Self-Regulated Strategy Development Instruction: Effects of Lesson Structure on a Teacher's Behaviors

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Self-regulated strategy development instruction or SRSD is a method developed for teaching students how and what to think while writing. SRSD instruction for the persuasive writing strategy POW (Pick my idea, Organize notes, Write and Say more) + TREE (Topic sentence, Reasons, Explain reasons, Ending) helps students by teaching them to develop their thoughts into manageable components prior to and during the writing process. In this descriptive study a teacher's behavior was carefully measured to examine the effects SRSD for POW+TREE. The results show a high number of opportunities to respond were provided by the teacher. Furthermore, the ratio of opportunities to respond to praise increased as the student engaged in terminal writing behaviors. The results of the present descriptive study should be viewed as preliminary due to the lack of controls, however, it does offer insight into how POW+TREE positively effected one teacher's behavior.

Effective writing performance is important for all students and supports curricula accessibility (Baker, Gertsen, & Scanlon, 2002). Unfortunately, many middle school students, including those with disabilities, are simply unable to meet classroom demands due to deficits in writing. This finding is corroborated by National Assessment of Educational Progress (NAEP) 2007 results - approximately two-thirds of eighth-grade school students in the United States have difficulties in producing proficiently written text (Salahu-Din, Persky, & Miller, 2008). This outcome is not surprising given that the instruction and subsequent writing tasks provided to students with and without disabilities in school settings are often ill defined and provide little student guidance (Harris & Graham, 2003).

Programs of research in interventions for struggling writers, nevertheless, have provided frameworks for effective instruction for struggling students (Mason & Graham, 2008). It is well established, for example, that students who struggle with writing give little attention to organization and to the development of rhetorical goals (Bereiter & Scardamalia, 1982). Strategy instruction in writing can help these students by teaching them to break writing tasks into manageable subtasks. Students who struggle with writing have also been characterized as inefficient learners who cannot easily access, coordinate, and self-regulate the multiple mental processes needed for writing (Swanson, 1989). Effective writing instruction, with an emphasis on teaching and developing skills in self-regulation in conjunction with strategy acquisition, helps students improve self-control and awareness (Wong, 1986). Furthermore, students who struggle with writing can be taught *how* to think about the learning process as well as *what* to think (Schmidt, Deshler, Schumaker, & Alley, 1988).

Self-regulated Strategy Development Instruction

Self-regulated strategy development instruction or SRSD is a method developed for teaching students how and what to think while writing. SRSD is an instructional approach that combines explicit instruction in self-regulation procedures with strategy instruction (Harris et al., 2003). Theoretical frameworks in cognitive development and learning, student behavior, and the role of affect in learning are all used in SRSD. SRSD instruction is influenced by the cognitive-behavior modification work of Meichenbaum (1977), the work of researchers on self-regulation (e.g., Zimmerman & Risemberg, 1997), and Vygotsky's (1962) work in social origin of self-control and development of the mind. SRSD supports students' cognitive, affective, and behavioral strengths and needs by providing focused, structured, explicit, and individualized instruction.

Six steps for strategy acquisition are included in lessons: (a) developing pre-skills; (b) discussing the strategy; (c) modeling the strategy; (d) memorizing the strategy; (e) providing guided practice; and (f) providing independent practice. Student independence in using strategies throughout the writing process is cultivated by explicitly teaching them to self-regulate their learning through self-instruction, goal setting, self-monitoring, and self-reinforcement. Results of a meta-analysis of 18 writing studies conducted in over 25 years of research indicated that SRSD instruction has large positive effects (effect sizes ranging from 1.47 to 2.0) in improving the quality, structure, and length of students' writing (Graham & Harris, 2003).

SRSD Instruction for POW+TREE

SRSD instruction for the persuasive writing strategy

POW (Pick my idea, Organize notes, Write and Say more) + TREE (Topic sentence, Reasons, Explain reasons, Ending) helps students by teaching them to develop their thoughts into manageable components prior to and during the writing process (Harris, Graham, Mason, & Friedlander, 2008). SRSD instruction for POW + TREE has been shown to improve students' essay length, number of persuasive elements, and quality. For example, in two group experimental studies with second-grade and third-grade struggling writers, students who learned POW + TREE improved their writing significantly; effect sizes ranged from 1.07 to 4.64 (Graham, Harris, & Mason, 2005; Harris et al., 2006). In another study with six elementary-aged students with behavior disorders, students' post-instruction performance for number of persuasive elements was 77% of non-overlapping data (PND) when compared to baseline performance (100% for five students) and 100% PND at maintenance (Mason & Shriner, 2008). In a fourth study (Mason, Kubina, & Taft, 2009) that included six middle school students with disabilities, results showed 100% PND for persuasive elements at both post-instruction and maintenance.

Instruction and Teacher Behavior

The relationship between instructional approaches and student behavior is a very direct one. Teachers who use methods promoting frequent academic responses will likely experience lower levels of disruptive or inappropriate behavior from their students (Gunter, Hummel, & Conroy, 1998; Miller, Gunter, Venn, Hummel, & Wiley, 2003). In other words, within the context and implementation of instructional strategies and skill development, the effect a teacher can have on student achievement is unmistakable (Marzano, Marzano, & Pickering, 2003). Students engaged in active academic output has less time or opportunities to display negative behavior. Additionally, instructional approaches may also influence the nature of teacher comments and other behavior associated with students displaying negative behaviors.

The teacher behaviors closely associated with both positive and negative behaviors are praise and reprimands. Teacher praise can effectively improve the general behavior of students (Lovitt, 2007). For instance, teacher praise positively affected reading achievement (Gable & Shores, 1980), math achievement (Luiselli & Downing, 1980), and task engagement (Sutherland, Wehby, & Copeland, 2000). Conversely, teacher reprimands can suppress student behavior. However, the effects of reprimands are mixed (Kazdin, 2001). One preliminary study demonstrated reprimands functioned as positive reinforcers. The teacher told students to sit down yet the reprimands increased the frequency of standing up (Madsen, Becker, Thomas, Koser, & Plager, 1970).

The link between praise and reprimands and instructional approaches follows behavioral logic; student behavior and instructional approaches interact with one another in a direct fashion. Namely, instructional approaches fostering student engagement and learning will reduce the likelihood of student misbehavior. As an example, walking around the class, talking out, or throwing pencils are incompatible behaviors with an instructional approach where students directly rehearse mnemonics, write paragraphs, or engage in other active student responses. Teachers may be more likely to use positive teaching practices, such a praise, when using effective instructional approaches. Furthermore, teachers would be less likely to use reprimands when students are actively engaged with learning.

Studies examining opportunities to respond (OTR) show a relationship between praise, reprimands and student responding. Sutherland, Wehby, and Yoder (2002) found a positive correlation between OTR and praise among teachers of students with emotional and behavioral disorders (EBD). Sutherland, et al. (2000) also demonstrated students on-task behaviors increased as teachers' behavior specific praise increased. Additionally, a review of the literature by Sutherland and Wehby (2001) suggested that higher frequencies of OTR resulted in more task engagement and greater academic achievement in students with EBD. Students with EBD had lower frequencies of inappropriate behaviors when the opportunities to respond were high.

SRSD is an evidenced-based practice for teaching writing to at-risk students (Baker, Chard, Ketterlin-Geller, Apichatabutra, & Doabler, 2009). SRSD is grounded in theory and when carefully implemented produces measurable improvements in writing skills. The relationship between SRSD and teacher behaviors, however, is unknown. If SRSD is implemented with fidelity will it effect teacher behavior as suggested in previous research? To more fully understand the association between teacher behavior and a method producing active student responding we conducted a descriptive, exploratory study closely inspecting the behaviors of one teacher and her students. Specifically, we asked *At level of activity does a teacher who implements SRSD provide opportunities to respond?* We also examined the frequencies of teacher praise and rate of teacher reprimands. Based on a review of literature we could not locate studies showing the relationship between teacher behaviors and SRSD instruction. Therefore, providing an exploratory study descriptively examining a teacher's use of praise, reprimands, and OTR during SRSD instruction with the persuasive writing strategy POW + TREE could provide insight to future researchers and other teachers using instructional packages that promote active student responding. Because the present study lacks controls the results should be interpreted cautiously.

Methods

Participant

The participant in this study was a female teacher of special education. She had a Bachelor's Degree in Early Childhood Education and a Master's Degree in K-12 Special Education. Her prior experiences included teaching in early childhood settings and substitute teaching in her current district. More recently she had been teaching students in a learning support classroom for six years in the district in which the study was conducted. Learning support, in this district, refers to services provided for students with disabilities whose primary identified needs are academic learning. The teacher's caseload during this study included seven students, six of whom were identified under the category of Specific Learning Disability (SLD) and one was identified under Other Health Impairment (OHI).

Setting

The present study took place in a seventh-grade learning support classroom where the students were received daily reading and writing instruction specifically tailored to goals on their individualized education plan (IEP). The classroom was located in a midsize northeastern university-city where 11% of the students were classified as low income. The middle school enrolled 763 students, about 15% of whom were identified for special education. The school district employed a policy of predominantly including students with disabilities in general education classes, with pullout instruction in specific skill areas.

All lessons took place in this classroom on consecutive days. Students and the teacher-participant sat around a circular table. Two classes, Group 1 and Group 2, were observed in the late or mid-morning. During instruction for Group 1, four students and one instructional assistant were present. Following instruction and observation of Group 1, Group 2 (three students) received instruction. No instructional assistance support was provided to Group 2.

Measurement

Observations. Observers were four doctoral-level students. At least one observer was present during each lesson. In addition, each lesson was videotaped. The observer and the camera sat approximately three meters away from the table where instruction was conducted. The camera was placed so that students' backs were to the camera. The teacher faced the camera from the opposite side of the table. Observers collected behavioral observation data (i.e., opportunities to respond, praise, and reprimands) and treatment fidelity data during each lesson. Inter-observer agreement data was collected from the videotape. Observers used paper-and-pencil data collection sheets. For target behaviors, the lesson was divided into five-minute segments, and observers used the running timer on the video camera to establish time frames. Each occurrence of the target behavior was recorded with a tally mark in the appropriate time frame in one of three separate columns. Fidelity data were also collected on lesson scripts. Observers wrote a checkmark next to each lesson component as the teacher conducted it.

Target behaviors. Three behaviors exhibited by the teacher-participant were targeted for collection: (a) teacher-elicited opportunities to respond (OTR), (b) behavior-specific or general praise, and (c) behavior specific or general reprimands. Complete definitions and examples are provided in Table 1.

Inter-observer Agreement. In 80% of the lessons (four of the five in each group), inter-observer agreement was assessed for the occurrences of OTR, praise, and reprimands. A different observer conducted inter-observer agreement at a separate time using the videotaped lessons. Inter-observer agreement was calculated through assessing observers' total agreement for each behavior. All occurrences of each target behavior during the lesson identified by each observer were added together. Then the lesser number of occurrences was divided by the greater number of occurrences and multiplied by 100 to derive an individual behavior per lesson agreement calculation. Next, total agreement per behavior was calculated by adding all the occurrences of target behaviors identified by the first observer across all lessons and all the occurrences of target behaviors identified by the agreement observer across all lessons, then dividing the lesser number by the greater number and multiplying by 100.

Total inter-observer agreement of occurrences of OTR was calculated at 93.41% (range 71.91% to 97.26%). Total inter-observer agreement for the occurrences of praise was 96.26% (range 91.30% to 100.0%). Total inter-observer agreement for the occurrences of reprimands was 91.67% (range 83.33% to 100.0%).

Procedures

SRSD for POW + TREE instruction as completed in Mason, et al. (2009) was used in the current study. Three steps for writing were taught in the POW strategy. In the first POW step, *pick an idea*, students began the pre-writing process by selecting which side of a persuasive argument they would support. In the second POW step, *organize notes*, students developed a plan for writing by using the TREE strategy for persuasive essays. The four TREE steps were taught with a goal of writing eight essay parts: (a) topic sentence – one part, (b) reasons: three or more – three or more parts, (c) explain/examine each reason – three or more parts, and (d) wrap-it up – one part. In final POW step, *write and say more*, students were encouraged to add more detail to their writing.

Students were provided POW + TREE instruction in five 45-minute lessons in their learning support classroom. Script-

ed lessons and supporting materials were provided for each lesson.

Lessons. Lesson one began with the teacher telling students that they would be learning *tricks* (strategies and methods) for writing. Students' pre-skills for learning the skills to be taught (e.g., *What is persuasion?*) were informally evaluated and taught when needed. Next, the teacher read and discussed the use of the POW + TREE strategy for writing a persuasive response. Goal setting was initiated as students committed to use POW + TREE for writing and to try their best during all instructional procedures. The teacher also committed to do her best in teaching the strategies.

In the next two lessons, the teacher rehearsed the mnemonic and cognitively modeled each strategy step by demonstrating and thinking out loud how to write a persuasive response with POW + TREE. The teacher also modeled how to complete the TREE graphic organizer and how to write a response from the notes written on the organizer. The teacher verbalized self-instructions to guide her throughout the process (i.e., *What do I have to do? I need to think clearly? Using TREE makes writing easier.*). The teacher modeled how to use a checklist for monitoring strategy use. A checklist of steps for self-monitoring was given to each student so that he or she could monitor the teacher's use of the strategies during this lesson. When the teacher completed her persuasive response, the teacher and students graphed the number of persuasive parts written. The self-instructions the teacher used throughout the writing process were discussed. The students then recorded the things that they could say to themselves while writing.

In the next three lessons, students practiced planning and writing a persuasive response until the strategies and all steps were memorized and criterion performance in independently writing an eight-part response with POW+TREE was demonstrated. To support self-regulation, students were able to refer to any of the instructional materials and mnemonic charts throughout guided practice. During independent practice, students were taught a system (i.e., writing without the graphic organizer by creating your own graphic organizer) for writing a persuasive response without supporting material.

Student performance after instruction. Results of the writing intervention as noted in Table 2 indicate that all students' performance improved after instruction and in maintenance for total number of TREE persuasive essay parts written, total number of words written, and holistic quality when compared to their individual baseline performance (Mason et al., 2009). We know the POW+TREE strategy was learned and that students writing skills improved, the relationship between teacher behaviors and instruction is presented next.

Results

The teacher implemented the five lessons with two separate resource room classes (i.e., resource room class 1, n = 4, resource room class 2, n = 3). Three behaviors were observed and recorded: (a) teacher-elicited opportunities to respond or OTR, (b) behavior specific, and (c) general praise, and behavior specific or general reprimands. The data of each teacher behavior in the column graph (see Figure 1) are shown per lesson on the vertical axis and each lesson on the horizontal axis. The data represented in each category is the average of

Table 1

Target Behavior Definitions and Examples

Behavior	Definition	Example
Opportunities to Respond (OTR)	When a teacher prompts, asks a questions, signals to respond, requiring a verbal academic response	"Can you give me an example to go with that reason?" "Why do you think students should do that?"
Praise	Behavior specific or nonspecific verbal statements indicating approval	"Great topic sentence." "Nice job sitting in your seat." "Good work."
Reprimand	Behavior specific or nonspecific verbal statements indicating disapproval	"That is a sloppy sentence." "You were told to stop writing." "You know better than that."

teacher behaviors for the two resource room classes.

The first bar in each series of bars represents opportunities to respond. The average range for OTR across the 5 lessons was 14 to 83. The data show a comparatively high degree of OTR given in the first three lessons with OTR decreasing in lessons 4 and 5. The second bar in each series shows praise. The average range for praise for the 5 lessons was 7 to 31. The praise data indicate that the amount of praise increased from the first to the fourth lesson while the praise in the fifth lessons slightly dropped; however, the praise in the fifth lesson was higher than the first lesson. Reprimands are shown as the third bar in each series. Average reprimands ranged from 0 to 3 across the 5 lessons. The reprimand data show a uniformly low number of reprimands given in all lessons.

When comparing praise and reprimands across the 5 lessons, the number of praise statements was always higher than the number of reprimands. On average the ratio of praise statements to reprimands was 19 to 1. Another comparison to praise is OTR. The bar graph indicates that the difference between OTR and praise decreases as the lessons proceed. The ratio of OTR to praise in the lessons follows a pattern of lowest to highest: Lesson 1-10 to 1, Lesson 2–4 to 1, Lesson 3-3 to 1. Lesson 4–2 to 1, Lesson 5, 1 to 1.

Discussion

In this beginning exploratory study, descriptive analysis of the data suggests that the teacher who provided SRSD instruction using the POW+TREE writing strategy did indeed provide frequent opportunities to respond. The data show a higher frequency of OTR in the first three lessons than the last two. In the first three lessons the teacher introduces the POW+TREE mnemonic, models the use of the strategy, identifies essay parts, and guides the students' active use of the strategy (Harris et al., 2008). The previously mentioned instructional components result in students rehearsing the mnemonic and generating ideas. Therefore, many opportunities to respond appear with the first three lessons.

In the fourth and fifth lessons the teacher collaboratively writes an opinion essay, guides students to write independently, and eliminates the teacher provided POW+TREE graphic organizer and other instructional supports. In other words, students must generate their own graphic organizer and independently compose their own persuasive essay. As students shift from teacher directed to more self-directed activity, OTR decrease. Stated differently, as students spend more time writing in later lessons the teacher had fewer chances to deliver OTR. Opportunities to respond are effective because their use suggests students may actively respond to academic content (Greenwood, Hart, Walker, & Risley, 1994). In lessons four and five students were actively engaged in composing and writing an essay therefore the teacher provided fewer OTR. Figure 1 provides a visual depiction of this OTR pattern.

Data in Figure 1 also indicate that the amount of teacher praise increased from lesson one through four then fell slight-

Figure 1.

A column graph showing three teacher behaviors, opportunities to respond, praise, and reprimands.

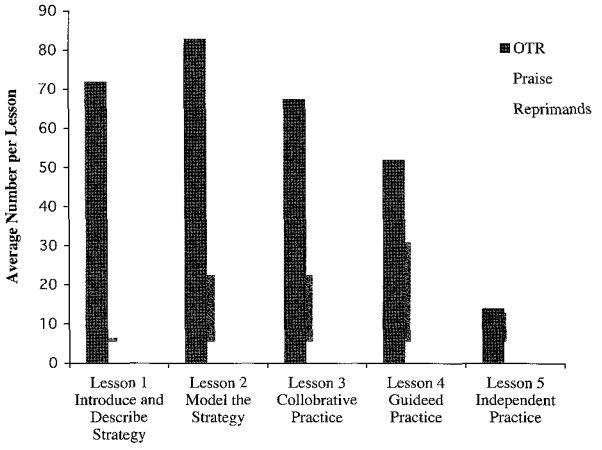

Table 2

Total Combined Group - Means and Standard Deviations (SD)

	Baseline Mean (SD)	Instruction Mean (SD)	Post Instruction Mean (SD)	Maintenance Mean (SD)
Quality	3.38 (1.26)	5.16 (1.28)	5.15 (.86)	5.38 (.99)
Total Words	77.66 (30.41)	125.84 (40.68)	108.60 (29.08)	111.92 (27.44)
Number of Parts	3.80 (1.51)	7.82 (2.13)	7.04 (1.70)	6.69 (2.01)

ly in lesson five. Still, the amount of teacher praise in lesson five was greater than lesson one. Examination of content and structure in each POW+TREE reveals a strong influence from instructional content to teacher behavior. In the first lesson the teacher spends a large part of her time developing a context for the instruction, introducing the instructional support materials (e.g., graphic organizer, progress monitoring chart, mnemonic chart) and self-regulation strategies. The teacher uses most of the instructional time providing information, introducing POW + TREE, and structuring student implementation of the persuasive writing strategy. Consequently, students are not as directly involved in the writing process producing active behaviors that the teacher would praise.

In subsequent lessons, praise increased as students became more actively engaged in the writing process. Active student responses are found in: (a) Lesson two: revising, rehearsing mnemonic producing sentences, graphing; (b) Lesson three: orally generating ideas, rehearsing mnemonic, writing self statements, graphing; (c) Lesson four: rehearsing mnemonic, collaboratively writing an essay, graphing (d) Lesson five: independently composing an essay and graphing (Harris et al., 2008). The data indicated the teacher provided praise most when the students engaged in active writing behaviors as opposed to when students providing answers to questions as in Lesson one.

In the present study reprimands were also measured. Figure 1 shows a very low occurrence of teacher reprimands. It is possible that the low level of reprimands were connected to the lesson structure. SRSD for POW+TREE is an instructional approach that fosters student engagement. Therefore, the presence of frequent OTR may have reduced the need for reprimands. An alternative explanation may reflect the disposition of the students. The students who received instruction were not characterized by the teacher as students with problematic behaviors.

The ratio between OTR/praise and an analysis of the lesson structure may offer unanticipated insight into the relationship between the two variables. Sutherland, et al. (2002) found a significant positive correlation between OTR and praise. The results in the present study, while extremely tentative due to the limitations of the sample, do not show the same correlation. The pattern that emerges between the OTR/praise ratio and the students' behaviors evoked by the lesson structure, however, shows that at least this teacher provides a higher ratio of OTR to praise as the lessons proceed. In other words, in the first lesson the teacher gave 10 OTR for every 1 praise statement. This ratio increased until the fifth lesson where almost each OTR was accompanied by a praise statement. It would appear that something in the SRSD lesson structure may require students to make more discrete verbal responses during the initial lessons and as the lessons move forward students engage in active and lengthy writing behaviors.

Because our study used an intensive descriptive analysis, we were able to closely examine the relationship between OTR/praise and the POW+TREE lesson structure. As Harris, Graham, Brindle, and Sandmel (in press) suggest SRSD instruction includes declarative, procedural and conditional knowledge. Our results show the teacher offered the highest ratio of praise to OTR when students displayed writing behaviors indicative of procedural knowledge. The teacher's use of praise was most related to the terminal writing behavior.

The present study also has implications for teachers though they should be viewed with caution in regards to generalization. The review of the data provides an exploratory view into the quanitative degree of teacher behaviors associated with a evidenced-based approach to teaching writing. The descriptive counts of teacher behavior may serve as premilinary data for preservice teachers who wish to compare the amount of praise and opportunities to respond when using SRSD instruction.

Future Directions

The results of our study suggest a number of possible future studies. First, future research should replicate the findings of our descriptive study. Namely, does SRSD instruction consistently produce high degrees of OTR and praise and few reprimands? Replication should include other teachers with students of differing disabilities and those teachers in general education settings working with students without disabilities. Additonally, with a diversity of students included in future studies would teacher praise and repreimands also show variablity? Second, how does SRSD instruction effect different student behaviors? Would students with EBD, for example, exhibit fewer problem behaviors and more active responses during the lesson implementation? And third, how does the relationship between the ratio of OTR/praise and stages of knowledge acquisition change across time? Would OTR occur at different rates with declarative, procedural or conditional knowledge?

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