Teaching Writing to Students with Attention Deficit Disorders and Specific Language Impairment
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Teaching Writing to Students With Attention Deficit Disorders and Specific Language Impairment

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ABSTRACT The self-regulated strategy development approach to instruction was used to help 3 middle school students who had learning problems, including attention deficit hyperactivity disorder and specific language impairment, learn a strategy for planning and writing expository essays. The composition strategy helped students to consider their topic in advance and to use text structure knowledge to develop 5-paragraph essays. Regular education teachers provided instruction to the target students in inclusive classrooms; special education teachers facilitated the writing program. A multiple-probe design across students (R. D. Horner & D. M. Baer, 1978) was used to assess the effects of the strategy. Instruction had a positive effect on the students' approach to writing and overall writing performance. Four weeks following instruction, students' papers remained improved and were still longer and more complete.

Key words: composite strategy, expository writing, self-regulated strategy development, special education

Difficulties with written language production have been well documented among students with learning disabilities (LD). Those students typically lack important knowledge of the writing process and demonstrate limited abilities to generate plans, organize text, or engage in substantive revision (Englert & Raphael, 1988; McCutchen, 1988; Thomas, Englert, & Gregg, 1987). Problems with mechanics, including spelling, capitalization, and punctuation, further interfere with composing. Consequently, the writing of students with LD is less polished, expansive, coherent, and effective than that of their peers (Englert & Raphael; Graham, 1990; Graham & Harris, 1989; Montague, Graves, & Leavell, 1991; Newcomer & Barenbaum, 1991; Wong, Wong, & Blenkinsop, 1989).

In contrast with the well-known written language difficulties of students with LD, we know much less about the writing skills of students with other pervasive learning problems, such as language disorders (i.e., specific language impairment). I found only two studies that examined the composition skills of students with language disorders (Gillam & Johnston, 1992; Lewis, O'Donnell, Freebairn, & Taylor, 1998), although poor spelling also has been reported among elementary school students with specific language impairment (Sawyer, 1981). In contrast with a more varied literature regarding students with learning disabilities, those investigations compared students' finished products, focusing almost exclusively on differences in grammatical abilities and the structure of students' compositions.

The first investigation (Gillam & Johnston, 1992) examined verbal and written stories of 9- to 12-year-old children with language disorders, in response to picture prompts. Results from that study indicated that the students' writing contained more grammatical errors than did that of younger children with comparable language skills, children with the same reading ability, and same-aged children who did not have language disorders. In contrast, the children with language disorders did not differ significantly on indices measuring the diversity of students' syntax, organization, or the number of propositions and story parts.

Lewis and her colleagues (1998) compared 7- to 14-year-old students with phonological and language impairments with children with phonological disorders alone and with siblings without histories of language or phonological problems. Students with phonological and language impairment obtained lower composite scores than did either comparison group on the Test of Written Language-Second Edition (Hammill & Larsen, 1988) and had lower scores on subtests measuring organization and vocabulary. Writing samples contained shorter T units (i.e., sentences were grammatically less complex). Group differences were not found for the use of punctuation and capitalization.

Although the results of those studies must be viewed tentatively, students with language impairments appear to have impoverished grammatical skills, especially when they attempt to generate complex forms of syntax. It is less clear

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whether students with language impairments are deficient in organizing their essays. The results from the initial studies regarding students’ vocabulary usage are contradictory. Those students may be at risk for difficulties with the mechanics of written language; however, only one of the two studies assessed students’ skills in this area.

Another population for which we are only beginning to assess writing is that of students with deficits in attention (e.g., attention deficit disorder with or without hyperactivity; ADD or ADHD). In a study by Resta and Eliot (1994), 32 students between the ages of 8 and 13 composed three essays as part of a composition test (Written Language Assessment; Grill & Kirwin, 1989). Participants included 21 boys with signs of attention deficits and hyperactivity (10 with ADHD and 11 with ADD) and 11 matched controls (students suspected of having attention deficits but who did not score in the significant range on any behavior rating scale). Students wrote on an expressive topic (about hands), a creative topic (in response to a picture of a cat), and an instructive topic (the danger of fire).

Results indicated that students in the control group scored significantly higher than did both groups of students with attention deficits on the overall test composite and on two of the four subtests (general writing ability and word complexity). Students in the control group had significantly higher productivity scores (i.e., wrote more words) than did students in the ADHD group but were not significantly different from students in the ADD group. Students did not perform differently on the readability subtest (a measure of the relationship between average number of syllables and words in a text). Conclusions concerning differences in students’ writing ability are limited, however, because no information was provided that described the general writing ability or word complexity subtests.

Ross, Poidevant, and Miner (1995) assessed the writing fluency of 48 students in Grades 1 to 5 who had significant attention and hyperactivity problems or confirmed ADHD diagnoses. That study included 48 students matched for grade level and gender as a control group. Participants separately wrote the digits 0–9 and the letters in their first name for 1 min. Group differences were not found regarding either the quantity of letters or digits produced per minute.

The results from the two studies appear limited and inconsistent. In the first study, researchers obtained evidence that students with ADHD did not produce as many words as their normally achieving peers or students with ADD did. In contrast, in the second study, students with attention deficits produced text at the same speed as their normally achieving peers. The first investigation revealed that students with ADD and ADHD were less proficient writers (having lower overall test composite scores) than students without attention deficits; however, differences in writing ability were not well explained. Overall, it appears likely that at least a portion of the population of students with ADD or ADHD is at risk for having deficits in written language.

Information regarding treatment outcomes is lacking for students with language impairments and students with ADD and ADHD. I could not locate a single study that examined a writing intervention (focusing on surface concerns such as spelling or on composition skills) for students with language disorders. In addition, interventions aimed at improving academic outcomes of students with ADHD have not targeted composition specifically. (A recent meta-analysis of 63 interventions for students with ADHD by DuPaul & Eckert [1997] included a single study on spelling.)

What advice, then, can be given for teaching writing skills to students with language impairment or attention deficits or those identified as having both conditions? With respect to teaching elements of the writing process, one may be able to apply forms of instruction that have been successful with students with LD. One such method is the self-regulated strategy development (SRSD) approach to instruction (Graham, Harris, MacArthur, & Schwartz, 1991; Harris & Graham, 1996). To date, more than 20 studies using SRSD have been published. Those studies have taken place in regular and special education settings, focusing on composition skills that teachers and students perceive as being important and functional. Many studies involve students whose learning problems are varied, including those with mild mental retardation, gifted-LD, and low-achieving writers (De La Paz, 1999a; De La Paz & Graham, 1997).

Using the SRSD model, students with LD have been taught strategies for semantic webbing (MacArthur, Schwartz, Graham, Molloy, & Harris, 1996), brainstorming (Harris & Graham, 1985), using text structure to generate writing content (Danoff, Harris, & Graham, 1993), setting process and product goals (Graham, MacArthur, Schwartz, & Page-Voth, 1992), peer response in revising (MacArthur, Graham, & Schwartz, 1991), and revising for both mechanics and substance (Graham & MacArthur, 1988; Graham, MacArthur, & Schwartz, 1995). Those strategies have proved effective for teaching students to self-regulate their performance, resulting in substantial improvements in the quantity and quality of their writing. Also, SRSD procedures have been successfully integrated in classrooms using a process approach to writing (Danoff et al., 1993; MacArthur et al., 1996; Sexton, Harris, & Graham, 1998).

Therefore, the purpose of this study was to use the SRSD approach to instruction with students whose learning profiles differed from those in previous investigations, to determine whether positive treatment effects could occur with other student populations. Students in the present study were part of another investigation (De La Paz, 1999a) that focused on students with learning disabilities and on writers without learning disabilities. In the first investigation, data regarding the efficacy of the current instructional procedures were collected and analyzed for 22 students, including those identified as having a writing disability and those identified as having low, average, and high initial writing skills. Data reported in the present study were collected at the same time as the original investigation; however, in this study, I focused
on a smaller number of students with language impairment and/or ADHD. That focus was necessary because the incidence of language impairment and ADHD in students is lower than the occurrence of learning disorders, and fewer students were identified with these difficulties.

**Method**

**Setting**

This study took place in two middle schools in one suburban school district in the Southeast. The schools had populations of 504 and 540 students, respectively. Both schools had primarily Caucasian students (approximately 94%), with a small number of African American, Asian American, and Hispanic American pupils. The number of free and reduced-price lunches was 18% in the first school and 12% in the second school. Less than 1% of the student population received services in English as a second language.

The school district provided educational services for students with special educational needs through an inclusion model. Each adolescent received instruction in general education classrooms for the full day. Thus, the 3 target students in this study learned the planning and writing strategy from their respective general education language arts teachers as part of routine class instruction. Because each inclusive classroom had at least 10 students with special needs (primarily those with learning or emotional and behavioral disabilities), one special education teacher facilitated classroom instruction. As was consistent with many inclusion models, special educators generally helped students with disabilities in mainstream settings by clarifying teacher directions, reexplaining concepts, and modifying assignments and grades.

General education teachers at both schools provided a traditional curriculum for language arts instruction. Grammar, vocabulary, spelling, and composition were taught as distinct skills; however, students were encouraged to integrate each of these components in their weekly written compositions. Teachers used textbook descriptions and exercises to present information about writing processes. Students frequently wrote first and final drafts during one or more classes.

**Participants**

Target students (2 girls and 1 boy) were selected from three different classrooms in two schools. Kelly, Sherry, and Jason had been described as having special educational needs. Kelly, an eighth grader, was identified by her school district as having attention deficit disorder. Sherry and Jason, both seventh graders, met the school district’s criteria for specific language impairment. Sherry also was identified as having attention deficit hyperactivity disorder. None of the students received pharmacological interventions at the time of this study. They were Caucasian and spoke English as their primary language. Interviews with their teachers indicated that each adolescent had significant problems successfully completing written assignments.

Kelly was 14 years, 8 months old at the start of the study. She had earned a “D” in language arts and a “C” in mathematics during the semester preceding the study. Kelly repeated 1 academic year in a transition-to-first-grade (T–1) classroom. Her reading, language arts, and mathematics percentile rank scores, as measured by the Comprehensive Tests of Basic Skills (CTBS; 1989), a group-administered achievement battery, were 33, 22, and 32, respectively. On the written language subtest of the Weschler Individual Achievement Test (WIAT; Psychological Corporation, 1992), Kelly’s standard scores were as follows: spelling = 86, written expression = 69, test composite = 77 (WIAT average standard score = 100; standard deviation = 15).

Sherry was 14 years old at the start of the study. She received “C” grades in language arts and mathematics during the semester preceding the study. Sherry also had repeated one grade level in a T–1 classroom. Her IQ scores on the Wechsler Intelligence Scale-III (WISC-III; Wechsler, 1991) were as follows: full scale = 84, verbal scale = 85, and performance scale = 86. On the Revised Woodcock-Johnson Psychoeducational Battery (WJ–R; Woodcock & Johnson, 1990), Sherry’s scores in basic reading and reading comprehension were at the 27th and 23rd percentiles. Her basic mathematics and mathematical reasoning scores were at the 10th and 28th percentiles. Her reading, language arts, and mathematics percentile scores, as measured by the CTBS, were at the 21st, 33rd, and 41st percentiles, respectively. On the written language subtest of the WIAT, Sherry’s standard scores were as follows: spelling = 89, written expression = 83, test composite = 83. Sherry’s most recent language assessment indicated that she had difficulty forming word classes, recalling sentences, formulating correct grammatical structures, following oral directions, and in auditory processing. Her strengths were in vocabulary and auditory discrimination (Clinical Evaluation of Language Fundamentals–Revised [CELF–R]; Psychological Corporation, 1987). Teachers rated Sherry as hyperactive, inattentive and passive, and as having a conduct problem on the Conners Scale (Goyette, Conners, & Ulrich, 1978).

Jason was 13 years old at the start of the study. His most recent grades were “B” in language arts and mathematics. Jason repeated first grade and was in both second and third grades the following year (one semester at each grade level). Although he was identified in school records as having a language impairment, no descriptive information (e.g., performance on the CELF–R) regarding his overall strengths and weaknesses in receptive and expressive language was available in his file. His IQ scores on the WISC-III were as follows: full scale = 89, verbal scale = 80, and performance scale = 102. On the WJ–R, Jason’s scores in basic reading and reading comprehension were at the 16th and 29th percentiles, respectively. His basic mathematics and mathematical reasoning scores were at the 17th and
22nd percentiles, respectively. His reading, language arts, and mathematics percentile scores on the CTBS were 10, 32, and 35, respectively. Jason’s standard scores on the WIAT were as follows: spelling = 81, written expression = 93, test composite = 82.

**Experimental Design**

The effects of teaching strategy were assessed through the use of a multiple-probe design across participants (Horner & Baer, 1978). That design requires researchers to introduce the independent variable systematically and sequentially with one student at a time. Because it is not necessary to monitor students on a continuous or daily basis in the case of writing compositions, the multiple-probe design allows an intermittent schedule for data collection in which probes are interspersed across conditions or phases of the study. In keeping with the recommendations made by Horner and Baer (1978) and Tawney and Gast (1984), the investigator conducts five or more baseline probes over time and adds an additional baseline probe for each successive student. In this study, the first student started to learn the writing strategy after a stable baseline was established, and the baseline period increased for each successive student. Proponents of single-subject design agree that a functional relationship between the independent variable and behavior change is demonstrated when targeted behaviors improve only after the independent variable has been introduced and when this relationship is replicated across students.

**Baseline.** During baseline, the participating students’ pre-instruction response rates on writing essays were established. The primary variable of interest was the number of functional essay elements included in each composition; other dependent measures included planning, essay length, vocabulary, and overall quality. Baseline data for the participants consisted of a minimum of five observations or until the data stabilized. An additional baseline probe also was required for each successive student.

**Instruction.** The first student, Kelly, began instruction in the planning and writing strategy after a stable baseline was established. Instruction continued until each student independently planned and composed at least one essay without assistance within a 35-min time limit.

In keeping with established criteria for executing the multiple-probe design across students, Sherry, the second student, did not start the instructional procedures until Kelly completed her second postinSTRUCTION probe. Identical procedures were used when introducing and ending instruction for the third student, Jason.

**PostinSTRUCTION essay probes.** Students completed three postinSTRUCTION probes 1 week following instruction. The same conditions for administering the probes were in effect as during baseline.

**Maintenance essay probe.** Kelly and Sherry each completed a maintenance essay probe 4 weeks following instruction. School ended shortly after Jason completed his postinSTRUCTION essay probes; therefore, he did not complete a maintenance probe.

**Instructional Procedures**

The writing strategy. Students learned a specific strategy for planning expository essays in advance of composing. Table 1 provides an overview of the planning and writing strategy. The mnemonics PLAN and WRITE helped students remember strategy steps and prompted them to plan before starting to write and to reflect on qualities of good writing while composing. Additional materials such as a list of writing goals, brainstorming and essay writing forms, or “think sheets,” are available elsewhere (De La Paz, 1999b). Figure 1 is a copy of the cue cards, which were provided to assist students with paragraph development and transitional phrases.

The primary focus of Step 1, Pay attention to the prompt, was to help students fully consider the topic. Students were taught to underline once what they were being asked to write about and to underline twice how they were to develop it. During Step 2, List main ideas, students decided on a topic

<table>
<thead>
<tr>
<th>Table 1.—Expository Planning Strategy</th>
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<tbody>
<tr>
<td>Planning strategy</td>
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<tr>
<td>-------------------</td>
</tr>
<tr>
<td>What to do before you write: PLAN</td>
</tr>
<tr>
<td>1. Pay attention to the prompt.</td>
</tr>
<tr>
<td>2. List main ideas.</td>
</tr>
<tr>
<td>3. Add supporting ideas.</td>
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<tr>
<td>4. Number your ideas.</td>
</tr>
<tr>
<td>How to remember planning while composing your essay: WRITE</td>
</tr>
<tr>
<td>5. Work from your plan to develop your thesis statement.</td>
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<tr>
<td>6. Remember your goals.</td>
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<tr>
<td>7. Include transition words.</td>
</tr>
<tr>
<td>8. Try to use different kinds of sentences.</td>
</tr>
<tr>
<td>9. Exciting, interesting, $100,000 words</td>
</tr>
</tbody>
</table>
and then generated at least three main ideas for the development of the essay. In Step 3, Add supporting ideas, students brainstormed three details to elaborate each main idea. Step 4, Number your ideas, reminded students to sequence the main ideas in a meaningful way (i.e., the most compelling main idea became the first or last body paragraph).

Students followed steps identified by the second mnemonic, WRITE, to remind them to continue the planning process while composing, by focusing their attention on additional features of good writing. Step 5, Work from your plan to develop your thesis statement, reminded students to incorporate ideas from their plan into a thesis statement and gave them options for writing either a basic or an advanced introductory paragraph. In the basic approach, students began the first paragraph with a topic sentence, and each remaining sentence provided the topic for each subsequent body paragraph. In contrast, the advanced approach required students to start with a series of questions, statements, or a brief anecdote to grab their reader’s attention and concluded with the topic sentence for the essay.

Step 6, Remember your goals, prompted students to consider how they might accomplish good writing while they composed. Examples of goals were to maintain control of the topic, provide clear organization, use mature vocabulary, and generate correct sentences that varied by form and function. Steps 7 through 9 gave specific suggestions for on-line planning and served as additional prompts to help students reflect on qualities of proficient essays. Students were instructed to “Include transition words for each paragraph,” “Try to use different kinds of sentences,” and include “... exciting, interesting, $100,000 words” in their compositions. Finally, students were shown how to make minor revisions as they re-read their essays (correcting transitions words, changing adjacent simple sentences into a compound sentence, and creating synonyms for words occurring more than once).

Teaching the strategy. As with other forms of cognitive strategy instruction, the SRSD approach to teaching incorporates several stages of learning. The stages include a series of activities for teachers and students; the instruction scaffolds students’ learning from an initial level of awareness to being independent, competent strategy users. Stages involve (a) describing the writing strategy, (b) teaching (or activating) background knowledge, (c) reviewing students’ initial writing abilities, (d) modeling the writing strategy, (e) assisting students throughout collaborative practice, and (f) supporting students as they gain mastery of the target strategy during independent practice.
The writing strategy and each SRSD instructional component were successively introduced to students in 1 or more days. The first class period provided an overview about the purpose of the planning and writing strategy and rationale for each step. Two days were devoted to reviewing (a) basic parts of an essay, (b) how skillful use of synonyms improves the quality of a paper, and (c) different types of sentences (varying in both form and function). During the fourth class, teachers held brief individual conferences with each student, examining one baseline essay to determine areas of strength and select appropriate goals. Following that day, teachers spent two class sessions modeling the PLAN and WRITE strategy and self-regulatory statements via think-aloud demonstrations. Students then collaboratively composed two essays in 4 to 5 days, first working as a class and then working in small groups of 2 to 3 students. Five class sessions were needed to fade teacher support (from both regular and special educators) and to establish criterion performance as students independently planned and wrote a series of up to four essays. Part of one class period was included to test knowledge of the planning and composition mnemonics and strategy steps.

Treatment validity. To ensure that instruction occurred as planned, we took the following steps. First, teachers followed daily lesson plans. Second, one graduate student assistant or I observed each teacher several times. When present, observers used copies of the lesson plans to note completion of strategy steps. On days without observers, instructional sessions were tape recorded. A graduate student then listened to a random sample of 25% of the tapes and checked off steps as they were completed. On average, 96% of the steps were completed by the three teachers (range = 92–99%).

Data also were collected on the target students’ level of participation in the project as measured by attendance; number of finished independent essays; and memorization of the planning strategy, mnemonics, and steps. Kelly was never absent; however, both Sherry and Jason missed 1 day of instruction. Kelly, Sherry, and Jason independently wrote 4, 2, and 4 essays, respectively. Responses to teacher-made tests on the planning strategy indicated that Kelly and Jason recalled all information accurately (100%); Sherry had a score of 85% correct.

Scoring Procedures

Planning. All written plans were collected and analyzed for maturity of development according to a procedure developed by Whitaker, Berninger, Johnston, and Swanson (1994). Plans were scored on a 6-point scale, ranging from 0 (no advanced planning) to 5 (accurate map or outline). Both completeness (demonstrated by mapping or outlines) and accuracy (determined by responding to the prompt and logical subordination of main ideas and elaborations) were used to evaluate planning. I scored all plans, and a graduate student unfamiliar with the purpose and design of the study independently scored a random sample of 25% of the plans. Interrater agreement (exact percentage) was .90.

Length. All essays were scored in terms of number of words written. All words that represented a spoken word, regardless of spelling, were counted. Essay length was determined by computer after compositions were typed into a word-processing program.

Essay elements. An analytic scoring procedure was used to determine the number of functional essay elements (i.e., to examine both type and completeness of content) on the basis of scoring procedures developed by Scardamalia, Bereiter, and Goelman (1982). Functional elements were defined as units in the essay that directly supported the development of the writer’s paper. Functional elements included the following categories: premise, or statements specifying the writer’s position on the topic; reason, or explanations made to support or refute a position; and conclusion, or closing statements. A unit of text also could be scored as an elaboration on a premise, reason, or a conclusion when the writer provided detail about his or her ideas, established conditions under which a premise or reason occurred, or provided relevant examples of a personal experience. Nonfunctional elements included information that was repeated without any discernible purpose, were off topic, or were not appropriate for an expository genre.

Essays were divided into minimally parsable units and were scored as functional or nonfunctional. I scored all essays; a graduate student unfamiliar with the purpose and design of the study independently scored a random sample of 25% of the essays. Interrater reliability for the total number of functional essay elements (as determined by percentage of exact agreement) was .80 (premise = .90, reasons = .68, conclusions = .71, elaborations = .83).

Quality. I used a traditional holistic rating scale to assess quality. Before I scored them, all essays were typed and corrected for spelling, punctuation, and capitalization. One seventh- and one eighth-grade regular education teacher independently scored all essays. The teachers were unfamiliar with the target students and the purpose or design of the study. Raters scored the essays according to their general impression of overall quality. Essays were rated on a scale of 0 (nonscorable) to 7 (outstanding). Raters were instructed to consider (a) ideas and essay development; (b) organization, unity, coherence; and (c) diversity of vocabulary when they assigned a score to the essay. Two or more criteria for each of the categories and a representative essay obtained from students not participating in the study served as anchor points for scoring low-, mid-, and high-scoring papers. Interrater agreement was .92 (Pearson product–moment correlation). Differences were resolved through discussion.

Results

Table 2 reports students’ average scores on the writing probes: sample essays written before and after instruction
are shown in the Appendix. In addition, Figure 2 shows the total number of functional essay elements included in each student’s essay.

Baseline

Before learning the strategy, the participating students showed little evidence of advanced planning. Although they were encouraged to plan, only Kelly generated a plan for one of her six baseline essays. The plan consisted of a web diagram in which she listed several propositions related to one central idea.

Students typically generated essays containing a relatively small number of words and ideas. Sherry generated the fewest number of words ($M = 71.9$), whereas Jason wrote somewhat longer texts ($M = 94.1$ words); and Kelly wrote essays with an average of 109 words. Of the 23 essays written during baseline, essential essay parts (premise, reasons or examples, elaborations, and conclusion) were omitted frequently. For example, none of Jason’s papers contained a conclusion. Sherry and Kelly were somewhat more successful; their papers included each essay element 50% and 67% of the time, respectively.

The quality of essays generated during baseline was poor.

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Table 2.—Students’ Average Scores for Each Experimental Condition

<table>
<thead>
<tr>
<th>Writing measure</th>
<th>Kelly</th>
<th>Sherry</th>
<th>Jason</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>Postinstruction</td>
<td>Maintenance</td>
</tr>
<tr>
<td>Plans</td>
<td>0.2</td>
<td>3.7</td>
<td>3.0</td>
</tr>
<tr>
<td>Length</td>
<td>109.0</td>
<td>184.0</td>
<td>140.0</td>
</tr>
<tr>
<td>Elements</td>
<td>13.3</td>
<td>23.3</td>
<td>21.0</td>
</tr>
<tr>
<td>Quality</td>
<td>2.3</td>
<td>5.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>5.2</td>
<td>11.3</td>
<td>8.0</td>
</tr>
</tbody>
</table>

Figure 2. Total Number of Functional Essay Elements
Sherry's scores were the lowest (her average holistic rating was 1.9 of a possible score of 7); Jason's and Kelly's papers were only slightly better ($M = 2.2$ and 2.3, respectively).

**Postinstruction**

Not surprisingly, after learning the strategy, all of the students generated plans in advance of each postinstruction composition. Three plans (27%) received the highest rating for written notes, meaning the student responded accurately to all parts of the prompt and included main ideas with logical subordination of details, examples, or elaborations. An additional 27% of the plans were rated 1 point lower because the student did not fully respond to the prompt (e.g., describing the qualities of a good friend but omitting who that friend was). The remaining 45% of the plans were rated as either a complete outline (but with some repetition of ideas) or logical, but partial outlines. None of the plans was a simple web diagram.

More important, after learning the strategy, all of the students improved their essay writing. Application of the instructional procedures resulted in substantial increases in the number of functional essay elements in the students’ papers (see Figure 2). The number of functional elements in Kelly's postinstruction essays increased 175% ($M = 23.3$); Sherry’s increased 312% ($M = 23.7$); and Jason’s increased 304% ($M = 35.3$). Another indication of the strength of the instructional program was that each student’s score after instruction was greater than his or her highest baseline score.

Similarly, the average length of students’ essays increased following instruction. Kelly wrote essays 169% longer than her baseline essays ($M = 184$); Sherry and Jason more than doubled the length of their essays ($M = 163.7$ and 269.7, respectively). Of the 23 postinstruction essays, all included at least one premise (clearly responding to the prompt), supporting reasons or examples, elaborations, and concluding statements. In addition, each essay contained five paragraphs, with a premise for each paragraph. Thematic organization of the students’ essays was apparent as well; introductory and concluding paragraphs outlined the students’ major points, with three body paragraphs describing one central idea in each. It is not surprising, therefore, that the quality of students’ papers also improved. Average quality ratings for papers written following strategy instruction doubled (see Table 2).

**Maintenance**

On the maintenance probe administered 4 weeks following the end of instruction, Kelly and Sherry maintained the gains observed on their postinstruction probes. Both students continued to show evidence of advanced planning. In addition, with one minor exception, the score on each dependent measure remained better than their highest baseline score (Kelly’s final paper was 29 words shorter than one baseline essay).

**Strategy Use**

I obtained evidence that strategy use mediated writing performance for each student, albeit to varying degrees. Each student generated a written plan before composing and wrote the mnemonic PLAN on top of each paper. Students continued the process of planning while writing (i.e., following steps in WRITE) by generating topic sentences that corresponded to the plan, creating a clear introductory paragraph, and including transition words for each paragraph. Evidence that students attempted to use mature vocabulary terms was inferred by counting the number of novel words longer than seven letters in each essay (cf. Test of Written Language; Hammill & Larsen, 1988). At baseline, Kelly wrote an average of 5.2 seven-letter words, whereas Sherry and Jason had 6.3 and 6 seven-letter words, respectively. After learning the strategy, the students’ average number of seven-letter words increased to 11.3 (Kelly), 15.3 (Sherry), and 12.3 (Jason). Also at that time, Kelly and Sherry continued to use a high number of seven-letter words, generating 8 and 13 of these words, respectively.

**Discussion**

Before learning the writing strategy reported in this study, the 3 participants, all of whom had specific language impairment or attention deficit hyperactivity disorder, showed minimal to no planning before composing. That approach to writing is consistent with previous findings that students with and without LD do little advanced planning (McCutchen, 1988; Scardamalia & Bereiter, 1986; Thomas, Englert, & Gregg, 1987); yet, when taught to plan, these students produced substantially better papers (Danoff et al., 1993; De La Paz, 1999a; De La Paz & Graham, 1997; Graham, 1990; Graham et al., 1992; MacArthur et al., 1996; Page-Voth & Graham, 1999).

After instruction in planning and composing expository essays, the students in this study improved not only their ability to generate written plans but also their written products. The instructional procedures helped students adopt a more sophisticated approach to writing and gave them a strategy for composing five-paragraph essays. As in previous SRSD studies, the effects of the strategy were most pronounced for the more capable students (De La Paz, 1999a; De La Paz & Graham, 1997; Graham & Harris, 1989). In all, Kelly’s level of improvement was not quite double her baseline performance, whereas improvement for the other students was twice as great, or more. Four weeks after instruction, the 2 students who completed a maintenance essay probe continued to show an approach to writing that was more like that of skilled writers; their essays remained quantitatively and qualitatively better than those that they produced before learning the writing strategy. Another indication of the strength of the instructional program was that each student’s writing improved significantly when learning the strategy in large general education classrooms.
The data suggest that the students planned and became more reflective following strategy instruction; however, certain limitations were evident in the students' postinstruction and maintenance essays. First, the students relied exclusively on the simple introductory paragraph format. Also, although the students improved their organization, used topic sentences for each paragraph, and gave three main ideas with an adequate amount of elaboration, the first and last paragraphs of their essays were often essentially the same, with little variation in content or style. That finding raises several important points for consideration. Some researchers and teachers might react to the finding as further proof of the ill effects of the five-paragraph theme. Another interpretation, which seems especially legitimate here, is that the students in the current study probably would benefit from additional meaningful, structured, and explicit instruction to develop an appreciation of when and how to modify the use of this writing strategy. Two of the central tenets of SRSD are to provide students with contextually relevant strategies for writing and to teach them to recognize when existing strategies are appropriate and when they should try new approaches that are potentially more appropriate.

Second, close examination of students' postinstruction papers revealed considerable room for improvement, especially with mechanics and word usage (see Appendix). After instruction, Kelly's essays contained several run-on sentences, and she continued to use transitional phrases incorrectly. Sherry's postinstruction essays included phrases such as, "that's what I am writing about," and some of her ideas were unclear. Jason, perhaps the strongest writer of the three students, had better spelling, punctuation, and capitalization, and better use of transitional phrases. Clearly, when looking beyond this study to the larger scheme of good writing instruction, one could conclude that each of the participants (and many students without disabilities) would likely benefit from instruction in revision.

Third, another limitation in the use of the writing strategy was that the students did not set goals for writing. Thus, although the students appeared to execute PLAN successfully, they may have benefited from additional help (perhaps in the form of booster sessions) when they followed the steps in WRITE. It is also possible that teachers had difficulty providing students with adequate feedback regarding goal setting during instruction in such large, heterogeneous classrooms. Because the effects of goal setting have been positive (Graham et al., 1992; Graham, MacArthur, & Schwartz, 1995; MacArthur & Ferretti, 1998; Page-Voth & Graham, 1999), researchers should attempt to remedy the problem.

Conclusions

The results of this study indicate that SRSD is a potentially viable approach for students with language impairment and attention deficit hyperactivity disorder because the composing strategy in the present study led to several positive outcomes. The students' approach to writing became more advanced, and the quality, length, and structure of their compositions improved. Many research questions remain, however, especially regarding how general education teachers can provide effective instruction to diverse populations of students in large classrooms. Clearly, students in the present study would have benefited from learning additional writing strategies, such as those that focus on processes underlying effective revisions. Much work remains if educators are going to meet the challenges of teaching students to become competent writers. However, the results of this and other SRSD studies indicate that one beginning seems to be the use of contextually relevant cognitive strategy instruction as a complement to content-area teaching.

REFERENCES


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The Journal of Educational Research

APPENDIX

Sample Essays Written Before and After Instruction

**Kelly (baseline)**

**Topic:** Should teenagers have part-time jobs?

Yes! most teenagers need a part time job because maybe there parents don’t give them money so they have to pay for their lunch and stuff they buy like Beepers and the only thing there parents pay for is close and food for him to eat dinner and stuff so he’ll need money for the rest of there stuff so they need a part time job that pay’s them at least $8.00 an hour or something. and I don’t know why People think were imature when I know a bunch of People older than me like in there 20’s and 30’s that always’s calls in sick cause maybe the night before they drank and did drugs and woke up with a hang over So you think were imature your wrong . . . So we do need part time jobs.

**Postinstruction:** Explain why it is important to get good grades and how to do so.

The way a student can improve his/her grades are to listen, do the work and trun it in on time, and try hard-er. The successes to making good grades will take you to the next grade level.

My first reason for trying to improve my grades is to do the work and trun it in on time if you do it and trun it in at least you wont have a zero.

My second reason for trying to improve my grades is to listen, you must follow all drections don’t talk or cut up, just listen.

To sum it up it is to try harder, don’t styd on the same question for hours move to the next one and go back to that one later, make sure you check your self. And let parents check it to.

To conclude trying to improve my grades. Is to listen, try hard and do and trun in all work and don’t be late truning it in. And that will get your grades up to were you’ll pass to a higher graded.

**Sherry (baseline)**

**Topic:** What country would you like to visit and why?

I would love to go see Michigan because I love their football and basketball team. If it wasn’t for choice to go to David Lipscomb University or to Michigan State University for the basketball team. But it’s also to far.
Appendix continued

away, but one day I will go visit it, and watch a football or basketball game while I'm down there. It has to be beautiful down there. I really don't know much about Michigan but it's basketball and football team, mostly basketball. It has to be so wonderful to wake-up as a wolverine and then go rome Michigan.

Postinstruction: Explain why it is important to get good grades and how to do so.

I'm writing about how students can keep their grades up or improve them. I will tell why grades are important. Then I will how to improve them. Last I would tell the reactions to people about your grades. That's what I'm writing about.

First of all why it's important to get good grades. So you don't fail and be a year behind. Another is to get a good education. Then in the future it will help you with work are business.

Second how to improve your grades. One is to study ever night and the right before the test. Second you could pay attention take good notes. Third do your very best on the test.

Another reason is the reactions of people. One is your parents they would be so proud of you. Then if you got really good grades you'd probably get some money. Another one is it goes on your record you could get into a good collage.

In conclusion it's really important about your grades. Why it's important. Or how to improve them. Or even the reactions to people. Just think about how you could.

Jason (baseline)  Topic: What country would you like to visit and why?

The country I wont to go to Alaska because it is a nice state of of the country off the USA.
I think that Alaska is a nice and cold. I think that I would like to live in Alaska when I get older. I like the snow.
I would like to see the three Mountain ranges in Alaska. The capital is Juneau.
I would like to live in the mountain. I would build my House on Mt

Postinstruction: Explain rules that should be changed and why.

I think that rules should be changed in school. I think that we should be able to chew gum in class. I think we should also be able to run in school and Drink coke in class whenever we won't to.
First of all I think we should be able to chew gum in class and not throw it away. At all times we would be able to chew gum. It can get very messy some time if your not carryfull. Chewing gum can stick to the floor, and not put under desk, and not stuck on some ones shoe.
Secondly I think we should be able to run in school when we fell like it. We can not get hert from running in school. We can not break a bone or pull a muscle in are legs. Your friend might not trip you if your running in school. Running in school can not be very deadly.
Finally I think we should be able to drink coke in class whenever we fell like it. Drinking coke can calm are thirst, it can be very easy to spill a coke all over the place. Drinking coke can get very messy if you spill it but I don't think you can spill your coke that easy.
In conclusion I think rules should be changed so that we can chew gum, run in school, and Drike coke or anything in class without the teacher telling us not to do that. We should not have any rules in school or at home.