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# The Differential Effects of Direct Instruction and Procedural Facilitators on the Writing Outcomes of Fifth-Grade Students with Behavior Disorders

Abstract: Effective written expression is a necessary form of communication and one of the most difficult tasks for students with disabilities to master. Few instructional strategies for writing have been validated specifically for students with emotional and behavior disorders. This single-subject study evaluated the effect of a Direct Instruction program (*Expressive Writing-1*) and the use of a procedural facilitator as a form of strategy guide on the writing performance of two 5th graders with emotional and behavior disorders. Students demonstrated an overall pattern of positive gains in both writing quality (measured by the Test of Written Language-3 and by writing samples evaluated using the Holistic Scoring Rubric) and writing fluency (measured by text length and correct word sequence) that were maintained over a 2- and 4-week follow-up. Discussed are implications for future research and practice.

Writing is a powerful tool people use to express their feelings, demonstrate their knowledge, and promote a sense of purpose among larger groups of people (Graham & Perin, 2007). In educational settings, particularly as students advance in grade levels, writing is a primary mechanism for expressing learning. As a result, less skilled writers suffer academically when they are assessed through writing (Graham, 2006).

In spite of the established importance of writing, national writing scores suggest students continue to struggle to meet the basic writing standards. The National Assessment of Educational Progress (NAEP) findings revealed at least three-fourths of 4th, 8th, and 12th grade students performed below grade-level proficiency in writing (Persky, Daane, & Jin, 2003). Among fourth-grade students, 55% performed at levels considered basic and 14% performed at levels considered below basic. For eighth-grade students, 54% performed at levels considered basic and 15% performed at levels considered below basic. According to Bui, Schumaker, and Deschler (2006), about 25% of fourth and eighth graders write proficiently. For students who struggle with writing and exhibit the social deficits associated with emotional and behavior disorders (EBD), long-term achievement outcomes may be bleak.

In addition to exhibiting externalizing behaviors, typically characterized by aggression and disruption, students with EBD are challenged across all academic content areas (Mooney, Ryan, Uhing, Reid, & Epstein, 2005). Writing is one area in which these students tend to experience difficulty. Nelson, Benner, Lane, and Smith (2004) indicated that students with EBD, from kindergarten through grade 12, score at levels considered well below average

on standardized writing assessments. Several factors, cognitive and behavioral, have been attributed to these academic challenges including deficits in processing and self-regulation (Mooney et al., 2005), missed instruction during disciplinary measures (Dunlap et al., 1994), and difficulties attending to instruction and relating new information to prior knowledge (Sabornie, Evans, & Culihan, 2006).

Although the professional literature (Nelson et al., 2004) confirms that students with EBD face a wide range of academic challenges, less research has been conducted that addresses these needs, specifically in the area of writing. Most writing research has been conducted with students with specific learning disabilities (SLD) or those considered at-risk for EBD (Kern, Hilt, & Gresham, 2004). Two instructional writing strategies that have been used for students with SLD or at-risk for EBD are *Expressive Writing-1 (EW-1)* and procedural facilitators (PF). However, as a result of the limited research on writing with students exclusively with EBD, it is difficult to generalize the efficacy of these strategies without further research.

## Direct Instruction (DI) Programs that Teach Writing

The Direct Instruction (DI) program used in the present study, *Expressive Writing-1*, is designed to address narrative writing proficiency for students who are markedly behind in written expression. It includes fast-paced, well-sequenced, highly-focused lessons characteristic of DI (Swanson, Hoskyn, & Lee, 1999). As a DI program, skills are segmented into subskills through carefully sequenced lessons from one level of mastery to another (Swanson et al., 1999). Tasks increase in complexity as students demonstrate higher levels of mastery (Adams & Engelmann, 1996). Additionally, students instructed with the DI model have frequent opportunities to respond and to receive direct teacher feedback on response accuracy.

Although research for DI writing has been limited, the results of two DI programs appropriate for upper elementary students, *Reasoning and Writing* and *Expressive Writing-1 (EW-1)* (Engelmann & Silbert, 1991), have shown promise. *Reasoning and Writing* is an advanced multi-year program that incorporates writing as an element of reasoning development and has been shown to impact writing achievement. Roberts (1997) found fourth-grade participants with SLD demonstrated significant positive growth between pretest and posttest scores in the areas of Contrived, Spontaneous, and Overall writing subtests of the Test of Written Language Third Edition (TOWL-3; Hammill & Larsen, 1996) following seven months of *Reasoning and Writing* instruction. Further, Roberts found only two of the eight students in her research continued to qualify for SLD following seven months of instruction using the program. Keel and Anderson (2002) used *Reasoning and Writing* with elementary school students with SLD and EBD over five weeks. Outcomes based on pretest and posttest measures on the TOWL-3 indicated six of the 10 participants with EBD and SLD improved greater than half of one standard deviation and demonstrated overall writing gains when compared to a control group.

Research related to the *EW-1* program, a DI program that focuses solely on writing, has yielded similar, positive outcomes. Walker, Shippen, Alberto, Houchins, and Cihak (2005) investigated the effects of the *EW-1* program on the written expression of three high school students with SLD. Using a single-subject design, 50 consecutive instructional lessons were implemented. Based on pretest and posttest measures on the TOWL-3 and curriculum-based measures (CBMs), each participant's scores indicated improvement in writing skills. In a follow-up study, Walker, Shippen, Houchins, and Cihak (2007) sought to determine the extent to which writing gains were maintained six weeks following instruction. The three students with SLD, featured in the previous study, were probed for an addi-

tional writing sample evaluated based on CBMs. Outcomes indicated students demonstrated scores higher than baseline sessions of the previous study.

Viel-Ruma, Houchins, Jolivette, Fredrick, and Gama (2010) evaluated the effects of *EW-1* on the writing performance of high school students with SLD who were native speakers of English and English Language Learners (ELL). Students received daily instruction for five weeks. Text length, correct word sequence (CWS), pretest and posttest measures on the TOWL-3, and a generalization measure indicated students improved on performance measures including length, percentage of CWS, and quotient scores on the TOWL-3.

## Procedural Facilitators

Procedural facilitators (PF) are designed to support students in coordinating the writing process through generating, evaluating, and selecting ideas appropriate to include in a specific text (Graham, MacArthur, & Schwartz, 1995). Organizational tools allow text structures to become more explicit for students, thus improving the likelihood their writing will reflect the appropriate features and ideas (Englert, Zhao, Dunsmore, Collings, & Wolbers, 2007). Procedural facilitators include mnemonics, prompts, or think sheets that aid cognition by supporting and reminding students to activate strategies used during the planning, composing, and revising stages of writing (Englert et al., 2007).

While preliminary research has determined the utility of PF for students with SLD, research on students with EBD is scarce (Englert et al., 2007). Graham et al. (1995) evaluated the effects of using a writing goal in combination with a PF on an editing or revising writing task of fifth- and sixth-grade students with writing and learning disabilities. In the study, 67 students were randomly assigned to three instructional conditions: general goal, goal to add

information, and goal to add information plus PF. The students assigned to the "add information" condition improved the overall quality of their papers and the presence of a PF did not have a significant impact on the improvements. While the PF had a limited effect on the addition of information, the authors argued that the goal students were given may have been too easy.

Englert et al. (2007) examined the benefits of a web-based scaffolding program on the writing performance of 35 students with disabilities including SLD, cognitive impairment, and emotional impairment. The experimental group received supplementary, web-based scaffolding that supported the school literacy curriculum addressing holistic and primary trait scores, conventional knowledge, and story composition, while a control group received only regular classroom instruction. Outcomes revealed web-based scaffolding, as a supplemental (PF) tool, effectively enhanced instruction that took place in the classroom by addressing areas in which students with disabilities demonstrated deficiencies, including applying text structure, elaborating ideas, and communicating effectively.

## Purpose of the Present Study

Writing is challenging for many students with and without disabilities. A variety of strategies investigated through research have contributed to the improvement of writing outcomes for students. However, present research is too limited for conclusions to be drawn regarding students with EBD, a population needing effective instructional practices (Lane, 2004).

The present study extended the work of Walker et al. (2005) by using the *EW-1* program with students with EBD in the primary grades. This study also extended the work of Englert et al. (2007) by coupling a PF as a supplement to the *EW-1* program. Finally, this study contributed to the sparse research base

related to students with EBD and effective writing instruction. The primary purpose of this study was to determine the effects of the *EW-1* program when used with and without a supplemental PF on the overall writing performance of students with EBD.

## *Method*

### Participants

The participants were two students with EBD who attended an elementary school within a major southeastern city. Students were selected for the study based on information provided by teachers who were asked to identify fifth-grade students who qualified for special education services for EBD and who demonstrated deficits in writing performance. These deficits were identified from student performance on writing benchmark assessments used throughout the school year to monitor student writing achievement. Data from these assessments indicated strengths and areas for improvement in student writing performance. All participants placed in Level One of the *EW-1* instructional program as determined through program placement tests.

### Participant Demographic Information

**Student (1) Allie.** At the time of the study Allie was an 11-year old, fifth-grade, Caucasian female student. She was classified as EBD and received services under Other Health Impairments (OHI) as a result of diabetes. Allie received support in a resource setting for two 50-minute periods daily for language arts, task completion, and social skills. Allie demonstrated deficits in writing, particularly with mechanics, spelling, and text structure.

**Student (2) Claire.** Claire was an 11-year old, fifth-grade, Caucasian female student. She was classified as EBD. She received services during two 50-minute periods per day in the resource setting for task completion and language arts. She participated in the general education set-ting for the remainder of the day. Her deficits in writing were in the areas of sentence structure, grammar usage, and mechanics.

Fifth-grade students were targeted in this investigation for two primary reasons. First, although previous writing research focused on this age group, no studies used the *EW-1* program. Second, in the state where this study took place, benchmark writing assessments were required of students in 3rd, 5th, 8th, and 11th grades, in accordance with No Child Left Behind (NCLB, 2001). Targeting this group with specific and effective instructional practices prior to the administration of this assessment offered the promise of increasing student preparation for the demands of the assessment (Bui et al., 2006).

**Teacher.** A resource teacher implemented the intervention in the study. The teacher was certified in special education by the credentialing board in the state. She held a master's degree in Special Education and had 10 years' teaching experience. She also had some prior experience with DI reading and math, but none with writing.

### Setting

This study took place in a public elementary school in a suburban community located approximately 45 miles from a major city in the southeast. The ethnic make-up of the school was as follows: 64% Caucasian, 26% African-American, 3% Latino, <1% Asian/ Pacific Islander, and 6% unspecified with 65% of the students eligible to receive free or reduced-price school lunch. The intervention was implemented on a whole-class basis in a regular special education resource classroom scheduled during the daily 50 minute language arts period for other fifth-grade students in the school. Therefore, all students who were in the class-rooms during study-related writing instruction participated in the intervention. However, data collection and reporting were only obtained for the two students participating in the study.

## Treatment Intervention

The materials consisted of the *EW-1* program, PF (the *IDEA Think Sheet*), and prompts for writing tasks. The *EW-1* program included a teacher presentation book and a student instructional workbook. This program provided explicit instruction that emphasized basic skills necessary for proficient writing including: mechanics, sentence writing, story writing, and editing. The PF, the *IDEA Think Sheet*, was implemented as a writing guide provided to students when writing samples were obtained under the *Expressive Writing* plus PF (*EW-1 plus PF*) condition. The mnemonic phrase *IDEA* served as a guide for students as follows: **I**magine your audience; **D**ecide why someone will be interested in the topic; **E**valuate all of your ideas; and **A**rrange your ideas into groups. This mnemonic phrase was based on the previous work of Englert, Raphael, Anderson, Anthony, and Stevens (1991). It provided a graphic structure to support student development and organization of ideas. Finally, writing prompts were used to generate writing samples during each phase of the study. These prompts were based on sample prompts from writing assessments released by the State Department of Education.

## Dependent Variables

**Writing quality.** Writing quality was measured by a) pretest and posttest scores on the spontaneous writing subtest of the TOWL-3 and b) the Holistic Scoring Rubric designed by the State Department of Education used as an evaluation measure for the state writing assessment. First, pretest and posttest differences in overall writing quality were gathered using the spontaneous writing subtest of the TOWL-3. Many of the components of this subtest aligned with the objectives of the *EW-1* program. The TOWL-3 subtest yields quotient scores that are expressed on a scale with a mean of 100 and a standard deviation of 15. The quotient scores are quantified in seven levels: very superior (131-165), superior (121-130), above average (111-120), average (90-110), below average (80-89), poor (70-79), and very poor (35-69). The TOWL-3 internal consistency, test/retest with equivalent forms, and interscorer reliability coefficients are approximately .80 for most ages. In this study, Form B was administered for pretesting and Form A was used for posttesting to control for testing effects.

The second measure of writing quality, the Holistic Scoring Rubric, was used to evaluate daily writing samples and generalization probes. The Holistic Scoring Rubric allowed evaluation of four writing domains: conventions, organization, ideas, and style. Scores ranged from 1 (lowest) to 5 (highest) in each of the four domains. These scores represent a continuum of writing that ranges from inadequate to very good. Each writing sample was scored on the four domains.

**Writing fluency.** Writing fluency was measured by text length and correct word sequence (CWS). Text length is expressed as the number of words written (Lienemann, Graham, Leader-Janssen, & Reid, 2006; Reid & Ortiz-Lienemann, 2006; Saddler, 2006). Ordinal numbers not spelled out were not counted; however, misspelled words, titles, and rewritten story starters or prompts were counted (Gansle, VanDerHeyden, Noell, Resetar, & Williams, 2006).

A CWS is defined as two adjacent, correctly spelled words acceptable within the context to a native English speaker (Espin, De La Paz, Scierka, & Roelofs, 2005). For example, in the sentence "*The dog jump high.*" there are five possible CWS. One CWS would be counted for the capitalization and correct spelling of the first word of the sentence (i.e., "*The*"). A second CWS would be counted for the first sequence "*The dog*". The remaining sequences of adjacent word pairs would be examined to determine whether they are correct. The sequence "*dog jump*" and "*jump high*" would not be counted as a CWS because *jump* is not in the correct verb tense. The sequence "*high.*" would be counted as a CWS since it is properly punc-

tuated at the end of the sentence. Therefore, of a total of five opportunities for CWS in this sentence, this writer would have scored a 3.

For both measures of writing fluency, the calculation was based on the content generated during the first three minutes of the writing sample (Espin et al, 2005). This allowed for a standard time frame that would continue to capture the writing progress the students demonstrated without compromising consistency.

## Experimental Design

This section describes the components used to implement the overall design of the study. These were (a) pretesting, (b) baseline, (c) intervention, (d) generalization, (d) post-testing, and (e) maintenance. Within the intervention itself, an alternating treatments design (ATD; Barlow & Hayes, 1979) was used to compare the effects of the two independent variables (i.e., *EW-1* and *EW-1 plus PF*). In an ATD design, two treatments (A and B) are alternated following baseline (Kazdin, 1982). A functional relation is demonstrated when the data paths of the two independent variables separate. In the intervention for this study, the two treatments (i.e., *EW-1* and *EW-1 plus PF*) were alternated on successive days according to a predetermined schedule.

## Procedures

**Pretesting.** Prior to initiating the intervention, the TOWL-3 (Form B) and the placement test for *EW-1* were administered to all participants. The TOWL-3 was administered to establish the student level of writing quality and fluency prior to intervention. The *EW-1* placement test was administered to determine the appropriate starting place in the *EW-1* program. These tests were administered in a group format. Administration and scoring were completed based on the directions outlined in the examiner booklet of each respective tool.

**Baseline.** During baseline, students produced daily writing samples based on the prompts

adapted from those released by the State Department of Education. Text written in the first three minutes of the writing sample was identified and analyzed for text length and CWS. The Holistic Scoring Rubric also was used to score the entire writing sample. Students were allocated a maximum of twenty minutes to complete the baseline writing sample. Writing prompts were presented to students in the same format throughout the study.

**Intervention.** The intervention phase was intended to begin after the participating students demonstrated a stable trend, with variation of no more than 50% of the mean for three consecutive sessions, in CWS, length of text, and the Holistic Scoring Rubric during baseline (Kazdin, 1982). However, the students did not reach baseline stability, and the intervention began after the fifth probe session.

The first 40 lessons in the *EW-1* program were presented to students during their daily 50-minute language arts portion of the school day in accordance with the program script. Based on the intervention schedule, students wrote samples in one of the two treatment conditions: *EW-1* or *EW-1 plus PF*. In the *EW-1* condition, which occurred for 19 sessions, students generated writing samples following the approaches presented through the *EW-1* program. In the *EW-1 plus PF* condition, which occurred for 21 sessions, students paired the PF strategy with the approach taught through the *EW-1* program.

Prior to the first *EW-1 plus PF* session, students were trained to use a PF, the *IDEA Think Sheet*, developed by the authors. The teacher introduced the *IDEA Think Sheet* by modeling and thinking aloud while completing the form based on a mock prompt. Next, the teacher and the students jointly completed the *IDEA Think Sheet* on a separate mock prompt as guided practice and then transferred the information from the *IDEA Think Sheet* into a class-generated story. Finally, students were reminded of this procedure prior to each use

of the PF during the intervention in the *EW-1 plus PF* treatment condition.

**Generalization.** Following every fourth lesson, students were presented with a separate writing prompt, designated as a generalization probe. A total of 10 generalization probes were administered. The purpose of the generalization probes was to determine the degree to which students were able to display the skills taught during writing instruction on a standardized measure. As noted, the generalization probes were based on writing prompts released by the State Department of Education from writing assessments no longer in circulation. The generalization probes also were scored for writing quality using the Holistic Scoring Rubric and for fluency using text length and CWS.

Generalization probes were completed in the classroom resource setting under the direction of the teacher. On days when probes were scheduled, typical classroom instruction followed the completion of the probe. The procedures for administering generalization probes were outlined in a script provided to the teacher.

In both daily writing samples and generalization probes, students were given five minutes prior to the initiation of the writing activity to either brainstorm, or complete the *IDEA Think Sheet* (depending on the treatment condition). This was referred to as the planning period. All material generated during the planning period was collected and analyzed to help monitor the progression of the study. Following the planning period, students completed the writing task as directed by the special education teacher. After the first three minutes of the writing task, students were instructed to "circle the last word written." The teacher monitored students to ensure this indication was made. Text preceding the circled word was used for the calculation of CWS and text length. This allowed for comparison of all samples within a standard time frame (Espin et al. 2005).

**Posttesting.** Students completed the spontaneous writing subtest of the TOWL-3 Form A as a posttest following the completion of the *EW-1* program at the completion of the study.

**Maintenance.** Maintenance measures were collected at two and four weeks following posttesting to determine the degree to which intervention effects endured over time. These maintenance writing probes were administered by the resource teacher in the resource class. Maintenance probes were administered following the same procedure as the baseline and generalization probes and were selected from the same prompt bank used in the generalization parts of the study. Writing samples generated from maintenance probes were analyzed in the same manner as the samples from baseline, intervention, and generalization.

## Treatment Fidelity

Treatment fidelity observations were conducted by the first author during *EW-1* and *EW-1 plus PF* sessions to ensure the intervention was presented correctly. A fidelity checklist was used to determine the degree to which instructional procedures were followed based on procedures identified for the implementation of *EW-1* and PFs (e.g., deviation from the script, signaling, and appropriate correction procedures). Fidelity was determined by calculating the percentage of steps that were followed correctly. Treatment fidelity measures were gathered for 25% (i.e., 10) of the instructional sessions. Fidelity of treatment was observed at a mean of 96% (range- 92% to 100%).

Two of the instructional sessions observed by the first author were also observed by a trained second observer. Therefore, 20% of all observed instructional sessions were viewed by an additional observer. Interobserver agreement of treatment fidelity ranged from 87-98% with a mean of 94%.

## Interscorer Agreement (IOA)

Twenty-five percent of all writing samples in each intervention session were scored for IOA. For text length, IOA was established by using total agreement, in which the smaller value identified was divided by the larger value identified and the quotient was multiplied by 100 (Kennedy, 2005). The IOA was calculated to ensure consistency in the scores assigned for measures of writing quality and writing fluency. The IOA for CWS ranged from 88-100% with a mean of 94%. The IOA for length of text ranged from 98-100% with a mean of 99%. The IOA for the Holistic Scoring Rubric ranged from 75-100% with a mean of 90%. This value was low as a result of the small number of domains which were rated.

## Results

This study was conducted following the procedures for an alternating treatments design; however, the two different treatments did not produce any clear fractionation between the data paths. Therefore, data were summarized and presented as averages across phases to capture the impact of the two interventions.

### Writing Quality

Writing quality was examined through pretest and posttest measures on the spontaneous writing subtest of the TOWL-3 and the Holistic Scoring Rubric. On the spontaneous writing subtest of the TOWL-3, both students demonstrated increases from pretest to posttest outcomes. In pretesting, the quotient score for Allie was 64, which was below the first percentile. In posttesting, the quotient score for Allie increased to 89, equivalent to the 23rd percentile. For Claire, the pretest quotient score was 74, equivalent to the 4th percentile. In posttesting, the quotient score of Claire was 98, an increase to the 45th percentile. Overall, these scores reflect a positive achievement impact.

Results on the Holistic Scoring Rubric outcomes for each student are shown in Table 1. In general, when comparing mean data from baseline to maintenance, both students demonstrated positive gains, with two exceptions. First, in the Organization domain for Allie, the mean scores remained the same in baseline and maintenance. Second, in the *Style* domain for Claire, scores decreased from 2.2 in baseline to 2.0 in maintenance. When specifically comparing the effect of the two treatment interventions for each student, a pattern of positive gains or stability is also evident for both students. For Allie, neither condition influenced a consistently higher rating than the other. However, ratings in both treatment conditions were higher than in baseline for all four scoring domains. For Claire, the ratings in the *EW-1 plus PF* condition were consistently higher than in the *EW-1* condition in each scoring domain. Additionally, scores in the *EW-1* condition reflect an increase over baseline in the domains of Style and Conventions while scores in the *EW-1 plus PF* condition reflect an increase over baseline in all domains.

### Writing Fluency

Student performances in the areas of writing fluency are depicted in Table 2. When comparing mean data from baseline to maintenance for the measures of fluency, both students demonstrated positive gains. In terms of CWS, Allie demonstrated a 21.9% increase compared to baseline. For text length, Allie increased text production by 4.8% from 31 to 32.5 units. Clair demonstrated a 77.8% increase in CWS and a 23.1% increase in text production.

### Discussion

The purpose of this study was to evaluate the effect of two instructional strategies on the overall writing quality and fluency of fifth-grade students with EBD. As a whole, a pattern of findings showed improvements in writing outcomes for both students. In particular, students sustained the writing skills acquired from baseline through maintenance.

In terms of writing quality, students demonstrated gains from pretest to posttest on the TOWL-3. Based on the assessment norms, Allie was able to be reclassified from the "very poor" category to the "below average" category, and Claire was able to be reclassified from the "poor" category to the "average" category. While neither student generated writing samples that were considered "above average" on the TOWL-3 or rated as "high" based on the Holistic Scoring Rubric, both students demonstrated gains that may be similar to growth that might occur across an academic term with focused writing instruction. This type of skill development is necessary to decrease the academic deficits often associated with students classified as EBD (Viel-Ruma et al., 2010).

On the Holistic Scoring Rubric, both students demonstrated overall improvement in all areas of the scoring domains (with the exception of Claire in the areas of *Ideas* and *Organization*) in both the *EW-1* condition and the *EW-1 plus PF* condition. Further, and perhaps most notably, except for *Organization* for Allie and *Style* for Claire, both students continued to demonstrate improvement in the two- and four-week maintenance condition. In considering the overall improvement of the students in the areas of *Ideas*, *Organization*, and *Conventions*, it is important to note that the *Expressive Writing* program emphasizes skills that are linked to those domains.

When considering the specific skill of sentence structure, both students progressed from basic reporting of details in the picture prompt or restating the words in verbal prompts to expanding ideas and providing supporting details focused on the specific topic. This was reflected in growth for *Ideas* and *Organization* in the Holistic Scoring Rubric as well as in the spontaneous writing subtest

## Table 1
*Holistic Scoring Rubric Means*

| Student | Scoring domain | Baseline *M* | EW-1 *M* | EW-1 plus PF *M* | Generalization *M* | Maintenance *M* |
|---|---|---|---|---|---|---|
| Allie | | | | | | |
| | Ideas | 2.2 | 2.8 | 2.5 | 2.0 | 2.5 |
| | Organization | 2.0 | 2.5 | 2.4 | 1.8 | 2.0 |
| | Style | 1.8 | 2.1 | 2.2 | 1.8 | 2.0 |
| | Conventions | 1.2 | 1.8 | 1.9 | 1.3 | 2.0 |
| Claire | | | | | | |
| | Ideas | 2.2 | 2.2 | 2.6 | 2.3 | 2.5 |
| | Organization | 2.2 | 2.2 | 2.5 | 2.3 | 2.5 |
| | Style | 2.2 | 2.3 | 2.5 | 2.3 | 2.0 |
| | Conventions | 1.4 | 1.7 | 1.9 | 1.1 | 2.0 |

*Note.* Scoring range on Holistic Scoring Rubric is 1(low) to 5 (high).

of the TOWL-3. The ability to develop content-specific ideas separates novice writers from advanced writers. Harris, Graham, and Mason (2003) identify goal-directed writing, featuring expansive ideas and content, as characteristic of a more sophisticated writer. These skills are typically less apparent in students with disabilities because of limited background knowledge or inability to make connections between events (Sabornie et al., 2006). In conjunction with the DI writing program, both students in this study demonstrated improvements in areas characteristic of skilled writers.

For writing fluency, when comparing the effect of the treatments to each other, the *EW-1* condition produced more notable gains for both CWS and text length than *EW-1 plus PF*. However, improvements were evident in both conditions compared to baseline. One explanation for the difference in the fluency scores between the *EW-1* and the *EW-1 plus PF* condition may be that the addition of the procedural facilitator was unnecessary for students to achieve the maximum benefit from Direct Instruction (Graham et al., 1995).

Nonetheless, it is most notable that both students sustained writing gains in areas of quality and fluency in the two- and four-week maintenance periods. Thus, whether students experienced greater influence from the *EW-1* or the *EW-1 plus PF* condition, they were able to continue using those skills over time. These outcomes are consistent with those evident in previous writing research that utilized DI (Keel & Anderson, 2002; Roberts, 1997; Walker et al., 2005).

Improvement in writing fluency also may have been affected by students' levels of topic knowledge. Shippen, Houchins, Puckett, and Ramsey (2007) reported the combination of interest and topic knowledge can improve the ability of low performing students in written expression. Based on clinical observations and anecdotal accounts, when students expressed an interest in or had some experience with a prompt topic (e.g., family experiences or school activities), their writing samples were often greater in text length and CWS. Conversely, when prompts included events the students identified were unfamiliar to them, (i.e., the rodeo, beach scenes, or cir-

**Table 2**

*Fluency Variables in Each Condition*

| Student | Fluency variable | Baseline *M (SD)* | EW-1 *M (SD)* | EW-1 plus PF *M (SD)* | Generalization *M (SD)* | Maintenance *M (SD)* |
|---|---|---|---|---|---|---|
| Allie | | | | | | |
| | CWS | 24.2*(10.7)* | 28.7*(8.5)* | 25*(7.2)* | 27.4*(10.7)* | 29.5*(6.3)* |
| | Text Length | 31*(8.4)* | 35.8*(10.2)* | 28.4*(8.5)* | 30.7*(14.1)* | 32.5*(6.3)* |
| Claire | | | | | | |
| | CWS | 18*(6.7)* | 27.7*(7.6)* | 21.8*(7)* | 34.9*(8.8)* | 32*(2.1)* |
| | Text Length | 26.8*(5.1)* | 36*(6)* | 27*(4.9)* | 42.2*(10.7)* | 33*(1.5)* |

*Note.* Number of days in each condition: Baseline = 5; EW-1 = 19; EW-1 plus PF = 21; Generalization = 10; Maintenance = 2.

cuses) their ability to generate content-specific details to include in their writing samples may have been limited (Glaser & Brunstein, 2007).

### Implications for Future Research

Several limitations with this study provide a context for future research. First, the nature of single subject research inherently limits aspects of generalizability in comparison to research designs in which group data are collected. Further replications with larger sample sizes of students would be useful to substantiate outcomes. Second, the alternating treatments design also may have limited the outcomes of this study. The alternating treatments design (ATD) was chosen to allow students to have access to both treatment packages. However, the daily alternation schedule may have degraded student performance on the two complementary treatments (*EW-1* and *EW-1 plus PF*), particularly for the present population of students who require a high degree of instructional consistency and structure (Berry, 2006; Wagner et al., 2006).

While the purpose of the PF was to support students in structural organization and idea generation as they developed basic writing skills, the added strategy may have resulted in a cognitive "overload." A defining feature of DI programming is the presentation of small subsets of instruction sequenced to foster mastery of progressively more advanced skills (Swanson et al., 1999). Exploring an approach in which the PF component is not added until students demonstrate consistent effects from DI may contribute to more consistent performance outcomes.

Additionally, the study did not consider the students' writing preferences or prior knowledge, a possible important factor in writing quality. Shippen et al. (2007) indicated students may write more fluently and include more detail on topics with which they have more experience or previous background

knowledge. Anecdotally, this was observed in writing samples students generated that were uncharacteristically greater in text length and CWSs. Conducting preference assessments and linking outcomes from writing samples to topics with which students have prior knowledge may be an area for future research.

A final limitation of the study was the way the Holistic Scoring Rubric was utilized. The original purpose of the Holistic Scoring Rubric was as a global assessment tool to report areas of strength and weakness of students' written expression. Since this instrument was not designed to reflect changes in daily writing samples as used in this study, future research should apply the Holistic Scoring Rubric to writing samples generated weekly or following the instruction of a major theme or unit.

## Conclusion

This study adds to the developing field of research related to writing interventions for students with EBD. Instruction using the DI program *EW-1* may improve writing fluency and quality for this population of students. For the students in this study, the DI program enhanced writing performance and contributed to gains maintained two and four weeks following intervention. DI programs feature components that are effective with students with EBD including (a) the use of immediate corrective feedback, (b) explicit instruction, and (c) frequent opportunities to practice skills to mastery (Witt, VanDerHeyden, & Gilbertson, 2004). Further, this program focuses on topic development, inclusion of sufficient and appropriate details, and paragraph and sentence structure. These are all areas in which students with disabilities consistently demonstrate deficits (Bui et al., 2006; Mason & Shriner, 2008).

It is well established that writing is a powerful and necessary tool for communication academically, personally, and professionally (Mason &

Graham, 2007). Individuals with effective written-expressive skills are likely to experience more positive long-term outcomes in school and in the workforce. Conversely, those who do not demonstrate proficiency in basic writing skills typically experience difficulties that serve as barriers to success in school and adulthood (Mason & Graham, 2007). These outcomes are particularly unfortunate for students with EBD whose social and behavior challenges make them susceptible to negative long-term outcomes. Results of this study contribute to the knowledge base about the potential benefits of explicit writing instruction for students with EBD.

Research should continue to focus on strategies that will be beneficial for all students, particularly for students with EBD for whom behavioral interventions traditionally have been a primary emphasis. Such a focus should be geared towards students in primary grades (Trout, Epstein, Nelson, Synhorst & Hurley, 2006). That is, in order to be proactive regarding academic and social strategies, such academic interventions should be implemented prior to fourth grade (Lane et al., 2008). Providing such students with comprehensive instruction may prevent deficits from spanning across grade levels (Mason & Shriner, 2008). Identifying effective academic solutions may help resolve some of the social and academic issues students with EBD experience.

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