EFFECTS OF SELF-REGULATED STRATEGY DEVELOPMENT
FOR WRITING ON HIGH SCHOOL STUDENTS WITH
LEARNING DISABILITIES

A Dissertation in
Special Education
by
Theresa M. Hoover

© 2010 Theresa M. Hoover

Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Doctor of Philosophy

December, 2010
The dissertation of Theresa M. Hoover was reviewed and approved* by the following:

Richard M. Kubina, Jr.
Associate Professor of Education
Dissertation Adviser
Chair of Committee

Linda H. Mason
Associate Professor of Education

Frank R. Rusch
Professor of Education

Paul Morgan
Associate Professor of Education

Elizabeth Mellin
Assistant Professor of Education

Kathy L. Ruhl
Professor of Special Education
Head of the Department of Educational and School Psychology and Special Education

*Signatures are on file in the Graduate School
ABSTRACT

High school students with Learning Disabilities (LD) often have difficulty expressing their thoughts in writing. At the secondary level, writing becomes paramount to successfully navigating the curriculum and expressing knowledge. In this study, the effectiveness of Self-Regulated Strategy Development for POW (Pick my idea, Organize my notes, Write and say more) + TREE (Topic sentence, Reasons – three or more, Examine, Ending) for persuasive quick writes with four high school students with LD was investigated. Results indicated an increase in the number of response parts written and increased stability in the number of words written. The social validity of the intervention was also deemed positive by the participants.
## TABLE OF CONTENTS

List of Tables ................................................................................................................................ vi

List of Figures ............................................................................................................................... vii

ACKNOWLEDGEMENTS ......................................................................................................... viii

SRSD Instruction ........................................................................................................................ 2

Instructional Stages .................................................................................................................... 3

Methods........................................................................................................................................ 6

   Design ...................................................................................................................................... 6

   Baseline ................................................................................................................................. 6

   Instruction ............................................................................................................................ 7

   Post Instruction ................................................................................................................... 7

   Setting ................................................................................................................................. 7

   Participants ......................................................................................................................... 8

   Measures ............................................................................................................................. 11

   TREE response parts ........................................................................................................ 11

   Number of Words ............................................................................................................. 11

   Fidelity of Scoring ............................................................................................................. 12

   Social Validity .................................................................................................................... 12

   Materials ............................................................................................................................. 12

   Procedures .......................................................................................................................... 13

   Fidelity of Treatment .......................................................................................................... 16

Results .......................................................................................................................................... 16

   Number of Response Parts ............................................................................................... 17
LIST OF TABLES

Table 1. Social Validity ................................................................................................................35
LIST OF FIGURES

Figure 1. Number of Response Parts ............................................................................................38
Figure 2. Number of Words ..........................................................................................................46
ACKNOWLEDGEMENTS

I would like to express my deep appreciation to Dr. Richard M. Kubina, Jr., who took a chance on the “part-time” student. Thank you for being my mentor, my cheerleader, and my voice of encouragement throughout my PhD program. Your guidance, encouragement, sense of humor, and words of wisdom kept me going on this long and winding road. A sincere thank you goes to Dr. Linda H. Mason, who graciously shared her line of research with me and allowed me to work on a project that is very dear to her. Dr. Frank Rusch and Dr. Paul Morgan, thank you for serving on my committee and providing valuable feedback even during the summer months. Thank you to Dr. Elizabeth Mellin, whose teaching inspired me to closely look at what happens to students with disabilities once formal education ends.

To my friends who have supported me for the past seven years as I pursued this dream. While you are too many to name specifically, the support, encouragement, and love you have shown me during this process has meant more than you will ever know. An extra special thank you goes to Mrs. Cara Hersey, whose graphic talents saved me countless hours of stress. I am so thankful you shared your talents with me during this phase of my education.

Finally, my deepest thanks to my parents, Pat and Ron, who taught me from birth that anything is possible if you work hard. To my brother, Joe, who introduced and mentored me through my secondary teaching career; my brother, Bill, who keeps me grounded in the real world, thank you both for loving me. To my sister, Karen and her son, Mahlon, I want to say thank you for reminding me of what is important in life -that sometimes, just taking a break for fun and silly things, is what makes it all worthwhile.
Effects of SRSD for POW+TREE on High School Students with Learning Disabilities

Being able to communicate in writing is an essential skill for academic success. Students who do not demonstrate proficiency in writing are at a disadvantage for academic success as they reach adolescence. These students fall behind in their academic progress as well as limit their future success in the workplace. In both the school and work environments, writing is the instrument used to assess knowledge and communicate ideas (Graham & Perin, 2007a). Students with Learning Disabilities (LD) have demonstrated particular difficulties in writing. Students with LD have difficulty planning, organizing and executing their writing in order to coherently express their thoughts and knowledge. These students also have a tendency to overestimate their ability in written language (Harris, Graham, & Mason, 2003).

Written language becomes increasingly important as students progress through their high school years (Christenson, Thurlow, Ysseldyke, & McVicar, 1989). Academic success relies on a student’s ability to use written language to effectively demonstrate their knowledge across curriculum areas (Graham & Leone, 1987). To communicate their knowledge, students are often asked to complete a variety of written tasks. These writing tasks range from rote recall activities to composing essays to stating facts and opinions. Without strong written language skills, students are at an elevated risk to fall even further behind at the secondary level (Christenson, et al., 1989). Fortunately, adolescents who are taught writing in a systematic, explicit manner have shown improvements in their ability to effectively communicate in writing. Writing instruction should be scaffold with students receiving assistance as they learn the process. As the students gain confidence and demonstrate the ability to write independently, the assistance offered by the teacher should be reduced until it is faded out completely (Graham & Perin, 2007a; Graham & Perin, 2007b).
SRSD Instruction

An intervention which has proven effective with students with disabilities is Self-Regulated Strategy Development instruction (SRSD). Students are provided explicit teacher-directed instruction focused on a specific strategy. Students are taught the strategy to mastery, while learning to self-regulate their use of the strategy (Sawyer, Graham, & Harris, 1992; Seabaugh & Schumaker, 1981).

SRSD instruction assists students in understanding the writing process including planning, editing/revising, as well as developing a positive attitude toward writing (Harris, et al., 2003). The premise behind SRSD is to provide individualized explicit instruction to students to meet their needs related to the skill being taught (Harris, et al., 2003). SRSD can assist secondary students in developing strategies to meet the increased demands of writing as a means to express their knowledge (Harris, et al., 2003). It allows teachers to use their current materials and curriculum to meet students’ learning needs. A major goal of SRSD instruction is for students to recognize when to use the strategy to assist their learning, not as a single use rote memorization activity that is only good in one specific setting (Harris & Pressley, 1991).

SRSD employs a structured format of instructional stages (develop and activate background knowledge, discuss, model, memorize, support and independent performance) through which the student can progress at their own rate to meet their own learning needs. It is not necessary to teach each stage in isolation; the stages are meant to guide the instruction and should be adapted to meet the individual needs of the student. The stages are structured to initially allow for more teacher support which is gradually scaled back as the student assumes full control over using and monitoring the strategy (Harris, et al., 2003). SRSD instruction also
uses specific feedback to guide the student in learning and using the strategy successfully (Sawyer et al., 1992).

SRSD is not meant to be task specific but rather used as a tool by the student in a variety of situations. The key to learning SRSD is that the student understands how to effectively and independently apply the strategy to situations outside of the direct instructional environment (Harris & Pressley, 1991). SRSD intervention is most effective when the learner has characteristics which support independence and the task has the ability to be broken down into manageable steps which can be placed in a simple to learn strategy (Graham & Harris, 1987). Students who benefit most from SRSD intervention demonstrate maturity, cognitive ability, ability to tolerate frustration, and the ability to have the attitude to adjust to the expectations of the learning and use of the strategy being presented (Graham & Harris, 1987).

**Instructional Stages.** Harris et al., (2003) described the instructional stages of SRSD. In their description six instructional phases were presented: develop/activate background knowledge, discuss, model, memorize, support, ownership. These stages are considered to be fluid stages that the teacher employs in a manner which best meets the individual student’s needs. The following is a brief summary of each of stage.

Stage one of SRSD has the students develop and activate their background knowledge related to the targeted strategy and writing genre. The teacher introduces/reviews specific strategy vocabulary to be used during instruction. Self-statements are explained to the student as statements which can support him/her in keeping a positive attitude towards the assigned writing task. With teacher guidance, the student develops his/her own self-statements to be used throughout the instructional process. Additionally, the student sets goals for learning and
applying the strategy. These goals focus on learning and applying the strategy to the assigned task.

Stage two has the strategy discussed by the student and the teacher. The steps of the strategy and the corresponding mnemonic are described by the teacher. Additionally, this stage provides the chance for the teacher and student to review the strengths and needs of the student related to the genre being targeted. Using the student’s writings which were obtained prior to instruction, the teacher and student examine and identify the parts of the strategy found in these writings. The current level of the student is graphed and goals are established. These goals focus on improving the number of response parts, quality, and number of words in their writing.

Stage three calls for teacher modeling of the strategy. Utilizing think aloud instruction the teacher writes an actual piece of writing which models what is to be done by the student. The teacher also uses self-statements to demonstrate for the student how to incorporate these into his/her own writing thoughts. An example for the student related to what to do if they become frustrated during the writing process is also modeled.

Stage four requires the student to memorize the steps of the strategy using the mnemonic (i.e. POW+TREE). The teacher checks for memorization of the strategy by having the student thoroughly explain the meaning of the mnemonic and the expectations of each of the strategy steps. At this point, the student should begin to display independence from the teacher in using the strategy to complete the writing task.

Stage five finds the teacher supporting the student in using the strategy. The teacher is available to the student to answer questions but primarily allows the student to work through the writing task independently. During this stage, all visual supports (i.e. visual representations of the strategy, previous writings) are no longer present. However, at this time, the teacher needs to
be sure not to withdraw support until the student is confident in using the strategy. This stage can be repeated until the student has demonstrated mastery of the strategy (Harris, et al., 2003).

Stage six gives ownership of the strategy to the student who then applies it independently to the assigned writing task (i.e. persuasive quick write). The student continues to self regulate to remain engaged throughout the entire writing process. The teacher can continue to observe the student writing, but no assistance is to be given in relation to the strategy usage.

In a meta-analysis of writing instruction for adolescent students, Graham and Perin (2007a) identified a variety of writing interventions which included the successful use of SRSD. SRSD, used for a variety of writing phases (i.e. brainstorming, editing, writing a story), had a large combined effect size (0.82) with adolescent students’ writing. This instructional approach has yielded success in improving the writing of adolescents. Among the recommendations were to provide students a strategic method of instruction to include planning, revising, and editing. However, this analysis was not specific to students with disabilities but rather included students of all ability ranges in grades 4-12. There is a need to extend the current body of research with students with disabilities (Graham & Perin, 2007b).

Given the success of SRSD instruction (Graham & Perin 2007a; Graham & Perin, 2007b), this study would further enhance the literature base of effective writing instruction comprised of SRSD with students with LD at the secondary level (grades 9-12). Four recent studies (Mason, Kubina, & Taft, 2009; Mason, Kubina, Valasa, & Cramer, 2010; Hoover, 2010) found that SRSD for POW+TREE improved the writing of 10-minute persuasive quick writes for middle and high school students with ED (see Appendix A for a complete literature review). This study replicated the procedure used by Mason et al. (2010) and Hoover (2010) but with students with LD at the high school level. Therefore, systematically extending the SRSD to high
school students with LD may improve their fluency in writing 10-minute persuasive quick write responses and improve the quality of the response by writing response parts or elements critical for effective persuasion (e.g. topic sentence, three supporting details, explanations of details, counter reasons/explanation, and conclusion) and number of words written. The following research questions were asked:

1. What are the effects of SRSD instruction on the number of response parts written, and number of words written in a 10-minute persuasive quick-write?

2. Was the treatment of SRSD acceptable to high school students with LD?

Method

Design

A multiple baseline across participants (Kennedy, 2005) was used to measure the effectiveness of the POW+TREE writing intervention for persuasive quick writes before, during and after instruction. Visual analysis of trend and level was used to determine the effects of the intervention.

Baseline. Baseline data was taken from all participants prior to intervention. Once baselines were completed, participants were assigned order of instruction based on their baseline stability. When Matilda, the first participant, completed the instructional phase and an additional baseline prompt was given to the remaining participants. Heather began instruction at the conclusion of strategy instruction for Matilda. At the conclusion of Heather’s instructional phase, Tracy and Sarah were given another baseline prompt to monitor their progress. Sarah was given a final baseline prompt when Tracy completed the instructional phase. These additional baseline prompts were given to determine if the participants were still in need of intervention or if their writing had improved independently of the strategy instruction.
Instruction. Matilda was given five instructional lessons for the SRSD for POW+TREE for persuasive quick writes. Since Matilda did not master the strategy in five lessons, lesson five was repeated. As Matilda entered her post instruction phase, Heather began her five instructional lessons. Simultaneous with these lessons were Matilda’s post instructional lessons. At the conclusion of Heather’s instruction, Tracy began her instruction, while Heather entered the post instruction phase. Sarah completed another baseline prompt as outlined above. When Tracy completed her instructional phase, Sarah began her instructional lessons while Matilda and Heather continued to receive post instructional prompts.

Post Instruction. Participants received a minimum of five post instruction prompts at the conclusion of their instruction. Due to the multiple baseline design of the study, Matilda received six post instruction prompts. Heather, Tracy and Sarah each received five post instruction prompts. These prompts were given to determine the participants’ ability to continue to apply the SRSD strategy for POW+TREE with persuasive quick writes after instruction was concluded.

Setting

The proposed study was conducted in a suburban high school approximately 15 miles south of a metropolitan area in the eastern region of the United States. This high school had an approximate enrollment of 1,200 students. The most recent statistics available indicate that 12.8% of the students in the high school were eligible for free or reduced lunch. One hundred fifty two (152) students had Individualized Educational Plans (IEPs). The 152 figure did not include students identified as gifted. Of the 152 students with IEPs at the high school, 112 were classified as students with Learning Disabilities (LD) (G. Wilbur, personal communication, March 30, 2010).
Participants

After a review of IEPs and conversations with English teachers, participants were chosen for the study based on the potential benefit from individualized instruction in their writing. Additionally, participants in this study were chosen by their classification of LD and their willingness to arrive at school early and/or stay after to work with the principal investigator. The principal investigator knew the participants through her work at the high school; she was responsible for direct instruction for all of the participants in Language Arts. The parents of the students were informed of the study via e-mail and personal phone calls. Once parental permissions were given via e-mail and/or verbally, consent forms were sent home for parental approval. Parents of the four invited students returned signed consent forms; participants also consented to participate. Prior to starting instruction, participants’ writing collected at baseline was examined to validate the teacher recommendation of the student need for the intervention.

Participant 1: Matilda. Matilda was a 16-year-old 11th grade student who had diagnosed specific learning disabilities in reading and writing. Matilda’s educational history indicated that she has received learning support services since first grade in the areas of reading, writing and math. She was given the *Wechsler Intelligence Scale for Children, Third Edition* (WISC-III) (Wechsler, 1991) when she was in second grade which resulted in the following scaled scores: Verbal IQ = 76, Performance IQ = 86, and Full Scale IQ = 79. Matilda also participated in the state assessment testing during her 8th grade year in the areas of reading (below basic), writing (basic), and math (below basic). Her Individualized Education Plan (IEP) goals were related to writing to prompts at the proficient level and reading fluently and comprehending at a sixth grade level. At the time of the study, her math skills had progressed to a level where her needs were being met in a general education classroom. Matilda received
direct instruction in reading and writing in the learning support environment during the course of this study. Additionally, she participated in a learning support social studies class and study halls to monitor her progress. All other classes were within the general education environment.

**Participant 2: Heather.** Heather was a 19-year-old 12\textsuperscript{th} grade student. She was considered a non-graduating senior as she did not have the required credits to graduate and would be returning for a second senior year. In fifth grade, Heather was given the *Wechsler Intelligence Scale for Children- Fourth Edition* (WISC-IV) (Wechsler, 2003). Her scores were: Verbal Comprehension = 85, Perceptual Reasoning = 106, Working Memory = 77, Processing Speed = 97 and Full Scale IQ = 89. At the same time, she was given the *Wechsler Individual Achievement Test, Second Edition* (WIAT-II) (Wechsler, 2001). Her composite scores were: Reading = 76, Mathematics = 67, and Written Language = 74. The results of this testing combined with her classroom performance qualified her as a student with specific learning disabilities in the areas of reading, writing, and math due to the discrepancies between her ability and her achievement. Heather also participated in the state assessment testing in 11\textsuperscript{th} grade. She achieved the following scores: reading (below basic), writing (basic), math (below basic), and science (below basic). Heather’s IEP goals were related to writing at the proficient level and completing assignments. Heather attended general education classes for all subjects except Language Arts and social studies due to her reading and writing needs during the course of this study.

**Participant 3: Tracy.** Tracy was an 18-year-old 12\textsuperscript{th} grade student. According to her school records, Tracy was initially evaluated for special education services in second grade. At that time, she was given the *Wechsler Intelligence Scale for Children, Third Edition* (WISC-III) (Wechsler, 1991). The following were her results: Verbal IQ = 104, Performance IQ = 99 and
Full Scale IQ = 101. Tracy was also given the Wechsler Individual Achievement Test (WIAT) (Wechsler, 1992). Her results in standard scores were: Basic Reading = 78, Mathematics Reasoning = 94, Reading Comprehension = 72, and Numerical Operations = 96. These scores accompanied by her classroom performance provided a discrepancy between ability and achievement in the area of reading. Tracy also participated in the state assessment testing in 11th grade and obtained the following scores: writing (basic), reading (below basic), science (below basic) and math (basic). Her IEP goals during this study focused on writing at the proficient level, reading comprehension at the sixth grade level, assignment completion and school attendance. Tracy received all academic instruction in the general education setting except for Language Arts, where she received direct instruction in the special education setting.

**Participant 4: Sarah.** Sarah was a 16-year-old 11th grade student. Sarah was initially diagnosed as a student with a specific learning disability in first grade. At that time, Sarah was given the Wechsler Intelligence Scale for Children, Third Edition (WISC-III) (Wechsler, 1991). Her results were: Performance IQ = 91, Verbal IQ = 72, and Full Scale IQ = 79. Sarah also participated in the state assessment testing in 8th grade, achieving the following scores: writing (basic), reading (below basic) and math (below basic). Sarah’s IEP goals for the duration of this study were focused on improvement of reading comprehension skills at a sixth grade level and writing at the proficient level. Sarah received her academic instruction in the general education setting except for Language Arts and social studies, due to her reading and written language needs.

**Measures**

All participants were given five baseline prompts prior to instruction. Baseline data was collected during five 10-minute sessions. Participants were given the following directions for
writing, “Please listen carefully as I read these prompts. Please select one of the prompts and write a response to it in your journal. You will have ten minutes to write.” If participants finished early no additional coaching was given and their session concluded. Participants who wrote the full 10 minutes were given a one-minute warning when nine minutes had elapsed and were instructed to stop when the 10 minutes expired. At the end of the 10 minutes, participants were told to stop.

Progress was evaluated by examining the students’ written responses to persuasive quick write prompts. These writings were known as “quick writes” due to the timed aspect of the data collection. Student quick writes were assessed for the 10 parts of the TREE strategy. All writing prompts were typed with spelling errors corrected prior to being submitted to scorers. To reduce evaluator bias, identifying information was eliminated (Graham, 1999). The quick writes were evaluated by an advanced doctoral candidate and a master’s student who were trained in the TREE strategy but blind to the purpose of the study. Each writing prompt was scored for number of TREE components and number of words.

**TREE response parts.** For TREE components each prompt was scored on the basis of the following components: topic sentence, three or more reasons related to the topic sentences, explanations for each reason, a counter reason and explanation, and an ending sentence. Each part was worth one point with a total score of all parts being 10 points. If participants added additional reasons or explanations the response part score exceeded 10.

**Number of Words.** Number of words was determined using the word count feature of the Word program which is part of Microsoft Office 2007. Verification of the count was determined by a manual count of each word. Each scorer manually counted each word written
for all quick writes obtained during this study. Word counts were completed for each phase of
the study (baseline, instruction, post instruction, and maintenance).

**Fidelity of scoring.** Two advanced graduate students (scorers) were trained in scoring
response parts. Scoring fidelity was calculated by taking score agreement and dividing it by the
total number of writing samples for 50% of the writings scored. Interrater reliability was
computed for the number of response parts at 64% for agreement within 1-point. Number of
words was 100% for exact agreement.

**Social Validity.** Following instruction, participants were asked six questions regarding
their impressions of instruction and POW+TREE writing strategy (Graham, Harris, & Mason,
2005; Harris, Graham, & Mason, 2006): (1) Has using the POW+TREE strategies helped you
to become a better writer? How? (2) What have you learned since working with me? (3) How do
you think this will help other students? (4) If you were the instructor, what would you change in
the lessons? Why? (5) If you were the instructor, would you add anything to help students learn
to write? (6) From these lessons, what things have most helped you become a better writer?
Participants’ oral responses were scripted on the questionnaire form.

**Materials**

Each student had a spiral bound notebook to record her writing responses across phases.
Specific scripted prompts were used for each phase of this study. Instructional support materials
included: POW+TREE strategy mnemonic chart, transition word chart, self-statement sheet, and
graphic organizer. Materials appear in Appendix B as they were the same of those in Hoover
(2010) which investigated the effects of SRSD for POW+TREE with high school students with
ED. Materials were developed and used in prior research (Mason et al., 2009; Mason et al.,
2010; Hoover, 2010).
Procedures

All instruction was provided by the principal investigator, who was a doctoral student as well as the classroom Language Arts teacher for the participants. The principal investigator was trained in SRSD for POW+TREE for writing persuasive quick writes through a three credit graduate level class on strategy instruction as well as two, one hour, one-on-one training sessions. Additionally, the principal investigator participated in a review of the SRSD for POW+TREE with post testing to ensure understanding of the strategy. Finally, videotaped practice sessions modeling the lessons were reviewed by the SRSD expert and feedback was given to promote accurate instruction. The principal investigator also provided instruction in a prior study to high school students with EBD.

Participants were provided SRSD instruction for the POW+TREE strategy for writing persuasive quick writes. Five instructional lessons were given to each student. These lessons are detailed below. The fifth lesson was repeated with new prompts, as needed, until mastery of the strategy was achieved.

During instruction, the timed component was eliminated for the first four lessons based on examination of the writings by the researcher to determine that each participant fully understood and was able produce all 10 parts of the TREE strategy. Once mastery of the strategy was observed, the 10-minute time limit was reinstated for the final instructional lesson as well as the post-instructional and maintenance phases of the study.

Lesson one. The principal investigator introduced the POW+TREE strategy using the mnemonic chart. The purpose of a quick write and how the knowledge of the strategy would allow her to organize and improve her writings was discussed with the participant. The participant was told that the strategy should improve her ability to do a 10-minute persuasive
response. The participant was given a transition word list after the strategy was introduced. It was explained that the purpose of transition words was to help an author move from one idea to another. This word list was used for the first four instructional lessons to assist her with transitioning from one response part to the next.

A model/anchor writing was used to illustrate all parts of the TREE strategy. The model/anchor writing was read together with the principal investigator assisting the participant with identification the parts of the strategy. Once the participant showed an understanding of the parts, the principal investigator and participant reviewed a personal baseline writing that was chosen by the principal investigator prior to the commencement of the lesson. The participant was then given a graphing sheet to record the parts of the strategy used in the baseline writing. The student graphed the parts of the strategy in her writing on the graphing sheet. Transition words were counted and recorded. Lesson one ended with a review of the strategy and praise to the participant for doing her best. A goal was set with the participant to improve her persuasive writing through the use of POW + TREE.

Lesson two. Lesson two began with a review of the POW+TREE strategy. The mnemonic chart, transition word sheet, and graphic organizer were also present during this lesson. The principal investigator modeled the use of the strategy for writing a quick write using “thinking aloud” so the participant could understand the thought process involved with this strategy. Self-statements, positive statements the participant could use to keep writing when having difficulty, were also modeled. After modeling, the participant and principal investigator discussed the strategy process and use of self-statements. The student completed a listing of personal self-statements to be used during her writing.
The participant’s baseline writing reviewed in lesson one was re-written applying the strategy. During the lesson, the principal investigator answered questions from the participant, while continually praising the use of the strategy as she improved her writing. At the conclusion of the rewriting, the participant, with the principal investigator’s assistance, graphed the parts of the strategy in the revision. Improvement in writing was discussed. The participant was praised for the improvement in her writing and the lesson concluded with a review of the strategy.

**Lesson three.** Lesson three began with an oral review of the strategy by the participant. The mnemonic chart was no longer present as it was expected that the strategy was memorized. The participant was presented a blank graphic organizer, the transition word list, and her self-statement organizer. A discussion of times the student would use quick writes occurred while the application of the strategy was discussed. The participant then chose one prompt from two writing prompt options given. Then she planned and wrote the response. The principal investigator prompted her as necessary to encourage use of all parts of the strategy. Once the writing was deemed completed by the participant, the results were graphed jointly by the participant and principal investigator. Improvements were discussed and the participant was praised for a positive attitude and improvement in writing. The lesson concluded with the principal investigator thanking the participant for working hard and reminding her that the strategy would be tested again in the next lesson.

**Lesson four.** An oral review of the POW+TREE strategy was the start of lesson four. For this lesson, the participant only had a blank graphic organizer, self-statement sheet, and her notebook to write the response. The participant was presented with two prompts to choose from for writing. Once a prompt was chosen, the participant began writing. Limited direction/assistance was given by the principal investigator, as independent use of the strategy
was expected at this time. When the participant judged the writing completed, the results were graphed. She was praised for participation and improvement in her use of the strategy.

**Lesson five.** Lesson five started with the principal investigator modeling how to use the strategy within a 10 minute time limit. To do this, the principal investigator constructed a response using the strategy and using the full 10 minutes. The principal investigator modeled how to use time to review and revise the response before time expires. The participant was given two prompts to choose from for her 10 minute quick write. She chose the prompt, wrote the response, and graphed the results. The participant and principal investigator discussed the results and praise was given for the participant’s progress and participation.

If the principal investigator believed that the participant was not instructionally firm in the strategy, given the 10 minute time limit, lesson five was repeated. This happened only with Matilda due to spending 6 of the 10 minutes organizing her writing during the first timed lesson. After the administration of the additional lesson, post instructional prompts were given.

**Fidelity of treatment**

To ensure fidelity of treatment, a high school teacher unfamiliar with the purpose of the study, was given a copy of the SRSD for POW+TREE lesson outlines. She then reviewed 30% of the taped instructional lessons to verify that the steps outlined in the lesson were followed. Treatment fidelity based on verifying the number of lesson steps was 100%.

**Results**

The duration of this study was 71 days. The time of the study was affected by State Assessment testing, field trips and participant absenteeism which will be discussed more thoroughly in a later section. Each participant received a minimum of five instructional lessons. Matilda received an additional instructional lesson due to a need for additional instruction related
to managing the time constraints of planning and writing a 10-minute persuasive quick write. At
the conclusion of instruction for SRSD for POW+TREE, all participants showed improvement in
the number of response parts and the number of words when writing a 10-minute persuasive
quick write. Figures 1 and 2 show the results of the multiple baselines for both dependent
variables.

**Number of response parts.** For scoring, a 10-response part criterion was established for
each response: topic sentence (1 point), three reasons (3 points) and explanations for each reason
(3 points), a counter reason (1 point), an explanation for the counter reason (2 points), and a
conclusion (1 point). Participants could write above the criteria therefore there was no ceiling
for response parts.

Matilda had a moderately variable level of response parts with a rapidly decreasing trend
at the baseline phase of the study. After instruction, Matilda had a high level of stability in
response parts during the post instruction phase. She demonstrated a moderately increasing trend
from her baseline performance. Her gains in response parts in this phase showing a two response
part growth (7 to 9 response parts) compared to baseline. The level from baseline to post
instruction also showed an increase.

During the maintenance phase, Matilda demonstrated a rapidly increasing trend to 12
response parts, which was an increase of three parts from her highest post instruction data point.
However, her second maintenance point dropped to 8 response parts, which was below the
desired criteria of 10 response parts.

Heather had a rapidly decreasing trend before stabilizing her number of response parts
during baseline. Her initial baseline data point had nine response parts with her remaining
baseline data points ranging from three to five response parts. Heather’s post instruction
performance demonstrated a moderately increasing trend from baseline: a consistent range of eight to 10 parts compared to a range of four to nine parts. The level was also higher in post instruction when compared to baseline. Heather exhibited high level stability in response parts during the maintenance phase writing 10 parts for both maintenance data points.

Tracy’s baseline showed a rapidly decreasing trend before exhibiting a low level of stability in number of response parts. Her initial baseline data point had nine response parts and ultimately her final baseline data point ended at three response parts. Tracy’s post instruction and maintenance performance did not reach the 10-point criteria. However, she demonstrated less variability in response parts than during baseline. Additionally, Tracy had a rapid increase in number of parts at the end of the post instruction phase. Her post instruction response part scores consistently ranged from five to eight parts. Tracy’s highest number of response parts was found in her final post instructional data point which had eight response parts. This was a moderate increasing trend from her baseline performance in response parts which ranged from three to nine parts. There was also a slight level of change upward from baseline to post instruction. Tracy’s maintenance performance demonstrated high stability with eight response parts for each of the two data points.

Sarah’s baseline performance had a decreasing trend and showed much stability in the last four data points. Overall, Sarah had the most stability in her baseline performance when compared to the other participants. During post instruction, Sarah’s performance demonstrated a high level variability in the number of response parts but also showed a sharp rise in level. She had a rapidly increasing trend in number of response parts followed by a rapidly decreasing trend at the end of the post instruction phase of this study. Sarah only had one maintenance data point
due to the school year ending. She ended with an increase from her final post instruction data point and had 10 response parts.

**Number of words.** The number of words was calculated using the word count feature of the Microsoft Office Word 2007 program. The number of words was also verified through a manual counting of the words by the scorers. The number of words in the 10-minute persuasive quick writing showed high levels of variability during all phases for all participants.

During baseline, Matilda had a rapidly decreasing stable trend in number of words. Her number of words ranged from 75 to 118 words. During post instruction, Matilda showed an immediate jump up in level but over time her trend started to decline. Four of the post instruction data points were above baseline while two of the data points dropped back to the baseline level. The post instruction phase showed the most stability for Matilda in terms of number of words. During the maintenance phase she had a high performance which then dropped but was in line with her baseline and post instruction scores; however, her first score of 142 words was the highest in all phases.

Heather’s number of words showed a high level of variability when studying baseline. Her number of words showed a rapid decrease followed by a rapid increase before a second rapid decrease in the number of words. Heather’s baseline ranged from 79 to 131 words but overall showed a declining trend. Heather’s range of words during post instruction increased from 94 to 158 words. Her post instruction performance appears similar to her baseline performance in that it was highly variable with a rapidly increasing trend followed by a rapidly decreasing trend. During post instruction there was an overall increasing trend. However, treating the third post instruction point as an outlier would then mean Heather has four data points that steadily rise.
As she moved to the maintenance phase, Heather had two data points that were very similar to one another, 119 and 111 words.

Tracy exhibited a high level of variability during baseline but did show a stabilizing declining trend during the last four data points. After instruction, Tracy’s number of words during post instruction had a high level of stability. The number of words in post instruction ranged from 88 to 101 words. This range fell within her baseline range of 63 to 132 words indicating there was no overall change in the number of words produced. However, her word count range did become smaller indicating stability in the number of words. Her first and second post instruction data points were highly stable, 83 and 89 words. During the maintenance phase, she demonstrated high stability as her number of words dropped slightly to 83 and 89 words for the two data points. This level of post instruction and maintenance were slightly higher than her last four data points in baseline though all fall within the range of her word count during the beginning of baseline.

During baseline for number of words, Sarah showed a high level of variability. Her first baseline data point had 136 words and varied from a high of 168 to a low of 69 words. Overall, however, a flat trend can be shown when drawing a line though all of her data points. Even though Sarah had a high degree of variability, the presence of a flat trend was the main factor in a decision to move her to the instruction phase.

After instruction, Sarah’s number of words again demonstrated variability during post instruction but to a lessened degree. Her post instruction range was 88 to 133 words compared to her baseline of 69 to 168 words. Sarah only had one maintenance data point which occurred at the level of her last two post instruction performances.
Social Validity. An open ended question interview given at the conclusion of the study was used to assess social validity of the SRSD for POW+TREE for persuasive quick writes. All four participants viewed the intervention favorably. Tracy stated, “It made my thinking more organized by using an organization map to organize my thoughts”. Heather said, “It helped me become a better writer. It got me thinking about how to organize my thoughts and work faster than when I started”. Matilda and Sarah both felt they had a better understanding of how to write to a persuasive prompt using “all the parts” and “writing better”. All four participants felt other students would benefit from the strategy by learning how to organize their thoughts better in order to become a better writer. Tracy would have liked more modeling with the conclusion portion of the strategy but stated, “The lessons were good and easy to learn because the mnemonics are easy to learn”. Matilda would like the SRSD for POW + TREE “added to the curriculum so that other students will learn it”. She was also pleased to report that she used the strategy during the recent state assessment. Finally, all four participants stated the organizational map helped them to list the reasons they needed to support their ideas and organize their writing.

Discussion

Communicating in writing is a critical skill which assists adolescents with achieving academic success. When a student demonstrates writing skills below the proficient level, they are at risk for academic failure. Establishing effective written communication skills will help adolescent students not only in the academic setting but also in the work environment (Graham & Perin, 2007a). Students with LD have difficulty writing, especially with planning, organizing and expressing their ideas in a coherent manner. Despite these difficulties, students with LD overestimate their ability to communicate effectively in writing. As a result, students with LD
may perceive they are expressing their ideas effectively when in reality they are not (Harris, et al., 2003).

The purpose of this study was to help students with LD at the high school level become better writers and systematically extend and replicate the research base of the SRSD for POW+TREE on persuasive quick writes. The quick writes were analyzed for improvements in number of response parts and number of words written. Furthermore, the acceptability of SRSD by high school students with LD was evaluated. In particular, this study replicated, at the high school level with students with LD, the research of Mason and colleagues (2010) as well as Hoover (2010) who investigated the effects of SRSD for POW+TREE with middle and high school students with Emotional Disturbance (ED).

The results of this study indicate that SRSD for POW+TREE improved the number of response parts in 10-minute persuasive quick writes for the four high school participants with LD. Prior to the intervention, as a group, three of the participants (Heather, Tracy, and Sarah) showed a low level of stability in the number of response parts during the baseline phase (range 3-9 parts). Conversely, Matilda demonstrated a low level of variability at the baseline level. In addition, the four participants demonstrated decreasing trends in the number of response parts during baseline. These results would be expected in the absence of instruction. After instruction, the post instruction phase showed three of the students (i.e., Matilda, Heather, Sarah) had an increasing trend and higher range of response. Each improvement comported with the systematic application of the intervention as directed by the multiple baseline design. And while Tracy’s response parts were not higher than her baseline, her data show an increasing trend and more stability. The improvement in response parts for all students is similar to the results found in previous studies of students with ED (Mason et al., 2010; Hoover, 2010).
Individually, three of the participants (Matilda, Heather, and Sarah) in this study, as in previous studies (Hoover, 2010; Mason et al., 2010), maintained an increase in number of response parts at the conclusion of the intervention. The replication of the improvements in the number of response parts for Matilda, Heather, and Sarah indicates that the SRSD for POW+TREE for 10-minute persuasive quick writes for high school students with LD is an effective intervention. Also, the results in number of response parts for Matilda, Heather, and Sarah reflect their classroom performance, as writing is a preferred activity for all three students. Thus, they demonstrated desire to improve their writing throughout the study in order to improve their writing skills.

The third participant, Tracy, remained within her baseline range of response parts after the intervention concluded. While Tracy’s overall range of response parts remained within the baseline range even after the intervention period, she was demonstrating a stable increasing trend which may have continued if given additional instruction and/or post instruction prompts. On the other hand, her lack of improvement could be a result of her perception that her writing performance was better than her actual writing. An inflated sense of academic achievement/ability is a trait of students with LD (Harris et al., 2003). Tracy’s performance is consistent with her classroom performance where she had been observed doing minimal work to complete assigned tasks.

Tracy’s performance in the number of response parts is similar to the results found in previous research with students with ED (Mason, et al, 2009). In the Mason et al. (2009) study, students with ED did not meet the desired 8-point criteria during post instruction but demonstrated a stable level of response parts with an increasing trend at the end of post instruction. Based on this trend, it could be surmised that with additional instruction, including
modeling the strategy more, it is possible that Tracy would have reached the 8-point criterion in terms of response parts. This further demonstrates that high school students with LD have a need for and respond to direct, explicit, systematic instruction in order to improvement their academic performance (Graham & Perin, 2007a; Graham & Perin, 2007b).

High school students, including students with LD, may be required to write proficiently on the state assessment testing as a graduation requirement (Katsiyannis, Zhang, Ryan, & Jones, 2007; Schumaker & Deshler, 2003), as has been implemented in the high school where this study was conducted. Additionally, one of the main assessment tools used to determine knowledge at the secondary level, is the ability to express and support concepts and ideas in writing (Christenson, et al., 1989; Graham & Leone, 1987). Teaching high school students with LD to organize their thoughts to support a specific position is important not only in terms of their classroom performance and assessment, but also in terms of being able to create proficient responses to prompts in state standardized testing (Schumaker & Deshler, 2003). Providing students, especially those with LD, with a strategy such as SRSD for POW+TREE will potentially increase their chances at success in regards to writing coherently.

The results in the number of words written were variable for all participants at the conclusion of the study. Participants did not exceed their baseline performance consistently during the post instruction or maintenance phases of the study. The improvement in number of words for Matilda and Heather would suggest that SRSD for POW+TREE for persuasive quick writes instruction was effective in producing a higher number of words written. However, for Tracy and Sarah, the number of words written at the conclusion of the study remained within the baseline range. The results in the number of words differed than that found in previous research. When given SRSD instruction for POW+TREE middle and high school students with ED
improved their number of words (Hoover, 2010; Mason et al., 2010; Mason et al., 2009) from baseline to post instruction. The difference in the progress in the number of words at the post instruction phase could be attributed to the higher baselines found with students with LD. The participants in this study had higher baseline levels than participants with ED in previous studies (Hoover, 2010; Mason et al., 2010; Mason et al., 2009).

Also different from previous studies (Hoover, 2010; Mason et al., 2010; Mason et al., 2009) was the stability found in the number of words for the current study. While there was not a consistent increase in the number of words written, the participants in the current study demonstrated stability in the overall number of words written at the conclusion of the intervention. The stability in word count suggests that the participants in this study were able to generate their ideas in a concise and more consistent manner. While the number of response parts increased, the number of words stayed the same suggesting that the participants were able to organize and present their ideas without the need for additional words. The term fluency refers to a behavior performed with accuracy and speed, or an appropriate pace (Binder, 1996, 2005). The data suggest the participants may have started to become fluent which would account for the more consistent writing even though the overall production didn’t increase. Future studies examining the quality of student responses changing without additional production as evidence for a change in fluency of writing.

A unique feature of this study is the implementation of the 10-minute quick write factor in addition to the SRSD for POW+TREE instruction. The time factor is important as there are circumstances where high school students with LD are required to express their thoughts in writing within a given time frame (i.e. length of a class period or a portion of a class period). In relation to quick writing, students are given a brief period of time (i.e. 10-minutes) to clearly
answer a specific question and/or defend their opinion. This time limit was found in previous research (Hoover, 2010; Mason, et al., 2010, Mason, et al., 2009) with students at the high school and middle school level with ED. However, this study is the first one that investigated the results of SRSD for POW+TREE for 10 minute persuasive quick writes for high school students with LD. The results of this study in both terms of response parts and number of words shows that the SRSD for POW+TREE has the potential to assist high school students with LD in being able to adequately address a specific prompt in an organized manner as demonstrated through the participants increase in the number of response parts and their stability in the number of words written.

Participant interest in the writing prompts presented also varied. Participants were given two prompts to choose from for each data point, but were not always interested in the topics. When presented with topics in which they were not interested, the participants would ask if they could have a different prompt. Conversely, when presented with a prompt they felt strongly about, the participants would share their excitement through statements such as: “I know a lot about this” or “I have a strong opinion about this topic”. However, due to counterbalancing prompts across phases, interest should have little effect on findings. The reaction of the participants to the given prompts was similar to the responses of high school students with ED in the Hoover (2010) study. The participants in that study also stated preferences and dislikes for given prompts.

SRSD for POW+TREE intervention was deemed an acceptable and useful intervention to the participants of this study. The participants self-reported, through the use of an interview, that the strategy assisted them with organizing their thoughts prior to writing. Matilda, Tracy and Heather specifically found the POW+TREE graphic organizer useful. Even after the printed
organizer was no longer available to them, they re-created it in their notebook prior to writing their post instruction prompts. Sarah stated the strategy helped her “know what to write and how to write better.” All participants believed other students would benefit from this strategy, with Matilda specifically stating the strategy should become “part of the curriculum so other students can learn it.” Similar results were found in the Hoover (2010) and Mason et al. (2010) studies. However, in the Mason et al. (2010) study, participants reported losing homework time during the school day to be a downside of the intervention, whereas the participants in the current study did not mention coming in before school or staying after school as a deterrent to learning the strategy.

**Limitations**

One limitation of this study was that the principal investigator knew all participants in the study and was their primary instructor in Language Arts during the course of this study. The participants were all aware of the principal investigator’s ongoing course of study and her requirements as they were cited in general terms during class as an example that being too busy was not an excuse to not have homework done. As a result, the participants were very motivated to help the principal investigator complete her graduation requirements successfully. Additionally, during the course of this study, Heather stopped attending school for two weeks. She was considering dropping out of school due to her non-graduating status. After a meeting with her assistant principal, guidance counselor and the principal investigator she made the decision to return to school. Upon her return, she spent a significant amount of time before and after school with the principal investigator to catch up on her work. Another limitation involved Tracy’s social issues. After a cafeteria incident, she was suspended for 5 days. After this suspension, Tracy considered completing her senior year at home which caused her attendance
issues. Finally, in relation to participant limitations, Matilda had emergency surgery during the post instruction phase. Her absence caused a longer time period between instruction and post instruction and a change in the setting of the data collection. She completed several prompts during home visits with the principal investigator who was also her homebound instructor.

**Future Research**

This is the first study using SRSD for POW+TREE for persuasive quick writes exclusively with participants with LD at the high school level. While research has demonstrated the effectiveness of SRSD for POW+TREE for persuasive quick writes with participants with ED at the middle and high school levels (Hoover, 2010; Mason et al. 2009; Mason et al., 2010) additional research is needed to further determine and support the effect of SRSD for POW+TREE for students with LD at the high school level. Researching the effectiveness of this strategy could also help increase the amount of academic time engaged in writing tasks. In an observational study of academic writing time in special education classrooms, Christenson et al. (1989) found that students in special education studies spend less than 10% of their total academic time engaged in writing tasks. The lack of academic time spent on writing could impede the academic advancement of students with LD at the high school level, as writing is the primary means for students with LD at the secondary level to demonstrate their knowledge (Graham & Leone, 1987).

**Implications for Practice**

This study demonstrates the use of SRSD for POW+TREE for persuasive quick writes can be taught to and learned by high school students with LD. The time involved in teaching this strategy is minimal and could be incorporated into existing writing curriculums for students with LD. Essentially, this strategy requires five 30-minute lessons as well as five 10-minute follow
up quick writes. Follow up lessons consisted of two 10-minute prompts. While some students may require additional instructional lesson, such as Matilda did in this study, the amount of time involved in teaching and maintaining this strategy would fit into the traditional 50-minute class period found at most high schools. Furthermore, the developers of SRSD designed the instruction of the strategy to be used in an ongoing manner across settings (Harris et al., 2008). Therefore, teachers could plan for refresher lessons throughout the year as assigned tasks would benefit from the strategy application. These refresher lessons could be incorporated into the normal routines of the classroom which would help to promote generalization of the strategy.
Bibliography


Table 1

Social Validity

<table>
<thead>
<tr>
<th>Question</th>
<th>Matilda</th>
<th>Heather</th>
<th>Tracy</th>
<th>Sarah</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Has using the POW+TREE strategy helped you become a better writer? How?</td>
<td>“Yes – now I understand what I’m doing and I’m getting all the parts to it.”</td>
<td>“It did; got me thinking how to organize my thoughts and work faster than when I started.”</td>
<td>“It made my thinking more organized my using an organized map to organize my thought.”</td>
<td>“Now I can write easily. I know what to write and how to write better.”</td>
</tr>
<tr>
<td>2. What did you learn when working with me?</td>
<td>“Different strategies. I knew but I needed to work on.”</td>
<td>“How to organize my thoughts in writing.”</td>
<td>“I learned how to write a good persuasive paragraph/essay.”</td>
<td>“If you put your mind to do something you can do it.”</td>
</tr>
<tr>
<td>3. How do you think POW+TREE could help other students?</td>
<td>“They know the strategy and build up on speed and make it easier.”</td>
<td>“Keeping them focused.”</td>
<td>“The same way it helped me. To organize my thoughts before I write it.”</td>
<td>“It can help them become a better writer.”</td>
</tr>
<tr>
<td>4. If you were the teacher, would you add anything to help students learn to write?</td>
<td>“Add it to the curriculum so they will learn it.”</td>
<td>“Keep it the same – it is definitely helpful.”</td>
<td>“Model conclusions better”</td>
<td>“Nope.”</td>
</tr>
<tr>
<td>5. If you were the teacher, what would you change in the POW+TREE lessons? Why?</td>
<td>“I don’t think I really would change anything.”</td>
<td>“Keep it the same – it is definitely helpful.”</td>
<td>“The lessons were good and easy to learn because mnemonics are easy to learn.”</td>
<td>“Nope.”</td>
</tr>
<tr>
<td>6. From the POW+TREE lessons, what things have most helped you become a better writer?</td>
<td>“Listing reasons/explanations. I knew what I could do first and I was organized.”</td>
<td>“TREE part – to keep it organized.”</td>
<td>“The organization map.”</td>
<td>“Help me to learn all the parts and what I need to put in my writing.”</td>
</tr>
</tbody>
</table>
Figure 2
Literature Review

Although writing has been determined to be an important skill for adolescent students, the research base for writing interventions with adolescents with LD is limited (Mason & Graham, 2008). However, in a review of writing interventions, several strategies have shown promise in teaching writing to students with LD. Five primary writing interventions for students with LD were reviewed by Mason and Graham (2008). The results of their review, as well as other emerging studies, suggest that writing interventions for adolescents with LD exist and continuing research is warranted.

Writing Instruction for Students with LD

Initially, writing interventions focused on teaching adolescent students with LD strategies how to write sentences, paragraphs, monitor errors and proof-read within the Strategy Instruction Model (SIM) (e.g. Lenz & Deshler, 2004). The SIM model employs the use of teaching students steps in each strategy with a mnemonic used to assist with memorization of the strategy. Through the use of direct instruction (set a purpose, teach when, how, where, and why to use the strategy, memorize the strategy, set learning goals, model, and guided practice), SIM researchers paved the way for research in explicitly teaching adolescents with LD writing interventions with the use of guided practice and mnemonics. Additionally, SIM researchers used cognitive modeling (thinking aloud about the process they are using) to teach these strategies (Mason & Graham, 2008).

The next extension in the line of writing interventions for adolescents with LD examined was the Cognitive Strategy Instruction in Writing (CSIW) (e.g. Englert, Raphael, Anderson, Anthony, Stevens, & Fear, 1991). CSIW intervention consists of four instructional stages (text analysis, modeling, guided practice, and independent application). CSIW used teacher/student
dialogues throughout the writing process while also teaching self regulation of writing. Students use self-instructional statements to guide them through POWER (plan, organize, write, edit/edit, and revise) during the writing process. The self-instructional statements were then used to guide conversations and activities related to their writing with their peers and teachers. This line of research further supports the effectiveness of teaching writing in an explicit manner accompanied by a collaborative approach between the teacher and student (Mason & Graham, 2008).

Another writing intervention which has been researched with adolescent students with LD is interactive dialogues. In this instructional model, strategic instructional methods are used to teach students how to use teacher-student and/or student-student interactive dialogues. Students are also taught to plan, write and revise opinion essays. Once the students’ essays are clarified for content, they are taught an error-monitoring strategy for revising (e.g. Wong, Butler, Ficzere, & Kuperis, 1996). Interactive dialogue instruction has also been used with the following instructional sequence: keyboarding skills, think aloud planning, writing/revising through interactive dialogues, and student-student interactive dialogues for revisions (e.g. Wong, Butler, Ficzere, Kuperis, Corden, & Zelmer, 1994). The results found by these researchers indicate that the writing of adolescents with LD improved from the use of interactive journals (Mason & Graham, 2008).

A fourth writing intervention was the use of word processing in conjunction with strategy instruction (e.g. MacArthur, Schwartz, & Graham, 1991; MacArthur, Graham, Schwartz, & Schafer, 1995). This approach investigated the effectiveness of word processing in regards to revision skills as well as narrative and informative writing. In this line of research word processing was linked with a SRSD two-step peer revision strategy. Effects of interventions
suggest that the combination of word processing and SRSD peer revision strategy benefits students’ writing more than just word processing alone.

Goal Setting was the fifth writing strategy reviewed (e.g. Ferretti, MacArthur, & Dowdy, 2000; Graham, MacArthur & Schwartz, 1995; Page-Voth & Graham, 1999). In these three studies, students were given writing tasks and set goals to achieve during the writing process. Students in these studies set goals related to revising essays, writing opinion essays, and writing persuasive letters. Students in the experimental groups set specific goals prior to revising/writing. These studies found that adolescents with LD who set goals during writing improved the quality of their writing (quality rating average = 7.3 out of a possible 10). The results of these studies further support that adolescents with LD benefit from explicit instruction with specific strategies.

The final intervention, and the one selected for this study, self-regulated strategy development (SRSD) has the largest evidence-base for adolescents with LD. This intervention combines direct explicit instruction with scaffolded teacher support in six instructional stages: developing pre-skills, discussing how the strategy improves writing, memorizing the strategy, teacher modeling, or thinking aloud, while using the strategy, teacher supported guided practice, and independent student practice. Additionally, students are taught to self-regulate by setting goals, monitoring their strategy usage, self-instructing throughout the writing process, and reinforcing their own efforts. In their review, Mason and Graham (2008) reviewed 18 SRSD studies. Six were experimental studies which taught planning strategies. Three studies were conducted by Graham and colleagues with noted improvement in the quality of student writing with an average effect size of 1.35. The other three experimental studies, conducted by other researchers, also had a positive effect on the quality of student writing (effect size = 1.35). The
remaining twelve studies were single-subject design studies. These studies focused on planning and revising skills. The results of these studies showed an average 95 percent non-overlapping data (PND) for number of essay parts. All SRSD studies, both published and unpublished, included in this review produced positive effects on the writing of students with LD (Mason & Graham, 2008). Due to the significant findings of SRSD for adolescents, it was selected as the instructional approach for the current study.

**SRSD for Quick Writing**

Four studies are particularly important to the current investigation (Mason, Kubina, & Taft, 2009; Mason, Kubina, Valasa, & Cramer, 2010; Hoover, 2010). Each study examined SRSD instruction for persuasive quick writing (i.e., a ten-minute constructed response task). Mason, Kubina, and Taft (2009), conducted two multiple baseline studies with middle school students with disabilities. The students in both studies were taught the SRSD for POW+ TREE as related to persuasive quick writes. Essays were scored on number of response parts, quality, and number of words. Social validity was also assessed through interviews. In study 1, the 6 students were instructed by a graduate student and provided handwritten responses. Responses were then typed prior to scoring.

Students in study 1 improved in all three areas from baseline to post instruction. The mean number of parts at baseline was 5.27 (SD=1.12). At post instruction the mean number of parts improved to 7.56 (SD=1.47). This improvement was still evident during the maintenance phase (M=7.61; SD=1.15). The mean quality of essays was 3.45(SD=1.47). This increased to a

---

1 The percentage of nonoverlapping points (PND) is the most commonly used method to gauge the intervention effect. A PND of ninety percent and above is considered a large effect, 70-90 percent a medium effect, and below 70 percent indicates a small effect (Scruggs, Mastropieri, & Casto, 1987).
mean of 5.77 (SD=1.24). A mean quality of 6.22 (SD=.94) was evident during maintenance. Prior to instruction the mean number of words was 83.25 (SD=20.95). There was an increase to a mean number of words after instruction to 118 (SD=17.36). During the maintenance phase, the mean average of words was 106.67 (SD=12.48).

In study 2, the students were instructed by their teacher and typed their responses. Results were similar in study 2 to those noted in study 1. Students had a mean number of parts at baseline of 3.84 (SD=1.42). This increased to a mean number of parts of 7.08 (SD=1.66) after instruction. This increase remained evident during the maintenance phase (M=7; SD=1.88). In terms of quality, the baseline mean was 3.39 (SD=1.25). During the post instruction phase this mean increased to 5.18 (SD=.83). The improvement in quality continued to be evident during maintenance (M=5.29; SD=1.36). Finally, word counts also increase across phases. At baseline, the mean number of words was 79.03 (SD=31.12). At post instruction the mean number of words was 108.72 (SD=24.09). The increase in word count was also present during the maintenance phase (M=112.42; 28.24).

Students in the above studies generally rated the intervention positively. One student in study 1 did not think the strategy assisted his learning, but his results indicated improvement. In study 2 the students felt the instruction helped them, but did not think the strategy should be taught to other students. This appeared to be related to the statement that instruction was done during homework time and as a result they did not get help with their homework.

In a third study, Mason, Kubina, Valasa and Cramer (2010) introduced the POW+TREE strategy to five middle school students with ED in an alternative school setting. They used persuasive quick writes, which are 10 minute writings to a specific prompt, to teach and measure the effects of the strategy instruction. They measured the quality of the number of parts found in
the quick write, the quality of the writing, the corresponding types of response parts and the number of words written. The phases reported were baseline, guided practice, post instruction and maintenance. Additionally, they investigated the generalization to a standardized test of writing fluency (WJ-Fluency subtest (Woodcock & Johnson, 1990)). Social validity was also reported.

The mean number of parts during the baseline ranged from 6.38 (SD=0.92) to 9.17 (SD=1.94). This increased during guided practice to a mean number of parts ranging from 9.0 (SD=0) to 9.71 (SD=1.11). During the post instruction phase the mean number of parts ranged from 8.6 (SD=0.89) to 10.20 (SD=1.3). Finally, during maintenance, the mean number of parts ranged from 8 to 11.

The mean quality present during baseline ranged from 2.8 (SD=1.79) to 4.13 (SD=1.25). This improved during the guided practice to a mean range of 6.71 (SD=0.49, SD=0.76) to 7 (SD=0). During the post instruction phase the mean quality ranged from 6.4 (SD=1.34) to 7 (SD=0). The mean quality during the maintenance phase ranged from 5 to 7 which is an improvement from the baseline phase.

The type of response parts (topic sentence, reasons, explanations, counter, ending) was also calculated. During baseline, students ranged from 0.80 to 1.0 in having a topic sentence. This improved to 1.0 for all additional phases (guided practice, post instruction and maintenance). Baseline reasons ranged from 1.00 to 5.17. This was measured during guided practice at a range of 3.00 to 3.57. During post instruction the number of reasons present ranged from 3.20 to 4.0. Maintenance number of reasons ranged from 3.00 to 4.00. Explanations presented at baseline ranged from 1.00 to 2.33. This increased during the guided practice from
3.00 to 3.29. During the post instruction phase the explanations ranged from 2.80 to 3.80. At the maintenance phase, the explanations present ranged from 2.00 to 4.00.

The mean word count at baseline ranged from 79 (SD=20.20) to 165.17 (SD=44.40). During guided practice the mean number of words increased to a range of 92.29 (SD=11.24) to 110.74 (SD=7.78). The mean number of words during post instruction ranged from 88.8 (SD=9.93) to 110.74 (SD=7.78). This increased mean of number of words was also found in the maintenance phase with a range of 67 to 133.

Students were pre and post tested using the Woodcock-Johnson Writing Fluency subtest (Woodcock & Johnson, 1990). The mean score prior to the intervention was 17.20 (SD=9.09). This increased to a mean of 21 (SD=7.31) after intervention suggesting that the skills learned through strategy instruction could be transferred to standardized testing performance.

The fourth study replicated SRSD for quick writing with three high school students with ED (see Appendix B for the complete study). As with the prior SRSD for quick writing studies, the intervention was found to be effective in improving the writing performance of students with disabilities.

These four studies provide a foundation for continuing research for SRSD for quick writing with adolescents with disabilities at all levels. Each of these studies found that SRSD for POW+TREE for persuasive quick writes was an effective intervention with students with ED. Expanding this line of research to students with other types of disabilities (i.e. LD), especially at the high school level, holds the potential to successfully teach students with disabilities how to respond effectively in writing. Specifically, high school students with disabilities could be given an effective tool to state their opinion on a given topic and support it with specific details which in turn could develop a cohesive piece of writing which could be used for evaluating
student knowledge. Furthermore, this line of research holds the potential to assist students with disabilities to increase their scores on high stakes testing which could be tied into graduation requirements. The current study replicates the SRSD for POW+TREE for persuasive quick writing with high school students with LD.
APPENDIX B

Effects of Self-Regulated Strategy Development
for Writing on High School Students with Emotional Disturbance

Theresa M. Hoover

The Pennsylvania State University
Abstract

High school students with Emotional Disturbance (ED) often struggle with academic tasks. Writing becomes particularly important to express thoughts and knowledge at the secondary level. In this study, the effectiveness of Self-Regulated Strategy Development for POW (Pick my idea, Organize my notes, Write and say more) + TREE (Topic sentence, Reasons-three or more, Examine, Ending) for persuasive quick writes with three high school students with ED was investigated. Results indicated improvement in the areas of written response parts, quality, and number of words. The acceptability of treatment was positive as indicated by student interviews.
Effects of Self-Regulated Strategy Development for High School Students with Emotional Disturbance

Students with Emotional and Behavioral Disabilities (ED) are educated in the general education setting more than any other category of disability at the secondary level (Lane, 2007; Trout, Nordness, Pierce, & Epstein, 2003; Wagner, 1995). Approximately 96% of students with ED are educated in the general education setting alongside their non-identified peers (Mooney, Epstein, Reid, & Nelson, 2003; Trout, Nordness, Pierce, & Epstein, 2003). These students spend approximately 74% of their school time in the general education setting. Despite having a special education diagnosis, they receive the exact same instruction with minimal, if any, accommodations made to meet their academic needs (Trout et al., 2003; Wagner, 1995).

Students with ED perform at a lower academic level than their general education peers (Lane, 2007). This contributes to high school students with ED becoming disenchanted with high school academically, which in turn, contributes a high dropout rate (54.8%) (Wagner, 1995). Therefore, it is imperative researchers develop academic interventions that work within the general education environment for students who have an ED diagnosis (Cook, Landrum, Tankersley, & Kauffman, 2003; Mooney et al., 2003; Ruhl & Berlinghoff, 1992; Trout et al., 2003). Unfortunately, the majority of published intervention research for students with ED is limited and restricted to behavioral interventions in self-contained settings (Mooney et al., 2003; Trout et al., 2003). In order to meet the academic needs of students with ED in inclusive settings, effective interventions should be provided within the general education environment (Mooney, Ryan, Uhing, Reid, & Epstein, 2005; Trout et al., 2003). These interventions need to address behavioral issues, as well as the academic deficits of students with ED (Lane, 2007; Trout et al., 2003). Written language is one such academic area in which students with ED struggle (Reid, Gonzales, Nordness, Trout, & Epstein, 2004).
Written language becomes increasingly important as students progress through their high school years (Christenson, Thurlow, Ysseldyke, & McVicar, 1989). Academic success relies on a student’s ability to use written language to effectively demonstrate their knowledge across curriculum areas (Graham & Leone, 1987). To communicate their knowledge, students are often asked to complete a variety of written tasks. These tasks range from rote recall activities to composing essays to state facts and opinions. Without strong written language skills, students are at a higher risk to fall even further behind at the secondary level (Christenson, et al., 1989).

Fortunately, adolescents who are taught to write in a systematic, explicit way have shown improvements in their ability to effectively communicate in writing. This instruction includes scaffolding with students receiving assistance as they are learning the process. Students begin the learning to write process with maximum teacher support. This support can include direct teacher instruction, modeling of the writing process being taught, peer assistance, and specific feedback. As the students gain confidence and demonstrate the ability to write independently, the assistance offered by the teacher and/or peers is reduced until it is faded out completely. The result is student ownership of the writing process/strategy being taught (Graham & Perin, 2007a; Graham & Perin, 2007b).

Writing instruction for students with ED unfortunately is limited. Christenson et al. (1989) noted in their observational study of second through fourth grade classrooms that students identified as ED in inclusive classes received approximately 31.6 minutes per day in direct writing instruction. This included instruction for spelling, handwriting, and language activities. Results of their observations indicated that students with ED who were included in the general education setting received more direct instruction in writing than students with ED who were received academic instruction in the special education setting. Students with ED in special
education classrooms in this study were found to spend less than 10% of their academic time engaged in writing activities. Given the importance of developing written language skills, it would appear that more writing instruction in both educational settings should be given to students with ED in order to assist them in successfully participation in academic activities.

**SRSD Instruction**

One intervention which has proven effective with students with disabilities is Self-Regulated Strategy Development (SRSD) instruction. In SRSD, students are provided explicit teacher directed instruction focused on a specific strategy. Students are taught the strategy to mastery, while learning to self-regulate their use of the strategy (Sawyer, Graham, & Harris, 1992; Seabaugh & Schumaker, 1981).

SRSD instruction assists students in understanding the writing process including planning, editing/revising, as well as developing a positive attitude toward writing (Harris, Graham, & Mason, 2003). The premise behind SRSD is to provide individualized explicit instruction to students to meet their needs related to the skill being taught (Harris et al., 2003). It allows teachers to use their current materials and curriculum to meet students’ learning needs. A major goal of SRSD instruction is for students to recognize when to use the strategy to assist their learning, not as a single use rote memorization activity that is only good in one specific setting (Harris & Pressley, 1991).

SRSD employs a structured format of instructional stages (develop and activate background knowledge, discuss, model, memorize, support and independent performance) which the student can progress through at their own rate to meet their own learning needs. It is not necessary to teach each stage in isolation, the stages are meant to guide the instruction and should be adapted to meet the individual needs of the student. The stages are structured to allow
for more teacher support which is gradually scaled back as the student assumes full control over using and monitoring the strategy (Harris, et al., 2003). This type of instruction also uses specific feedback to guide the student in learning and using the strategy successfully (Sawyer, Graham, & Harris, 1992).

SRSD is not meant to be task specific but rather used as a tool by the student in a variety of situations. The key to this type of learning is that the student understands how to effectively and independently apply the strategy to situations outside of the direct instructional environment (Harris & Pressley, 1991). SRSD intervention is most effective when the learner has characteristics which support independence and the task has the ability to be broken down into manageable steps which can be placed in a simple to learn strategy (Graham & Harris, 1987). Students who benefit most from SRSD intervention in writing also demonstrate maturity, cognitive ability, ability to tolerate frustration, and the ability to have the attitude to adjust to the expectations of the learning and use of the strategy being presented (Graham & Harris, 1987).

**Instructional Stages.** Harris, Graham, and Mason (2003) described the instructional stages of SRSD. In their description six instructional phases were presented. These stages are considered to be fluid stages that the teacher employs in a manner which best meets the individual students. The following is a brief summary of each of stage.

In the first SRSD stage, students develop and activate their background knowledge. During this stage the teacher introduce/reviews vocabulary related to the targeted strategy and writing genre. The teacher explains to the student the use of self-statements which can support the student in keeping a positive attitude towards a writing task. With teacher guidance, the student develops his/her own self statements to be used throughout the instructional process. Additionally, the student sets goals for learning and applying the strategy.
In stage two, discuss it, the strategy is discussed by the student and the teacher. The teacher describes the steps in the strategy and any strategy mnemonic. Additionally, this stage is a chance for the teacher and student to review the strengths and needs of the student related to the genre being targeted. Together they examine the student’s writings, which were obtained prior to instruction, and identify to parts of the strategy found in these writings. The current level of the student is graphed and goals are established.

The teacher models using the strategy in stage three. The teacher utilizes a think aloud instruction and writes an actual piece of writing which models what is to be done by the student. The teacher not only thinks aloud, but also uses self statements to demonstrate for the student how to incorporate these into their own writing thoughts. Additionally, the teacher clearly models for the student what to do if they become frustrated during the writing process.

In stage four the student memorizes the steps of the strategy. Using the mnemonic, of the strategy being taught (i.e. POW+TREE), the student verbally states the steps of the strategy by stating the name of the step and providing a clear explanation of what is expected in relation to the each step. The student begins to gain independence from the teacher in using the strategy to complete the writing task. The teacher monitors the student’s use of the strategy through observing the student during the writing process and answering questions as needed. Additionally, at the end of this stage, the student and teacher review the student’s writing with specific feedback being given for present and missing response parts.

In stage five the teacher supports the student in using the strategy. The teacher is available to the student to answer questions but provides no direct guidance in the use of the strategy. The teacher needs to be sure not to withdraw support until the student is confident in using the strategy. All supporting materials (i.e. visual representations of the strategy, previous
writings) are no longer available to the student. If the student has not yet mastered the strategy, the teacher can repeat this step as many times as necessary (Harris, et al., 2003).

In stage six, the student takes ownership of the strategy and applies it independently. The student is given the writing task (i.e. persuasive quick write) and allowed to work independently until the assigned task is completed. The teacher can continue to observe the student writing, but no assistance is given in relation to the strategy usage. It is the expectation by this stage, the student continues to self regulate to remain engaged throughout the entire writing process.

**Review of literature**

Recently researchers have developed SRSD interventions that hold promise for improving the writing performance of students with ED (Taft & Mason, in press). Four studies were found which utilized the SRSD for POW (Pick my idea, Organize my notes, Write and say more) + TREE (Topic sentence, Reasons-three or more, Examine, Ending) with students with or at risk of ED. An additional study utilized the SRSD for POW+WWW (Write and say more + Who, Where, When, What = 2, and How = 2) with students with or at risk of ED. These studies were conducted at the elementary (n = 3) and middle school levels (n = 2). Two of the elementary studies were conducted in inclusive elementary schools (Lane et al., 2008; Little et al., 2010) and the third was in an inclusive therapeutic program for students with ED (Mason & Shriner, 2008). Both middle school studies were conducted at alternative schools for students with ED (Mason, Kubina, Valasa, & Cramer, 2010; Mastropieri et al., 2010). The participants in these studies were boys (n = 33) and girls (n = 10) who were identified with ED (n = 22) or at risk of ED (n = 21).

Mason and Shriner (2008) examined the effects of writing instruction with elementary aged students identified as ED. Working with six students with or at risk for ED in an Inclusive
Therapeutic Program housed within a neighborhood elementary school, students were taught the SRSD strategy, POW + TREE, in relation to persuasive essay writing. Using a multiple baseline across subjects and matched groupings, they found that students with ED improved their writing of persuasive essays. Grouping students into younger students (ages 8 years to 9 years, 3 months) and older students (ages 10 years, one month to 12 years, 6 months), they examined student improvements in the number of essay parts written. They completed a secondary analysis in the areas of quality of essay writing, number of words written and number of transition words used.

In the baseline phase, students in the younger group wrote essays with zero or one essay part. There was an increase of parts written during the instructional phase with students in this group writing as few as 4 parts up to 6 parts. During the post instructional phase, the number of parts written ranged from a high of 9 parts to a low of zero parts. Only one out of three students returned to their baseline performance in number of parts written (0).

For the older students, their baseline number of essay parts ranged from one to 4 parts. During the instructional phase this group improved the number of parts to a range of 6 to 8 parts. The post instructional range was 5 to 8 essay parts. Essay parts ranging from 5 to 8 were evident during the maintenance phase for this group.

The quality of essays written by the younger group had a baseline mean of .07 with a standard deviation of .26. This mean increased to 4.91 (SD=.86) during instruction, and then decreased slightly to 4.44 (SD=2.63) during the post instruction phase. Finally, at maintenance, the mean quality of essay was 4.0 (SD=0). The older group showed a quality of essay mean of 2.17 (SD=.90) at baseline. The instructional quality of essay mean was 5.77(SD=1.12). This
mean was 4.89 (SD=.87) at post instruction and was 4.00 (SD=.71) during the maintenance phase.

Both groups demonstrated an increase in the number of words written during this study. The younger group wrote a mean of 10.14 (SD=6.01) words per prompt at the baseline phase. This mean increased to 47.33 (SD=9.46) during the instructional phase. During the post instructional phase there was continued increase in the mean of words written to 68.11 (SD=52.44) with a slight decrease to a mean of 52.00 (SD=15.89) during the maintenance phase. For the older students, the baseline mean for number of words was 33.25 (SD=13.14). This increased to a mean of 79.31 (SD=16.66) during the instructional phase with a slight decline to a mean of 65.78 (SD=21.03) during the post instruction phase. The older students achieved a mean number of words of 54.50 (SD=6.22) during the maintenance phase.

Finally, an analysis was done on the number of transition words used. The younger group showed zero transition words during baseline. This increased to a mean of 3.25 (SD=.43) during instruction. The use of transitions words was at a mean of 3.22 (SD=1.55) during post instruction. A mean of 2.75 (SD=1.09) was found during maintenance. The older group achieved similar results in the use of transition words. During baseline this group also had a mean of zero transition words, showing an increase to mean of 4.00 (SD=.39) during instruction. Post instructional transition words mean for the older group was 3.33 (SD=.67) while the mean during maintenance dropped to 1.50 (SD=1.5).

The findings of Mason and Shriner (2008) indicated that during the instructional phase, the students improved in the areas of essay parts, quality, use of transition words, and number of words. However, during the post instruction and maintenance phases, the students’ performance varied. Only one student returned to their baseline performance. All others maintained an
improvement to the criterion level in these areas after being taught POW+TREE. In relation to the students’ feelings toward using the strategies, they responded favorably. The students stated that the strategy helped them to become better writers, who were more organized and aware of what they were writing.

Lane and colleagues (2008) conducted a study with second-grade students at-risk for ED to determine the effects of SRSD, POW+WWW (Pick my idea, Organizing my notes, Write and say more + Who, Where, When, What =2, and How=2) intervention on story writing skills. This study took place in an inclusive elementary school. The students’ writing was analyzed for story elements, quality of writing, and total words. Social validity of the strategy was also assessed. Baseline data for the students’ story elements ranged from a mean of 0 to 2.86 (SD=0.64). The range mean range of story quality of writing was 1.17 (SD=0.69) to 3.33 (SD=0.58). For the total number of words, the mean range during baseline was 7.67 (SD=2.49) to 34.33 (SD=18.62). Intervention means were not reported for this study. However, post intervention means showed the following improvements. Post intervention means for story elements ranged from 6.00 (SD=0) to 7.00 (SD=0). All students fell within this range, demonstrating stability during the post intervention prompts (n=3). The quality of writing also increased to a mean of 5.00 (SD=0) to 6.00 (SD=0). Students increased in the number of words used with mean scores ranging from 34.67 (SD=17.67) to 113.67(SD=44.38). Finally, at the maintenance phase of this study, studies continued to demonstrate improvement in these areas. The maintenance mean score for story elements ranged from 6.00 (SD=0) to 7.00 (SD=0). Quality of writing maintained an improvement with mean scores ranging from 4.00 (SD=0) to 7.00 (SD=0). Number of words at the maintenance phase ranged from 29.00 (SD=0) to 174.00 (SD=35.36).
Social validity for the intervention was measured during baseline and post intervention phases. Social validity was determined by both teachers and students. Teacher social validity was measured using Intervention Rating Profile (IRP-15; Martens, Witt, Elliott, & Darveaux, 1985), while students completed the Children’s Intervention Rating Profile (CIRP; Witt & Elliott, 1985). The IRP-15 scores at baseline ranged from 72 to 90 indicating high expectations for the intervention to be favorable in terms of procedures and outcomes. At the conclusion of the study the scores ranged from 78 to 90 indicating teachers continued to judge the intervention in a favorable manner. Results for the students using the CIRP were similar. After baseline, the intervention was explained to the students and their initial ratings ranged from 27 to 37 which are considered favorable. At the conclusion of the study, the range of student scores was 24 to 42 indicating a continued positive position related to the intervention.

Little et al. (2010) replicated and extended the above study (Lane et al., 2008) by working with second grade students at risk for ED who exhibited either externalized or internalized behaviors in an inclusive elementary school. This study used SRSD for POW+TREE to write persuasive essays. Both groups of students showed improvement in the persuasive essay writing using the SRSD strategy in terms of response parts written, quality of writing and number of words. Students with internalizing behaviors had a mean range of number of response parts of persuasive essays of .86 (SD=0.69) to 4.0 (SD=1.31). The number of baseline writings ranged from 3 to 7. Baseline quality mean scores ranged from 0.57 (SD=0.79) to 5.00 (SD=1.20). Total mean number of words for baseline ranged from 9.00 (SD=2.00) to 63.25 (SD=28.11). For students with externalizing behaviors, baseline mean number of elements ranged from 0.00 (SD=0) to 3.00(SD=.89). The number of baseline writings obtained ranged from 3 to 7. The baseline mean quality scores for this group of students ranged from 0.00 (SD=0) to 2.17
Finally, the mean total number of words for the baseline phase ranged from 2.67 (SD=1.53) to 26.00 (SD=11.31). Intervention means were not reported for either group.

The post intervention mean scores for both groups were reported and showed a mean increase in all measured areas. For the internalizing behavior group, all students had three post intervention writings. The mean range of elements was 4.0 (SD=1.00) to 8.67 (SD=0.58 and SD=1.53). The mean range for quality was 3.00 (SD=1.41) to 5.67 (SD=0.58). Finally, for the total number of words, the mean range was 22.67 (SD=6.11) to 80.00 (SD=10.39). For the externalizing behavior group all students had three post intervention writings. The mean range of elements was 4.67 (SD=0.58, SD=1.53) to 6.67 (SD= 0.58). The mean range of quality of writing was 1.00 (SD=0.00) to 6.33 (SD=0.58). Finally the mean range of number of words was 27.67 (SD=7.64) to 69.00 (SD=16.52).

During the maintenance phase students in both groups maintained improvement from baseline in all areas. All students were given two maintenance prompts. For the internalizing group, the mean range of elements was 4.00 (SD=0.00) to 10.50 (SD=2.12). The mean range of quality of writing was 2.00 (SD=1.41) to 6.50 (SD=0.71). The mean number of total words was 42.50 (SD=2.12) to 104.00 (SD=32.53). For the externalizing group, the mean range of elements during this phase was 4.50 (SD=0.71) to 7.00 (SD=0). The mean range of quality of writing was 1.00 (SD=0.00) to 6.50 (SD=2.12). Finally, the mean total number of words ranged from 19.50 (SD=0.71) to 60.50 (SD=2.12).

In regards to social validity Little et al (2010) also used the IRP-15 and CIRP. After baseline data was collected, the intervention was explained to both teachers and students. The teachers’ baseline rating of the strategy ranged from 75 to 90 considered to be favorable. At the conclusion of the study the range was 58 to 90. The teacher of the student who experienced little
overall improvement had a substantial decline in favorability of the treatment. For the students, the baseline social validity range was 22 to 42. The post intervention scores ranged from 33 to 42.

Both groups demonstrated similar improvements in the number of response parts in their persuasive essays. Students demonstrating externalizing behaviors showed greater quality increases during post testing, while students with internalizing behaviors showed a greater increase in length of composition. Additionally both students and their teachers felt the SRSD instruction was a positive learning experience. These studies further supported the efficacy of using SRSD with elementary aged students with or at risk for ED.

Extending SRSD intervention to the middle school level, Mastropieri and colleagues (2010) conducted a study with 12 students identified as ED in public day school serving students with ED. Using the POW+TREE strategy, these researchers worked with students who were deemed writing well below the eighth grade level using the Woodcock Johnson Writing Fluency subtest of the Woodcock Johnson III Test of Achievement (WJ-III; Woodcock, McGrew, & Mather, 2001). The mean grade level writing performance prior to intervention was 4.6 (SD=2.5). The pre-test mean of the fluency subtest of the WJ-III was 75.8 (SD=17.9). Students in this study were provided the SRSD for POW+TREE strategy for persuasive writing. Once POW+TREE was mastered, the researchers measured fluency of the use of the strategy by adding a 10-minute time limit on the writing task. At the conclusion of the intervention, students improve to mean of 84.8 (SD=4.2). This yielded a strong effect size of .81 which signifies growth of the students in this area in comparison to the normative sample. The data were reported as mean averages of baseline, post intervention, post fluency, maintenance and generalization in the areas of number of parts, quality of writing, number of paragraphs, number
of transition words, and number of words. Additionally, effect sizes for each phase were reported.

The mean number of parts was 1.87 (SD=0.66) during baseline. This improved to a mean of 5.57 (SD=2.13), ES=1.74, during the post intervention phase. During the post fluency phase, a slight increase was found with the mean being 5.77 (SD=1.58), ES=2.47. The mean number of parts during maintenance, given 11.5 weeks after the conclusion of fluency instruction, was 5.0 (SD=2.40), ES= 1.30. Finally, during the generalization phase, the mean number of parts was 3.91 (SD=2.95), ES=.74. These results indicate a significant improvement in words parts as a result of the intervention and fluency instruction.

The mean quality of writing score during baseline was 1.71 (SD=0.59). During the post intervention phase, the quality mean increased to 4.33 (SD=1.76), ES=1.49. The post fluency quality mean was 4.48 (SD=1.25), ES=2.22. At the maintenance and generalization phases, the mean quality scores were 4.27 (SD=2.20), ES=1.16, 3.36 (SD=2.42), ES=.71, respectively.

The mean number of paragraphs students wrote showed an increase over the course of the study. The highest increase occurred from baseline (0.17 (SD=.28) to post intervention (1.43 (SD=1.45), ES=.87). There was a decline from the post intervention mean to the post fluency mean (0.95 (SD=0.51), ES=1.53). This downward trend continued during maintenance (.82 (SD=.56), ES=.56), but was still an improvement from the baseline mean. Finally, at generalization, the mean number of paragraphs was 0.73(SD=1.19), ES=.51. This is an increase from the baseline study in how many paragraphs were written.

The use of transition words also increased throughout the study. The baseline mean of transition words was 0.73 (SD=0.36). During the post intervention phase this mean increased to 4.2 (SD=2.17), ES=1.60. There was a slight increase during the post fluency phase to a mean of
4.55 (SD=1.55), ES=2.46. During maintenance and generalization the mean use of transition words decreased slightly to 3.36 (SD=2.50), ES=1.05 and 2.45 (SD=2.01), ES=.90.

The mean number of words used also increased significantly throughout the study. At baseline, students had a mean number of words of 21.92 (SD=10.78). This increased at the post intervention phase to a mean of 108.37 (SD=50.39), ES=1.72. The mean number of words decreased slightly during the post fluency phase to 93.47 (SD=32.28), ES=2.22. During the maintenance and generalization phase a slight decrease in mean also occurred, 79.64 (SD=48.77), ES=1.18 and 75.09 (SD=48.55), ES=1.14 respectively. This is a significant increase from baseline.

All students individually improved in the number of response parts written, quality of writing, number of transition words, and number of words. It was reported that then students also benefitted from the 10 minute time limit. Prior to the fluency intervention, the participating students would take an entire class period or more to complete their essays, which lacked the proper response parts; were of lesser quality; and used fewer words.

Social validity was measured by individual interviews. Most of the students reported enjoying learning the strategy. They felt they organized their thoughts better, enjoyed using the mnemonic, and were able to better focus on their writing. They also stated that they used the strategy outside of the intervention setting. Teachers confirmed this positive attitude toward the strategy by stating they observed students creating POW+TREE organizers in both the classroom and during high-stakes testing situations.

Mason, Kubina, Valasa and Cramer (2010) introduced the POW+TREE strategy for persuasive quick writing to five middle school students with ED in an alternative school setting. Quick writes are 10-minute writings to a specific prompt and are often used in secondary
classrooms as writing to learn activity or for assessment purposes. They measured the quality of the number of parts found in the quick write, the quality of the writing, the corresponding types of response parts and the number of words written. The phases reported were baseline, guided practice, post instruction and maintenance. Additionally, they investigated the generalization to a standardized test of writing fluency (WJ-Fluency subtest (Woodcock & Johnson, 1990). Social validity was also reported.

The mean number of parts during the baseline ranged from 6.38 (SD=0.92) to 9.17 (SD=1.94). This increased during guided practice to a mean number of parts ranging from 9.0 (SD=0) to 9.71 (SD=1.11). During the post instruction phase the mean number of parts ranged from 8.6 (SD=0.89) to 10.20 (SD=1.3). Finally, during maintenance, the mean number of parts ranged from 8 to 11.

The mean quality present during baseline ranged from 2.8 (SD=1.79) to 4.13 (SD=1.25). This improved during the guided practice to a mean range of 6.71 (SD=0.49, SD=0.76) to 7 (SD=0). During the post instruction phase the mean quality ranged from 6.4 (SD=1.34) to 7 (SD=0). The mean quality during the maintenance phase ranged from 5 to 7 which is an improvement from the baseline phase.

The types of response parts (topic sentence, reasons, explanations, counter, ending) were also calculated. During baseline, students ranged from 0.80 to 1.0 in having a topic sentence. This improved to 1.0 for all additional phases (guided practice, post instruction and maintenance). Baseline reasons ranged from 1.00 to 5.17. This was measured during guided practice at a range of 3.00 to 3.57. During post instruction the number of reasons present ranged from 3.20 to 4.0. Maintenance number of reasons ranged from 3.00 to 4.00. Explanations presented at baseline ranged from 1.00 to 2.33. This increased during the guided practice from
3.00 to 3.29. During the post instruction phase the explanations ranged from 2.80 to 3.80. At the maintenance phase, the explanations present ranged from 2.00 to 4.00.

The mean number of words at baseline ranged from 79 (SD=20.20) to 165.17 (SD=44.40). During guided practice the mean number of words increased to a range of 92.29 (SD=11.24) to 110.74 (SD=7.78). The mean number of words during post instruction ranged from 88.8 (SD=9.93) to 110.74 (SD=7.78). This increased mean of number of words was also found in the maintenance phase with a range of 67 to 133.

Students were pre and posted tested using the Woodcock-Johnson Writing Fluency subtest (Woodcock & Johnson, 1990). The mean score prior to the intervention was 17.20 (SD=9.09). This increased to a mean of 21 (SD=7.31) after intervention suggesting that the skills learned through strategy instruction could be transferred to standardized testing performance.

The above studies provide a foundation for continuing research for SRSD with students with ED at all levels. Currently, there is a need for this research to extend beyond the elementary and middle school level.

**Purpose**

The purpose of the current study was to extend the research base of the SRSD for POW+TREE for persuasive quick writing with students with ED at the high school level. This study replicates the procedures used by Mason, Kubina, Valasa, and Cramer (2010) but at the high school level. The hypothesis for this study was that high school students with ED would improve their fluency in writing a 10-minute persuasive quick write responses and improve the quality of the response by writing response parts or elements critical for effective persuasion.
(e.g. topic sentence, three supporting details, explanations of details, counter reason/explanation, and conclusion), quality, and number of words. The following research questions were asked:

1. What are the effects of SRSD instruction on the number of response parts written, quality of response, and number of words of a 10-minute persuasive quick-write?

2. Was the treatment of SRSD acceptable to high school students with ED?

**Method**

**Design**

A multiple baseline across participants (Kennedy, 2005) was used to measure the effectiveness of the POW+TREE writing intervention for persuasive quick writes before, during and after instruction. This research design was selected to monitor the writing progress of participants throughout the study and to ensure the continued need to intervention of the second and third participants after the conclusion of the first participant's intervention. Visual analysis of trend and level was used to determine the intervention effects.

**Baseline.** Baseline data was taken from all participants prior to intervention. Once baselines were documented, participants were randomly assigned to order of instruction. During instruction of Keith, the first participant, additional baseline data was taken at scheduled intervals of the remaining participants as explained in the instructional phase of the intervention. Heath began instruction at the conclusion of instruction for Keith. Baseline data continued for David until the conclusion of instruction for Heath. After each student demonstrated criterion performance in lesson five, he was given four post-instructional prompts. These post instructional prompts were administered to determine his continued ability to use the POW+TREE strategy for persuasive quick writes without teacher assistance. At this time, the other participants were given another pre-instructional prompt to monitor their progress. These
prompts were given to determine if the students were still in need of intervention or if their writing had improved independently of the strategy instruction.

**Instruction.** Five instructional lessons were completed with Heath. After lesson five was given he was also given four post-instructional prompts. Keith was given his fifth post-instructional prompt to monitor maintenance of the POW+TREE strategy. Meanwhile David was given a seventh baseline prompt to determine potential growth independent of the intervention. At the conclusion of lesson five with David, Keith and Heath were given post-instructional prompts to monitor their ability to apply the strategy in weeks after the conclusion of instruction. All three students were given maintenance prompts at the conclusion of post-instructional prompts of David.

**Post Instruction.** At the conclusion of instruction, each participant was given a minimum of five post instructional prompts. Due to the multiple baseline design of the study, Keith was given 6 post instructional prompts, while Heath was given five. David was given seven post instructional prompts due to interruptions in his participation which are explained in a later section.

**Setting**

This study was conducted in a suburban high school approximately 15 miles south of a metropolitan area in the eastern region of the United States. This high school had an approximate enrollment of 1,200 students. The most recent statistics available indicated that 12.8% of the students in the high school were eligible for free or reduced lunch. One hundred fifty two (152) students had Individualized Educational Plans (IEPs). This number does not include students identified as gifted. Of the 152 students with IEPs at the high school, 22 were
classified as students with Emotional Disturbance (ED) (G. Wilbur, personal communication, March 12, 2009).

**Participants**

The participants in this study were chosen by their classification of ED and their willingness to arrive at school early and/or stay after to work with the principal investigator. Additionally, based on a review of their IEPs and conversations with English teachers, it was believed that these students would benefit from individualized instruction in their writing. Although the principal investigator knew the participants through her work at the high school, she was not responsible for direct instruction for any participant in any academic subject. The parents of the participants were informed of the study via e-mail and personal phone calls. Once parental permissions were given via e-mail and/or verbally, consent forms were sent home for parent approval. Parents of the four invited students returned signed consent forms; students also consented to participate. Prior to starting instruction, students’ writing collected at baseline was examined to validate the teacher recommendation of the student need for the intervention. All four participants qualified by not writing ten parts in their pre-testing quick writes. One female student dropped out of the study due to a change in placement to the district’s alternative education program, leaving three male participants. All three participants were educated within a general education setting. General Education classes consisted of 15 to 25 students and were taught by a certified English teacher. Writing instruction is embedded into the curriculum and relates to the literature being read. While explicit instruction was given in the composition of research papers, other genres of writing (i.e. persuasive, narrative) did not receive explicit teaching instruction. Two of the three students received English instruction in a co-teach setting.
where a Special Education teacher was present for 80% of the classes. One student received English instruction in the general education setting without supports.

**Participant 1: Kevin.** Kevin was a 17 year old 11th grade student whose primary disability was ED. School records from had initial evaluation included school related assessments as well as reports from the private psychiatrist who had been treating Kevin medically for two years for aggression and family related mental health issues.

Kevin’s educational history indicated that he moved three times during his elementary years and was home schooled for one year. Prior to his initial testing for special education, he received services related to ADHD through a 504 plan. This type of educational plan is provided to students who do not qualify for special education services under IDEA but are provided for under the Americans with Disabilities Act (2010) to receive accommodations due to a handicapping condition. Kevin received his initial diagnosis of ED in 8th grade at which time he began special education services. He took medication for ADHD and had been diagnosed as having obsessive-compulsive traits. Kevin met with a counselor outside of the school environment to address his needs related to family and school issues. Kevin’s achievement scores indicated that he was at or above grade level, but his classroom performance fell below grade level. Specifically related to the current study, his written language scores on the Woodcock Johnson II Test of Achievement given in the spring, 2007, when he was in ninth grade, were: Percentile = 33; Standard Score = 93. These scores along with his classroom performance ruled out the possibility of a learning disability in written language.

Kevin’s current IEP focused on appropriate time management skills to complete assignments both at school and home as well as demonstrating self-advocacy skills by asking for assistance and/or clarification related to assignments and classroom situations. Kevin had a
behavior plan which addressed assignment avoidance behaviors. For example, he often stated, “I don’t know what I am supposed to do.” Kevin participated in general education for all his academic courses with a special education co-teacher being present in 80% of his English classes. Kevin’s quarterly grades in English 11 during the course of this study were: 75%, 78%, 67%, and 65%. His final average for English 11 was 67%. These grades included evaluation of written assignments and monthly writing prompts given to the entire class.

**Participant 2: Heath.** Heath was a 17 year old 11th grade student. His primary disability was ED. Heath moved several times during elementary school, but had been in the school district since fourth grade. Heath received his initial school evaluation in the fourth grade, which resulted in special education services to address anger management, self-monitoring and self-control issues. His diagnosis of ED was determined by the school district with additional information provided by Heath’s psychiatrist, who had evaluated him at the same time, and diagnosed him with ADHD and Bi-Polar disorder. There was no indication of pharmaceutical intervention in his school records.

Heath’s school records indicated his achievement test scores fell within the average range. His most recent Pennsylvania System of School Assessment (PSSA) testing scores (8th grade) were at the proficient level in math, reading, and writing. Since entering high school, Heath demonstrated typical social functioning for a student his age. He received Emotional Support services only on an itinerant basis, meeting with the Emotional Support Teacher when he deemed it necessary. He received all his academic instruction in the general education setting with no direct support. His current IEP addressed his need to complete assignments consistently in order to maintain a “B” average. Additionally, he had a behavior plan to address assignment avoidance behaviors. Heath’s English 11 grades during the year of this study were: 72%, 85%,
His final average for the class was 76%. These grades included evaluation of written assignments and monthly writing prompts given to the entire class.

**Participant 3: David.** David was a 15 year old ninth grade student. David attended the same school district from kindergarten until 9th grade. David was evaluated by a psychiatrist outside the school setting in third grade and was diagnosed with ADHD, Depressive Disorder, Impulse-Control Disorder, and other diagnoses related to home issues. David had a short inpatient placement during fifth grade to address aggressive behaviors. Upon returning to public school, David had alternate transportation to school, social skills/anti-bullying therapy, and medication management provided by a local psychiatrist. His school placement, beginning in sixth grade, was listed as Itinerant Emotional Support.

David transferred into the school district at the beginning of ninth grade. He received Itinerant Emotional Support in the school setting combined with medication to address his ADHD and other behavioral concerns. David’s most recent testing, Woodcock Johnson Test of Achievement-Third edition (WJ-III-ACH) and Wechsler Individual Achievement Test – Second Addition (WIAT II), indicates he was in the average range of academic ability. This testing took place during David’s sixth grade year and the specific standard score results related to this study were: WJ-III-ACH: Writing Fluency – 98 and Writing Sample -83. WIAT II standard scores related to this study were: Written Expression- 101. Based on these scores, David had the ability to write, but it was not always demonstrated in his classwork. David’s current IEP goals focus on organizational skills and coping strategies. David also had a behavior plan to address his behavioral needs.

David participated in the general education setting for his academic instruction. A Special Education co-teacher was in his English class 80% of the time. His grades in English 9
during the year of this study were: 81%, 73%, 76%, and 78%. David’s final average was 77%.
These grades included evaluation of written assignments and monthly writing prompts given to
the entire class.

Measures

All participants were given five baseline prompts prior to instruction to determine the
need for intervention. Students participated in the baseline data collection during five 10-minute
sessions given over the course of four weeks. Participants were given the following directions
for writing, “Please listen carefully as I read these prompts. Please select one of the prompts
and write a response to it in your journal. You will have ten minutes to write.” If students
finished early no additional coaching was given and their session ended. Students who wrote the
full ten minutes were given a one minute warning when nine minutes had elapsed and instructed
to stop when the ten minutes expired. At the end of the ten minutes, the principal investigator
said, “Stop”.

Progress was evaluated by examining the students’ written responses to persuasive
prompts. These writings were known as “quick writes” due to the timed aspect of the data
collection. Student quick writes were assessed for the 10 parts of the TREE strategy. All writing
prompts were typed with spelling errors corrected prior to being submitted to scorers, to reduce
evaluator bias (Graham, 1999). The quick writes were evaluated by two advanced doctoral
candidates who were trained in the TREE strategy but blind to the purpose of the study. Each
writing prompts was scored for number of TREE response parts, number of words, and quality of
writing.

TREE response parts. Each prompt was scored on the basis of the following response
parts: topic sentence, three or more reasons related to your topic sentences, explanations for each
reason, a counter reason and explanation, and an ending sentence. Each part was worth one point with a minimum total score being ten points.

**Number of words.** Number of words was initially determined using the word count feature of the Word program which is part of Microsoft Office 2007 software. Verification of this count was determined by a manual count of each word. The two scorers counted each word written for each sample scored. These word counts were done for all phases of the study (baseline, instruction, post instruction, and maintenance).

**Quality.** Overall response quality was scored by using a holistic measure. According to Graham and Perin (2007), this is the most common method for scoring writing quality. Raters read the responses and scored the paper using a 0 to 7 point scale. Scorers were given anchor points or papers, developed by Dr. Linda H. Mason, representing responses with a low (2), medium (5), and high (7) quality holistic score. The use of anchor points had been developed in previous research (Graham et al., 2003; Harris, et al., 2006; Mason & Shriner, 2008).

**Fidelity of scoring.** Two advanced graduate students (scorers) were trained in scoring both the number of response parts and quality of writing. Scoring fidelity was calculated by taking score agreement and dividing it by the total number of writing samples. Interrater reliability was computer for parts at 81% for exact agreement and 98% for within 1-point agreement, and for quality at 86% for exact agreement and 95% for within 1 point agreement. For disagreements, scores were averaged.

**Social Validity.** Following instruction, students were asked six questions regarding their impressions of instruction and the POW + TREE writing strategy (Graham, Harris, & Mason, 2005; Harris, Graham, & Mason, 2006): (1) Has using the POW + TREE strategies helped you to become a better writer? How? (2) What have you learned since working with me? (3) How do
you think this will help other students? (4) If you were the instructor, what would you change in
the lessons? Why? (5) If you were the instructor, would you add anything to help students learn
to write? (6) From these lessons, what things have most helped you become a better writer?

Students’ oral responses were scripted on the questionnaire form.

Materials

Each student had a spiral bound notebook to record their writing responses across phases.
Specific scripted prompts were used for each phase of this study. Instructional support materials
included: POW+TREE strategy mnemonic chart (see Appendix A), transition word chart (see
Appendix B), self-statement (see Appendix C) and graphic organizer (see Appendix D).

Materials were developed by Linda H. Mason and have been used in prior research (Mason et
al., 2009; Mason et al., 2010).

Instruction

All instruction was provided by the author, who was a doctoral student as well as a
classroom teacher in the school district. Training of the principal investigator in SRSD was
given by an expert prior to the commencement of the study. This training consisted of a three
credit graduate level class on strategy instruction at Pennsylvania State University. Additionally,
two one-on-one training session of one hour each, a review of SRSD for POW+TREE with post
testing to ensure understanding of the strategy, and practice/videotaping in giving the model
lesson with feedback provided by the SRSD expert.

Students were provided SRSD instruction for the POW+TREE strategy for writing
persuasive quick writes. Five instructional lessons were given to each student. These lessons are
detailed in a later section. The fifth lesson was repeated with new prompts until mastery of the
strategy was achieved.
During initial instruction, the timed component was eliminated for five to seven lessons based on examination of the writings by the principal investigator to determine that each participant fully understood and could produce all 10 parts of the TREE strategy. Once mastery of the strategy was observed, the 10-minute time limit was reinstated for the post-instructional and maintenance phases of the study.

**Lesson one.** The principal investigator introduced the POW+TREE strategy using the mnemonic chart. The principal investigator discussed with the student the purpose of a quick write and how the knowledge of a strategy would allow them to organize and improve their writings. The student was told that this strategy should improve their ability to do 10-minute quick write persuasive response. Once the strategy was introduced, the student was given a transition word list. The principal investigator explained the purpose of transition words as words that help an author move from one idea to another.

A model/anchor writing was used to illustrate all parts of the TREE strategy. The student and principal investigator read the model together and identified the parts of the strategy. Once the student showed an understanding of the parts, the principal investigator and student reviewed a student’s personal pre-test writing that was chosen by the principal investigator prior to the commencement of this lesson. The student was then given a graphic organizer to be used to record the parts of the strategy used in the pre-test writing. The student graphed the parts of the strategy in their writing on the graphing sheet. Transition words were also counted and recorded. Lesson one ended with a review of the strategy and praise to the student for participating and doing their best. A goal was set with the student to improve their persuasive writing by increasing the number of response parts used through the use of POW + TREE.
**Lesson two.** Lesson two began with a review of the POW+TREE strategy. The principal investigator asked the student what he remembered from lesson one, then orally reviewed the strategy while pointing to the parts found on the mnemonic chart. The student also had a transition word sheet and graphic organizer present during this lesson. The principal investigator modeled the use of the strategy for writing a quick write using a “thinking aloud” so the student could understand the thought process involved with this strategy. Self-statements, positive statements the student could use to keep writing when having difficulty, were also modeled. After modeling the student and principal investigator discussed the strategy process and use of self-statements. The student then completed a listing of personal self-statements they could use during their writing.

The student’s pre-writing reviewed in lesson one was then re-written applying the strategy. During this lesson, the principal investigator answered questions from the student and continually praised the use of the strategy as the student improved their writing. At the conclusion of the rewriting, the student, with the principal investigator’s assistance as needed, graphed the parts of the strategy in the revision. Improvement in writing was discussed. The student was praised for the improvement in his writing and the lesson concluded with a review of the strategy.

**Lesson three.** Lesson three began with an oral review by the student of the strategy. The mnemonic chart was no longer present. The student was presented with a blank graphic organizer, the transition word list, and their self-statement organizer. A discussion of times the student had used quick writes was held while the application of the strategy was discussed. The student then chose one prompt from two writing prompt options given. The student planned and wrote the response. The principal investigator prompted the student as necessary to encourage
use of all parts of the strategy. Once the writing was deemed completed by the student, the results were graphed jointly by the student and principal investigator. Improvements were discussed and the student was praised for a positive attitude and improvement in writing. The lesson concluded with the principal investigator thanking the student for working hard and a reminder that the strategy will be tested again in the next lesson.

**Lesson four.** Lesson four began with an oral review of the POW+TREE strategy. For this lesson, the student only had a blank graphic organizer, self-statement sheet, and their notebook to write the response. The student was presented with two prompts to choose from for writing. Once the prompt was chosen, the student began writing. Limited direction was given by the principal investigator, as independent use of the strategy was expected at this time. When the student judged the writing as complete, the results were graphed. The student was praised for participation and improvement in use of the strategy.

**Lesson five.** Lesson five began with the principal investigator modeling how to use the strategy within a 10 minute time limit. This was the first time the student was introduced to the time limit to be used in conjunction with the strategy. To do this, the principal investigator constructed a response using the strategy and using the full 10 minutes. The principal investigator modeled how the student can use time to review and revise the response before time expired. The student was then given two prompts to choose from for their 10 minute write. The student completed the prompt and the results were graphed. The student and principal investigator discussed the results and praise was given for the student’s progress and participation.

If the principal investigator felt that the student was not instructionally firm in the strategy given the 10 minute time lesson, lesson five was repeated. This happened with Keith
and David as a result of scheduling issues that interrupted the continuity of instruction. After the administration of the additional lesson, post instructional prompts were given.

**Fidelity of treatment**

To ensure fidelity of treatment, the principal investigator communicated daily with Dr. Linda H. Mason to discuss the day’s lesson and to review the next lesson plan. Video tapes were also sent for review. Treatment fidelity, based on verifying the number of lesson steps was 100%. This was determined through the viewing of 30% of the instructional sessions completed throughout the study.

**Results**

Each participant had a minimum of five instructional lessons. Kevin and David received additional instructional lessons, two and five respectively. This was due to scheduled breaks in the school schedule for Kevin as well as breaks and suspensions which precluded David from working with the principal investigator. After receiving SRSD for POW+TREE instruction, all participants showed improvement in parts and quality when writing persuasive 10-minute quick writes. Additionally, number of words written also increased. See Figure 1 for complete results on the number of response parts for each student. Figure 2 and Figure 3 show the quality and number of words results.

**Number of response parts.** For each response, ten response part criterion was established: topic sentence (1 point), three reasons with explanations (6 points), a counter reason and explanation (2 points), and a conclusion (1 point). Students could write above the criteria therefore there was no ceiling for the response parts.

All participants demonstrated trend or level improvement during post instruction and maintenance with the number of response parts written. Kevin’s response parts indicated
stability during the post-instructional phase, and demonstrated a mild decline during the maintenance phase. Kevin’s number of responses parts matched those of baseline with his third post instruction prompt and his second maintenance prompt. His level of performance gains at post-instruction was modest; only a three point growth of 4 to 7 parts compared to 2 to 5 parts written at baseline. During the maintenance phase, Kevin gained 2 response parts from his highest baseline score (5 to 7 parts), and was equivalent to baseline level (4 parts) with his second maintenance prompt.

Heath, who had one nine-part baseline, demonstrated a declined number of response parts. Throughout the study, Heath showed modest gains with a stabilizing trend in both the post instruction and maintenance phases. Although Heath’ performance fell within the highest part of the range during baseline, his performance level stabilized to writing a response at baseline of 3 to 9 parts to writing 8 to 10 parts across phases. Furthermore, his maintenance data points were steady at nine response parts per 10-minutes.

David showed the most consistent change in writing more parts when compared to baseline (3 or 4 parts); writing during post-instruction 6 to 9 parts and maintenance 8 and 9 parts. He experienced a slight decline in response parts at the beginning of the post instructional phase with an up and down trend during post instructional prompts 4 and 5. At the end of this phase, he showed a consistent increase in the number of response parts. David also showed stability in his phases, though during post instruction he saw slightly more variability than his other phases.

**Quality.** Quality was scored using a 7 point holistic scoring measure (Graham and Perin, 2007): low (2), medium (5) and high (7). The quality of writing showed trend or level improvement for all participants during instruction, post-instruction and maintenance. Kevin’s quality trend in each phase of the intervention was marked by moderate variability. During post
Kevin’s quality score displayed a modest decline with some data points falling within his baseline range. Kevin experienced a sudden decline during his third post instructional prompt, followed by a rapid increase in quality with post instructional prompt 4. Kevin’s quality remained above baseline throughout the post instructional phase with the exception of his second post instructional writing which matched to the lowest baseline point (1 point). During the maintenance phase Kevin had a mild decline in quality. His first writing exceeded baseline while the second maintenance point matched the highest baseline score (3 points).

Heath’s quality score was at 7 points for four out of six post instructional prompts. His trend, in terms of quality, was inconsistent during the post instructional phase of the study. For post instructional prompts three and four, his scores corresponded to his highest baseline score (5 points). His maintenance quality level stayed at 7 points for both prompts. His growth range was modest with his post instruction and maintenance prompts showing up to a 3 point increase.

David’s quality scores were consistently above baseline during the post instruction and maintenance phases. For the post instructional phase, his quality scores ranged from 4 to 7 points. He showed a mild decrease in quality during his first three post instructional prompts. He then increased before stabilizing during the final three prompts in this phase. All of David’s post instructional quality scores were above his baseline. He also showed gains during post instruction with quality scores ranging from 4 to 7 points. In the maintenance phase, David showed an increase in quality with a 3 and 4 point improvement from his baseline writing.

**Number of words.** The number of words written in each quick write was measured using the word count feature of the word processing program. The number of words increased after the SRSD for POW+TREE instruction for all participants in all post instruction and maintenance phases. During the post instruction phase, Kevin maintained a number of words above baseline,
but it declined slightly from instruction. His number of words in this phase ranged from 102 to 120 words. The maintenance phase continued to show the trend of improved number of words with his maintenance counts being 166 and 100 words written.

Heath began the study with a baseline of 159 words which declined rapidly throughout the baseline phase. Heath also had a significant decline that corresponded to his performance in number of word parts. Heath’s post instructional number of words indicated a high degree of variability, but with an upward trend with a range of 109 to 185 words written. Heath’s maintenance phase number of words showed a similar pattern with a number of words of 129 and 141. Heath’s number of words stabilized during maintenance and was higher than all but one of his baseline performances.

David’s number of words showed improvement during post instruction and maintenance. During baseline, he had a stabilized trend. David’s number of words range was 31 to 57 words. During the post instructional phase David’s words written ranged from 52-132 words with a leveling trend at the beginning of this phase. His last data point showed a significant increase when compared to the other data points in post instruction. David’s maintenance number of words were 86 and 113 words written. His maintenance was higher than his baseline performance.

**Social Validity.** Social validity was determined using an open ended question interview with participants at the conclusion of the study. All three participants stated the POW + TREE strategy helped them become better writers. David stated, “It has helped me become a better writer. It is easier for me to write. Before I would just think of something and write about it, but now I have a strategy”. The participants believed the strategy helped them to organize their thoughts before they began the actual writing. Kevin and Heath reported feeling more confident
in their writing. Heath indicated his feelings by reporting, “It has helped me become more organized and get my thoughts organized”. Additionally, Kevin shared, “I can organize my thoughts and think better”. All three participants thought other students in their classes would benefit from learning the strategy in order to organize their thoughts before they write. Both David and Heath indicated that other students who have writing problems would benefit from this strategy in organizing their ideas. Finally, Kevin stated that POW + TREE would help other students organize their thoughts in different and/or better ways.

Discussion

Students with ED are educated in the general education setting more than any other category of disability at the secondary level (Lane, 2007; Trout et al., 2003; Wagner, 1995). These students perform at a lower academic level than their general education peers (Lane, 2007). Consequently, it is imperative to develop and research interventions which improve the academic performance of high school students with ED (Cook et al., 2003; Mooney et al., 2003; Ruhl & Berlinghoff, 1992; Trout et al., 2003). SRSD for POW+TREE for persuasive quick writes has been proven effective with middle school students with ED (Mason et al., 2010), however the effects are unknown for high school students with ED.

The purpose of this study was to replicate and extend the research base of the SRSD for POW+TREE on persuasive quick writes with high school students with ED. The quick-writes were analyzed for changes in number of response parts written, quality of response, and number of words. Additionally, the acceptability of SRSD by high school students was evaluated. Specifically, this study replicated, at the high school level, the research conducted by Mason and colleagues (2010) who investigated the effects of SRSD for POW + TREE with middle school students with ED.
The results of this study indicated the effects of SRSD for POW+TREE improved the persuasive quick writing of the three high school participants with ED. The participants in this study, as in the Mason et al. (2010) study, maintained a high post intervention performance in all areas compared to baseline thus supporting the effectiveness of the strategy intervention. It was expected that the participants would score low during the baseline phase as students with ED have been found to struggle with written tasks (Reid et al., 2004). Prior to the intervention, two of the three students, Kevin and Heath, showed significant variability in the number of response parts (range 1-9 parts). The third student, David, had a stable baseline in this area (range 3-4 parts). Variability continued during the post instructional phase but was decreased (Kevin, range 5-7 parts; Heath, range 8-10 parts), however was more stable at baseline. David demonstrated a slight increase in variability in the post instructional phase (range 6-9 parts) but his level of performance was much high than baseline.

Both David and Heath maintained improvement in writing response parts during the maintenance phase of the study. Although, Kevin was above his baseline at the first maintenance point, he matched his baseline score number of response parts with his second maintenance prompt (n=5). Kevin’s results are consistent with his classroom performance as reported by his teachers in his most recent IEP. These results are similar to those found by Mason et al. (2010). During their study of middle school students with ED, they found a mix of variability and stability in the number of parts across phases.

Mason et al. (2010) found in their study that the quality of the student responses increased as a result of the SRSD for POW+TREE. The results were similar in this study. All three students showed improvement in the quality of their responses in the post instructional and maintenance phases. Heath and David demonstrated the largest gains in quality (range 4-7)
matching the highest possible quality (7) for at least one writing in post instruction and maintenance. Neither student returned to a baseline quality score. On the other hand, Kevin continued to show the most variability in quality of writing during all phases of the study. While his quality of writing improved during instruction, suggesting Kevin was using the strategy, his inconsistent quality during post instruction and maintenance suggests the need for additional intervention time and writing practice. These results are also consistent with the goals of the students IEPs. Kevin is the only student that has a work completion/consistency goal, while Heath and David have goals which primarily address behavioral issues such as seeking assistance when feeling overwhelmed and/or angry.

Finally, there was variability in number of words throughout the study, but increased from baseline through maintenance for all participants. David’s number of words written during post instruction declined to a low of 72 words but increased to 132 words during the final post instructional prompt. David’s trend in written words continued during the maintenance phase with number of words of 86 and 113 on the two prompts. Similarly Kevin showed an increase of words during post instruction (range 102-120). During maintenance he went from 166 words to 100 words. Kevin’s performance in number of words was consistent with his performance in written response parts as well as quality of writing. Heath’s variability was evident but his number of words remained above baseline in all post instructional and maintenance prompts (range 109-185). These results were similar to the results in number of words analysis found in Mason et al. (2010) indicating that SRSD for POW+TREE can be effective in improving the number of words written in a 10-minute persuasive quick write by students with ED at the high school level.
Overall, the mean number of parts increased from 4.7 at baseline to a 7.7 at maintenance. This supports the previous research in showing that participants with ED are able to learn and apply the parts of the POW+TREE strategy (Lane et al., 2008, Little, et al., 2010, Mason et al., 2010, Mastropieri et al., 2010). In these previous studies, students also increased the mean number of parts during and after the intervention. After learning the strategy, the mean quality of writing went from a 3 at baseline to a 5.7 at maintenance. This also reflects the results found in previous studies where the participants increased the quality of their writing during and after intervention. Finally, the mean number of words also increased from 70.9 to 122.5 at maintenance. Again, this is similar to previous research which found that number of words increased during and after the intervention. Thus one could cautiously state that POW+TREE has the potential to improve the 10-minute quick persuasive quick write with high school students with ED in terms of number of response parts, quality and number of words written.

In regards to the acceptability of treatment to the high school participants, SRSD for POW+TREE was deemed acceptable and helpful. The participants self-reported being able to better organize their thoughts prior to writing. They also stated feeling more confident in their writing. One participant shared during their interview that they applied the strategy during the state standardized testing. All of the participants thought other students would benefit from learning the strategy. This is similar to the results found in the Mason et. al (2010) study where students reported the strategy was helpful to them. However, one difference was that the high school participants did not mention coming in before or staying after school to learn the strategy as a deterrent to learning the strategy, whereas several of the participants in the Mason et al. (2010) study found losing homework time to be a downside of the intervention.

**Limitations**
One limitation of this study is that the principal investigator has known the participants for their entire high school career as she works at the high school they attend. The students had a strong desire to ensure that their participation was going to help their teacher ‘get a good grade’ as she has assisted them with their learning in a structured support study hall. Their personal motivation to assist their teacher could have provided additional incentive to learn the strategy and do well implementing it in their written work. Additionally, David’s instructional time was interrupted for suspensions which prohibited him from coming into school on specific days.

Another limitation is the interest in the writing prompts being presented. Participants were given two topics per session to choose from. When they had a strong interest in one of the topics presented, they stated their excitement (i.e. “Yes- this is a great topic”: “Oh, I know a lot about this”). Conversely, if neither prompt interested them they would state their disappointment (i.e. “Oh, these are not interesting, but I’ll pick one”; “Can I have a third choice?”). However, due to counterbalancing prompts across all phases, interest should have little effect on findings. The students’ level of motivation was also affected by needing to come in and/or stay after school to complete lessons. There were times where the participants complained of being tired or wanting to go home after the school day was completed. A final limitation was the affect of student medication issues. On several occasions Keith requested to postpone a lesson due to not taking his medication on time and therefore not feeling like completing any school tasks.

**Future Research**

This is the first study of using SRSD for POW+TREE with participants with ED at the high school level. While research has demonstrated the effectiveness of SRSD with participants with ED at the elementary (Lane et al., 2008; Little et al., 2010; Mason & Shriner, 2008) and middle school (Mason et al., 2010; Mastropieri et al., 2010) additional research is needed to
further determine and support the use of SRSD instruction specifically for POW+TREE with persuasive quick writing with participants with ED at the high school level. Additional group design research and single case replication would be beneficial to determine the effects of SRSD for POW+TREE for high school students with ED. Future research should include studies where the researchers/practitioners work the students with ED in the general education classroom where most high school students with ED are educated (Lane, 2007; Trout et al., 2003; Wagner, 1995). A subsequent result of the group design research could be that students who may also be struggling with writing but may not be identified could benefit from a group implementation of the instructional strategy POW+TREE.

Further single subject research should also be explored within the special education setting. Christenson, Thurlow, Yssledyke, and McVicar (1989) found in their observational study that academic writing time in this setting was less than 10% of the total academic time. Researching the effectiveness of this strategy in the special education setting could increase the amount of academic time engaged in writing tasks which are an important indicator of student knowledge at the secondary level (Graham & Leone, 1987).

**Implications for Practice**

This study demonstrates the use of the SRSD instruction for POW+TREE can be taught to and learned by high school students with ED. The time needed to teach this strategy in this study consisted of five 30-minute lessons and five follow-up 10-minute quick write practices during post instruction probing. Follow up prompts for maintenance consisted of two 10-minute sessions. While two participants (Kevin and David) required one additional 30-minute lesson, this is not an unreasonable amount of time for writing instruction. Additionally, the developers of SRSD designed this instructional strategy to be used in an on-going manner. In other words,
lessons can be repeated to meet student needs, to refresh student knowledge, and to develop
generalization to other times of writing (i.e. outside the setting where the strategy was learned).
Harris et al. (2008) recommend students receive follow up lessons in order to maintain and
improve the students’ ability to maintain and apply the taught strategy. These follow up lessons
could be incorporated into the routine of the normal school day to help promote generalization of
the strategy.
Figure 1

[Graph showing the number of response parts over calendar days for different individuals.]
Figure 2

[Description of the figure: A line graph showing quality data over calendar days, with different phases labeled as Baseline, Instruction, Post Instruction, and Maintenance. The data points are shown for different individuals (Kevin, Heath, and David).]
Figure 3
References


APPENDIX A

POW
P  Pick my Idea
O  Organize my Notes
W  Write and Say More

TREE

**TOPIC** Sentence
Tell what you believe!

**REASONS** - 3 or More
Why do I believe this?
Will my readers believe this?
Do I have a counter reason?
Does it change my belief?

**EXPLAIN** Reasons
Say more about each reason.

**ENDING**
Wrap it up right!
APPENDIX B

Words You Can Use to Show a Reason

First
Second
Third
Fourth
Fifth
Another
Also
A different
One more
Next
My final
Finally
APPENDIX C

My Self-Statements

To think of good ideas:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

While I work:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

To check my work:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

(Harris, Graham, Mason, Friedlander, 2008)
Appendix D

TOpic Sentence
Tell what you believe!

<table>
<thead>
<tr>
<th>Transition Words</th>
<th>R Reasons -3 or More</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Why do I believe this?</td>
</tr>
<tr>
<td></td>
<td>Will my readers believe this?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E EXPLAIN Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Say more about each reason</td>
</tr>
</tbody>
</table>

| R | Do I have a counter reason? |

| E | Does it change my belief? |

E ENDING
Wrap it up right! DID YOU? _________
VITA

Theresa M. Hoover

Education
2004-present: Pennsylvania State University
State College, PA
Doctoral Candidate: Special Education
Anticipated Graduation: December, 2010

2003: University of Michigan
Ann Arbor, Michigan
Literacy Studies

1996: Western Maryland College
Westminster, Maryland
M.S. – Special Education

1990: Franciscan University of Steubenville
Steubenville, Ohio
B.S. - Elementary Education/Special Education

Publications

Presentations
Farmer, T.W., Hoover, T. & Kostewicz, D.E. (October, 2007). Re-examination of effective classroom management with focus on learners with or at-risk for emotional/behavioral

Professional Experience
K-12
2004 -2010: Learning Support Teacher, Mechanicsburg Area Senior High School, Mechanicsburg, Pennsylvania

University
2007-2008: Graduate Instructor, Supervisor of pre-service student teachers, Pennsylvania State University, University Park, Pennsylvania

2004-2005: Adjunct Instructor, Teacher Education (Summer), Shippensburg University, Shippensburg, Pennsylvania