy	Trained instructors Daily lesson plans w/ checklist Reliabililty: holistic = .74; change = .91	Increase in # of revisions replicated across 2 students %age of revisions for T-unit changes increased by 30% No improvement in spelling, punctuation & cap. Improvements in quality replicated for 2 students Increase in self-efficacy	Change in quality (+2 to -2) Overall quality (8-point holistic scale)	▪ Are booster sessions valid and reliable?
De La Paz & Graham, 1997	Experimental/ Will dictation have a positive effect on students' essays? Will the effect of dictation be most pronounced within combined with instruction in advanced planning?	42 5th, 6th, & 7th graders w/ LD randomly assigned to 1 of 4 conditions: (a) advanced planning and dictation (n = 11) (b) advanced planning and writing (n = 11) (c) comparison and dictation (n = 10) (d) comparison and writing (n = 10) *WISC-R* scores in the average range (mean = 100.5); No sig. differences among students in gen. achievement scores or writing achievement scores.	Groups of 2-3	Daily instruction for 50 min.	*Planning Strategy* Advanced planning condition used SRSD w/ STOP and DARE ▪ Comparison condition – students learned characteristics of good essays, read and revised sample essays for meaning and structure, and composed and shared their own essays with peers. ▪ Half the students in each condition dictated their essays; other half wrote essays.	▪ Time spent planning ▪ # of transformations b/w plan & essay ▪ Essay length ▪ Essay elements ▪ Essay coherence ▪ Essay quality ▪ Rate ▪ Strategy usage	Trained instructors Lesson plans w/ checklist Sessions audio-taped and 25% examined.	PW & PD > CW & CD ▪ planning time (ES = 4.59 & 2.17) ▪ Transformations generated = 48.5% PD > CW & CD ▪ Length (ES = 1.18) ▪ Elements (ES = 1.13) ▪ Coherence (ES = .55) ▪ Quality (ES =..96) ▪ Rate (ES = .81) PW & PD > CW & CD ▪ Strategy usage	8-point holistic scale	▪ Multiple interactions make it difficult to generalize for all students within subgroups

Table 1 (*continued*)

SRSD (cont.)	***Design/Primary Questions***	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Sawyer, Graham & Harris, 1992	Experimental design/Are there different effects on the writing of students with LD in four conditions: full SRSD, SRSD w/o explicit self-regulation, direct teaching of strategy usage, and the non-randomized practice-control?	43 5th & 6th graders w/ LD randomly assigned to one of three instructional conditions (see *Inst. Components)*; 10 students w/ LD in nonrandomized practice-control condition; 13 students randomly assigned to a normative comparison group; *WISC-R* or *Slosson*, at least 2 years below grade level measured by *W-J*, identified as struggling writers; Vocabulary & Thematic Maturity subtests of *TOWL*	Groups of 2-3 in quiet rooms	Between 3 – 9 hours of instruction (20 – 56 min.; 3 x/ week for 3 weeks)	*Planning Strategy* SRSD using 5-step strategy & WWW What= 2, How= 2 (SRSD) SRSD w/o self-regulation (SRSD-WESR) Direct teaching of 5-step strategy (DT) Practice-control condition (PC)—students wrote 3 stories without assistance or use of strategies Normative comp. group (NC)	▪ Story grammar elements ▪ Quality · Use of strategy	Trained instructors, daily lesson plans with check list, instructors observed at least once for each exp. condition; percentage of lesson plans completed by instructors = 97% 95%, 94% and 100%. No scoring reliability	Pairwise differences SRSD sig > PC ▪ story elements (ES = 1.80) NC & SRSD-WESR sig > PC ▪ story elements SRSD = SRSD-WESR = DT = NC ▪ story elements SRSD sig > DT ▪ Elements generalized (ES = 1.19) NC sig > PC ▪ Quality (ES = .78) Use of strategy --55% SRSD --55% DT --64% SRSD-WESR Full SRSD > SRSD-WESR & DT generalization	7-point rating scale	▪ Few statistically significant pairwise differences; · Maintenance probe 1 week following instruction
Saddler, Moran, Graham & Harris, 2004	SSD/Does early and supplemental strategy instruction in planning alleviate writing difficulties?	Six 2nd grade struggling writers Scored below the 25th %ile on the *TOWL-III*, identified as struggling writers, did no advanced planning when writing a story	Paired instruction in a quiet room	3.75 – 5 hours of instruction (25 min.; 3 x/ week; 4, 4, & 3 weeks)	*Planning Strategy* · SRSD w/ POW & WWW, What=2, How=2	▪ # of words ▪ # of story elements · Quality	Lesson plans w/ checklists, 1/3 of session recorded, 97% of steps completed; Interrater reliability = 99% for # words, 86% for elements, 82% for story quality, 74% for narrative quality	Replication and improvement in length & elements; generalized to narratives but not maintained Replication & improvement in quality for 4 students; generalized to narratives; maintained for story writing but not narratives	7-point rating scale	Only one student continued to use the strategy Considerable drop in preplanning time from post-treatment to maintenance.

Table 1 (*continued*)

SRSD (cont.)	***Design/Primary Questions***	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Graham, Harris & Mason, 2005	Experimental/Can SRSD instruction improve struggling young writers' strategic behavior and knowledge of the writing process?	73 3rd grade struggling writers (12 LD, 4 S&L) randomly assigned to three conditions (see *Inst Components*) Scored 2/3 of a SD below the mean on Story Construction subtest of the *TOWL-III*, identified as struggling writers; 2/3 of a SD below the mean in Writing Fluency subtest of *W-J*	Paired instruction; comparison group in classroom	5 – 6 hours of instruction (20 min; 3 x/ week)	*Planning Strategy* SRSD w/ POW, WWW, What=2, How=2, & TREE (SRSD only) SRSD+peer support (SRSD+PS) Writer's workshop (C= comparison group)	▪ Time spent writing ▪ # of words ▪ Story elements ▪ Quality	Trained instructors, weekly meetings, lesson plans w/ checklists, 30% of lessons recorded, 95-97% completion Interrater reliability for time and # of words = 99% Interrater reliability for story, persuasive, narrative, and informational quality = .87, .93, .89, & .72	SRSD only & SRSD+PS sig > C ▪ time spent writing; pattern maintained & generalized ▪ # of words; maintained by SRSD only ▪ Story elements; pattern maintained; gen. by SRSD+PS ▪ Quality (ES = 2.42 for SRSD only & 1.90 for SRSD+PS); maintained by SRSD but not generalized SRSD only = SRSD+PS ▪ time spent planning ▪ # of words ▪ Story elements ▪ Quality	8-point rating scale Quality	Students in comp. group may have been negatively affected by student instructors who were not their regular teachers.
Saddler, 2006	SSD/Can supplemental writing instruction in strategic planning improve the story writing ability of young writers with LD?	Six 2nd graders w/ LD Discrepancy b/w IQ and achievement, identified as struggling writers	Paired instruction	5 – 5.5 hours of instruction (30 min.; 3 x/ week for 10-11 sessions)	*Planning Strategy* ▪ SRSD w/ POW and WWW, What=2, How=2	▪ Story elements ▪ # of words ▪ Quality ▪ Time spent planning	Trained instructors, lesson plans w/ checklists, lessons recorded; Interrater reliability = 86% for elements, 97% for # words, 87% for story quality, 80% for narrative quality	Replication and improvements in story elements, # of words, & quality; improvements maintained No replication in planning time	8-point rating scale	Variability in level of strategy acquisition among students; No generalization component; Paired instruction does not generalize to classroom setting

Table 1 (*continued*)

SRSD (cont.)	***Design/Primary Questions***	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
Danoff, Harris & Graham, 1993	SSD/How are students with & w/o LD affected by embedded strategy instruction in the context of a process approach to writing in inclusive classrooms?	Two 4th and four 5th graders (1 and 2 w/ LD; other 3 normal achieving *WISC-R* scores above 85, achievement at least 1 SD below grade level	Instruction delivered to all students in 3 inclusive classrooms; data collection pair included student w/ LD & NA student	# of sessions and duration not mentioned	*Planning Strategy* · SRSD w/ 5-step prompt & WWW, What=2, How=2	▪ Story elements ▪ Story parts ▪ # of words · Quality	▪ Trained instructors, lesson plans w/ checklists, lessons recorded · Reliability = .97 for elements, .99 for # of words, and .77 for quality	Replication and improvement in elements, parts & length of essays; maintained and gen Improvement in quality replicated & maintained by all 5th grade students	8-point rating scale	Relatively low reliability score for quality
Sexton, Harris & Graham, 1998	SSD/Will the combination of strategy and attribution instruction within the SRSD format result in positive changes in students' writing performance?	Six 5th and 6th graders w/ LD WISC-R scores above 80, achievement at least 2 years below grade level, no other disabilities, Eng. is primary lang.	Students paired into 3 groups in an inclusion setting	Approximately 6.75, 7.5 & 6 hours of instruction (40-55 min; 9, 10, & 8 sessions)	*Planning Strategy* · *SRSD w/ 3-step prompt & TREE*	· Essay elements · Time spent planning · Essay length · Quality · Strategy use	Daily lessons with checklists, lesson plans reviewed by author, 100% completion of planned instructional procedures. Interrater reliability for length, elements, and quality = 99%, 95%, & 81%	Replication and increase in essay elements, time spent planning, & essay length 155-344% improvement & replication in quality; no overlap for 5 out of 6; gains not maintained but generalized for 2 students 5 out of 6 overtly used strategy	8-point rating scale	Only two generalization probes provided and from same genre; No replication during maintenance
De La Paz, 1999	SSD/ Using the SRSD approach, how effective is a planning strategy for writing expository essays for students w/ LD in regular educ. classrooms?	22 7th & 8th graders of varying achievement levels WIAT and Comprehensive Tests of Basic Skills used to categorize low-, average-, & high-achieving writers; LD students – verbal IQ b/w 85-125, achievement 1 SD below average, absence of other disability	7th grade class: regular educ. classroom w/ LD students; 7th & 8th grade class: inclusion setting	4 x/week for 4 weeks during language arts (duration of class time not specified)	*Planning Strategy* · *SRSD w/ PLAN & WRITE*	· Planning time · Essay elements · Essay length · Quality	Trained instructors, lesson plans w/ checklists, lessons recorded Interrater reliability for planning, elements, & quality = 84%, 84%, and 90%	Replication and improvement in planning time, essay elements, length, & quality; results maintained	8-point rating scale	Extinction effect may have contributed to lower scores by LD students; · Revision skills not included

Table 1 (*continued*)

SRSD (cont.)	***Design/Primary Questions***	***Participants***	***Setting***	***Intervention Duration***	***Inst Components***	***Dep. Measures***	***Fidelity/Scoring Reliability***	***Results***	***Quality Criterion***	***Limitations***
De La Paz & Graham, 2002	Quasi-experiment/Can teachers help students become more competent writers by directly teaching them the processes, skills, and knowledge that underlie effective writing as well as how to coordinate and regulate their use?	10 classrooms of 7th & 8th grade students randomly assigned to exp. group (n=30) and control group (n=28) No student received spec. ed.; stratified random sampling procedure; students had average or >average reading skills according to *CTBS*	Classroom instruction	4 days/week for 6 weeks	*Planning Strategy* ▪ Exp. group – SRSD w/ PLAN & WRITE ▪ Cont. group – traditional writing curriculum	▪Planning time ▪Length ▪Vocabulary ▪ Quality	Lesson plans with checklists; weekly observations, teachers recorded daily activities; Lessons recorded and 20% randomly selected for fidelity checks ▪ Reliability for planning, length, vocabulary & quality = 81%, 96%, 87%, 87%	TX sig > C ▪ Planning time (ES = 1.17; 1.04 at maintenance) ▪ Length (ES = 0.82; 1.07 at maintenance) ▪ Vocabulary (ES = 1.13; 0.94 at maintenance) ▪ Quality (ES=1.71; .74 at maintenance)	8-point rating scale	Teachers' insistence on a five paragraph theme may not be acceptable to some readers
Chalk, Hagan-Burke, & Burke, 2005	Quasi-experiment/What are the effects of the SRSD model on the writing performance of high school sophomores w/ LD?	15 high school sophomores w/ LD; Diagnosed w/ LD, IQ score on *WISC-R* b/w 80-115, achievement scores at least 2 years below grade level, no other disability	Classroom instruction	Approximately 2 hours of instruction (20-25 min., five sessions during 50-minute instructional period)	*Planning Strategy* ▪ SRSD with DARE	▪Length ▪ Quality	Trained teachers, lesson plans with checklist Interrater reliability for length = 80% No scoring reliability for quality	Post sig > Pretest Length and quality; gains were maintained and generalized 144% in length 118% in overall quality (9.8 → 11.7)	▪ 6-point scale for each of 4 sections: develop., org., fluency, & conventions;; possible score of 24	No control group Pretest-treatment interaction may have strengthened results No scoring reliability for quality
MacArthur et al., 1996	Qualitative/Quasi-/ How do teachers' beliefs and practices influence their decision about strategy instruction.	9 4th-grade students (8 LD; 1 S&L)	Small classroom setting	27 hours of instruction over a 12 week period	*Planning & Revising* SRSD Writers' Workshop Semantic mapping with brainstorming to activate prior knowledge, paragraph writing, revision, and self-monitoring components	▪Teachers beliefs and practices ▪Quality ▪Content ▪Organization ▪ Sentence structure	Full-day workshop to train teachers Interrater reliability for quality = .71, organizatn = .71, content = .67, sentence structure = .76	▪ Teachers incorporated strategies, felt instruction went smoothly, developed understanding for strategy instruction. ▪ Significant improvement in quality, content & organization	▪ 5-point quality scale (-2 to +2)	Relatively low interrater reliability scores

Appendix B

Lesson Plans
Revising Strategy: FIX with SRSD

Lesson 1
Objectives:

4. To activate background knowledge about writing an expository essay
5. To activate background knowledge about revising
6. To introduce the revising strategy via discussion

❒ Turn on tape recorder and test batteries by recording the date.

❒ Ask students what they remember about writing and revising an expository essay.

❒ Tell students you are going to show them a new way to revise adding to what they already know.

"Over the next few weeks we are going to focus on revising an expository essay. When we finish, your essays will be typed for you to take home and share it with your family. I think you will enjoy these lessons because you will learn to make your essays more interesting to read."

❒ Explain that the goal is to make their essays better by revising. Revision means "seeing again" so they need to look at what they wrote initially as if it were something they were reading for the first time.

Instruction

❒ Discuss characteristics of expository writing (see handout).

❒ Show students a template showing the basic format of an expository essay.

❒ Show students a sample essay and point out the essay elements (premise, reasons, conclusion, and elaboration). Compare basic format with that of the template.

❒ Tell students the goal is to make as many meaningful changes as possible. Discuss self-monitoring and self-reinforcing procedures to attain that goal.

❒ Use a sample essay to teach students how to execute changes using the first revision option (add) that is part of the revising strategy.

❒ Give students another sample essay and ask them to execute changes by adding information.

❒ Use a sample essay to teach students how to execute changes using the "move" option that is part of the revising strategy.

❒ Give students another sample essay and ask them to execute changes by moving information.

Lesson 2

Objectives:

- To activate background knowledge about writing an expository essay
- To activate background knowledge about revising
- To introduce the revising strategy via discussion

❒ Turn on tape recorder and test batteries by recording the date.

❒ Tell students you are going to continue showing them strategies to execute changes in their essay.

❒ Explain again that the goal is to make their essays better by revising.

Instruction

❒ Distribute a well-written expository essay to each student. Ask students to follow along as teacher uses the chart to underline each functional essay element.

❒ Use a sample essays to teach students how to execute changes using the "delete" option that is part of the revising strategy. Discuss goal-setting, self-monitoring, and self-reinforcing procedures.

❒ Give students another sample essay and ask them to execute changes by deleting information.

❒ Use a sample essays to teach students how to execute changes using the "rewrite" option that is part of the revising strategy. Discuss goal-setting, self-monitoring, and self-reinforcing procedures.

❒ Give students another sample essay and ask them to execute changes by rewriting information.

Lesson 3

Objectives:

- To discuss the strategy

❒ Turn on tape recorder and test batteries by recording the date.

❒ Discuss the significance and benefits of the revising strategy.

❒ Tell students you are going to show them how to use FIX.

Instruction

❒ Distribute a well-written expository essay to each student. Ask them to use the chart to help them underline each functional essay element.

❒ Introduce the mnemonic FIX with strategy steps and explanations. Give each student their own materials.

❒ Show students the red evaluation cards, the yellow cards that will help them identify any problems, the green directive cards, and the highlighter. Explain how to use them.

❒ Pass out materials. Have students cut their cards and put them in the folders.

❒ Explain to students how to use FIX using self-statements whenever possible. "What do I do first? The first step in FIX is to focus on the essay elements. So I will ask myself, 'Does this essay have a premise or statement of belief? Does my premise or statement of belief answer the prompt? Do I have enough reasons to support my premise? Did I elaborate throughout my essay? Does my essay have a conclusion?' Now I need to identify all the problems. Did I execute all possible changes?" After making a change, you might say, "I like this change. My essay is better than before."

Lesson 4-5

Objectives:

- To model the strategy
- To model self-instructions
- To make the modeling collaborative – include student ideas when relevant

❒ Turn on tape recorder and test batteries by recording the date.

❒ Ask what FIX means. Involve as many students as possible.

❒ Tell students you are going to show them how to use FIX. Ask students to work as a collaborative partner with you in the process by helping to identify and execute changes.

❒ Ask a reader to read a new sample paper out loud.

Instruction

❒ Model the use of self-statements. Model self-monitoring procedures ("The first thing I need to do in FIX is to focus on the essay elements." "I need to make sure I elaborate throughout my essay?"). Model self-reinforcing procedures ("This isn't so hard. I can do this." "I like this change – my essay is better than before.")

❒ Step 1 – Choose two essay elements to focus on. Identify corresponding red cards.

❒ Step 2 – Identify additional problems. "I need to look for places where things don't sound right. Does my premise express the real meaning of the essay? Does it let the reader know my position on the topic? Does my introduction grab the reader's attention?" Use highlighter and either fix on the spot or go back and make changes when done highlighting.

❒ Add detail to at least 2 places in the essay. If needed, delete off-topic material.

❒ Step 3 –Execute, or carry out the changes. Explain that the green cards remind them of the 4 ways to make changes and they can be used during the first and second steps or after students finish steps 1 and 2.

❒ Read the essay again and check that it makes sense. Fix spelling, grammar, capitalization, and punctuation.

❒ Explain why editing changes are done after using the strategy. (Emphasize to students that they first want to think about the purpose of their writing and make sure they have the basic ideas and text structure down on paper before worrying about grammar, punctuation, and spelling. Tell them this is much better use of their cognitive resources.

Lesson 6-7[2]

Objectives:

- To support student learning via collaborative (group) practice
- To memorize strategy steps students and the meaning of the mnemonic FIX

❒ Turn on tape recorder and test batteries by recording the date.

❒ Ask students what they remember about the revising strategy.

❒ Clarify any misconceptions about how to use the strategy.

❒ Tell students they will practice this three-step strategy alone or with a partner.

❒ Distribute essays written previously by students in class. Ask students to read their own essays to themselves or with a partner.

❒ Say, "Let's make a goal to make at least 3 changes that really make a difference."

❒ As a self-reinforcement and self-monitoring procedure, students will begin charting the number of meaningful changes they make when revising.

Instruction

❒ Guide students to use each step in sequence, prompting only when needed.

❒ Use red cards, yellow cards, green cards, and highlighter.

❒ Ask students to develop and record self-statements they plan to use. (These self-statements may be designed to regulate strategy use, the writing task, or interfering student behavior.)

❒ Encourage students to explain what they are thinking by using self-statements. Ask them to write down one self-statement they actually used when trying the strategy.

❒ Review students' revisions. Give students their progress chart and show them how to graph their meaningful changes on the chart.

❒ Model identifying problems with students if you see changes that they missed. Highlight problems, make suggestions, and ask students to execute changes.

[2] Students may need more than 2 sessions to practice the strategy; depending upon how quickly students grasp the strategy.

Lesson 8

Objectives:

1. To support the strategy and scaffold students' strategy use
2. To assess memorization of entire strategy
3. To use the strategy with student collaboration; with teacher help only as needed

❒ Turn on tape recorder and test batteries by recoding and reviewing date.

❒ Give a written quiz on the strategy steps and what each step means.

❒ Record each student's score on his or her paper and staple to this lesson.

❒ Encourage students to set ambitious but realistic goals.

❒ Reinforce use of self-regulation procedures, such as goal setting, self-monitoring, or self-reinforcement.

❒ Students will practice using the writing strategy, self-statements, and any other self-regulation processes (e.g., progress monitoring and goal setting) already introduced, receiving help from the teacher and/or peers until they can use these procedures independently.

Instruction

❒ Ask students to get their set of materials.

❒ Hand out random expository essays and tell the students they are going to practice the revising strategy in groups of 2 or 3.

❒ Explain and gives students examples of self-instructions and self-regulation procedures.

❒ Ask students to use the revising strategy, self-instructions, and other self-regulation procedures as they revise their essays.

❒ Ask the students to raise their hand if they need help.

❒ Teacher support will range from direct assistance in applying the strategy, to remodeling, to corrective feedback, to praise.

❒ Make notes whether each student is using the strategy and if changes seem effective. Note problems, concerns and suggestions.

❒ Ask students to graph the number of meaningful changes on their chart.

Lesson 9+

Objectives:

1. To support the strategy and scaffold students' strategy use
2. To assess memorization of entire strategy
3. To use the strategy on their own, with teacher help only as needed

❒ Turn on tape recorder and test batteries by recoding and reviewing date.

❒ Students will practice using the writing strategy, self-statements, and any other self-regulation processes (e.g., progress monitoring and goal setting) already introduced, receiving help from the teacher or peers until they can use these procedures independently.

❒ Teacher and peer support, as well as instructional aids (e.g., self-statement lists or strategy reminder charts), are faded as soon as possible, and students are encouraged to begin using personal self-statements independently.

❒ Lessons continue until ALL participating students have memorized the writing strategy and self-regulating procedures.

Instruction

❒ Ask students to get their set of materials.

❒ Hand out essays and tell the students they are going to practice the revising the essay.

❒ Ask students to use the revising strategy, self-instructions, and other self-regulation procedures as they revise their own essays.

❒ Ask students to write down at least 1 self-instruction and at least 3 self-statements as they use the FIX strategy.

❒ Ask the students to raise their hand if they need help.

❒ Teacher support will range from direct assistance in applying the strategy, to remodeling, to corrective feedback, to praise.

❒ Make notes whether each student is using the strategy and if changes seem effective. Note problems, concerns and suggestions.

❒ Ask students to graph the number of meaningful changes on their chart.

❒ Tell students the next time they use the strategy they will do so without the cue cards. Remind them they won't need them since they have memorized everything.

Lesson 10

Objectives:

1. To use the writing strategy independently
2. To use the strategy without red, yellow, or green cue cards
3. To personalize use of strategy

❒ Turn on tape recorder and test batteries by recoding and reviewing date.

❒ Tell students that today they are going to use the strategy without any cue cards.

❒ Show students how to underline rather than highlight since they won't always have a highlighter.

❒ Tell students to write the mnemonic FIX on top of their paper and cross out letters as they do each step.

❒ Ask students to write a goal for themselves such as "make sure I have enough details in each paragraph" on top of the paper.

❒ Ask students to remember to use self-instructions to tell themselves what to do, and that they CAN make their essay better

❒ Give portions of the quiz again to students who performed below 85% accuracy.

Instruction

❒ Tell students they can ask for help up to 3 times.

❒ If a student needs help, tally how many times on the student's paper. Encourage them to work without help as much as possible.

❒ Ask students if they can think of any improvements or ways that help them "make the strategy their own." Accept any reasonable changes and remind students that the goal is to make their essays more interesting for others to read.

❒ Ask students whether they think they can use the strategy without your help. If a student says no, arrange for him/her to try FIX again.

❒ Ask students to graph the number of meaningful changes on their chart.

❒ Ask each student to select his or her favorite essay. The best essay from each student will be typed and taken home. Collect all materials from each student.

Appendix C

Characteristics of Expository Writing

Definition:	Expository essays explain something with facts, as opposed to opinion.
Functional Essay Elements*:	1. Premise – statement of belief 2. Reason – explanation as to why you believe a particular premise 3. Conclusion – closing statement 4. Elaboration – unit of text that elaborates on a premise, reason, or conclusion.
Examples:	• Describe how to do something • Analyze events, ideas, objects, or written works • Describe a process • Explain/describe an historical event

*Scardamalia et al (1982).

Appendix D

Template for Expository Writing

Prompt: _____
_____

Answer: _____

1st Paragraph:
Answer prompt/Hook sentence using If, Of, When, Whenever_____
- Provide Introduction _____

OR

- Give two reasons then use transition word & add 3rd reason _____
- Feeling sentence _____

_____

Reason #1: To begin with/Most importantly/First of all_____

_____
- Elaborate (Explain, use examples, or describe experiences)_____

Reason #2: Also/Furthermore/Another reason_____

_____
- Elaborate (Explain, use examples, or describe experiences)_____

Reason #3: Last of all/Above all/Likewise_____

_____
- Elaborate (Explain, use examples, or describe experiences)_____

Conclusion: All in all/Clearly/On the whole_____
- Summarize ideas/Rewrite 3 reasons_____
- Feeling statement, wish, question or metaphor_____

_____

Appendix E

Prompt: Everyone has a favorite place he/she likes to go. Now explain to the reader of your paper why this is your favorite place.

Whenever any one gives me the chance to go anywhere I want I choose the library. I can read books in peace and quiet. There are also fun book fairs where I can win prizes and have an excuse to waste my time reading.

First of all the library of course has great books. Fantasies and science fiction dwell on a shelf. Books on tape and CD occupy near documentaries. Dinosaurs through the age of devils should always be read.

Another reason I like going to the library is that it's quiet. It's very peaceful. I can read and be left alone. When I read I'm not interrupted.

Last of all there are book fairs at the library. I can win prizes. There is an excuse to waste my time reading. Of greatest importance it is fun.

All in all, the library is great. Books, book fairs and quiet the library is just great. Going to the library is always fun.

Appendix F

Teachers Model Adding Text

Prompt: Tonight you have been asked to cook a special dinner. Explain why your dinner will be special.

My dad was off in some war in the Middle East and tonight he was coming back and so I said I would make dinner for my mom and him. I was so excited that he was coming home that I wanted this to be the best dinner ever.

Appendix G

Students Add Text

Student's Name _____ Date_____

Directions: ADD at least one sentence to the paragraph below to make a meaningful change. Remember a good expository essay is made up of the following: premise, reasons, conclusions, and elaborations.

Prompt: If someone were new to your town, explain to him/her the highlights.

My town is great. We have many highlights. The most popular is the white house. It is amazing and old. It has been through a lot and is still in great condition. It has been through many, many wars, and even a fire.

Next up the one and only Washington Monument. It is the tallest thing around. When it was first built the builders ran out of funding and had to stop for a war. The monument stood half built. Years later they finished it and created what we have today.

Appendix H

Teachers Model Moving Text

Prompt: Much has been written about the negative effects of television on young people. Are all television shows bad for children? Write an essay describing a show you feel has a positive impact on today's teens and explain how the show could be helpful.

When I sit down to watch a TV show or movie, it is obvious that the shows are neutral and do not affect anybody. They are simple entertainment and a way for kids to have some down time. I just like to watch them and laugh. It is just fun.

Most importantly, my parents always say that these shows influence me to do stupid things. I would never do those things. Also my parents just don't like kids watching television, same as all parents.

Also why would I want to embarrass myself to do some random stunt or action. There is no point. You never see a person hitting their daughter with a bat randomly or getting into a fight with a giant chicken.

Last of all, I just like to watch them. They are funny, entertaining and a way to kill time.

All in all, the TV rotting kids brains controversy is just a way for parents to get the kids stop watching. I think adults are blowing this way out of proportion. I like watching TV and have not changed at all from when I first started.

Appendix I

Example of Self-Instruction when Moving Text

Prompt: Much has been written about the negative effects of television on young people. Are all television shows bad for children? Write an essay describing a show you feel has a positive impact on today's teens and explain how the show could be helpful.

When I sit down to watch a TV show or movie, it is obvious that the shows are neutral and do not affect anybody. They are simple entertainment and a way for kids to have some down time. I just like to watch them and laugh. It is just fun.

Most importantly, my parents always say that these shows influence me to do stupid things. I would never do those things. ++Also my parents just don't like kids watching television, same as all parents.

~~Also~~ why would I want to embarrass myself to do some random stunt or action. There is no point. You never see a person hitting their daughter with a bat randomly or getting into a fight with a giant chicken.**++ (*Move paragraph up above where indicated.*)

Last of all, I just like to watch them. They are funny, entertaining and a way to kill time.

All in all, the TV rotting kids brains controversy is just a way for parents to get the kids stop watching. I think adults are blowing this way out of proportion. I like watching TV and have not changed at all from when I first started.

**"This reason really goes with the reason in the second paragraph so I am going to move this paragraph up there."

Appendix J

Students Move Text

Student's Name _____ Date_____

Directions: MOVE at least one sentence in the paragraph below to make a meaningful change.

Prompt: Write an essay about a person who has made a positive difference in someone's life. This person may have affected your life or the life of someone you know or have read about. Develop your ideas by providing specific details about the person, what the person did, and how this person made a difference in someone's life.

Michael Jackson has made a difference in people's life. Most musicians and artists have gotten a lot of inspiration from his music, dance moves, and his concerts. Michael Jackson was an amazing entertainer and his album Thriller sold the most in the world. He had countless hits from his family singing group the Jackson 5 to his solo career. Jackson's albums and music wasn't the only thing that set him apart from other artists. His concerts were amazing and sold out every time since 1983. Though his personal life had some controversy his professional life has paved the way for stars like Trey Songs, Ne-yo, Usher, Chris Brown, and many others. After his passing last month many people commemorated him. Michael Jackson is someone who without a doubt made a difference in many people's lives, musicians and fans alike.

Appendix K

Teachers Model Deleting Text

Prompt: Most people have at least one thing that they do well. It may be telling stories, baking cookies, drawing cars, passing a football, cleaning a room, babysitting, or telling jokes. Now explain to the reader of your paper something you do well.

One thing I do well is play sports. I'm not bragging but I'm just better than some people in sports. If you want to be good in sports you just have to pay attention to people and practice. That's how I got really good. Remember pay attention and practice.

I'm lucky that I like to play sports because I'm good at most every sport I play. It also is nice to be chosen first when picking teams. I feel bad for people that get picked last. I wish I could help them. Maybe I could help them with homework. But that might be boring and then they may not like me anymore if I'm boring. It is not fun being bored. My sister is like that. She just likes watching tv and sitting around all day. It's too bad she doesn't like to play sports as much as I do. Then maybe we'd get along better. We're always picking on each other. Maybe it's because we're bored.

Appendix L

Example of Self-Instruction when Deleting Text

Prompt: Most people have at least one thing that they do well. It may be telling stories, baking cookies, drawing cars, passing a football, cleaning a room, babysitting, or telling jokes. Now explain to the reader of your paper something you do well.

One thing I do well is play sports. I'm not bragging but I'm just better than some people in sports. If you want to be good in sports you just have to pay attention to people and practice. That's how I got really good. Remember pay attention and practice.

I'm lucky that I like to play sports because I'm good at most every sport I play. It also is nice to be chosen first when picking teams. I feel bad for people that get picked last. I wish I could help them. ~~Maybe I could help them with homework. But that might be boring and then they may not like me anymore if I'm boring. It is not fun being bored. My sister is like that. She just likes watching tv and sitting around all day. It's too bad she doesn't like to play sports as much as I do. Then maybe we'd get along better. We're always picking on each other. Maybe it's because we're bored.~~**

**"I'm going to delete all this because it doesn't really support my topic."

Appendix M

Students Delete Text

Student's Name _____ Date_____

Directions: DELETE at least one sentence in the paragraph below to make a meaningful change.

Prompt: Describe a childhood experience you would like to share. Develop your ideas by describing the experience you would like to share and by explaining why you would like to share it….

I don't really have childhood experiences, but I do have some highlights of fun times I did. I would like to talk about two of my favorite sports, paintball and skateboarding. I would like to talk about them because it is healthy fun exercise and they are exciting. Sometimes if you get good at them you get sponsored.

I've experienced some real action in my days. I remember when I was playing paintball, I almost shot my own foot. I think they are better than basketball because there are so much more you can do. You don't run back and forth. Skating is also better because you can do it almost anywhere. I remember when I first started, I kept falling, but I developed balance.

It's taken a while to be good at these things, but when you do they are a blast. There are a lot of ways to play these sports and people don't realize it. These sports cost a little bit, but when you get into them price won't matter at all.

There are some benefits to these sports like sponsors. Sponsors will give you equipment for free. If you need paint for your gun they will get it. If you need wheels for your board. They will get it. Who can say no to free stuff.

These are some experiences that I have that I would like to tell you.

Appendix N

Teachers Model Rewriting Text

Prompt: Everyone has a favorite place he/she likes to go. Now explain to the reader of your paper why this is your favorite place.

Whenever any one gives me the chance to go anywhere I want I choose the library. I can read books in peace and quiet. There are also fun book fairs where I can win prizes and have an excuse to waste my time reading.

First of all the library of course has great books. Fantasies and science fiction dwell on a shelf. Books on tape and CD occupy near documentaries. Dinosaurs through the age of devils should always be read.

Another reason I like going to the library is that it's quiet. It's very peaceful. I can read and be left alone. When I read I'm not interrupted.

Last of all there are book fairs at the library. I can win prizes. There is an excuse to waste my time reading. Of greatest importance it is fun.

All in all, the library is great. Books, book fairs and quiet the library is just great. Going to the library is always fun.

Appendix O

Example of Self-Instruction when Rewriting Text

Prompt: Everyone has a favorite place he/she likes to go. Now explain to the reader of your paper why this is your favorite place.

Whenever any one gives me the chance to go anywhere I want I choose the library. I can read books in peace and quiet. There are also fun book fairs where I can win prizes and have an excuse to waste my time reading.

[First of all the library of course has great books. Fantasies and science fiction dwell on a shelf. Books on tape and CD occupy near documentaries. Dinosaurs through the age of devils should always be read.]**

Another reason I like going to the library is that it's quiet. It's very peaceful. I can read and be left alone. When I read I'm not interrupted.

Last of all there are book fairs at the library. I can win prizes. There is an excuse to waste my time reading. Of greatest importance it is fun.

All in all, the library is great. Books, book fairs and quiet the library is just great. Going to the library is always fun.

**"These sentences don't sound quite right. I've tried using fancy words and people may not understand what I mean. So I am going to write the sentences in this paragraph to this: First of all the library is loaded with great books. Fantasies and science fiction can be found on one shelf. You can even find books on tape, CDs, and documentaries. Stories about dinosaurs and the age of devils are also available."

Appendix P

Students Rewrite Text

Student's Name _____ Date_____

Directions: REWRITE at least one sentence in the paragraph below to make a meaningful change.

Prompt: Everyone has a favorite place he/she likes to go. Now explain to the reader of your paper why this is your favorite place.

Whenever any one gives me the chance to go anywhere I want I choose the library. I can read books in peace and quiet. There are also fun book fairs where I can win prizes and have an excuse to waste my time reading.

First of all the library of course has great books. Fantasies and science fiction dwell on a shelf. Books on tape and CD occupy near documentaries. Dinosaurs through the age of devils should always be read.

Another reason I like going to the library is that it's quiet. It's very peaceful. I can read and be left alone. When I read I'm not interrupted.

Last of all there are book fairs at the library. I can win prizes. There is an excuse to waste my time reading. Of greatest importance it is fun.

All in all, the library is great. Books, book fairs and quiet the library is just great. Going to the library is always fun.

Appendix Q

Students Identify and Underline Essay Elements

Throughout our lives we are influenced by others, even if we do not realize it. Everyone we know left some sort of impression on us or taught us a lesson. There were many people who had a positive effect on my life, but none more so than my grandfather.

As a child I spent my summers on my grandparents' farm. It was always a welcome change from the neck-breaking pace of city life. There I learned some of life's most important lessons, most of which where taught by Grandpa.

He understood me in a way that no one else ever could. He knew my strengths and weaknesses better than I knew them myself. He taught me to realize my potential and not to be intimidated by anything. Everything that we did together had a hidden moral.

Through our fishing trips I learned to be patient and persistent. Grandpa always said that if I was still and quiet for a long enough time the fish would come and sure enough they did. When I was weeding the garden often times I wanted to slack off and go play, but he would always remind me that if I did not pull out the baby weeds they would grow into a jungle and choke the vegetables.

Perhaps some of the most valuable things he ever passed on to me were his love and understanding of history and literature. He would spend hours sitting in his favorite chair, telling me about the prominent people and events in world history or discussing books and poems.

Back then I did not fully understand why he pushed as hard as he did in everything. It is only now that I am beginning to appreciate all that he taught me. He

truly made me a better person. I treasure the times I spent with him and hope that someday I may have the same effect on someone's life as he did on mine.

Appendix R

How to FIX your Paper

Strategy Steps	Explanation
Focus on essay elements	Read your paper. Use the red cards to make important essay parts better.
Identify problems	1. This doesn't sound quite right or is not clear. 2. This sentence does not really support my idea. 3. Part of the essay isn't in the right order. 4. People may not understand what I mean. My reader needs more information. 5. I'm getting away from my main point. 6. This is a weak or incomplete idea. I need to elaborate more. 7. This is repetitious. 8. The problem is _____.
Execute changes	Make changes (see green cards) AND check that your essay makes sense.

Appendix S

Essay Elements on Red Cards

Focus on Essay Elements
1. Does my premise (or statement of belief) answer the prompt?
2. Do I have enough reasons?
3. Did I elaborate (explain, use examples, or describe experiences)?
4. Does my conclusion sum up my ideas?

Appendix T

Identifying Problems on Yellow Cards

Identifying Problems
1. Does my premise get the reader's attention?
2. This does not sound quite right or does not make sense.
3. This sentence does not really support my idea. I'm getting away from the main point.
4. People may not understand what I mean. My reader needs more information.
5. This is a weak or incomplete idea. I need to elaborate more.
6. This is repetitious.
7. The problem is _____.

Appendix U

Execute Changes on Green Cards

Execute Changes
ADD
MOVE
DELETE
REWRITE

Appendix V

Sample Essay for Modeling the Strategy

Prompt: Everyone has a favorite place he/she likes to go. Now explain to the reader of your paper why this is your favorite place.

Whenever any one gives me the chance to go anywhere I want I choose the library. I can read books in peace and quiet. There are also fun book fairs where I can win prizes and have an excuse to waste my time reading.

First of all the library of course has great books. Fantasies and science fiction dwell on a shelf. Books on tape and CD occupy near documentaries. Dinosaurs through the age of devils should always be read.

Another reason I like going to the library is that it's quiet. It's very peaceful. I can read and be left alone. When I read I'm not interrupted.

Last of all there are book fairs at the library. I can win prizes. There is an excuse to waste my time reading. Of greatest importance it is fun.

All in all, the library is great. Books, book fairs and quiet the library is just great. Going to the library is always fun.

Appendix W

Examples of Self-Talk, Self-Instructions, and Self-Monitoring

Introduction and thesis statement:

- My introduction does not really get the readers attention. So I'm going to rewrite my first and second sentence.
- I also need to add another sentence to introduce my first reason.
- "Waste" is a negative word and since I want to portray this as a positive experience, I'm going to delete "waste" from the last sentence and add "spend."
- I don't think I state my premise here. I'm going to add it to the end of my introductory paragraph.

Reason # 1

- This paragraph introduces my first reason and supports my main idea, but I'm going to rewrite it to make it a bit more interesting.
- I think that word "dwell" in the second sentence should be deleted and changed to "can be found."
- I'm going to move the last sentence about dinosaurs and devils. I think it should go after the sentence about fantasies because it's almost a continuation of that idea.
- The sentence about books on tape needs to be rewritten.
- The paragraph doesn't have a concluding sentence. I need to add that in order to transition to the next paragraph.

Reason # 2

- I need to add some examples to support my point.
- I need to add a concluding sentence. I think I'll just delete the last sentence but keep the idea of not being interrupted when I write my concluding sentence.

Reason # 3

- I'm going to delete the last sentence and move "fun" to the first sentence.
- I need to add more detail to the second sentence (win prizes for doing what?).
- I'm also going to provide some details about book fairs.
- I'm going to add a transition word and rewrite the third sentence.
- I then need to add a sentence to explain why book fairs give me an excuse to read.
- Need to add a concluding sentence

Conclusion

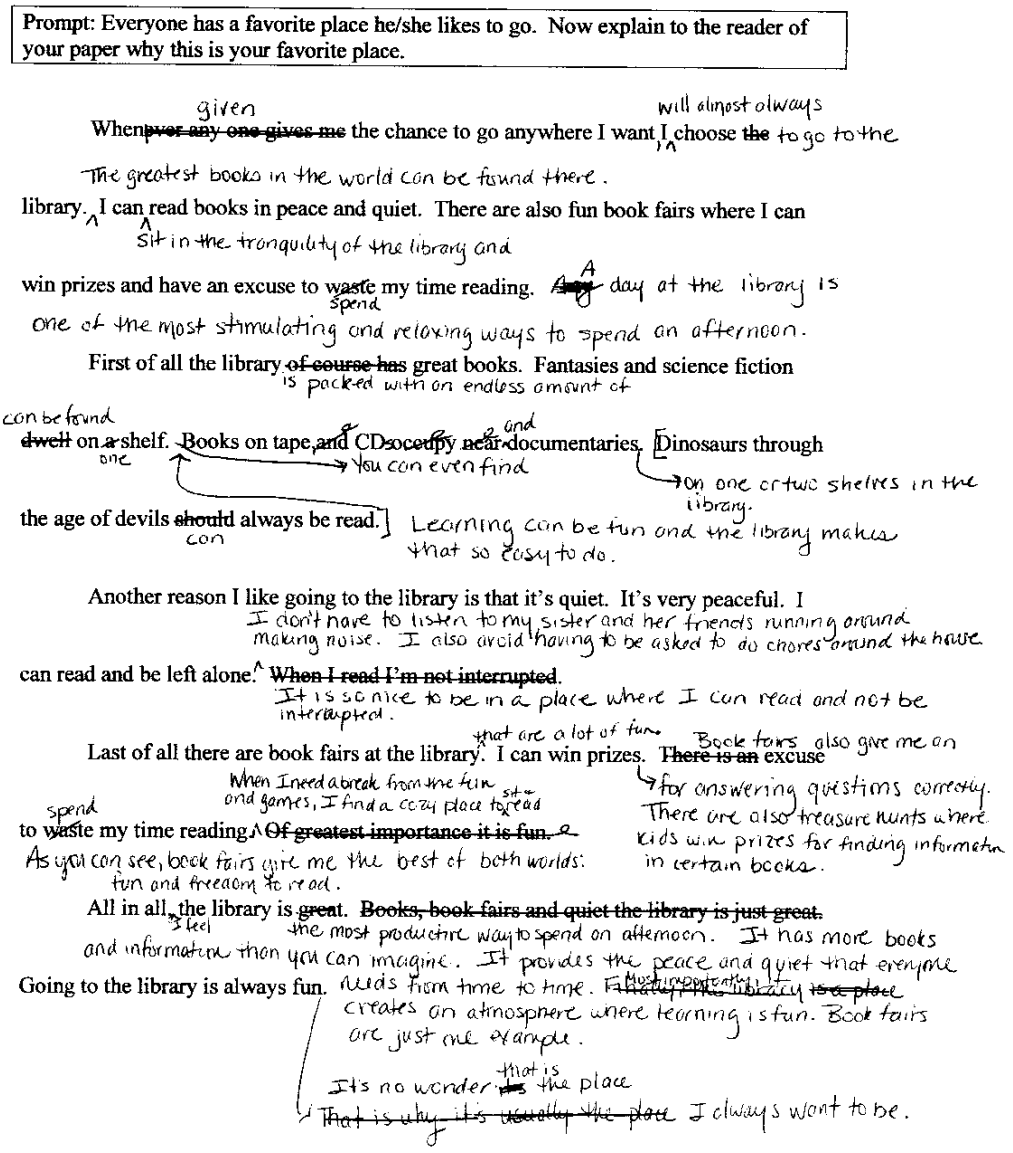
- I need to restate my premise. To do that, I'm going to rewrite the first sentence.
- I'm going to delete the second sentence and add separate sentences that support and summarize my main idea.
- I'm going to add to the concluding sentence.

Elaboration

- It looks like I did a good job elaborating on several details.

Appendix X

Sample Revisions when Modeling the Strategy



Appendix Y

Revised Essay when Modeling the Strategy

When given the chance to go anywhere I want, I always choose to go to the library. The greatest books in the world are there. I can sit in the library and read books in peace and quiet. There are also book fairs where I can win prizes and have an excuse to spend my time reading. A day at the library is one of the most stimulating and relaxing ways to spend an afternoon.

First of all the library is packed with an endless amount of great books. Fantasies and science fiction can be found on one shelf. Dinosaurs through the age of devils can always be read. You can even find books on tape, CDs, and documentaries on one or two shelves in the library. Learning can be fun and the library makes that so easy to do.

Another reason I like going to the library is that it's quiet and peaceful. I can read without listening to my sister and her friends run around making noise. I also can't be asked to do chores around the house. It is so nice to be in a place where I can read and not be interrupted.

Last of all, there are book fairs at the library that are a lot of fun. I can win prizes for answering questions correctly. There are also treasure hunts where kids win prizes for finding information from certain books. Book fairs also give me an excuse to spend my time reading. When I need a break from the fun and games, I find a cozy place to site and read. As you can see, book fairs give me the best of both worlds: fun and freedom to read.

All in all, I feel the library is the most productive way to spend an afternoon. It has more books and information than you can imagine. It provides the peace and quiet

that everyone needs from time to time. Most importantly, it creates an atmosphere where learning is fun. Book fairs are just one example. Going to the library is always fun. It is no wonder that is the place I always want to be.

Appendix Z

Supporting the Strategy

PROMPT: IF SOMEONE WERE NEW TO YOUR TOWN, EXPLAIN TO HIM/HER THE HIGHLIGHTS.

Directions: Read the prompt and write an expository essay. A well-written essay usually has an introduction, provides an explanation, and ends with a conclusion. Use paragraphs to help you organize your essay.

If someone were new to our town I would show them the White House to see where President Barack Obama lives. I would take them to the monument to see how big and long it is. I would show them the capital building and how big and long it is. I would show them the capital building and also the museums like the Newseum, Art museum, Air and Space Museum, and the Natural History Museum. Lastly, I would show them where I go to school.

Appendix AB

Supporting the Strategy

Name: _____ Date: _____

Teacher: _____

I live in the most powerful city in the world; Washington, D.C. It is not only home to the President of the United States, it is the city where all our laws are made. There are also lots of places to have fun no matter what you like to do. You will never be bored in Washington, D.C.

To begin with there are dozens of museums to visit and most are free. My favorites are the National History Museum and the National Air and Space Museum.

_____

_____

_____

_____

_____

_____

_____. When you have spent enough time at the museums, you should spend a day at the Arboretum. _____-

_____

_____

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_____

_____

_____.

If you are into sports, Washington, D.C. has plenty of professional teams that are fun to watch. The nation's capital has the Washington Wizards, the Capitals, the Redskins, and the Nationals.

_____

_____

_____

_____

_____. Washington, D.C. also has a number of fields, pools, and basketball courts for kids who also like to play sports.

These are just some of the places I would show someone new in my town.

_____

_____

_____

_____

_____

_____

_____.

Appendix AC

Fidelity of Treatment Rubric

Session # (Date)	Lesson Plan Followed	Session Recorded	Session Observed	Audio session evaluated	% of instruction completed	Inconsist-encies w/ lesson plan	Adherence to instruction	Duration of sessions	Quality of delivery	Student respons-iveness	Program differen-tiation
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Name: _____ Date: _____

Teacher: _____ Essay #7

PROMPT: RULES ARE IMPORTANT IN OUR DAILY LIVES. WE HAVE RULES FOR DRIVING, RULES FOR STUDYING, AND EVEN RULES FOR PLAYING. THINK ABOUT THE RULES YOU HAVE IN YOUR SCHOOL. WHAT THREE RULES SHOULD EVERY SCHOOL HAVE? WRITE AN ESSAY EXPLAINING TO THE READER THE THREE RULES YOU SELECTED. GIVE CLEAR REASONS WHY EACH ONE IS NEEDED.

Directions: Read the prompt below and write an expository essay. A well-written essay usually has an introduction, provides an explanation, and ends with a conclusion. Use paragraphs to help you organize your essay.

Pay attention to the prompt and write the best essay you can.

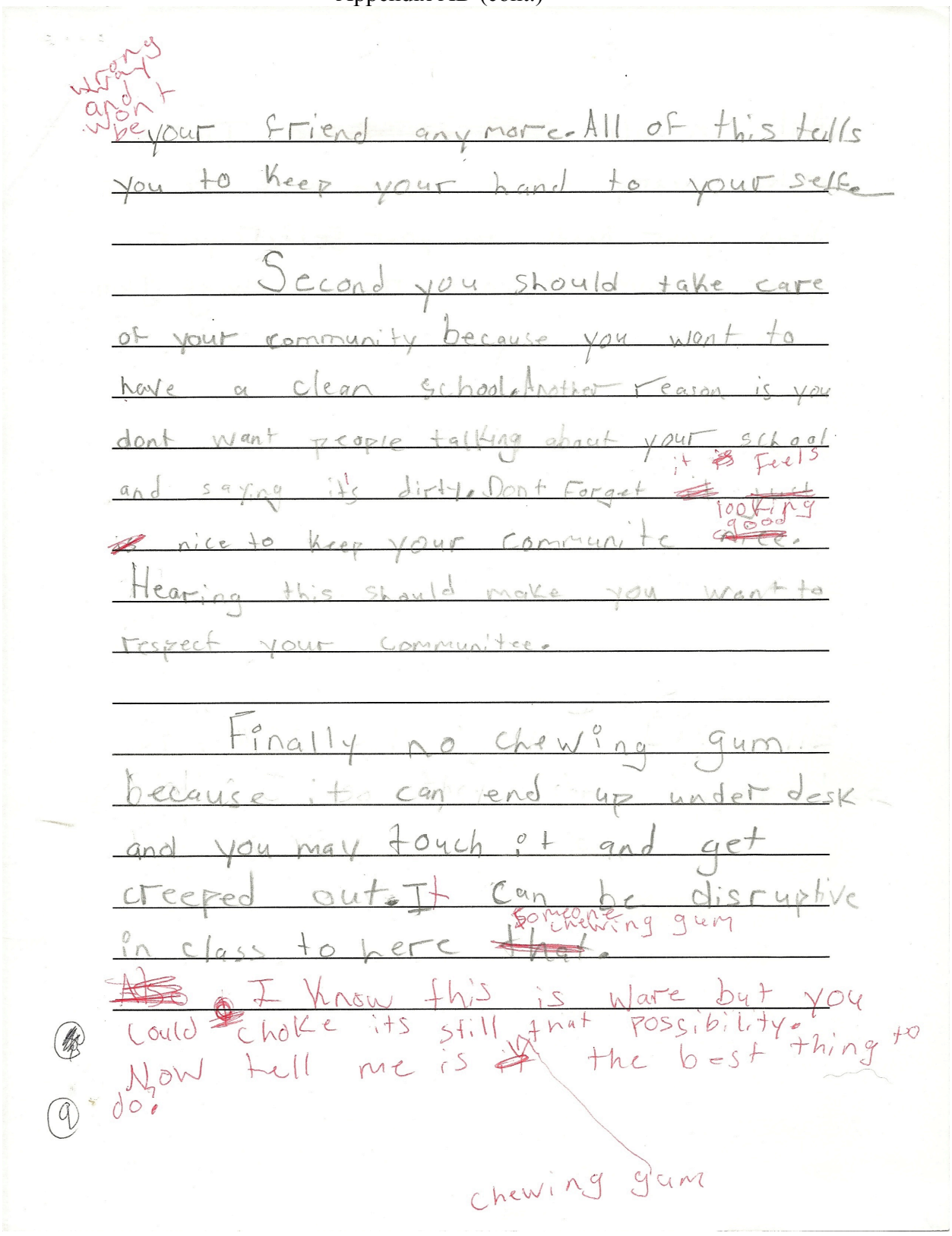
Write your essay on the lined paper.

Three rules every shod should have are Keep your hands to your self, take care of your communite, No chewing gum in class.

Keeping your hands to your self is important. First of all you can get hurt someone may hit you back or something. For hitting them

You could get in trouble by the teacher. For not keeping your hand to your self.

Also you could lose your Friend. because they may get mad because they didn't take it the [illegible]

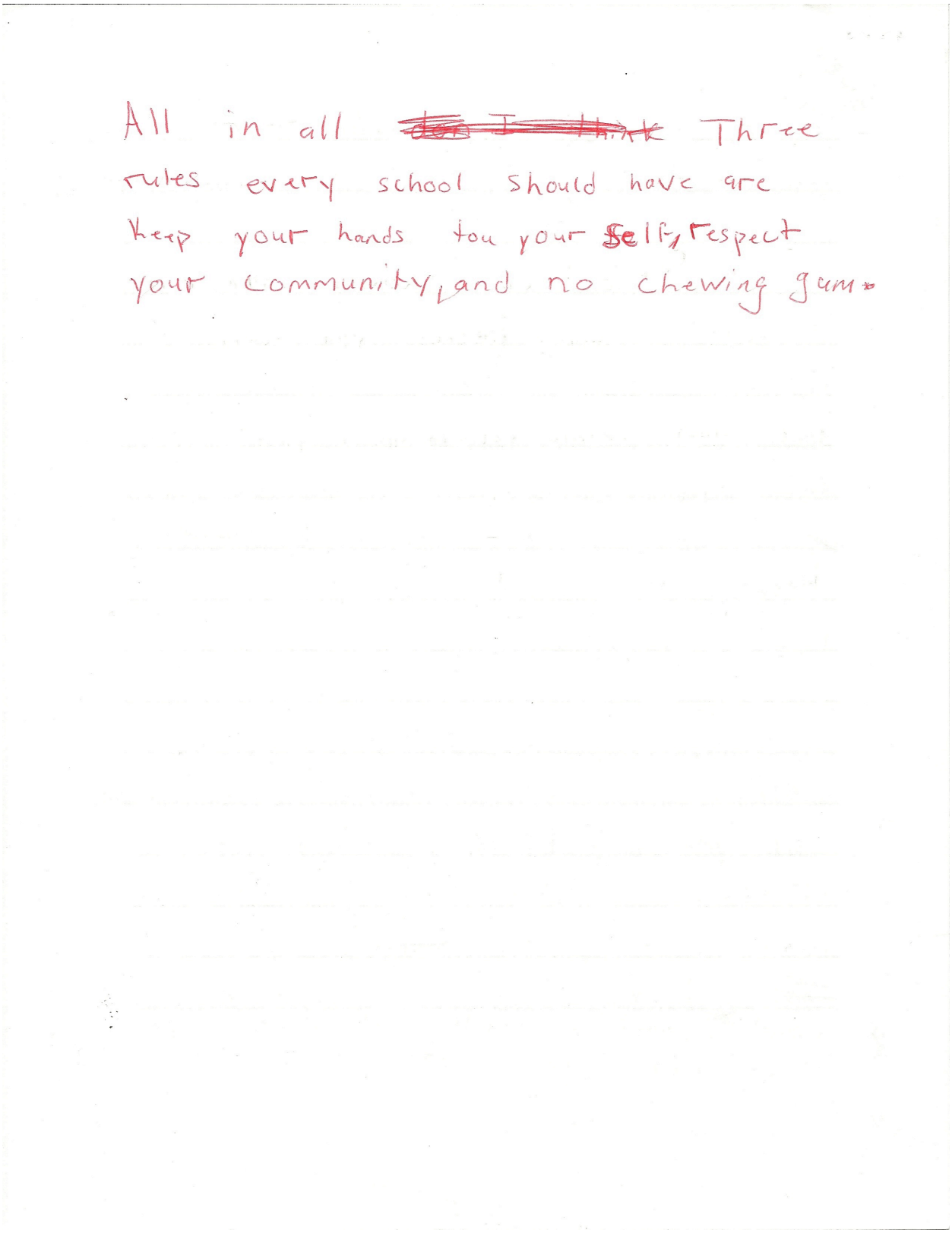


wrong and won't be your friend anymore. All of this tells you to keep your hand to your self.

Second you should take care of your community because you want to have a clean school. Another reason is you dont want people talking about your school and saying it's dirty. Dont Forget it feels nice to keep your communite looking good. Hearing this should make you want to respect your communitee.

Finally no chewing gum because it can end up under desk and you may touch it and get creeped out. It can be disruptive in class to here someone chewing gum. I know this is ware but you could choke its still that possibility. Now tell me is the best thing to do.

chewing gum


All in all ~~I think~~ Three rules every school should have are keep your hands to you ~~se~~lf, respect your community, and no chewing gum.

Appendix AE

Explanation of Meaningful Changes

1. After identifying problem (My reader needs more information.) executed change by adding “for hitting them.”

2. After identifying problem (I need to elaborate more.), added “for not keeping your hand to yourself”

3. After identifying problem (This doesn’t sound quite right.), rewrote sentence be deleting “and may not be” your friend anymore → because they didn’t take it the right way and won’t be” your friend anymore.

4. After identifying problem (This doesn’t sound quite right.), rewrote “it just is nice” → “it feels nice

5. After identifying problem (The problem is I need a better word.”, rewrote “nice” → “looking good”

6. After identifying problem (My reader needs more information.), rewrote disruptive in class hear “that” → “someone chewing gum”

7. After identifying problem (My reader needs more information.), added two sentences to paragraph: “I know this is [weird] but you could choke its still that possibility. Now tell me is chewing gum the best thing to do?

8. After focusing on essay elements (Does my conclusion sum up my ideas), added a concluding sentence: “All in all three rules every school should have are keep your hands to your self, respect your community, and no gum chewing.”

1.

Appendix AF

Surface and Nonsurface Revision Score Sheet

Name: _____ Essay #: _____

	Total	Meaning Changing	Meaning Preserved	Better	No Change	Lower
Surface						
Spelling						
Punctuation						
Capital						
Morph						
Word						
Add						
Delete						
Rewrite						
Move						
Phrase						
Add						
Delete						
Rewrite						
Move						
T-unit						
Add						
Delete						
Rewrite						
Move						
Reduction						
Expansion						

Appendix AG

Interview Questions for Students

1. Do you feel the way you learned to revise your essays made revising easier?
2. Why was this method of revising helpful for you (or why was the method of revising not helpful)?
3. What did you like most about this type of instruction? What did you like least?
4. Did you feel the directives on the yellow evaluation cards helped you diagnose your problem and make appropriate revisions?
5. Has this method of revising changed how you feel about writing?
6. Has this method of revising changed how you feel about revising an essay?
7. Would you recommend teaching this method of revising to other students?
8. What changes would you make to this method of revising?
9. Did you like the way your teacher taught the method of revising or can you suggest changes for how it is presented in the classroom?

Appendix AH

Interview Questions for Teachers

1. Do you feel this procedure made revising easier for your students? Why or why not?

2. What did you like most about this type of instruction? What did you like least?

3. Were there parts of the instruction that you felt were particularly helpful to students?

4. Is this a method of revising you would continue to use and recommend to other teachers? Why or why not?

5. How do you feel the instruction could be improved?

6. Regarding classroom management, how did this method of instruction impact your students' behavior?

7. Have students' grades improved and/or have you observed improvement in the writing skills of your students from preinstruction to postinstruction?

8. Did you notice a difference in your students' level of enthusiasm of writing during this instructional process?

Appendix AI

Student's Rewriting Exercise During Instruction

Students Rewrite Text

Student's Name _____ Date_____

Directions: REWRITE at least one sentence in the paragraph below to make a meaningful change.

Prompt: Everyone has a favorite place he/she likes to go. Now explain to the reader of your paper why this is your favorite place.

If I had the choice ~~Whenever any one gives me the chance~~ to go anywhere I want I would ~~choose~~ the library. I like many places, I can read books in peace and quiet. There are also fun book fairs where I can win some of my favorite prizes and have an excuse to waste my time reading.

First of all the library of course has great books. Fantasies and science fiction dwell on a shelf. Books on tape and CD occupy near documentaries. Dinosaurs through the age of devils should always be read.

Another reason I like going to the library is that it's quiet. ~~It's very~~ peaceful. I ~~can read and~~ be left alone. ~~When I~~ read I ~~'m not~~ interrupted. it is and while reading whatever I like. I am hardly ever Whenever I have the chance to

Last of all there are book fairs at the library. I can win prizes. There is an excus to waste my time reading. Of greatest importance it is fun.

All in all, the library is great. Books, book fairs and quiet the library is just great Going to the library is always fun.

Appendix AJ

Student's Revisions During Instruction

PROMPT: SUGGEST ONE CHANGE THAT YOU THINK CAN MAKE THIS COUNTRY BETTER?

Directions: Read the prompt and write an expository essay. A well-written essay usually has an introduction, provides an explanation, and ends with a conclusion. Use paragraphs to help you organize your essay.

Pay attention to the prompt and write the best essay you can.

There are many nesessary changes i feel would benefit this country, but of all i consider one of them to be most important. This is the idea of schools serving healthier lunches. I think kids may be better influenced of what to eat if schools served better lunches.

~~There are changes I think can make this country better, but today I will only write about one.~~

~~One change I think could make this country better is~~ having healthier lunches. I think that because if you have a healthy lunch it can keep you focused the rest of the school day. Another reason ~~I think~~ that is ~~because~~ if you don't have a healthy lunch and eat junk food you can ~~get diabetes.~~ Obesity is already an issue in our country. Having healthier lunches could influence kids to eat good foods at home too.

If you don't eat healthier lunches and you are already over weight ~~you can~~ become obese. Obesity can lead to diabetes, heart attacks, high blood pressure, and high cholesterol. If we eat healthier lunches we will ~~stay focused and do well in class.~~

That is why I think a healthier school lunch can make this country better.

may improve kids school work.

help

kids will feel energized as long as they have had a good lunch

get obese, you may get diseases.

have a healthier life.

students will be more focused, there will be less obesity and there will be less diseases.

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