# Improving the Writing Performance of Struggling Writers in Second Grade

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An important goal in preventing writing disabilities is to provide effective early instruction to at-risk students to maximize their writing development. This study examined whether or not explicitly teaching six at-risk second-grade writers, including children with disabilities, how to plan and draft stories would improve their story writing as well as their recall of narrative reading material. The self-regulated strategy development model was used to teach these strategies; the impact of this instruction was evaluated via a multiple-baseline design. Instruction had a positive impact on students' writing, as their stories were longer, more complete, and, with the exception of one student, qualitatively better. Instructional effects also transferred to the recall of narrative reading material for four of the six students. These findings were generally maintained over time.

Writing is a difficult and demanding task. It is a conscious and self-directed activity, involving the intelligent use of a variety of mental operations and skills to satisfy the writer's goals and meet the needs of the reader (Graham, in press b). As a result, a writer must deal with many demands at once. As Hayes and Flower (1980) noted, skilled writers caught in the act look very much like busy switchboard operators as they try to juggle a number of demands on their attention simultaneously (e.g., making plans, drawing ideas from memory, developing concepts, or creating an image of the reader). In fact, skilled writing does "not simply unfold automatically and effortlessly in the manner of a well learned motor skill . . . writing anything but the most routine and brief pieces is the mental equivalent of digging ditches" (Kellogg, 1993, p. 17). It involves a high degree of self-regulation, cognitive effort, and attentional control (Graham & Harris, 2003).

Writing is a difficult and demanding task that many children find difficult to master. This observation is supported by data from the National Assessment of Educational Progress (Persky, Daane, & Jin, 2003). Three out of every four 4th-, 8th-, and 12th-grade students achieve only partial mastery of the writing skills and knowledge they need at their respective grade levels. Only 1 in 100 students attains "advanced" writing skills. Difficulties mastering the writing process are even more prevalent for students with special needs or disabilities (e.g., Graham, Harris, & Larsen, 2001; Harris & Graham, 1999; Resta & Eliot, 1994). These students' papers contain fewer ideas, are more poorly organized, and are of lower quality compared with compositions produced by their typically achieving peers (Graham & Harris, 2002).

Children's difficulties with learning to write led the National Commission on Writing (NCW; 2003) to recommend that writing become a central focus of school reform efforts, as students' educational and occupational success will be impeded if they do not learn to write well. The NCW's efforts have convinced both the general public and policymakers of the importance of writing (see also NCW, 2004, 2005), as well as the need to take action now. The success of reform efforts in writing, however, depends in large part on the application of instructional practices that are effective in enhancing writing development. The identification of effective instructional practices for young beginning writers, particularly students at risk for writing difficulties and students with special needs, is especially critical. Addressing these children's writing problems early in the educational process is advantageous for two reasons (Graham, Harris, & Mason, 2005). First, waiting until later grades to address literacy problems that originated in the primary grades has not been very successful (Slavin, Karweit, & Madden, 1989). Second, early intervention should help to maximize the writing development of young at-risk writers, minimizing the number of students who develop long-term difficulties with writing.

One approach to early writing intervention with at-risk students and children with special needs is to provide addi-

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tional or specialized instruction in basic text transcription skills, such as handwriting and spelling. These efforts have resulted in improvements in the writing output, writing quality, and sentence construction skills of these children (Berninger et al., 1997; Berninger et al., 1998; Graham, Harris, & Fink, 2000; Graham, Harris, & Fink-Chorzempa, 2002; Jones & Christensen, 1999). A second approach is captured by the work of Englert and her colleagues (1995). They examined the effectiveness of a curricular approach that tied writing and reading instruction together, made writing and reading strategies visible, involved teacher–student discussion about these strategies, provided procedural facilitators (such as a semantic map) around which this dialogue occurred, and encouraged students to share their knowledge with others. This program had a positive impact on both the reading and writing performance of primary-grade students with mild disabilities. Berninger and her colleagues (Berninger, Abbott, Whitaker, Sylvester, & Nolen, 1995) illustrate a third approach to early intervention. They taught handwriting and spelling to third-grade struggling writers individually and also modeled the composing processes of planning, writing, reviewing, and revising. This had a positive impact on these young students' writing skills.

Another approach to early writing intervention with young struggling writers is illustrated in the work of Graham and Harris (see Graham & Harris, 2005a). Although their primary instructional focus was on teaching children strategies for carrying out specific composing processes (e.g., planning), they also taught them how to apply the target strategies, better understand the writing task, and regulate their behavior during writing. Their instruction was further designed to enhance specific aspects of motivation, such as self-efficacy and effort. This approach is consistent with theories on how competence and expertise develop in subject-matter domains (see Alexander, 1992; Pintrich & Schunk, 1996). These conceptualizations emphasize that learning depends, in large part, on changes that occur in strategic knowledge, domain-specific knowledge, and motivation.

This early writing intervention research by Graham and Harris (2005a) draws on their instructional work with older struggling writers (Grades 4–8). Starting in the 1980s (Harris & Graham, 1985), they began investigating the effectiveness of an instructional approach they initially called *self-instructional strategy training*. They later changed the name to *self-regulated strategy development* (SRSD; Harris & Graham, 1996, 1999) to capture the emphasis their instruction placed on students' development of self-regulatory skills. SRSD involves explicitly teaching students strategies for accomplishing specific writing tasks, such as composing a persuasive essay. Students are also taught any skills or knowledge (e.g., the attributes and elements of a convincing argument) needed to apply the strategies effectively. Students further learn to use a variety of self-regulation procedures (self-instructions, goal setting, self-monitoring, and self-reinforcement) to enhance motivation and regulate their use of the target strategies, the writing task, and their behavior during writing. The emphasis of this instruction is on students' independent, effective, and flexible use of the target strategies. Consequently, procedures for promoting maintenance and generalization are embedded throughout the instructional regime.

The effectiveness of SRSD was established in several recent meta-analyses. In a comprehensive review of writing intervention literature with students in Grades 4 through 12, Graham and Perrin (in press) reported that SRSD had a strong and positive impact on the quality of students' writing. The average weighted effect size was 1.14 (based on eight large-group studies; five of these were conducted with struggling writers). In fact, SRSD yielded the highest average weighted effect size of any of the writing interventions that were studied. These findings were replicated in another meta-analysis with students at all grade levels (Graham, in press a).

Because SRSD had been successful with older children, including students with disabilities, Graham and Harris (2005a) believed that it might be equally successful with younger students who were at risk for writing difficulties. In an initial study, they taught pairs of third-grade struggling writers (about one third of the students had special needs) strategies for planning and drafting a story and a persuasive essay (Graham et al., 2005). They made some modifications in their instructional materials and procedures to make them more appropriate for younger students. They further sought to find out if the addition of a peer-support component to promote maintenance and generalization of strategy use would enhance performance. When compared with a control condition involving process writing instruction, SRSD with and without the peer-support component increased students' knowledge of writing and improved their performance on the two instructed genres (stories and persuasive writing) as well as on one uninstructed genre (informative writing). The addition of the peer support component to the SRSD approach resulted in an increase in students' knowledge of writing and facilitated transfer to two uninstructed genres (informative and personal narrative).

Saddler, Moran, Graham, and Harris (2004) examined the effectiveness of SRSD instruction with even younger children as they taught three pairs of second-grade struggling writers strategies for planning and drafting a story. They evaluated the effects of this treatment using a multiple-baseline design. As a result of SRSD instruction, students' stories became longer, more complete, and qualitatively better. The positive effects of instruction were generally maintained over time and also generalized to a similar but uninstructed genre (personal narrative writing).

A study on a larger scale was then conducted to examine the effects of SRSD instruction, as well as the additive benefits of the peer support component, when teaching strategies for planning and drafting stories and persuasive essays to pairs of second-grade struggling writers, about one fifth of whom had special needs (Harris, Graham, & Mason, in press). The findings from this study generally replicated those from the earlier study by Graham et al. (2005) that involved slightly

older children. When compared with process writing, SRSD instruction with and without peer support increased students' knowledge of writing and improved their writing on the two instructed genres (stories and persuasive essays) as well as on two uninstructed ones (informative writing and personal narrative). The inclusion of the peer support component further enhanced children's writing, as it helped them write better papers for all tested genres (story, persuasive, informative, and personal narrative).

This study replicates and extends the early writing intervention research of Graham and Harris. Like the Saddler et al. (2004) investigation, six struggling writers in second grade were taught strategies for writing and drafting stories. We extend the work of Saddler et al., however, by examining the effectiveness of this instruction with a more diverse set of struggling writers. In the prior investigation, the primary problem for most of the participating students was difficulty with writing (two students had mild speech and language difficulties, with one of them experiencing difficulty with reading). In our study, writing was a problem for all of the students, each child had difficulty with reading (according to their teachers and confirmed by a norm-referenced reading measure for five of the six students), and all but two of the children experienced other challenges, such as learning disabilities, language difficulties, orthopedic impairments, and attention-deficit/hyperactivity disorder (ADHD)/reactive attachment disorder/bipolar disorder. Although the Graham et al. (2005) and Harris et al. (in press) large-group investigations included students with special needs, it was not possible to tease out the effects of SRSD on these particular children, as the unit of analysis was the average score for each student pair (pairs may or may not have included students with special needs). As De La Paz and Graham (1997) noted, research is needed that examines the effectiveness of SRSD with a broader range of students.

We also extended previous work in terms of the context in which our study took place. All of the previous early intervention investigations by Graham and Harris (Graham et al., 2005; Harris et al., in press; Saddler et al., 2004) took place in urban schools that were overwhelmingly populated by African American children from economically disadvantaged families. This study occurred in a rural setting in a school with mostly European American children who were not economically disadvantaged. As Horner et al. (2005) noted, the external validity of research is enhanced through replication of the effects across different participants and conditions.

The current study also differed from the previous investigations in terms of the type of writing instruction that occurred in the participating schools. In Graham et al. (2005), Harris et al. (in press), and Saddler et al. (2004), the schools used a process approach to writing instruction that emphasized the importance of writing processes, such as planning, drafting, and revising. Thus, students already had considerable exposure to the importance of planning and drafting (the processes emphasized in the previous studies). In the current study, the participating school employed a different approach to teaching writing to young children, which involved teaching basic writing skills, such as handwriting and spelling, with little emphasis on the process of writing. Establishing that SRSD was effective in a more restrictive writing environment would provide additional evidence of its external validity (Horner et al., 2005).

A final and especially important extension made by the current study involved examining whether or not the effects of SRSD instruction on writing resulted in improvements in reading. Part of the planning strategy that students were taught to use involved generating ideas for each of the basic parts of a story (Stein & Glenn, 1979) before writing. Although a number of SRSD studies have used this story grammar strategy (e.g., Danoff, Harris, & Graham, 1993; Graham et al., 2005; Graham & Harris, 1989; Harris et al., in press; Saddler et al., 2004; Sawyer, Graham, & Harris, 1992), no one has examined the possible carryover effects to reading. We anticipated that learning about the parts of a story and how to generate ideas for each of these parts would make students more attentive to these markers when reading narrative material, which would increase their recall of this material. SRSD instruction in writing is likely to be more attractive to teachers if it enhances reading as well as writing.

We further anticipated that SRSD instruction would enhance the length, structure, and quality of the story writing of the participating children. Children with writing disabilities and those at risk for them typically produce incomplete stories of poor quality that containing few ideas (Graham & Harris, 2003). Furthermore, they often minimize the role of planning when they write (Graham, 1990; McCutchen, 1988), converting the writing task into simply telling what they know. Text is generated as ideas come to mind, with each preceding idea serving as the stimulus for the next idea. Consequently, little attention is directed to whole-text organization or the constraints imposed by the genre. The instruction that students received in this study was responsive to these shortcomings, as they were taught how to plan in advance of writing and they learned about the attributes and elements of a good story as well as how to generate ideas for each of these elements.

# Method

## *Design*

The design used in this study was multiple baseline across participants with multiple probes during baseline and independent performance (Kazdin, 1982). To avoid prolonged baselines, the six participating students were divided into two cohorts, with three students in each cohort. For each cohort, SRSD instruction was systematically and sequentially introduced to one participant at a time. Prior to the introduction of SRSD instruction, each student's writing performance was measured over time to establish a baseline of typical writing performance. A functional relationship between the indepen-

dent variable and participants' progress was established if the target behavior improved only after the completion of SRSD instruction and if the noninstructed participants' performance stayed at or near preintervention levels across baseline.

## Setting

The study was conducted during the fall semester in a rural elementary school in a midwestern state. The demographics of the school district were as follows: 96% European American, 1% African American, 2% Hispanic, and 1% Asian. A total of 8% of the students received free or reduced-price lunch. Writing instruction for students in second grade consisted of teaching basic skills, such as handwriting and spelling.

## Participants

Three second-grade teachers were asked to identify students whom they considered at risk for writing failure and who also struggled with reading. A total of 10 students were identified. These students then completed the *Story Construction* subtest from the *Test of Written Language–3* (TOWL-3; Hammill & Larsen, 1996) to verify that they were at risk for a writing disability. *At risk* was defined as falling at the 25th percentile or below in comparison with the normative test sample. This test assesses a child's ability to write a complete and interesting story. Reliability of the test for second-grade children is .89. Four girls and two boys from two second-grade classrooms qualified for the study. Table 1 provides the descriptive information for these students, including their standard scores on the TOWL-3 (a standard score of 8 is equivalent to a score at the 25th percentile) and grade-equivalent scores for the *Gates-MacGinitie Reading Test* (MacGinitie & MacGinitie, 1992). The reading test confirms that all but one child (Tim) were functioning below grade level in reading.

The first cohort consisted of Tim, Sarah, and Kristina. Tim had not been referred for special education services. Sarah was diagnosed with ADHD, reactive attachment disorder, and bipolar disorder. Medical records also indicated the possibility of fetal alcohol syndrome. On the *Universal Nonverbal Intelligence Test* (UNIT; Bracken & McCallum, 1998), she had a Full Scale IQ of 82. She was receiving special education services for reading and language arts. Kristina was identified as having a learning disability in the area of reading. Her *Wechsler Individual Achievement Test* scores (Psychological Corporation, 2002) were as follows: reading comprehension = 76; word reading = 82; written expression = 87; spelling = 93. This test has a mean of 100 and a standard deviation of 15. Her IQ was 100 as measured by UNIT.

The second cohort consisted of Katie, Trevor, and Skylar. Katie was born in Mexico; German, however, was the language predominately spoken in her home. Katie's teacher had concerns about her language development and had referred her for a language evaluation, but she had not been tested at the time of the study. Trevor has not been referred for special education services. Skylar was identified as having orthopedic impairments due to a stroke she had when she was 3 months old, which resulted in right hemiparesis. She had minimal use of her arm but was very functional with her leg. Her pediatric neurologist had warned that these problems could lead to developmental delay, learning disabilities, or seizures.

## Procedure

Students were taught in two cohorts. The 6 participants were randomly assigned to one of the two instructors. Instruction was individually administered by either the first or third author. Both authors have M.Ed. degrees in special education and extensive classroom experience. Prior to implementing the intervention, the instructors received training in the SRSD model and practiced implementing the instructional procedures until they mastered them.

**Baseline Probes.** During baseline, each child wrote three or more stories to establish pretreatment performance.

**TABLE 1.** Student Information

| Item | Tim | Sarah | Kristina | Katie | Trevor | Skylar |
|---|---|---|---|---|---|---|
| Age | 7 years 11 months | 7 years 5 months | 8 years 0 months | 7 years 3 months | 7 years 4 months | 7 years 11 months |
| Race | European American | African American | European American | Hispanic | European American | European American |
| *Test of Written Language–3* percentile rank | 8 | 7 | 7 | 8 | 8 | 7 |
| Gates-MacGinitie grade equivalent | Total: 3.2 Comp.: 2.7 | Total: 1.6 Comp.: 1.5 | Total: 1.5 Comp.: 1.3 | Total: 1.4 Comp.: 1.1 | Total: 1.8 Comp.: 2.0 | Total: 1.6 Comp.: 1.7 |
| IQ | NA | 82 | 100 | NA | NA | "Normal" |

*Note*. The mean standard score for the *Test of Written Language–3* (Hammill & Larsen, 1996) is 10 and the standard deviation is 3. Comp. = comprehension; NA = Not Available.

**Treatment.** Instruction was initiated for the first student in each cohort after the children established a stable baseline for number of elements in their stories. Instruction continued until the first child in the cohort demonstrated independent mastery of the strategy, resulting in a story with all of the basic story elements. Instruction did not begin for the next child in the cohort until the first student's independent or posttreatment performance reached a criterion level of 5 story parts (out of a possible 7). These same procedures were used with the third student in each cohort.

**Independent Performance.** Each student wrote three to four stories immediately following SRSD instruction. These writing probes were completed under the same conditions as during baseline.

**Maintenance.** Maintenance probes were conducted 2 and 4 weeks after the end of the independent performance phase. These writing probes were completed under the same conditions as baseline and independent performance.

**Generalization Reading Probes.** To assess generalization related to reading comprehension, students were asked to read and retell narrative stories during baseline, instruction, independent performance, and maintenance phases. All stories were at the students' instructional reading level. The school reading specialist conducted all story retells.

## *Testing Materials*

**Story-Writing Prompts.** We used the black-and-white line-drawn pictures employed by Saddler et al. (2004) as prompts for writing stories during the baseline, independent performance, and maintenance phases of this study. Each of these pictures had previously been evaluated by a second-grade student and one former second-grade teacher. All of the pictures were judged to be interesting and easy to write about by both the student and the teacher. The story-writing prompts were presented in randomized order. They were also administered in the same order to all participants. When presented with a story-writing prompt, students were asked to look at the picture and write a story. They were told to plan their story, include all the elements of a good story, and write as much as they could.

**Generalization Reading Probes.** To assess the extent to which SRSD instruction generalized to reading comprehension, a story-retell probe was administered during baseline, instruction, independent performance, and maintenance. Stories from the *Qualitative Reading Inventory* (Leslie & Caldwell, 2001) were modified so that they contained all 7 of the story elements students were taught to use when writing. All stories were at the students' instructional reading level. Participants read the stories and then were asked to retell what had happened. The retell task was administered by the school reading specialist, who was unaware of the study hypotheses and conditions. All retells were transcribed and scored by the first and third authors.

## *Dependent Measures*

Each story was scored for number of story elements, number of words, and overall quality. The generalization reading probes were scored for the number of story elements included.

**Number of Story Elements.** Number of story elements was scored by tabulating students' inclusion of the following 7 common elements in their papers: main characters, locale, time, what the main characters want to do, what they did, how they felt, and how it all ended (see Stein & Glenn, 1979). Students were taught to generate ideas for these elements or parts during instruction. Consequently, we used this measure to make decisions about when to start and end instruction for students (see "Procedure"). Interrater agreement (agreements divided by agreements plus disagreements) for two independent raters was .93.

**Number of Words.** Each story was entered into a word processing program. Spelling and punctuation were corrected. The number of words written was computed by using the word processing program's word count function. Because this measure was machine scored, no reliability was computed.

**Quality Ratings.** Raters evaluated quality of stories using a 7-point holistic scale (with a score of 1 representing the lowest quality and a score of 7 the highest quality). They were asked to read each paper attentively, but not laboriously, to obtain a general impression of overall writing quality. To guide the raters in the scoring process, we used anchor points for second grade developed by Saddler et al. (2004). These anchor points provided a representative paper for scores of 2, 4, and 6 for both stories and personal narratives.

Two raters independently scored each paper for overall quality. The raters were graduate students (one at the master's level and one at the doctoral level), and both were unaware of study hypotheses. Before papers were scored, they were typed and entered into a word processor. All spelling and punctuation errors were corrected prior to scoring. Interobserver agreement for the stories was .83.

**Story Retells.** Each story retell was scored for the number of story elements that were included. Interobserver agreement (agreements divided by agreements plus disagreements) between two independent scorers was 100%.

## *General Instructional Procedures*

SRSD was used to teach a story planning and writing strategy. With this approach (Harris & Graham, 1996), students are explicitly and systematically taught a task-specific strategy for

accomplishing an academic task or problem (e.g., story writing). Self-regulation is advanced by teaching students how to use goal setting, self-monitoring, self-instructions, and self-reinforcement to manage their use of the strategy, the task, and their behaviors. Knowledge is enhanced by teaching any information (or skills) students need to use the strategy. Motivation is boosted through a variety of procedures, including emphasizing the role of effort in learning, making the positive effects of instruction concrete and visible (through self-monitoring and graphing), and promoting an "I can do" attitude.

The emphasis during SRSD instruction is on students' independent use of the strategy and accompanying self-regulation procedures. This includes learning when, where, and how to apply these procedures. Instruction is scaffolded so that responsibility for applying and recruiting the strategy and self-regulation procedures gradually shifts from the instructor to students. The level and type of feedback and instructional support are individualized so that they are responsive to children's needs. Students are treated as active collaborators in the learning process. Furthermore, instruction is criterion based rather than time based, as students move through each instructional stage at their own pace and do not proceed to later stages of instruction until they have met criteria for doing so.

Detailed lesson plans were used during each stage of instruction (these are available at *http://kc.vanderbilt.edu/casl/srsd.html*). Each participant received 30- to 45-min individualized instructional sessions until mastery was achieved. Mastery was defined as independently writing a story with all 7 elements. Tim and Skylar achieved mastery in six sessions. Katie, Sarah, and Trevor required seven sessions to reach mastery. Due to illness and school vacations, Kristina required eight sessions before achieving mastery.

## *Instructional Procedures for Teaching the Planning and Story-Writing Strategy*

The planning and story-writing strategies applied in this study were used in previous studies with second-grade students (Harris et al., in press; Saddler et al., 2004). These included POW, a mnemonic device designed to help students organize the planning and writing process by reminding them to "***P***ick My Ideas" (i.e., decide what to write about), "***O***rganize My Notes" (i.e., develop an advanced writing plan), and "***W***rite and Say More" (i.e., expand the plan while writing). A second mnemonic, WWW, What = 2, How = 2, reminded students to generate notes for each of the 7 basic parts of a story during the second step of POW (i.e., "Organize My Notes"). Each letter of the mnemonic stood for a question for which students were to generate notes before writing their stories: *W*ho are the main characters? *W*hen does the story take place? *W*here does the story take place? *What* do the main characters want to do? *What* happens when the main characters try to do it? *How* does the story end? *How* do the main characters feel?

In the first stage of instruction, "Develop Background Knowledge," each student acquired the knowledge and skills needed to apply the planning and writing strategies. First, POW and its steps were introduced, and the instructor and student discussed what it stood for and why each step was important. Before moving to the next activity, the student explained the three steps and the importance of each step. The student was then asked, "What is a good story?" In discussing what makes a good story, the instructor emphasized that a good story has many characteristics, and students should remember that a good story (a) makes sense, (b) is fun to write and read, (c) uses interesting vocabulary or "million-dollar" words, and (d) includes all 7 story elements. To help students remember these 7 parts, the mnemonic device WWW, What = 2, How = 2 was introduced as a "trick" for remembering them. The student then listened along as the instructor read a story, and the child identified each of the 7 elements. As the student identified and described each element, the instructor wrote it in the appropriate section of a chart with the story element reminder. This continued with additional stories until the student could identify all parts accurately. Finally, the term "transfer" was introduced to explain how a strategy could be moved or used in other places or situations. The child was asked to identify where he or she could use these types of strategies and to set a goal to use what had been learned before the next session. A few minutes were spent during each succeeding lesson rehearsing POW and the story part mnemonic, as well as what they stood for, until they were memorized.

In the second stage of instruction, "Discuss It," students further discussed the rationale for using the strategy. Self-monitoring procedures were also introduced. The child analyzed a previously written story from baseline to determine how many basic story elements were included in it (this represents self-monitoring). The student then graphed the number of elements in the story by coloring in the corresponding number of segments on a rocket ship with seven segments. Next, the teacher and child discussed which parts were and were not included. The instructor established that the goal in writing a story is to include all 7 parts and emphasized that even if a story part was included, it could be improved (e.g., fleshed out). Most important, the instructor and student discussed how using POW and the WWW mnemonic could improve story writing. At the end of the session, the instructor asked the student to identify how he or she had used some aspect of this material since the previous session. They discussed the responses and wrote them on a chart. The student then set a new goal to use what he or she had learned outside of the instructional setting. This process of identifying instances of transfer, discussion, and goal setting continued in all subsequent sessions.

In the third stage of instruction, "Model It," the instructor showed the student how to apply the strategies and introduced the concept of self-instructions. The instructor first discussed with the student the goal of writing a story: It should make sense, use "million-dollar" words, be fun to write, and include all 7 elements. The instructor then modeled, while "talking out loud," how to plan and write a story using POW

and the story parts reminder (i.e., the WWW mnemonic). The child helped the instructor by generating ideas for the parts of the story as well as additional ideas while writing it. They recorded their notes for the story on a graphic organizer that included a prompt for each part of the WWW mnemonic. While modeling, the instructor used a variety of self statements to assist with problem definition (e.g., What do I have to do here?), planning (e.g., What comes next?), self-evaluation (e.g., Does that make sense?), self-reinforcement (e.g., I really like that part!), and coping (e.g., I'm almost finished!). Once the story was completed, the importance of what we say to ourselves was discussed and the types of self statements used by the instructor were identified. The student then identified at least three self statements that he or she would use while writing and recorded them on a small chart. The instructor and student also verified that all 7 elements were included in the story, highlighting each element and graphing the results.

The next stage, "Support It," began with a collaborative writing experience. First, the instructor and student set a goal to include all 7 elements in the story. Second, they planned the story together using POW, the story element reminder, the graphic organizer, and the student's self statements. However, this time the student directed the process and the instructor only provided support as needed. Third, using the collaboratively generated notes, the student wrote a story. Fourth, after the story was completed, the student identified each story element by highlighting it. Then the student determined if they had met their goal and graphed the results. Fifth, the instructor and student discussed how the strategies helped the child write a better story.

In subsequent sessions, the student was gradually weaned from relying on the planning graphic organizer. The instructor explained that the graphic organizer was helpful but would not always be readily accessible when the child wanted to write a story. The student was taught to write the story part reminder (Who, When, Where, What, What, How, How) at the top of the page to assist him or her in planning and writing a complete story. The student continued to set a goal to include all 7 parts and graphed his or her success in doing so. For all of the papers written during this stage, the instructor provided support and encouragement as needed, but the level of assistance was faded.

The final stage, "Independent Performance," was reached when the student could successfully write a story with all 7 story elements independently without assistance from the instructor.

### *Fidelity of Treatment*

To ensure consistency in implementation of the SRSD treatment, we employed the following procedures. First, the instructors were trained in how to apply instructional procedures until they could implement them without error. Second, each instructor had a checklist with step-by-step instructions for each lesson. Third, 25% of all lessons were observed by two individuals. The observers also had the same step-by-step checklist as the instructors to determine implementation fidelity. Fidelity was 100%.

## Results

Figures 1 and 2 show the number of story elements included in each story composed by students as well as the number of story elements included in each story retell in all conditions (i.e., baseline, independent performance, and maintenance). For Katie and Tim, the last data point in baseline and independent performance for writing and reading story elements are the same. Table 2 provides the means and standard deviations for the average length and quality of students' compositions in baseline, independent performance, and maintenance.

### *Baseline*

Prior to instruction, students' compositions were short, incomplete, and of poor quality (see Figures 1 and 2; Table 2). They contained an average of only 2.1 story elements and 28 words, and they scored an average of 1.8 on a 7-point quality scale. None of the students showed any evidence of planning, as they immediately began writing as soon as the directions for the story prompt were finished. This was generally consistent with the writing behavior in the Saddler et al. (2004) study, except that our students produced even less text (28 vs. 41 words).

Students' scores on the story retell measure during baseline were similar to their writing performance (see Figures 1 and 2). As a group, their recall of basic story elements was incomplete, as their retellings averaged only 2.5 parts.

### *Instruction*

No story-writing probes were collected during instruction. However, each student completed a story-retelling probe toward the end of instruction. Four students (Katie, Trevor, Tim, and Kristina) recalled more story parts during instruction than they did during baseline (see Figures 1 and 2). Two of these students (Trevor and Tim) recalled two more parts when retelling a story during instruction than they did during baseline, whereas the other two students (Katie and Kristina) recalled just one additional element. One student (Sarah) showed no increase in the number of elements recalled between baseline and instruction. The final student (Skylar) recalled one less element during instruction than she did during baseline. It is interesting to note that she had the highest retell score during baseline, recalling 5 of the 7 elements.

### *Independent Performance*

Following instruction, all students' stories improved markedly on the independent performance writing probes (see Figures 1 and 2; Table 2). Four students (Trevor, Skylar, Tim, and Kris-

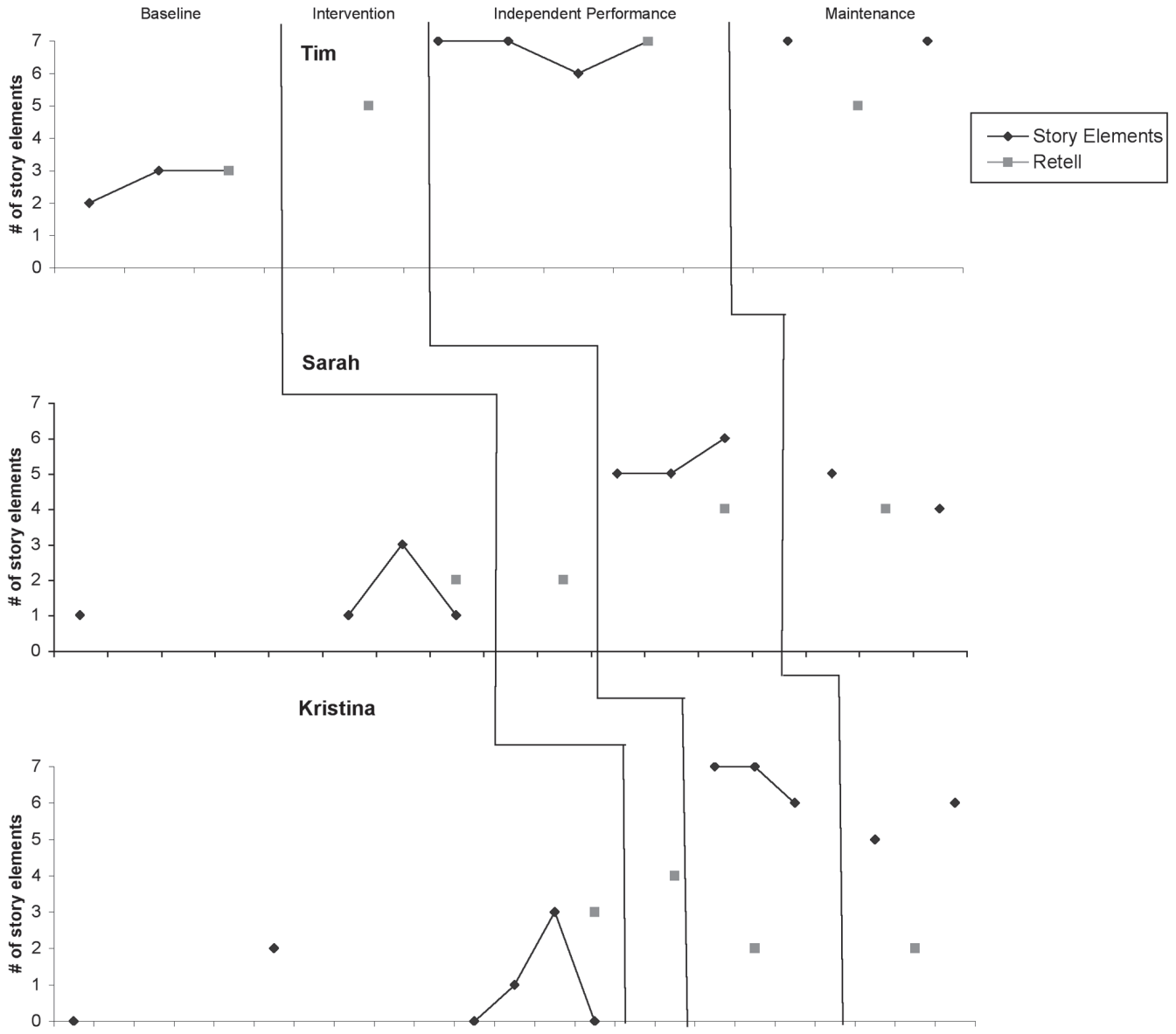


**FIGURE 1.** Number of story elements for writing and reading retells for Cohort 1.

tina) included all 7 story elements in all or all but one of their independent performance stories. Tim included all 7 elements in three out of four independent performance stories. His stories became almost 4 times longer, and his quality scores improved nearly threefold. Kristina's stories included all 7 elements in two out of three stories. Her stories were also 2.5 times longer, and the average quality of her stories more than doubled. Skylar included all 7 story elements in each of her independent performance stories, nearly doubled the average length of her stories, and made a 168% improvement in her mean quality scores. Trevor's stories included all 7 story elements in two out of three independent performance writing probes. In contrast to the other students, however, his story length stayed about the same and the quality of his stories improved only slightly.

Although Sarah and Katie did not include all 7 story elements in their independent performance stories, they still made improvements (see Figures 1 and 2). Sarah went from a mean of 2 elements in baseline to a mean of 5.3 elements during independent performance; the length of her stories nearly doubled, and story quality improved by 1 point on a 7-point scale (see Table 2). Katie's stories went from a mean of

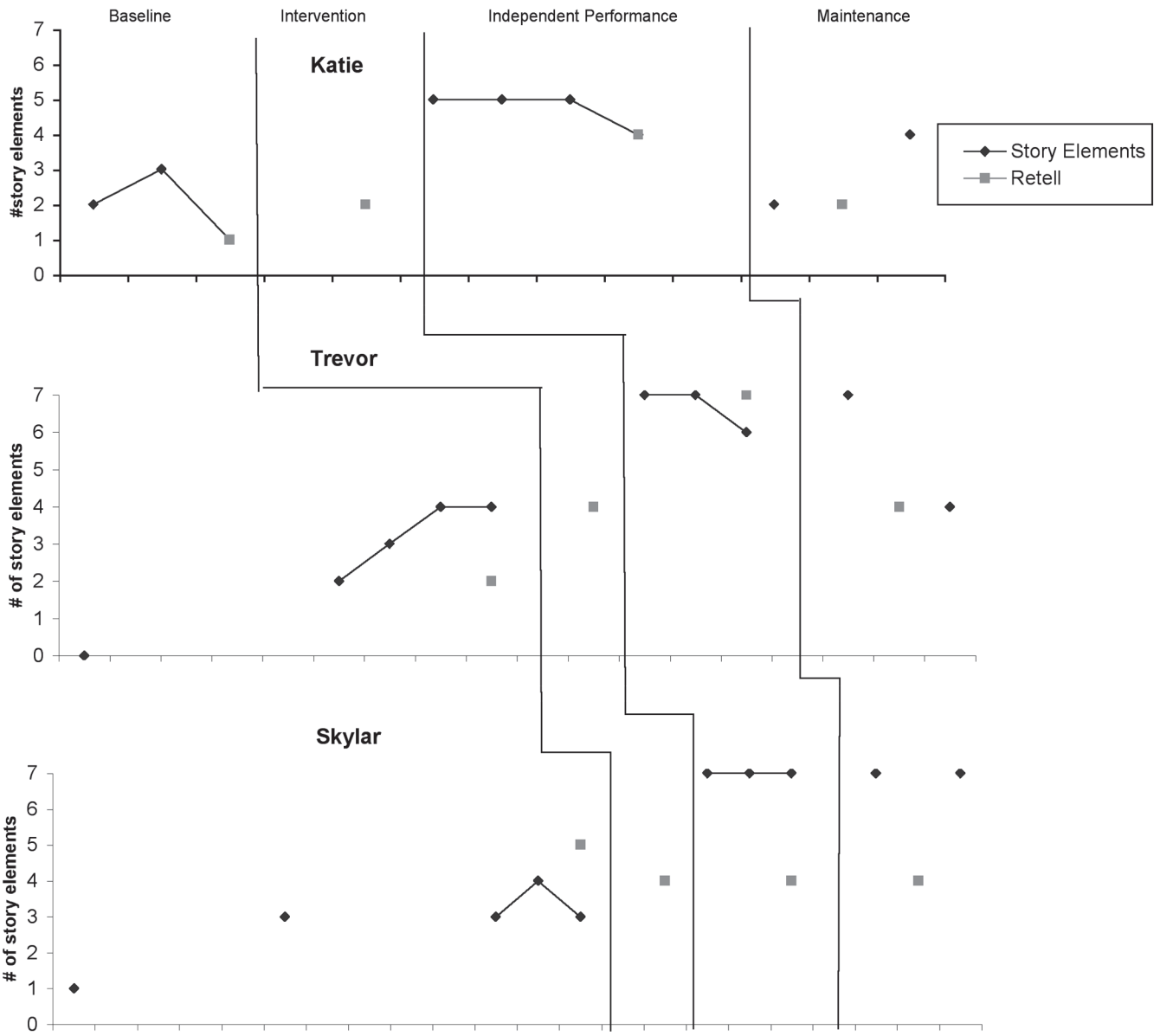


**FIGURE 2.** Number of story elements for writing and reading retells for Cohort 2.

2 elements in baseline to a mean of 4.8 elements during independent performance. Her stories became more than 6 times longer, and quality scores improved nearly threefold.

Three of the students (Katie, Trevor, and Skylar) provided overt evidence of using the story-planning strategy they had been taught. Katie consistently wrote the story part reminder at the top of each of her independent performance stories. Trevor wrote the story part reminder on his first and second independent performance stories. Skylar wrote the story part reminder at the top of her first independent performance story. The relationship between writing the reminder on the paper and performance was unclear, however, as the student who did this most consistently (Katie) did not include all story parts, and all 7 story elements were included by some students when this was not done (see, e.g., Tim; Figure 2). It must also be noted that all three of the students who overtly wrote the story part reminder on one or more stories had the same instructor.

Students' story retells at the independent performance phase generally showed improvements over baseline and instruction (see Figures 1 and 2). The performance of three students (Katie, Trevor, and Tim), who recalled more story el-

**TABLE 2.** Average Length and Quality of Stories

| Student (number of compositions) | Story | | | |
|---|---|---|---|---|
| | Length | *SD* | Quality | *SD* |
| Katie | | | | |
| Baseline (3) | 10.3 | 2.08 | 1.2 | 0.29 |
| Independent performance (4) | 61.8 | 14.66 | 3.1 | 0.95 |
| Maintenance (2) | 23 | 8.49 | 1.5 | 0.71 |
| Trevor | | | | |
| Baseline (5) | 43.4 | 18.37 | 2.3 | 0.57 |
| Independent performance (3) | 43.3 | 7.51 | 2.7 | 0.29 |
| Maintenance (2) | 33.5 | 7.78 | 2.75 | 0.71 |
| Skylar | | | | |
| Baseline (5) | 27.6 | 12.05 | 2.2 | 0.45 |
| Independent performance (3) | 56 | 18.73 | 3.7 | 0.76 |
| Maintenance (2) | 42 | 5.66 | 3.5 | 1.41 |
| Tim | | | | |
| Baseline (3) | 13.7 | 2.52 | 1.3 | 0.29 |
| Independent performance (4) | 51 | 6.06 | 3.6 | 0.25 |
| Maintenance (2) | 64 | 9.90 | 4.8 | 0.35 |
| Sarah | | | | |
| Baseline (4) | 48.3 | 30.31 | 2.7 | 0.50 |
| Independent performance (3) | 82 | 1.00 | 3.7 | 0.76 |
| Maintenance (2) | 72 | 26.87 | 3 | 0.35 |
| Kristina | | | | |
| Baseline (6) | 16.2 | 4.88 | 1.3 | 0.61 |
| Independent performance (3) | 41 | 6.93 | 2.8 | 0.58 |
| Maintenance (2) | 50 | 7.07 | 3.75 | 0.35 |

ements during instruction than they did during baseline, continued to improve, as they included even more parts when they retold their independent performance story. In addition, Sarah, who showed no improvement from baseline to instruction, recalled twice as many parts when retelling her independent performance story. In contrast, Skylar still recalled one less element than she did during baseline, and Kristina's performance, which had shown a small gain from baseline to instruction, declined below baseline levels.

### *Maintenance*

Four of the six students (Skylar, Tim, Sarah, and Kristina) maintained improvements in the number of story elements across the 2- and 4-week maintenance probes (see Figures 1 and 2). Katie returned to baseline levels on her first maintenance probe but increased above baseline levels on the second one. Trevor included all 7 elements at the first maintenance probe but decreased markedly to baseline levels on the second probe. All but one student maintained improvements in the length of stories (see Table 2). The exception was Trevor, whose average story length dropped below baseline levels. Nevertheless, the quality of all students' stories was above baseline levels at maintenance. For three students (Trevor, Skylar, and Sarah), there was little change in story quality from independent performance to maintenance. For two other students (Tim and Kristina), story quality improved at maintenance, but it declined for Katie, staying only marginally better than baseline. There was little overt evidence that the students used the story-planning strategy at maintenance, as only Katie and Trevor wrote the story part reminder at the top of any maintenance story (this occurred on the first maintenance story).

## Discussion

This study demonstrated that explicitly teaching young struggling writers, including those with special needs, strategies for planning and writing text, the knowledge needed to apply

these strategies, and procedures for fostering self-regulation and motivation was an effective instructional approach with these children. We found that providing such instruction for story writing had a strong impact, as all of the participating students wrote more complete stories immediately following instruction and, with the exception of one child, produced papers that were much longer. Even more important, the quality of these students' writing improved. For five of the six students, quality scores for story writing increased by 137% to 277%. The smallest average change in quality scores was 113%, and this occurred for the student who evidenced no increase in story length as a result of instruction. These findings add to a small but growing body of literature (Graham et al., 2005; Harris et al., in press; Saddler et al., 2004) showing that an early intervention designed to enhance strategic behavior, knowledge, and motivation can have a positive impact on young students who are at risk for writing disabilities.

These findings do more than replicate the earlier studies by Graham, Harris, and colleagues (Graham et al., 2005; Harris et al., in press; Saddler et al., 2004), as they extend them in three important ways. First, our study provides evidence that this instructional approach can have a positive impact on the writing of a group of young struggling writers who evidenced a broader range of difficulties than the children involved in the previous investigations. Second, we showed that such instruction is effective in a rural setting where most of the children are not economically disadvantaged. The three previous studies were all conducted in urban schools where the majority of the students were African American children from economically disadvantaged families. Third, this instruction was also effective in an instructional environment in which the teaching of basic writing skills was emphasized but little emphasis was placed on the process of writing. The previous studies all occurred within the context of a writing environment where the writing process was stressed. These three extensions enhance the external validity of this approach by replicating its positive effects across different participants and conditions.

An especially important extension in the current study was that SRSD instruction in writing resulted in improvement on a reading task for four of the six students. Learning about the parts of a story and how to generate writing ideas for these elements appeared to facilitate these students' recall of these parts when they retold stories they had read. Although there was some decline for three of these four students on the retell measure administered at maintenance, all of them still recalled more elements than they did on the baseline probe. To date, more than 25 large-group and single-subject design SRSD writing studies have been conducted (see Graham, in press a; Graham & Harris, 2003; Graham & Perrin, in press), and none of these investigations have examined possible carryover effects to reading. Shanahan (in press) has argued that it should be possible to teach writing in a manner that promotes reading development. Clearly, additional research is needed to examine the extent of carryover that occurs when knowledge that can be used in both reading and writing is taught in one subject or the other (Fitzgerald & Shanahan, 2000). In addition, research is needed to explore how such carryover can be maximized.

One concern about the effects of early intervention in general, and strategy instruction in particular, is whether the gains obtained immediately following instruction are maintained over time (Graham & Harris, 1989; Slavin et al., 1989). With regard to SRSD instruction, a recent meta-analysis (Graham & Harris, 2003) reported that gains at maintenance are not as large as those obtained immediately following instruction, but they remain well above preinstructional levels. The findings from the current study were generally consistent with this observation. On the variable that was most directly related to the instructional intervention (i.e., number of story grammar elements in stories), one student's average score rose slightly on the maintenance probes, another student's average score stayed the same, and four students showed a decline in comparison with the writing probes taken immediately after instruction ended. Nevertheless, the average number of elements in all students' maintenance stories exceeded baseline stories (average increases above baseline ranged from 150% to 458%). With the exception of one student, similar findings were obtained for story length. In terms of story quality, the average maintenance scores for all six students exceeded their mean baseline performance, but this was a marginal advantage in the case of three children. It must be noted that maintenance probes were only taken at 2 and 4 weeks. As a result, this study does not provide a strong test of maintenance effects. This is also a problem for research on the SRSD approach in general, as maintenance probes have never exceeded 15 weeks. Thus, future research should examine whether or not SRSD effects are maintained over a longer period of time.

Despite the generally positive effects for maintenance, it must be noted that two of the students produced maintenance stories with the same or fewer elements than their best stories during baseline. Although there was some indication that concurrent school activities may have influenced the maintenance performance of at least one of these students, it is possible that our mastery criteria were too lenient. Before instruction ended, students had to demonstrate only once that they could independently use the strategy to write a story containing all 7 parts. These two children may have needed additional practice to fully master these strategies. It is also not clear if the decline in writing performance that occurred for most students at maintenance was simply a reflection of normal variability in performance, as little is known about how well children maintain what they are taught over time. In any event, teachers should not view strategy instruction as once-and-done. Strategies such as the ones taught in this study should be periodically revisited and even upgraded over time (Graham & Harris, 2005a).

It is also important to note that there was little overt evidence that students actually used the strategies they were taught. By the end of instruction, students were taught to write

the mnemonic for the story grammar questions at the top of their papers, as a reminder to plan for and include these parts in their stories. Nevertheless, students did this on only 28% of their independent performance and maintenance stories combined. Students' failure to write the reminder does not mean that they did not apply what they had learned, as they averaged 6.2 and 5.4 story parts on the independent performance and maintenance probes, respectively (vs. 2.1 elements during baseline). A more likely explanation, given these findings, is that the mnemonic was no longer necessary, as instructed students knew that they should include these elements in their stories.

In addition to limitations involving the relatively small sample size and maintenance probes that spanned only 4 weeks, our instructional regime only concentrated on planning and drafting. Other important writing processes, such as revising, editing, and publishing, were not included, nor did children have the opportunity to share what they had done with their peers. Even so, the effects of instruction were pronounced, and we anticipate that they would be improved by including these other components (see Graham & Harris, 2005b, for other examples of validated writing strategies).

Another limitation of the current study is that not all of the students had identified disabilities at the time the study was conducted. Thus, there is a need to conduct additional research with young children with disabilities. Even though SRSD instruction has been an effective intervention with students of varying ability levels (Graham & Harris, 2003), additional research is needed to determine if this is the case with primary-grade children. All current work with these children has involved struggling writers (Graham et al., 2005; Harris et al., in press; Saddler et al., 2004). Furthermore, the current study involved one-on-one instruction conducted outside of the general education classroom. Additional research is needed to examine the effects of such instruction when it is delivered directly by teachers in primary-grade classrooms. It is interesting to note that the findings from this study and earlier investigations with struggling writers in the primary grades (Graham et al., 2005; Harris et al., in press; Saddler et al., 2004) suggest that SRSD provides a potentially useful Tier 2 response-to-intervention treatment in the area of writing. In this and previous studies, students who were experiencing difficulty learning to write showed strong gains in writing performance when individual or small-group SRSD instruction was provided by a specially trained instructor. It must be noted, however, that no attempt was made in this or previous studies to determine if students were already receiving quality writing instruction prior to the implementation of SRSD. Research is needed to examine more directly the effectiveness of SRSD as a Tier 2 intervention and to identify other writing interventions that are effective prevention and early intervention techniques with young struggling writers.

In summary, the results from this study and previous research (Berninger et al., 1995; Berninger et al., 1997; Berninger et al., 1998; Englert et al., 1995; Graham et al., 2000; Graham et al., 2002; Graham et al., 2005; Harris et al., in press; Saddler et al., 2004) provide support for the importance of providing early intervention to students who are at risk for writing disabilities. Even relatively brief interventions, such as the one studied here, can have a marked effect on these children's writing performance. Additional research is needed, however, to develop and study other options for early intervention for students who struggle with writing.

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