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Second Year: Persuading Students with Emotional Disabilities to Write Fluently

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Abstract

A multiple baseline probe study was conducted to evaluate the effectiveness of strategy instruction in persuasive writing with eighth grade students who attended a public day school for students with severe emotional and behavior disabilities. Students were taught to plan and write persuasive essays using the Self-Regulated Strategy Development model. Following mastery of the strategy, students were taught to apply the learned strategy to write fluently in ten minutes. After over four months of instruction, findings indicated that all students had mastered the components of effective persuasive essay writing, and increased from baseline to post instruction and fluency phases in length and quality of essays. Effects were also noted on maintenance and generalization essay probes administered over 11.5 weeks after fluency testing. Observed on task behavior was significantly correlated with a number of fluency, maintenance, and generalization outcomes. Implications for teaching and further research are discussed.

## Year 2: Persuading Students with Emotional Disabilities to Write Fluently

Students with emotional and behavioral disabilities (EBD) frequently fall behind their typical achieving peers on academic tasks (Lane, 2004). However, academic interventions for students with serious emotional/behavioral disabilities (EBD) appear infrequently in the professional journals. Mastropieri, Berkeley, et al. (in press) recently analyzed special education journals, and reported that, over the past 19 years, only 15.9% of all research articles described academic or behavioral interventions. Only a small minority of this intervention research (9.6%, or 1.5% overall) included students with EBD. Of those studies, only a handful investigated academic interventions, particularly in the area of writing. Lane (2004) noted that, “academic interventions targeting written expression... represent, by far, the least developed instructional area” (p. 475).

Writing skills are important for all students, but perhaps even more so for students with EBD, who could be expected to benefit from instruction in organizing their thoughts, thinking systematically, and communicating clearly with others (Regan, Mastropieri, & Scruggs, 2009). Harris, Graham, Mason, and Friedlander (2008) described the Self-Regulated Strategy Development Model (SRSD), which is a promising instructional approach that has successfully improved writing performance with students with learning disabilities, and other students. During six stages of instruction, students develop relevant cognitive and self-regulation skills, including goal setting, self-instruction, and self-monitoring. Students are taught self-regulation, planning, organizing, and writing strategies. For example, to teach students to write persuasive essays, the acronym POW + TREE is used. POW represents the general planning and organizing component, such that P = Plan, O = Organize, and W = Write and say more. TREE represents the genre-specific strategy for persuasive essays: T = Topic sentence, R = Reasons, three or more, E

= Explanations and E = Ending. Additional instructional supports in self regulation such as goal setting, self-monitoring, and self-instruction are embedded while explicitly teaching strategies to facilitate writing performance.

Although extensive research exists using SRSD to teach writing across a variety of genres and age level students, especially students with learning disabilities (see, for example, Graham & Perin, 2007), very little research exists documenting the efficacy of the approach with students with EBD. Only five applications were identified that applied the SRSD model with 26 students who were either at risk for EBD or identified as having EBD, most of whom were enrolled in elementary grade, general education classes.

Mason, Harris, and Graham (2002) described a successful application of the SRSD model with one third grade student with learning, attention, and behavioral disabilities. The student was taught the planning strategy of POW (plan, organize and write) along with the strategy to teach narrative story writing: WWW, What = 2, How = 2 (Who is the main character? When does the story take place? Where does the story take place? What does the main character do? What happens? How does the story end? How do the characters feel? Mason et al., p. 498). In that case study Mason et al. provided only writing samples to demonstrate growth. Although this description was promising, no systematic research design was presented.

Adkins (2005) successfully taught three 2<sup>nd</sup> and 3<sup>rd</sup> graders with EBD the POW-WWW strategy to write stories using a multiple baseline design. After 19-25 individual instructional sessions all students improved in number of story elements, number of words written, and overall quality indices. Lane et al. (2008) replicated the Adkins work with six elementary-aged students who were considered at risk for EBD who were also all involved in a school-wide positive behavioral support intervention. Students received 10 to 15 instructional sessions before

mastering the lesson components. All students improved from baseline to post intervention and maintenance testing on number of story elements, quality, and total number of words written. Mason and Shriner (2008) taught six, 2<sup>nd</sup> through 5<sup>th</sup> graders with EBD and at risk for EBD, to use the POW + TREE strategy to write persuasive essays. Students in this study were largely served in inclusive classrooms and taught individually. Students improved on overall essay quality and number of words written at post instruction, although maintenance and generalization findings were mixed.

Finally, of direct relevance to the present study, Mastropieri, Scruggs, et al. (2009) described a mixed methods study using the SRSB approach to teach persuasive essays to eighth graders with EBD who attended a public day middle school for students with EBD. These students, who were racially and ethnically diverse, exhibited very serious emotional and behavioral challenges compared with student samples described in the previous studies. For example, all students had co-morbidity of disabilities, including serious internalizing (depression, anxiety) and externalizing (aggression) behaviors in conjunction with learning disabilities, autism, or language impairments. Because of these differences, this investigation was undertaken to gather descriptive data about systematic writing instruction using the POW + TREE strategy, for this population. Given the severity of behavioral issues, instructional procedures were continually modified throughout the instructional period to ensure student success, and to provide insights for future research. Instruction occurred during a school-wide 30 minute remediation period from October through February, for a total of 55 instructional sessions. Results revealed that all students improved considerably from pre to post intervention and maintenance testing on the Woodcock Johnson Fluency subtest, essay quality and number of words written. Although these findings were promising, the amount of instructional time

required was significantly longer and more intense than reported in previous investigations, and due to the exploratory nature of the mixed methods design, there was no comparison condition.

Literature to date provides preliminary support for the use of SRSD as a positive strategy for improving writing in students with EBD; however, that evidence is based upon a small number studies, most of which are with elementary students with, or at risk for EBD, served largely in general education classes, and taught in one-to-one settings. Only a single investigation (Mastropieri, Scruggs, et al., 2009) targeted students at the middle school age with serious EBD, and that study lacked a comparison condition. The present investigation, therefore, was intended to draw upon the insights gained from the previous investigation, and to replicate and extend that previous work by incorporating an experimental multiple baseline design, and by adding a fluency component as a second instructional phase. This study took place in a separate setting school for students with serious emotional disabilities, and, like the previous investigation, involved direct, daily classroom interaction with the students over an extensive time period.

### *Research Questions*

Specifically, the research questions addressed in the current investigation were:

1. Can the SRSD model of instruction for the POW + TREE persuasive writing strategy, used successfully in previous research with students with learning disabilities, be adapted for middle school students with serious emotional and behavioral disorders served in a separate setting?
2. Once students master the SRSD POW + TREE strategy effectively, can students be taught during a fluency phase to implement the same strategy quickly?

### Method

#### *Students*

Students, who were classified as having serious emotional disabilities, all attended a public day middle school for students with significant behavioral and emotional needs. The range of student emotional and behavioral issues included depression, bipolar disorder, thought disorders, anxiety, oppositional defiant disorders, antisocial behavior, Attention Deficit Hyperactivity Disorder (ADHD). Most students had several co-existing disorders. For example, many were diagnosed with a psychological and a conduct disorder or ADHD and learning disabilities. Fifteen, eighth grade students classified as having serious emotional disabilities were participants. The building administrators selected these students because they were the lowest performing writers in the eighth grade. The sample included 14 males and one female. Three students were Caucasian, eight were African American, and four were Hispanic. Four students were also identified as having English as Second Language learning needs. Three students were dropped from the study. Two students were expelled from school within the first month of data collection. Another student was excluded because he was assigned to “in school suspension” so frequently that he was unable to participate in the instruction. The remaining 12 students (11 males), who were an average of 166.7 ( $SD = 6.3$ ) months of age, participated in the entire study.

Students pretest writing levels were generally well below the eighth grade level. The Woodcock Johnson Writing Fluency subtest of the Woodcock Johnson III Tests of Achievement (WJ-III; Woodcock, McGrew, & Mather, 2001) was administered to all students during baseline. Mean grade level performance was 4.6 ( $SD = 2.5$ ). Other academic test scores were also generally low and well below eighth grade level. School records identified all students as needing assistance on written communication skills. A variety of standardized tests had been administered to the sample and is identified by student in Table 1. Written essay performance, as assessed by the mean essay baseline scores (see Table 2), was also low.

*Setting*

The setting for the investigation was a specialized middle school exclusively for students with emotional and behavioral disorders, in a large public school district in the eastern United States (Mastropieri, Scruggs, et al., 2009). This school represented the most restrictive environment in the public school district of more than 100,000 students. All classes were taught by special education teachers and paraprofessionals, who received training in the systematic school-wide behavior management system. School counselors were also present to provide counseling services to students when needed. Students were enrolled in 7<sup>th</sup> and 8<sup>th</sup> grade classes; class sizes ranged from 3-10 students per teacher and assistant. All students participated in four core academic classes (English, science, math, and history), as well as physical education and two elective classes each day. All students in this school participated in state-wide high stakes testing, and their scores were sent to their home schools. Approximately 100 students were enrolled in the school. Of those enrolled, approximately 81% percent were male and 19% were female. The sample was racially and ethnically diverse with 45.9% Caucasian, 27.1% African American, 17.7% Hispanic, 3.5% Asian, and 5.9% from other racial/ethnic groups. Forty-eight percent of the students received free and reduced lunch, and 22.4 % were characterized as limited English proficient.

A positive behavioral support system, using a point system and daily vouchers, was employed consistently throughout the school. Vouchers were individualized to identify idiosyncratic target behaviors for each student; overall, students could earn points for preparedness, participating positively in classroom activities, appropriately asking for and accepting help, respecting others and respecting property, and promoting emotionally and physically safe conduct. Vouchers were completed at the end of every class period by teachers,

who discussed with students why points were or were not awarded. Points earned daily could accumulate over time, and students could use these points to earn privileges participate in special activities at the end of the week. In addition, students could be awarded WOW tickets for performing exceptionally well academically or behaviorally. WOW tickets could be exchanged for privileges and rewards at the end of the week.

The school also employed time-out procedures (Lewis, Lewis-Palmer, Newcomer, & Stichter, 2004), implemented when students were experiencing extreme behavioral problems. When students were especially volatile, they were provided with “flash passes” which could be used at any time to go the Crisis Response Center (CRC). Students were sent to CRC for fighting, drugs, gang related activities, racial comments, stealing, or sexual comments. When this happened, students met with the CRC counselor who determined whether school detention or suspension was warranted. In-school detention and suspension also were provided in the CRC.

#### *Project Staff*

Project staff included a team of ten from the local university who worked in the school extensively throughout the entire project. Three faculty (all Caucasian, two female and one male) and six advanced graduate students, all female (five Caucasian, one Hispanic) who all had an average of 10 years teaching experience working with individuals with disabilities and were an average of 37 years of age. In addition, two female Caucasians were observers. All staff received extensive training in implementing SRSD, observation procedures, and assessing fidelity of treatment prior to beginning the study and in the observation procedures. Five of the staff had participated in SRSD training the previous academic year and had instructed similar students in a year-long intervention project. Those seasoned individuals took the lead in training new staff to reach criterion on all teaching and observational measures. Sessions were held in which

presentations were made reviewing all lesson components, and video tapes of previous lessons using SRSD to teach writing were used to practice coding for observation skills. Instructors ( $N=4$ ) who were members of this university worked with their assigned group of students from the school approximately four days a week during a school wide 30 minute remediation period from of September through the beginning of February.

### *Materials*

All materials were based on the SRSD model and had been used during the previous study (Mastropieri, Scruggs, et al., 2009) but were modified and adjusted to meet the needs of the present sample of students. Original materials were based upon Mason and Shriner's (2008) work, in which materials provide support to students in planning, organizing and writing. In addition, self regulation training in goal setting, self instruction, and self monitoring are embedded within the instructional materials (see Harris, Graham, Mason, & Friedlander, 2008). In this case, a persuasive essay writing strategy was taught, employing the acronym POW + TREE, in which P = Pick my idea; O = Organize my notes; W = Write and say more; and T = Topic sentence – tell what you believe; R = Reasons (write three or more) – why do I believe this and will my readers believe this?; E = Explain each reason with details, and Ending – wrap it up. Students were also encouraged to Examine – do I have all my parts?

*Student materials.* Student materials included individual student folders that contained all student materials used throughout the project, including a student contract for learning, a POW + TREE chart containing all steps in the strategy, a transition word chart, a graphic organizer of the POW + TREE strategy, a self-statement sheet which was used to help students reflect on ways to think of good ideas, what to think while working and when checking their work, self-evaluation essay charts. Completed student essay were also kept in the folders

*Training materials and procedures.* Teaching materials included all student materials as well as detailed notebooks containing all lesson plans for learning how to implement the POW + TREE strategy based on those implemented in previous research (e.g., Mason & Shriner, 2008). Steps in the instructional sequence included the recommended SRSD stages of instruction, such as developing background knowledge and discussing it, modeling the strategy, memorizing the strategy, supporting the strategy with guided practice, and independent practice.

All teaching and project staff met together for training with experts in SRSD instruction. During this training, all materials from the lesson plans and notebooks were described, and videotaped model lessons from previous research studies were viewed. Instructors role played implementing lessons until criterion performance in implementing SRSD was obtained, by all project staff. During instruction it became necessary sometimes to modify lessons based on student performance. When this happened, changes were discussed and shared electronically and in person with all staff. An electronic web site was used to house copies of all lesson plans and any subsequent changes. Project staff met daily to review SRSD components, along with student performance and progress. Project staff also met periodically with building administrators to review student performance data.

### *Procedures*

After obtaining relevant Institutional Review Board approvals from the district, administrators, students and parents, the baseline phase was started in all groups. Next, instructional lessons began in each of the four instructional groups staggered over time, followed by post intervention essay testing. Immediately following post instruction testing, the fluency phase was implemented, which was followed by post fluency phase testing. Beginning 11.5 weeks later, students were administered surprise maintenance and generalization essay probes.

Instruction occurred approximately four days per week, from September through February, during a 30 minute school-wide remediation period for a total of 58 sessions, or a total of 29 hours of instruction over more than four months. Individual students received a mean number of 43.3 ( $SD = 4.1$ ) days of instruction, with a range of 36 to 49 days. When students were not present in class for instruction, they were frequently in school, but participating in other activities, such as the school crisis resource center, school suspension, play practice, meetings with mentors, student council association meetings, or meetings with other teachers.

The model of SRSD instruction was implemented to teach students how to write persuasive essays. The first day of instruction, the teacher introduced the study, explained what would happen and presented students with learning contracts to sign. The “Writing to Persuade Learning Contract” contained students’ names, the date with target completion dates, the goal, how to meet the goal, signatures of both the student and teacher for the initial contract, and signature lines for both students and teachers and completion dates when instruction was successfully completed.

*SRSD instructional procedures.* SRSD instruction included the six phases of instruction: Develop Background Knowledge, Discuss It, Model It, Memorize It, Support It, and Independent Performance, while emphasizing throughout self-regulation, independent use, and student ownership. The instructional goal was to have students internalize self-regulation strategies to write persuasive essays independently. Initially, instruction and lessons were teacher directed. However, instruction was carefully scaffolded to have students gradually gain ownership of the strategy. During stage 1, students acquired the knowledge for using the POW + TREE strategy to write persuasive essays. The POW component consisted of a general planning and organizing strategy, while the TREE component provided specific steps for writing a persuasive essay.

Students practiced learning the planning and writing strategy acronym, what it represented and discussed background knowledge. During the second stage of instruction: Discuss It, students continued with learning the specific acronym of POW + TREE, remembering what each component represented. Sample persuasive essays were reviewed and students practiced identifying sections of model essays.

During the third stage of instruction, Model It, the teacher modeled the entire planning and writing process using self-statements and the graphic organizer. The teacher modeled think aloud self-statements while she planned out each step involved in using POW + TREE from selecting the topic, to generating ideas for the organizer, to beginning writing. For example, the teacher used statements, such as “What do I believe?” “What is the next step I have to do?” “Did I answer all the questions?” And “I like that idea.” to model planning, self-evaluation, and self-reinforcement throughout the process. Students also completed their own self-statement charts that could be referred to during subsequent lessons. During the planning, a large graphic organizer was placed on the board, and students assisted with generating ideas that were written on the organizer. Goal setting was also introduced and students were taught that part of the goal for persuasive essay writing was to ensure that all components (topic sentence, three or more reasons, explanations for reasons, and ending) of the essay were completed.

During the fourth stage of instruction, Memorize It, students demonstrated that they had learned what the strategy steps were for writing persuasive essays. In this case, all students were required to state POW + TREE and describe what each component represented.

The fifth stage of instruction: Support It, consisted of collaborative writing. During this stage, students worked collaboratively with the teacher and writing was monitored by both students and teacher. Initially, the small groups selected an essay prompt from two options; later

students selected their own essay prompt from two options. During instruction, project staff made continuous modifications and adjustments based on the individual emotional, behavioral, and learning needs of students.

The sixth and final stage of instruction students transitioned into independent writing performance. During this phase students wrote complete essays without the use of the graphic organizer, transition word charts, and other prompts.

*Fluency instruction.* During the fluency phase, students were taught to use all of the steps previously learned for planning and writing persuasive essays more quickly. These procedures were based on those developed by Mason (2009) and Mason Kubina, Valasa, and Monger (2009) for teaching quick write writing skills. Teachers modeled the procedure and guided students through essay completion within a short time period. Students were told that it was acceptable to have only a single paragraph in this response, but that all the other components, such as a topic sentence, three or more reasons, explanations, and an ending were required components. Self monitoring check lists tailored to student-specific needs were created for students to monitor their progress during the fluency phase. Teachers used timers during the modeling and collaborative practice of fluency lessons to demonstrate how the same strategy (POW + TREE) could be used to plan and write a shorter, but very comprehensive response all within 10 minutes. Timers were used during the student independent practice components of the lessons as well. Students completed their self-monitoring checklists after checking their essays.

#### *Data Sources, Administration, and Scoring Procedures*

*Woodcock Johnson Writing Fluency subtest.* All students were pre- and post tested on the Writing Fluency subtest of the Woodcock Johnson III (Woodcock, McGrew, & Mather, 2001).

Tests were administered and scored according to the directions and guidelines in the WJ III manual.

*Writing prompts and essay parts.* Essay probes were administered at baseline, post intervention, post fluency, maintenance, and generalization. Students received five essay probes during post intervention and post fluency and a minimum of five essay probes during baseline. Students who were in later instructional groupings received one to three additional essay prompts during their extended baseline conditions. Maintenance and generalization probes were also administered beginning after 11.5 weeks following the fluency phase. Each time, students were provided two prompts and asked to select one for their essay. Many of these writing prompts were used in the Mastropieri, Scruggs, et al. (2008) study; additional prompts were designed to accommodate the number of prompts required for the duration of the study. All writing prompts were reviewed for readability and interest level suitable for this population of students. Identical procedures were employed when administering the writing prompts during baseline, post intervention and post fluency. During baseline and post intervention, students were provided as much time as they needed to complete their persuasive essays. During the post fluency phase, maintenance and generalization testing, students were provided 10 minutes to plan and write their essays. In addition, during baseline and intervention students were asked to name the parts of a persuasive essay.

*Essay scoring.* Each essay was scored using a holistic rubric with a scale from 0-10. A score of zero was given for no essay parts, and ten for a complete essay. A complete essay had to include the following components: (a) topic sentence; (b) more than three reasons with explanations; (c) ending sentence; and (d) a logical sequence of writing, including at least one counter argument. In addition, each essay was scored by number of words, paragraphs, transition

words, and parts of the essay, including: topic sentence, each reason, each explanation, and an ending sentence. The parts of a persuasive essay were also just tallied with one point awarded for each correct part named. Independent scorers read and scored each essay and essay parts individually. Scorers met to assess inter-rater reliability, and discussed disagreements until they were resolved. The resulting inter-rater reliability was 98%.

*Strategy interviews.* Following all instructional phases and testing, students were interviewed regarding their perceptions of instruction and knowledge of the strategy. This was completed to determine students' acceptability of the intervention and generalized use of the writing strategies.

*On-task behavior.* A time sampling procedure (Alberto & Troutman, 2008) was used to record students' on and off-task behaviors during 30-second intervals for 15 minutes during approximately one third of the instructional sessions. Student attention to task was operationally defined as the following: (a) in designated area of room, (b) engaged with appropriate materials, (c) reading/writing to the writing prompts, (d) asking relevant question(s), (f) and may appear in thought by intermittently and quietly looking away from material (engaged only with self not with others). Reliability of observation data were collected in 42% of the cases and the average percent of agreement was 94 ( $SD = 6.8$ ).

*Continuous record and observational data sources.* Throughout the study, continuous record data were collected to document student behavior in response to instruction (Mastropieri & Scruggs, 2002). Video cameras were employed frequently to supplement observations. Instructors wrote daily teaching logs to document lessons covered, but also student performance. In addition, fidelity of treatment was collected to document instruction integrity. Student written products were collected and reviewed.

*Experimental Design and Statistical Analyses*

A multiple baseline design across participants with multiple probes during baseline was implemented to assess the instructional effects across four groups of students (Kennedy, 2005). The lowest performing eighth grade writers with EBD attending a public day middle school for students with EBD were identified by the administrators based on school assessments. Those students were then placed into one of four instructional groups (group size = 3 - 4) based on writing ability. Group one contained the students with the lowest writing performance to group four which contained students with the relatively highest writing performance. Groups were then randomly assigned intervention starting dates to conform to randomization test procedures (Todman & Dugard, 2001). This resulted in four legs of replication of the instructional procedures by each of the four groups. Baseline consisted of typical instruction for the eighth graders during that scheduled remediation period, which included instruction in basic skills, emphasizing math, and there was no explicit instruction in writing essays. During the baseline phase each student received a minimum of 5 baseline essay probes. During the intervention phase, instruction was delivered by one of the trained graduate research assistants described earlier. Each student received 5 essay parts probes during the intervention phase. After reaching criterion performance on writing persuasive essays, 5 post instruction essays probes were administered, which was followed by the fluency instructional phase. Five post fluency phase probes were then administered. Maintenance and generalization probes were administered beginning 11.5 weeks after the fluency testing. A couple of students received the maintenance and generalization probes up to 15 weeks post instruction due to challenges involved in scheduling the testing sessions. Students were also interviewed regarding their perceptions of the usefulness of the writing strategy instruction.

This design allowed for 12 replications between baseline and post intervention, between baseline and post fluency, and 11 replications between baseline and maintenance and generalization. One student was unavailable for maintenance and generalization testing because he had been expelled from school. Data were analyzed using traditional multiple baseline analysis procedures using visual inspection for level, stability, and trends (e.g., Kennedy, 2005). Percent of nonoverlapping data points (PND) between baseline and intervention phases were calculated to determine the PND outcome effect (Scruggs, Mastropieri, & Casto, 1987) Mean changes were also calculated and statistical tests were computed between baseline and other phases using nonparametric tests. Effect sizes were also computed between phases. Finally, randomization tests (Kazdin, 1984) were computed and based on randomization procedures in the design; in this case, randomly assigning groups to intervention start dates. The randomization test yields an exact probability based on calculations of baseline-treatment mean differences of the data with randomly selected sequences of data. (Scruggs, Mastropieri, Regan, 2006; Todman & Dugard, 2001).

## Results

This investigation was implemented over a considerable portion of the school year, and involved ongoing data collection involving a variety of measures. Results are reported in the following sections (a) treatment fidelity; (b) on task behavioral and continuous record data; (c) standardized writing measures; (d) writing performance at baseline, post intervention, post fluency instruction, and maintenance and generalization testing; (d) writing performance and on task analyses, and (e) social validity including, student interviews and strategy usage information.

### *Treatment Fidelity*

This intervention study was implemented during 55 school days over a period of five months. Instructors were highly skilled educators with expertise in teaching using SRSD instructional procedures, and in working with students with EBD. One third of the sessions were observed for treatment integrity. Observers used checklists that designed to match the lesson plans that contained all elements for each lesson. Examination of checklists indicated that the instruction had been delivered with a high degree of fidelity (Mean = 98; range 95-100%). When individual lesson components were not covered, it was due to lack of time during a particular lesson. For example, it may have taken teachers and students longer to complete all target lesson steps than originally anticipated. When this occurred, the next lesson began with a daily review and started with the concluding lesson component from the previous day. When fidelity was examined taking that into account, all lessons were delivered adhering to lesson plans with a high degree (100%) of fidelity.

#### *On-Task Data*

Students were observed throughout the investigation for on-task behavior. Across all instructional groups, 52 days of observation were implemented, and reliability of observation was assessed in 42% instances. Reliability of observation was assessed at 94% ( $SD = 6.8$ ) agreement. Overall, it was noted that the proportion of on-task behavior was less than desirable ( $M = 72\%$ ;  $SD = 9.9\%$ ; range = 57 – 88%) during the time students spent in class.

Some students exhibited extreme difficulties maintaining attention and working efficiently during instruction due the nature of their specific emotional challenges. For example, one student, who demonstrated signs of depression had trouble concentrating during instruction. He was consistently disengaged, frequently refused to write, and was often absent from school. Another student's anger and lack of conflict management skills affected his attention to

instruction. For instance, if he had experienced a behavioral incident in a previous class period, he typically dwelled on it for the rest of the day. When that happened, he would refuse to write or even talk, and he just seemed to "shut down." Another student's hyperactivity and lack of behavioral control interfered with his ability to attend to instruction. For instance, some days he would be especially active; those days he would play with his desk, make loud comments, or walk around the room. Over time, this student began to have more self-regulation skills and recognized when a self-time out was necessary, rather than having the teacher administer a time out to calm down. Finally, one student who also had learning disabilities exhibited extreme frustrations when required to organize his ideas in writing. When frustrated, he frequently became oppositional, refused to write, talked out loud, and distracted other classmates with conversation. Given the established relation between academic time-on-task and academic achievement (e.g., Mastropieri & Scruggs, 2004), this level of academic engagement clearly played an inhibiting role in instruction and contributed significantly to the amount of required instructional time for students to reach mastery.

### *Standardized Tests*

Students made statistically significant gains on standardized scores of the fluency subtest of the WJ-III, with pretest means of 75.8 ( $SD = 17.9$ ) and posttest means of 84.8 ( $SD = 4.2$ ). These gains were statistically significant,  $t(11) = 3.55, p = .005$ , resulting in a strong effect size ( $ES$ ) of .81, and indicating real growth with respect to the normative sample.

### *Writing Performance*

*Baseline.* All students wrote a minimum of five essay prompts throughout the baseline phase. During baseline none of the students appeared to complete any planning or organizing prior to writing essays. As can be seen in Table 2, the overall mean number of words written was

21.9, essays contained fewer than 2 components, were less than a paragraph in length, and contained less than one transition word per essay. Quality scores were also generally very low with a mean of 1.71 at baseline. Similar patterns emerged when these data are examined by student and instructional group. The range of number of words written was 7.4 to 38, with the number of mean number of sentences ranging from one to two, with one student writing three sentences. No students wrote any paragraphs at baseline. The number of transition words written ranged from less than one to 1.2 and the number of essay parts ranged from less than one to 2.6. The data by instructional group are presented in Figures 1 and 2 for overall essay quality and number of essay parts.

*Knowledge of parts of a persuasive essay.* During baseline and intervention phases students were periodically asked to name the parts of a persuasive essay (topic sentence, reasons 3 or more, explanations and ending). During baseline all students' performance was low and responses were considered to be less than one part on average. During the intervention training, students were administered probes on their knowledge of parts of a persuasive essay. This was done to determine whether students had mastered the knowledge of the required essay components and to provide a measure of performance during instruction, without requiring students to write essays independently before mastering the strategy. These data are displayed graphically in Figure 1. As can be seen, during intervention students were gaining in knowledge of the components of a persuasive essay and could correctly recall all persuasive essay parts by the fifth probe.

*Post intervention.* All students gained significantly in their ability to write persuasive essays. These results are supported by the 100% PNDs by instructional group as displayed in Figures 1 and 2 for overall quality of essay and number of essay parts. Students' post

intervention essay scores indicated large and consistent increases over baseline scores on measures of number of words written, number of essay parts, number of paragraphs, number of transition words, and on overall quality of the persuasive essays. All student level changes across phases were high and there was less variability in writing performance as evidenced in the post intervention testing. The means scores across all students are large, and statistically significant as listed in Table 2 (all  $p$ 's < .01, according to Wilcoxon Matched-Pairs, Signed Ranks Tests, from baseline to post intervention effects on all measures). Obtained effect sizes were uniformly large, with an overall mean of 1.83 (range = .87 – 2.47). Moreover, randomization tests (Todman & Dugard, 2001) from baseline to post intervention yielded statistical significance ( $p = .000$ ) in all cases, indicating a high probability of a systematic (i.e., non-chance) relation between onset of intervention and change in writing performance.

Individual student performance paralleled group performance data, in that each and every student improved from baseline to post intervention in number of words, sentences, paragraphs, transition words, essay parts, and quality of essays written. Graphic representations by student are displayed in Figures 3, 4, 5, and 6. As can be seen, some students greatly increased the number of words written from baseline to post intervention, such as William (26.6 to 203.4 words), Sally (24.2 to 113.8 words), George (38.8 to 154.4 words), and Ron (12.4 to 84.2 words). Even the overall lowest performing writers at baseline made substantial improvements, as evidenced by increases of 7.4 to 34 words (Mark), 11 to 85.2 words (Sam), 22 to 59 words (Evan), and 13 to 102.6 words (Matthew). All other students also demonstrated higher gains than the lowest performers in the total number of words written by post intervention measures (see Figure 3).

Students improved on essay components from baseline to post intervention measures as well. Several students made very large gains in the number of sentences written from baseline to post intervention. For example, William, Bob, and Malcolm all wrote one or two sentences at baseline, but produced from 13 to 18 sentences at post intervention. Other students also improved from writing one sentence or less at baseline (Jay, Ron, Sally, Sam, and Otto) to six sentences at post intervention.

Number of essay parts and quality of persuasive essays improved considerably for all 12 participants. At baseline all students obtained uniformly low scores, but by post intervention testing had significantly improved. As seen in Figure 5, all students' written persuasive essays contained more critical essay elements on post instruction measures. William increased from two to nine essay parts, Bob and Malcolm increased from three to eight, and Sally increased from two to seven parts. The majority of students made gains from one to five additional essay parts (e.g., George Sam, Jay, Matthew, and Ron). Even the lower performing writers made substantial improvements. For example, even Evan and Mark wrote an additional essay part in their essays at post intervention.

Quality scores improved significantly from baseline to post intervention measures; all students improved from baseline to post intervention measures. The largest gains were obtained by William, Bob, and Sally, who gained five, five and four quality points, respectively. Other students also improved in overall essay quality with gains ranging from two to three quality points. Even the lowest performers, Evan and Mark, each gained one quality point by post intervention (see Figure 6).

*Post fluency.* All students improved significantly from baseline to post fluency instruction on all writing measures. All fluency data were statistically significantly higher than baseline data

according to Wilcoxon Matched-Pairs, Signed Ranks Tests (all  $ps = .002$ ). These data are displayed graphically in Figures 3 through 6 by student, and overall in Table 2. Data are compared with baseline measures since there was a 10 minute time limit imposed on the planning and writing. In number of words written overall, students improved significantly over baseline measures during the post fluency testing. The largest improvements over baseline were seen for William (26 to 135), Evan (22 to 118), Sam (11 to 106.2), Sally (24 to 104.2), Bob (37 to 96.2), and Jay (15.8 to 92.4). However, even the lower performers (Mark, 7.4 to 38.8; Otto, 18 to 47.6; Matthew, 13.8 to 70, and Ron, 12.4 to 74) demonstrated substantial improvements over baseline phases. Interestingly, some students (Evan, Jay, and Sam) not only maintained post intervention levels, but increased in number of words written.

Number of essay parts of persuasive essays improved on all post fluency measures as well. Individually all students' wrote persuasive essays that contained more critical essay elements on post fluency measures. William increased from 1.8 to 8.8 in number of parts of the essay, Bob increased from 3 to 7.6, Sam increased from 1.6 to 6.8, Evan increased from 1.4 to 6.6 and Sally increased from 2 to 5.6 over baseline measures. Evan, who had been a low performer even at post intervention, appeared to increase in his abilities to write more post fluency instruction. This may indicate that he required additional time to catch on or that the writing during fluently within shorter time period (10 minutes) was a better task for him.

Improvements were also observed in overall quality of written persuasive essays across all students over baseline performance. Individually all students demonstrated significant gains as well. The consistently higher performing writers all demonstrated substantial gains with William (1.8 to 7), Sally (2 to 5.8), Bob (2.8 to 5), and Malcolm (2.2 to 5.4). Evan, who had been an inconsistent writer, improved from 1 to 5.8 in quality rating from baseline to post fluency

performance. All other students demonstrated some post fluency growth over baseline performance. Somewhat surprisingly, several students' quality of essays after fluency instruction was higher than their performance at post intervention testing (see Figure 6).

In addition to the quantitative results of the SRSD intervention as assessed by measures on their essays, some very obvious results of the strategy can be observed in the examination of student written products prior to and subsequent to the instruction and post fluency. These differences were obvious with all students in this investigation. As an example, Table 3 presents illustrative examples of one student's baseline, post intervention, and post fluency essays after instruction in the SRSD POW + TREE strategy, and fluency instruction. As be seen, the very substantial difference in essay length and quality is clearly represented, and is similar to the differences observed on all students in this investigation.

*Maintenance and generalization.* Beginning 11.5 weeks following fluency testing, surprise maintenance and generalization probes were administered to students. One student, who had been expelled, was unavailable for any follow-up testing. Since fluency training was the last instructional phase, it was decided to assess students for maintenance and generalization using the 10-minute period following the exact fluency assessment procedures. Although the performance levels were slightly depressed from the fluency phase, overall performance was high and significantly greater than baseline performance. On each scoring measure on the maintenance persuasive essays, students significantly outperformed their baseline performance levels,  $p's < .05$  according to the Wilcoxon Matched-Pairs, Signed Ranks Test. On the generalization testing students scores were significantly higher than baseline on total number of words written, number of sentences written and number of transition words,  $p's < .05$  according

to Wilcoxon Matched-Pairs, Signed Ranks Tests. The number of essay parts and overall essay quality approached significance  $p's = .059$ .

Individual student performance varied more considerably during maintenance testing. All students appeared to show strong maintenance effects compared with baseline condition performance. However, when performances were compared with post fluency instruction, many students' scores decreased somewhat. Not surprisingly, the highest performing writers appeared to maintain the higher level of performance, while the lowest performing writers appeared to decrease more from the post fluency testing phase. For example, William maintained his overall improved writing with 196 words, 17 sentences, and strong overall number of essay elements and quality of essay. Similarly, Bob and George maintained their writing levels with each writing 112 words, 8 and 9 sentences, respectively, and maintaining strong performances in persuasive essay elements and quality. Other students appeared to write fewer words, have fewer essay components, and slightly lower overall essay quality. For example, Sally decreased from 104 to 61 words at maintenance from fluency testing and obtained only 4 points for her essay elements and overall quality scores. However, these scores were still substantially greater than her baseline performance when she wrote only an average of 24 words and received only 2 points for her essay elements and quality.

The students who had been the most inconsistent writers and were lower performing overall, appeared to decline the most at maintenance testing. For example, Ray, Sam, and Otto wrote 25, 39, and 36 words, respectively at maintenance. Although this was an improvement from baseline, when each student wrote on average 12, 11, and 18 words, respectively, these performance levels represented a less than desirable outcome. Similarly, their essay elements and quality were higher than baseline, but their levels declined somewhat from the fluency phase.

Generalization measures were administered to the same sample of 11 students. Although the levels of performance were lower than at post instruction or post fluency, generalization probes were still above baseline mean levels for all students, with the exception of Ron who wrote .4 words fewer on his generalization probe than at baseline. Students scores were significantly higher than baseline on total number of words written, number of transition words, number of essay parts and overall essay quality, all  $p$ 's  $< .05$  according to Wilcoxon Matched-Pairs, Signed Ranks Tests. The highest performing writers were able to generalize their writing to more novel writing prompts while the lower performing writers experienced more challenges. William, Bob, and George wrote 180, 104, and 100 words, respectively. Their essays contained all relevant components and were of generally high overall quality. Conversely, Ron, Sam, and Otto wrote fewer words (12, 52, and 36, respectively) and declined in the number of essay parts and overall essay quality.

*Writing performance and time on task.* Correlations between writing outcome measures were calculated using the Spearman's  $\rho$  coefficient (Siegel & Castellan, 1988). Overall, correlations with posttest measures were positive, but nonsignificant ( $r$ s = .18 - .45; all  $p$ s  $> .145$ ). However, two fluency measures were significantly correlated with time on task: mean number of essay parts ( $r = .664, p = .018$ ) and holistic essay quality ( $r = .624, p = .030$ ). In addition, two maintenance measures were significantly correlated with time on task: number of sentences ( $r = .705, p = .015$ ) and number of paragraphs ( $r = .653, p = .029$ ); while two generalization measures were significantly correlated with time on task: number of essay parts ( $r = .632, p = .050$ ) and holistic essay quality ( $r = .638, p = .047$ ). Correlations between time on task and an additional three generalization measures exceeded .50 in value and approached, but

did not attain, statistical significance: number of sentences ( $r = .567, p = .087$ ), number of paragraphs ( $r = .543, p = .105$ ), and number of words ( $r = .527, p = .117$ ).

### *Social Validity, Student Interviews and Strategy Reports*

Students were interviewed individually following all instruction to determine their perceptions and knowledge of the POW+TREE strategy, its usefulness, and the POW+TREE lessons. Overall there was general positive agreement that the SRSD strategy had been effective in improving their writing skills. Table 7 presents some comments about the writing intervention that specific students reported during the individual interviews.

Students remembered components of the strategy. For example, the majority knew what all of the letters of POW+TREE represented. When asked to draw a graphic organizer, most of the students remembered the major components of the graphic organizer. When students forgot a component, it was the last step, or “examine.”

When asked how the strategy has helped them, students most-often noted that it has helped them with organizing their writing. Most students identified the graphic organizer, itself, as being the most helpful and what they liked best about the strategy. Several students mentioned that they liked the POW+TREE mnemonic strategy the best and they enjoyed writing essays. Others talked about how the strategy helped them organize their thoughts before writing. Some students stated the strategy assisted them with knowing the order information should be presented in a persuasive essay, rather than just writing. Several students indicated that they were now able to write longer essays, they had better transition words and mechanics, they wrote improved sentences and paragraphs, and they knew what components to include in a persuasive essay now.

Several students said that their favorite thing about the strategy was that it helped them stay focused on a topic throughout their essays. One student, who exhibited extreme difficulties attending, said the strategy helped him to “concentrate.” Since this student frequently appear to be in his own world, and had trouble maintaining focus on any topic, this appeared to be a powerful endorsement of the strategy for him. A couple students specifically mentioned liking the self-regulation components of the strategy, including the self-statements and goal setting.

Students were also asked what they would add to or change about instruction. While many students did not provide suggestions of changes that could be made to the POW+TREE lessons, several students mentioned that they did not like the writing prompts provided during instruction. Some of these students expressed that they would have preferred to pick their own prompts. Additionally, several students noted that they would like instruction to be “more fun,” incorporating more game-type activities, receiving more rewards for written products, and working with partners.

Finally, students were asked if they had used the POW+TREE strategy in any other classes. Nine of the students reported using the strategy in their English classes, but other classes mentioned included history and math. This information was also confirmed by their teachers who indicated that several of the students were using the graphic organizer in other classes. Furthermore, three students who were interviewed following statewide writing high-stakes tests said that they used the POW+TREE strategy during the essay component on the high-stakes test. This report was corroborated by teachers who monitored students during the testing. They reported that several students wrote out the graphic organizer before they began writing during the high stakes testing.

## Discussion

These findings reveal substantial improvement across 12 students with significant EBD issues in writing persuasive essays with respect to overall quality, number of words, sentences, essay parts, transition words, and paragraphs on post instruction, post fluency, maintenance probes. Although maintenance and generalization performance was somewhat lower than fluency levels, performance was still substantially higher overall than baseline levels. This intervention took place over four months and provided intensive, recursive instruction to students who were not only struggling writers, but also experienced severe emotional and behavioral disabilities. This study also provides further evidence of the challenges associated with teaching SRSD strategies to middle school students with significant emotional/behavioral disabilities, as well as the very substantial positive benefits that may result from these strategies, appropriately taught. In this investigation, in spite of numerous affective and behavioral challenges, students learned the POW + TREE writing strategy and employed it to significantly improve their writing of persuasive essays.

All 12 students improved in all elements of essay writing, including number of words written, number of paragraphs written, number of transition words, number of essay parts, and overall quality of writing as measured by holistic scoring following instruction, fluency training, maintenance and generalization testing. Findings generalization measures were still higher than baseline overall, but some students appeared to be able to generalize, while others appeared to struggle with the task. Moreover, students gained statistically on a standardized measure of writing fluency. Reports of all students related the observed performance to the strategy instruction.

The post intervention findings replicate the previous SRSD research conducted with students with and without EBD in that training improved overall number of words, and essay

components, including quality for writing persuasive essays (see Mason & Shriner, 2008; Mastropieri, Scruggs, et al. 2009). These results also replicate the earlier findings of Mastropieri, Scruggs, et al. (2009) by demonstrating that a lengthy intervention period was required for students with significant emotional and behavioral issues who are attending a special middle school, but that significant improvements were also observed on a standardized measure of writing fluency. Over 50 days of intensive, recursive instruction was required in the present study. This intensity of instruction is not the typical amount of instructional time devoted to teaching students how to write persuasive essays.

The fluency findings provide some interesting new data for students with EBD. All students improved significantly on all essay components once they were taught to apply what they learned to plan and write within a shorter 10 minute period. It was interesting to note that several students improved in their essay writing by the post fluency testing. For example, Evan appeared to finally excel during the fluency phase. It seems that perhaps Evan needed the additional instructional time to master the entire writing strategy, including the writing fluently component. Several students appeared to feel more confident and attend to writing essays better given the 10-minute task. The shorter period of “10 minutes to work” may assist students with emotional and behavioral issues because they can see an end to the task. During the first phase of this study, writing essays could conceivably require an entire class period or two, and many students appeared to get discouraged when writing essays consumed longer time periods. These findings also replicate those recently reported by Mason (2009) with students with learning disabilities, and Mason, Kubina, Valasa, and Monger (2009) with students with EBD who were taught to use a “quick write” strategy. Those studies reported positive overall findings for students learning how to write a persuasive essay within 10-minutes. However, in those studies,

students were not taught and measured on the entire essay strategy first, but only taught and assessed using the quick write. Future research could examine the optimal procedures for having students with EBD learn to write more fluently, and whether or not students can write more fluently after shorter initial instruction or not.

Maintenance and generalization testing results revealed interesting, but somewhat equivocal findings. The maintenance results were all significantly higher than baseline condition, however were somewhat depressed from the fluency testing. Since testing occurred after a delay interval of 11.5 to 16 weeks post instruction, these findings are both encouraging and disheartening. It might mean that students like the ones in the present study require additional booster sessions spaced throughout the school year to maintain consistent performance levels.

Generalization findings were also mixed. Significant gains over baseline were observed for number of words, transition words essay parts and overall essay quality. However, clearly, we had hoped that students' essays would be more representative of the quality and length produced at post instruction or post fluency. This may mean that more explicit generalization instruction is required for students to be able to generalize the SRSD strategy for writing persuasive essays. It would have been interesting to see whether students could generalize better immediately following instruction. Future research could examine more explicit generalization instruction embedded within the SRSD training and assessing generalization closer to the end of intervention periods.

Students' strategy reports and interviews also confirmed that they learned how to use the strategy and actually many reported enjoying the strategy and seeing the benefits of the planning and organizing the strategy provided them during writing tasks. Many students stated that they used the strategy in other academic classes. It was very positive to hear that most students were

applying the strategy during their English classes. Anecdotal reports by teachers also revealed that students actually wrote out their own version of the POW + TREE graphic organizer for planning during their high stakes testing. It is encouraging to hear these reports, but future research could examine alternative instructional procedures designed to facilitate generalized writing skills.

Students in this investigation demonstrated an overall lower percentage of time on task than considered desirable. However, lower levels of overall academic engagement in students with EBD are commonly reported in the literature (e.g., Hawkins & Axelrod, 2008), and have been seen to persist in spite of curricular or materials modifications intended to improve on task behavior (e.g., Miller, Gunter, Venn, Hummel, & Wiley, 2003). In fact, overall lower levels of on task behavior also were observed in a similar, previous investigation (Mastropieri, Scruggs, et al., 2009), in spite of the use of small instructional groups and high levels of teacher interaction. Results of the present investigation also underlined the consistent relation between engaged time on task and writing outcomes. Although these correlations were not large enough to be significant on posttest measures, a number of significant correlations between on task behavior and fluency, maintenance, and generalization measures underscored the importance of on task behavior in facilitating longer term, generalized outcomes.

In the present case, however, students were not always off task due simply to disruptive classroom behavior. Some students were more likely to exhibit serious signs of depression or anxiety which interfered with their ability to attend appropriately. In these cases, students were not disruptive, but still very much off task. The overall lower time on task percentage is directly related to the significantly longer, more intense instructional period required for students to master the SRSD strategy for writing persuasive essays. Students' affective and behavioral

characteristics also contributed to their time spent out of the room meeting with counselors, which contributed to the necessity for extending the instruction considerably beyond the amount of time usually allocated to other students (e.g., students with learning disabilities) to learn the same strategies (see Harris, Graham, Brindle, & Sandmel, in press). Interestingly, the study reported by Mastropieri, Scruggs, et al. (2009) had a highly similar sample of students who were lower performing writers with significant affective and behavioral characteristics that interfered with academic engagement, including disorders of mood, affect, perception, and aggression. They also reported the need to significantly increase instructional time. It is probable that the emotional and behavioral problems exhibited by the students in the present study interact negatively with opportunities to learn in school and result in lower overall academic achievement. Although all project staff were able to accommodate these characteristics during instruction, considerable instructional time was lost in the process.

Results of the present investigation contribute to the existing literature on writing instruction for adolescents with EBD, and how this instruction interacts with the characteristics of students with EBD. Although these results are very positive, additional research is needed to add to our overall knowledge of writing instruction. For example, in the present investigation, only one writing strategy was trained, and a considerable time period was needed to make this intervention successful. Perhaps in future research, strategies for several types of writing, such as persuasive, narrative, and expository writing, could be combined in such a way, emphasizing common features, so that overall time of instruction for each strategy could be minimized. In addition, it would be of interest to determine whether such instruction could be combined with instruction in the mechanics of writing (e.g., spelling, punctuation), seen to be lacking in this population, yet often featured on high stakes tests. At present, however, it can be stated that

SRSD strategies for writing, with appropriate instructional supports, can be highly effective for improving the writing performance of students with emotional or behavioral disorders.

## References

- Alberto, P.A., & Troutman, A.C., (2008). *Applied behavior analysis for teachers* (8<sup>th</sup> ed.). Upper Saddle River, NJ: Prentice Hall.
- Brown, A. L. (1992). Design experiments: Theoretical and methodological challenges in creating complex interventions. *Journal of the Learning Sciences*, 2, 141–178.
- Carrow-Woolfolk, E. (1996). *Oral and Written Language Scales: Written expression scale manual*. Circle Pines, MN: American Guidance Service.
- Collins, A. (1999). Toward a design science of education. In E. Scanlon & T. O’Shea (Eds.), *New directions in educational technology*. New York: Springer-Verlag.
- Conners, C.K. (1989). *Conners Parent Rating Scales*. New York: MHS.
- Furlong, M.J., Morrison, G.M., & Jimerson, S.R. (2004). Externalizing behaviors of aggression and violence and the school context. In R. B. Rutherford, M. M. Quinn, & S. R. Mathur (Eds.), *Handbook of research in emotional and behavioral disorders* (pp. 243-261). New York: Guilford Press.
- Gilliam, J.E. (2006). *Gilliam Autism Rating Scale* (2<sup>nd</sup> ed.). Upper Saddle River, NJ: Pearson.
- Graham, S., & Harris, K. R. (2003). Students with learning disabilities and the process of writing: A meta-analysis of SRSD studies. In H. L. Swanson, K. R. Harris, & S. Graham (Eds.), *Handbook of learning disabilities* (pp 323-344). New York: Guilford Press.
- Graham, S., & Harris, K. R. (2005). *Writing better: Effective strategies for teaching students with learning difficulties*. Baltimore: Brookes.
- Graham, S., & Perrin, D. (2007). A meta-analysis of writing instruction for adolescent students. *Journal of Educational Psychology*, 99, 445-476.

- Gresham, F.M., & Kern, L. (2004). Internalizing behavior problems in children and adolescents. In R. B. Rutherford, M. M. Quinn, & S. R. Mathur (Eds.), *Handbook of research in emotional and behavioral disorders* (pp. 262-281). New York: Guilford Press.
- Harris, K.R., Graham, S., Brindle, M., & Sandmel, K. (in press). Metacognition and children's writing. In D.J. Hacker, J. Dunlosky, & A.C. Graesser (Eds.), *Handbook of metacognition in education*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Harris, K. R., Graham, S., & Mason, L. H. (2006). Improving the writing performance, knowledge, and motivation of struggling writers in second grade: The effects of self-regulated strategy development. *American Educational Research Journal*, 42, 295-340.
- Harris, K.R., Graham, S., Mason, L.H., & Friedlander, B. (2008). *Powerful writing strategies for all students*. Baltimore: Brookes.
- Hawkins, R.O., & Axelrod, M.I. (2008). Increasing the on-task homework behavior of youth with behavior disorders using functional behavioral assessment. *Behavior Modification*, 32, 840-859.
- Kauffman, J.M., & Landrum, T.J. (2008). *Characteristics of emotional and behavioral disorders of children and youth* (9th ed.). Upper Saddle River, NJ: Prentice Hall.
- Kazdin, A. E. (1984). Statistical analysis for single-case experimental designs. In D. H. Barlow & M. Hersen (Eds.), *Single case experimental designs: strategies for studying behavior change* (2nd ed., pp. 285-324). New York: Pergamon Press.
- Kennedy, C. H. (2005). *Single-case designs for education research*. Boston, MA: Allyn and Bacon.

- Lachar, D., & Gruber, C.P. (2001) *Personality Inventory for Children* (2<sup>nd</sup> ed.). Los Angeles: Western Psychological Services.
- Lane, K. L. (2004). Academic instruction and tutoring interventions for students with emotional/behavioral disorders: 1990 to present. In R. B. Rutherford, M. M. Quinn, & S. R. Mathur (Eds.), *Handbook of research in emotional and behavioral disorders* (pp. 462-486). New York: Guilford Press.
- Lane, K.L., Barton-Arwood, S.M.; Nelson, J. R., & Wehby, J. (2008). Academic performance of students with emotional and behavioral disorders served in a self-contained setting. *Journal of Behavioral Education, 17*, 43-62.
- Lane, K.L., Harris, K.R., Graham, S., Weisenbach, J.L., Brindle, M., & Morphy, P. (2008). The effects of Self-Regulated Strategy Development on the writing performance of second-grade students with behavioral and writing difficulties. *Journal of Special Education, 41*, 234-253.
- LeCompte, M.D., & Preissle, J. (1993). *Ethnography and qualitative design in educational research* (2nd ed.). New York: Academic/Elsevier.
- Lewis, T.J., Lewis-Palmer, T., Newcomer, L., & Stichter, J. (2004). Applied behavior analysis and the education and treatment of students with emotional and behavioral disorders. In R. B. Rutherford, M. M. Quinn, & S. R. Mathur (Eds.), *Handbook of research in emotional and behavioral disorders* (pp. 523-545). New York: Guilford Press.
- Mason, L.H. (2009). *Developing quick writing skills of middle school students with disabilities: Results of two studies*. Unpublished manuscript, State College, PA: Pennsylvania State University.

- Mason, L.H., Kubina, R.M., Valasa, L., & Monger, A.C. (2009). *Year 2: Persuasive quick writing*. Unpublished manuscript, State College, PA: Pennsylvania State University.
- Mason, L.H., Harris, K.R., & Graham, S. (2002). Every child has a story to tell: Self-regulated strategy development for story writing. *Education and Treatment of Children, 25*, 496-506.
- Mason, L.H., & Shriner, J. (2008). Self-regulated strategy development instruction for six elementary students with emotional behavioral disorders. *Reading and Writing: An Interdisciplinary Journal, 21*, 71-93.
- Mastropieri, M.A., Berkeley, S., McDuffie, K.A., Graff, H., Marshak, L., Conners, N., Diamond, C.M., Simpkins, P., Bowdey, F.R., Fulcher, A., Scruggs, T.E., & Cuenca-Sanchez, Y. (in press). What is published in the field of special education? An analysis of 11 prominent journals. *Exceptional Children*.
- Mastropieri, M.A., & Scruggs, T.E. (2002). *Effective instruction for special education* (3<sup>rd</sup> ed.). Austin, TX: Pro-Ed.
- Mastropieri, M.A., & Scruggs, T.E. (2004). Effective classroom instruction. In C. Spielberger (Ed.), *Encyclopedia of applied psychology* (pp. 687-691). Oxford, UK: Elsevier.
- Mastropieri, M.A., & Scruggs, T.E. (2009). *The inclusive classroom: Strategies for effective differentiated instruction* (4<sup>th</sup> ed.). Upper Saddle River, NJ: Prentice Hall.
- Mastropieri, M.A., Scruggs, T.E., Cuenca-Sanchez, Y., Irby, N., Mills, S., Mason, L., & Kubina, R. (2009, April). *Persuading students with emotional disabilities to write: Findings from a design experiment*. Paper presented at the annual meeting of the American Educational Research Association.
- Miller, K.A., Gunter, P.L., Venn, M.L., Hummel, J., & Wiley, L.P. (2003). Effects of curricular

- and materials modifications on academic performance and task engagement of three students with emotional or behavioral disorders. *Behavioral Disorders*, 28, 130-149.
- Murray, H.A., & Bellak, L. (1973). *Thematic Apperception Test*. Upper Saddle River, NJ: Pearson.
- Regan, K.S., Mastropieri, M.A., & Scruggs, T.E. (2005). Promoting expressive writing among students with emotional and behavioral disturbance via dialogue journals. *Behavioral Disorders*, 31, 33-50.
- Regan, K.S., Mastropieri, M.A., & Scruggs, T.E. (2009). Advances in literacy practices for students with emotional and behavioral disabilities. In T.E. Scruggs & M.A. Mastropieri (Eds.), *Policy and practice: Advances in learning and behavioral disabilities* (vol. 22, pp. 317-339). Bingley, UK: Emerald.
- Reynolds, C.R., & Kamphaus, R.W. (2004). *Behavior Assessment System for Children* (2<sup>nd</sup> ed.). Upper Saddle River, NJ: Pearson.
- Reynolds, C. R. & Kamphaus, R. W. (2003). *Reynolds intellectual assessment scales*. Lutz, FL: Psychological Assessment Resources Inc.
- Reynolds, C.R., & Richmond, B.O. (1985). *Revised Children's Manifest Anxiety Scale*. Los Angeles: Western Psychological Services.
- Reynolds, W.M. (1989). *Reynolds Child Depression Scale*. Odessa, FL: Psychological Assessment Resources.
- Rogers, L., & Graham, S. (2008). A meta-analysis of single subject design writing intervention research. *Journal of Educational Psychology*, 100, 879 - 906.
- Santangelo, T., Harris, K.R., & Graham, S. (2008). Using Self-Regulated Strategy Development to support students who have "trubol giting thangs into werds". *Remedial and Special Education*, 29, 78-89.

- Scruggs, T.E., & Mastropieri, M.A. (1986). Academic characteristics of behaviorally disordered and learning disabled children. *Behavioral Disorders, 11*, 184-190.
- Scruggs, T. E., Mastropieri, M. A., & Casto, G. (1987). The quantitative synthesis of single-subject research: Methodology and validation. *Remedial and Special Education, 8*, 24-33.
- Scruggs, T. E., Mastropieri, M. A., & Regan, K. (2006). Statistical analysis for single subject research designs. In T. E. Scruggs & M. A. Mastropieri (Eds.), *Applications of research methodology: Advances in learning and behavioral disabilities* (pp.33-55). Oxford, UK: Elsevier.
- Shavelson, R.J., Phillips, D.C., Towne, L., & Feuer, M.J. (2003). On the science of education design studies. *Educational Researcher, 32* (1), 25-28.
- Siegel, S., & Castellan, N.J. (1988). *Nonparametric statistics for the behavioral sciences*. New York: McGraw Hill.
- The Psychological Corporation. (1999). *Wechsler Abbreviated Scale of Intelligence*. San Antonio, TX: The Psychological Corporation.
- Thorndike, R., Hagen, E., & Sattler, M. (1986). *The Stanford-Binet intelligence scale* (4th ed.). Chicago: The Riverside Publishing Company.
- Todman, J.B., & Dugard, P. (2001). *Single-case and small-n experimental designs: A practical guide to randomization tests*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Wechsler, D. (1991). *Wechsler intelligence scale for children* (3rd ed.). San Antonio, Texas: The Psychological Corporation.
- Wechsler, D. (2003). *Wechsler intelligence scale for children* (4th ed.). San Antonio, TX: The Psychological Corporation.

- Wechsler, D. (2001). *Wechsler Individual Achievement Test II*. San Antonio: The Psychological Corporation.
- Westenberg, P.M., Treffers, P.D.A., & Drewes, M.J. (1998). A new version of the WUSCT: The Sentence Completion Test for Children and Youths (SCT-Y). In J. Loevinger (Ed.), *Technical foundations for measuring ego development* (pp. 81-90). Mahwah, NJ: Lawrence Erlbaum Associates.
- Wilkinson, G. (1993). *WRAT-3: Wide Range Achievement Test*. Wilmington, DE: Wide Range
- Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). *Examiner's manual. Woodcock-Johnson III Tests of Achievement*. Itasca, IL: Riverside Publishing.
- Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). *Woodcock-Johnson III*. Itasca, IL: Riverside Publishing.

Table 1

*Student Characteristics*

Student	Gender	Ethnicity	Age (years, months)	Special Education Categories	Behavioral Goals	Test Scores
Evan	Male	Hispanic	14.5	ED, LD, ESOL	Stress reduction strategies,	WISC IV; VCI 83; PRI 94; WMI 62; PSI 73; Full Scale = 75; WJ Broad Written Language 78
Jay	Male	Caucasian	13.4	ED, LD	Following directions, Improve class participation	WISC III; V 88; P 91; Full Scale = 88;
Bob	Male	Caucasian	13.10	ED, LD	Coping	WISC IV; VC 112; PR 96; WM 97; PS 78; Full Scale = 96; WJ Broad Written Language 69
Ron	Male	African American	14.0	ED, LD, OHI	Self awareness, coping skills	WISC IV; VCI 87; PRI 94; WMI 65; PSI 75; Full Scale = 77; WJ Broad Written Language 68
Sally	Female	African American	13.10	ED, OHI	Self awareness and coping skills	WISC IV; VC 87; PR 82; WM 97; PS 80; Full Scale = 82; WJ Broad Written Language 80
Mark	Male	African American	13.8	ED, LD, OHI	Self advocacy, Following directions	WISC III; V 97; P 95; Full Scale = 95
William	Male	African American	14.7	ED	Class participation, Following directions	WISC-IV; VC 95; PR 108; WM 88; PS 94; Full Scale = 95; WJ Broad Written Language 80
Malcolm	Male	African American	13.2	ED, OHI	Work independently, decrease attention seeking behaviors, follow directions	WASI; V 98; P 104; Full Scale = 101; WJ Broad Written Language 80
Sam	Male	Hispanic	13.3	ED, LD, SPL, ESOL	Follow directions, Coping strategies	RIAS; VI 63; NvI 89; CI 74; CM 75; WJ Broad Written Language 62
Otto	Male	Hispanic	14.7	ED, LD, ESOL	Self advocacy, Coping strategies,	WISC IV; VC 96; PR 79; WM 97; PS 103; Full Scale = 90; TOWL overall Writing 67

Attendance

Matthew	Male	Hispanic	14.6	ED, LD, ESOL	On Task, Follow directions,	WASI; V 73; P 85; Full Scale = 76 WJ Broad Written Language 71
George	Male	African American	13.6	ED, LD	Coping strategies, Attendance	RIAS; VI 65; NI 98; CI 81; CM 54; WJ Broad Written Language 86

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Note: ED = Emotional Disabilities; LD = Learning Disabilities; SPL = Speech and Language Disabilities; OHI = Other health Impairments; ADHD = Attention Deficit Hyperactivity Disorder; WISC IV = Wechsler Intelligence Scale for Children- 4th Edition (Wechsler, 2003); VCI = \* \*Verbal Comprehension Index; PRI = Perceptual Reasoning Index; WMI = Working Memory Index; PSI = Processing Speed Index; WISC III = Wechsler Intelligence Scale for Children- 3rd Edition (Wechsler, 1991); V = Verbal IQ; P = Performance IQ; Full Scale = Full Scale IQ; RIAS = Reynolds Intellectual Assessment Scales Full Scale ( Reynolds & Kamphaus, 2003); VI = Verbal Intelligence Index; NI = Nonverbal Intelligence Index; CI = Composite Intelligence Index; CMI = Composite Memory Index; WJ Broad Written Language; WASI = Wechsler Abbreviated Scale of Intelligence (The Psychological Corporation, 1999); V = Verbal Reasoning; P = Performance; TOWL-3 = Test of Oral Written Language (Hammill & Larsen, 1996);

Table 2

*Essay Results*

	Baseline Mean ( <i>SD</i> ) ( <i>N</i> =12)	Post Intervention Mean ( <i>SD</i> ) ( <i>N</i> =12)	Post Fluency Mean ( <i>SD</i> ) ( <i>N</i> =12)	Maintenance Mean ( <i>SD</i> ) ( <i>N</i> =11)	Generalization Mean ( <i>SD</i> ) ( <i>N</i> =11)
Number of Words	21.92 (10.78)	108.37 (50.39) <sup>1</sup> * <i>ES</i> = 1.72	93.47 (32.28) <sup>1</sup> <i>ES</i> = 2.22	79.64 (48.77) <sup>1</sup> <i>ES</i> = 1.18	75.09 (48.55) <sup>1</sup> <i>ES</i> = 1.14
Number of Parts	1.87 (.66)	5.57(2.13) <sup>1</sup> <i>ES</i> = 1.74	5.77 (1.58) <sup>1</sup> <i>ES</i> = 2.47	5.0 (2.40) <sup>1</sup> <i>ES</i> = 1.30	3.91 (2.95) <sup>2</sup> <i>ES</i> = .74
Number of Paragraphs	.17 (.28)	1.43 (1.45) <sup>1</sup> <i>ES</i> = .87	.95 (.51) <sup>1</sup> <i>ES</i> = 1.53	.82 (1.17) <sup>1</sup> <i>ES</i> = .56	.73 (1.19) <i>ES</i> = .51
Number of Transition Words	.73 (.36)	4.2 (2.17) <sup>1</sup> <i>ES</i> = 1.60	4.55 (1.55) <sup>1</sup> <i>ES</i> = 2.46	3.36 (2.50) <sup>1</sup> <i>ES</i> = .1.05	2.45 (2.01) <sup>2</sup> <i>ES</i> = .90
Quality Scoring	1.71 (.59)	4.33 (1.76) <sup>1</sup> <i>ES</i> = 1.49	4.48 (1.25) <sup>1</sup> <i>ES</i> = 2.22	4.27 (2.20) <sup>1</sup> <i>ES</i> = 1.16	3.36 (2.42) <sup>2</sup> <i>ES</i> = .71

\* *ES* = Effect Sizes computed using all relevant post measure *SD*s due to apparent floor effects in baseline measures.

<sup>1</sup>Significantly greater than baseline,  $p < .01$ , according to the Wilcoxon Matched-Pairs, Signed Ranks Test

<sup>2</sup> $p < .05$ , according to the Wilcoxon Matched-Pairs, Signed Ranks Test

Table 3

*Baseline, Post Intervention and Post Fluency Writing Samples of a Stronger Performing Student*

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Representative Baseline Essay Prompt: Should public school students be required to wear uniforms?

Students in public school should not be required to wear uniforms. Students shoed have the rite to whar what tay want, That is waiy I think tha students should not have to wear uniforms.

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Representative Post Intervention Essay Prompt: Would you rather receive a \$30 gift card as a gift or receive a sweater as a present?

I would rather receive money than a sweater. To start money is all ways beter than a sweater. Seconly sweaters are ugly. lastly you can buy what you want.

To start money is allways beter than a sweater. Sweaters are unconfebule. Whit money you can buy good close.

Second sweaters are ulgy. Thay have bad paters [patterns] on them. But thay are still not as ugly as a sweate veast.

lastly you can buy what you want whit money. You can get what you really what not sum random guse [guess] of it. You can not do that whit a sweater.

To counceled [conclude] I would rather receive money than a sweaters. Becuas money is always beater than sweaters. Also sweaters are ugly and you can buy what you want whit money.

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Representative Post Fluency Essay Prompt: Should students your age be allowed to get their ears pierced without their parent's permission?

I think that students under the age of 16 shud not be allowed to get their ears pierced without their parent's permission. To start kids my age shoud not be alod to do stuff like that to ther bodys. Soum thing like that shoud not be aloud to happin to kids my age whitout parental permisshan. Also if the parant say it is ok then it should be ok. If the parants say it is ok than be abol [able] to refuas [refuse] to peas [pierce] a kids ears whis out [without] premishun [permission]. Stors can not let kids get ears perst whit out premishun To canclud [conclude] kid under 16 shud not be abal to get ther ears persed whit out permisin from thar parants.

Table 4

*Interview Comments Post Study*

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1. Now I know how to organize everything. I used to write everything in a bundle. (Sally)
2. I am very glad that you guys came here to help me to write more, to learn how to write POW+TREE. (Sam)
3. I was really bad at writing. . . . It taught me a lot. (William)
4. I used to hate writing, but now I think it's not so bad. Now I pick my ideas before I write and the rest of it is easy. (Mark)
5. I like writing a little bit more. I can do it. (Matthew)
6. It taught me how to do stuff correctly so I can teach someone else when I am a teacher. It helped me concentrate and stay on task. (George)
7. I like that it is faster and easier to write because I get more ideas and can organize it better. The graphic organizer really helped. (Jay)
8. When writing longer essays, it made it easier to break it up into parts. It helped to organize it so I can write longer essays. (Bob)

Figure Captions

*Figure 1.* Mean Number of Essay Parts.

*Figure 2.* Mean Quality of Essay.

*Figure 3.* Mean Number of Words by Student by Baseline, Post Intervention and Post Fluency Phases

*Figure 4.* Mean Number of Transition Words by Student by Baseline, Post Intervention and Post Fluency Phases

*Figure 5.* Mean Number of Essay Parts by Student by Baseline, Post Intervention and Post Fluency Phases

*Figure 6.* Mean Quality of Essays by Student by Baseline, Post Intervention and Post Fluency Phases











