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The effect of direct instruction and self-management strategies on writing fluency of students with learning disabilities

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**THE EFFECT OF DIRECT INSTRUCTION AND SELF-MANAGEMENT
STRATEGIES ON WRITING FLUENCY OF STUDENTS WITH LEARNING
DISABILITIES**

by
Shawna L. Richetti

A Thesis
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In partial fulfillment of the requirement
For the degree of
Master of Arts in Special Education
at
Rowan University
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Thesis Chair: Joy Xin, Ph.D.

Dedication

I would like to dedicate this manuscript to my daughter, Sophia, who made sacrifices right alongside me through this entire process; to my Mother, who instilled a love of learning and encouraged me all along the way; and to my Father, who showed up every time I asked.

Acknowledgments

I would like to express my appreciation to my present students, who allowed me to learn from them this year and build a resulting thesis project; to my colleagues in education, who inspire me every day; and to the many teachers I have had along the way who have provided a cumulative push to continue to grow, both personally and professionally. I especially want to thank Professor Xin, for her guidance and support throughout this program. I again want to acknowledge my daughter, Sophia, of whom the majority of her lifetime's memories have included me going to class and studying late into the night and throughout the weekends. In the early years, we said many tearful goodbyes as I went off to work to teach and then off to class to learn. There were many nights I arrived home late to find her still awake, waiting to hear about my day and a few times she even attended class with me! Sophia, I hope the example I have set for you is one of perseverance and a dedication to lifelong learning. I hope you can also know there are many types of education, all with their own sacrifices, and all leading to a different journey along the way.

Abstract

Shawna Richetti

THE EFFECT OF DIRECT INSTRUCTION AND SELF-MANAGEMENT STRATEGIES ON WRITING FLUENCY OF STUDENTS WITH LEARNING DISABILITIES

Dr. Joy Xin, Ph.D.

2011/12

Master of Arts in Special Education

The purposes of this investigation were to evaluate the use of the *Reasoning & Writing* Direct Instruction program, examine the curriculum-based measurement tools for writing fluency of Total Words Written and Correct Word Sequence, examine the impact of teaching students with disabilities self-management techniques, including self-monitoring, self-graphing, and self-reflecting, and review how self-reflections toward writing and writing performances change through the process. Three fifth grade students, all receiving replacement writing instruction via a resource room, participated in this study. Two of the participants were classified as having a Specific Learning Disability, and one as Other Health Impaired. A single subject design with change of conditions was used to determine if Direct Instruction and self-management techniques increased student writing skills. Over the four month study, students were provided with daily Direct Instruction with self-monitoring and self-graphing of their writing performances via three-minute writing probes given twice weekly. Student reflections were also examined as pre and post surveys were given to review whether self-reflections became more

accurate or positive after self-management strategies were taught. Means for both TWW and CWS showed slight to moderate effects when self-graphing took place. Positive changes in the planning and organizing phases of the writing process were seen, with a decrease in perceptual ease with editing and revising. Using short, timed writing probes and student self-graphing, teachers were able to measure student performance quickly on writing quality, and build academic self-management skills in the classroom. Further studies with a large student population are recommended to examine effects of self-management on writing performance of students with learning disabilities.

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Chapter 1

Introduction

Statement of Problems

Having the ability to express oneself effectively through the medium of writing is of the utmost importance in our society. Unlike oral language, writing is more formal and allows people to communicate outside the present time and place, leave a record, and access new information. The additional advantages and reasons people in our society choose to write include being able to communicate quickly across a distance, to memorialize events that matter, to demonstrate what has been learned, to have a means to think through a problem, to construct logical arguments, or even to enter into a legal contract (Miller, 2009).

If writing is a primary process by which citizens may participate in society, members of that society, particularly educators, must consider how all citizens will have access to the skills needed to use this process. The degree to which students with disabilities can engage in these activities, will significantly increase their ability to participate and contribute to society (Miller, 2009). Following this pervasive need to use writing as a primary way to communicate, educators have a significant responsibility to ensure that all students can develop a level of proficiency with writing.

Along with reading comprehension, writing skill remains one of the main predictors of academic success (Santangelo & Olinghouse, 2009), perhaps because writing is an essential skill needed for all content areas. Proficient writing requires an integration and expression of many skills including, but not limited to, handwriting,

spelling, usage, punctuation, capitalization, sentence structure, ideation, summarization, and critical thinking (Hessler & Konrad, 2008). According to a significant review of research, we as a nation are not yet highly effective at developing this critical competency, as the majority of American children have significant difficulties with narrative, expository, and persuasive writing. To make things more challenging, students with learning disabilities and other special needs have greater difficulty with writing than their “normally achieving” peers (Graham, Harris & Mason, 2003). Writing for these students seems overwhelming or even impossible (Miller, 2009). Because of their writing difficulties, students with disabilities may then lack the motivation to write, and therefore, avoid writing in both personal and school contexts (Santangelo & Olinghouse, 2009).

In 2007, the National Assessment of Educational Progress (NAEP) data showed that only 33% of eighth graders and 24% of twelfth graders were considered to be proficient writers. For students with special needs, writing proficiency levels drop significantly to only 6% and 5% respectively (Santangelo & Olinghouse, 2009). The latest NAEP data for fourth graders shows the same picture, with 14% of all fourth graders scoring below proficiency, while fourth grade students with disabilities increases to 44% below proficiency (Asaro-Saddler & Saddler, 2010). This is a particular problem for educators who are now required by the latest authorized No Child Left Behind act (2002) to ensure that *all* students have access to the general education curriculum to the maximum extent possible and that *all* populations are making adequate yearly progress with grade level standards in each content area.

There is a vast amount of research available to teachers on evidence-based practices for writing instruction. Current process theories are prevalent, where writers “learn by doing”. Activities of process theory include frequent writing opportunities, recursive process work, and sharing and conferencing (Santangelo & Olinghouse, 2009). In a meta-analysis of writing approaches conducted by Sandmel and Graham (2009), process approaches were found to *not* have statistical effectiveness for students with disabilities and English Language Learners in grades one through twelve (Santangelo & Olinghouse, 2009).

A second prevalent method in current writing instruction is called cognitive strategy instruction, which includes both how the student is taught, as well as what the student is taught. Under this umbrella is explicit and systematic instruction, direct instruction, scaffolding, and modeling, as well addressing all four stages of the writing process; planning, drafting, revising, and editing (Santangelo & Olinghouse, 2009). This type of explicit instructional planning and prewriting has been highly effective for young and struggling writers in elementary school (Graham & Harris, 2003),

Direct Instruction (DI) specifically is a promising instructional method for students with disabilities, under cognitive strategy processes, and has been repeatedly shown to have a positive impact on student writing performance (Viel-Ruma, Houchins, Jolivette, Frederick, & Gama, 2010). DI includes explicit instruction, task analysis, scripted lessons, and choral responses, and focuses on breaking major skills into subskills, frequent student response, and quick paced sequenced instructional steps (Swanson, 2001). The *Reasoning and Writing* program is one such DI program that has

been found to improve test scores for students with learning disabilities (LD) and emotional/behavioral disorders (ED or BD) (Viel-Ruma, et al., 2010).

To further extend the requirements of becoming a proficient and fluent writer, Graham and Harris (1993) state that skilled writers must possess self-regulation or self-management skills. Self-regulation skills include the ability to monitor, assess, and reinforce oneself during the writing process without prompts. Self-regulation begins with teaching the student to score/evaluate the target task themselves. This has been applied to writing research as students are taught how to self-score total words written during timed writing probes and then graph their own results.

In particular, self-graphing has been found to yield positive results (Stotz, Itoi, Konrad, & Alber-Morgan, 2008). Self-graphing has been found to improve student performance on any target behavior that is being graphed (Kasper-Ferguson & Moxley, 2002). Beyond seeing an individual numerical score of total words written, with graphing, students see a visual picture including patterns that allow an easy comparison between their current and previous performance. This provides reinforcement for students and builds their self-confidence. Additionally, an increase in independent functioning and generalization could also be contributed (Cooper, Heron, & Heward, 2007).

As students with disabilities need frequent, effective instructional feedback on their writing performances to improve their writing skills (Santangelo & Olinghouse, 2009), it becomes necessary for teachers to have a variety of assessments to measure progress in addition to informal observations and standardized testing (Hessler & Konrad, 2008). Assessing progress frequently allows teachers to adjust instruction as needed and

most importantly provide students frequent feedback. Curriculum-Based Measurement (CBM) is a fluency-based evaluation approach which monitors a student's progress within the curriculum and encourages immediate instructional adjustment when necessary (Hessler & Konrad, 2008). CBM uses a direct measurement of academic skills and are able to measure small increments of progress over a short span of time, thus providing consistent, reoccurring, and typically weekly feedback to the teacher.

According to McMaster and Espin (2007), research has demonstrated that CBM provides reliable and valid indicators of student performance and progress in mathematics and reading. The use of CBMs in reading and math have become more prevalent over the last two decades, while the use of CBM to monitor progress in writing has not seen the same popularity. In recent years, legislation requires accountability for special education students as their learning goals and objectives have to be clearly quantified and measured (Hessler & Konrad, 2008). As such, their writing progress needs to be included.

Significant correlations between measures and standardized writing tests, district writing assessments, and teachers' ratings of student writing have been found, and evidence for validity for particular CBM at different ages have been made available. Specifically, Total Words Written (TWW), Correct Word Sequence (CWS), Words Spelled Correctly (WSC), and Correct Punctuation Marks (CPM) are valid Curriculum-Based Measurements for elementary students and Correct Word Sequence minus Incorrect Word Sequence (CWS-IWS) were found to be valid for middle school students (see Hessler & Konrad for cited research, 2008).

Significance of Study

Student performances in writing continue to be a problem, particularly for students with disabilities, as curriculum standards are not being met. Further examining specific interventions in writing that have a positive impact on these students seems imperative. The realities of federal legislation requiring more specific accountability, particularly in special education, make the use of frequent assessments such as CBM, a necessity to provide data to determine the success of the interventions. This feedback is not only important for the teacher to be able to adjust instruction more accordingly and more quickly, but it is even more powerful when driven by the students themselves in terms of learning to self-monitor their own performance.

This study will further explore the impact of a direct instruction approach, specifically as a writing intervention for students with disabilities receiving resource instruction in fifth grade writing, to further examine whether this method has a positive result on written expression. The specific direct instruction program, Reasoning and Writing, with additional self-monitoring including student scoring, self-graphing, and self-reflecting will be used. This study attempts to provide additional information to research on writing interventions that increase student performance. In addition, the teacher will gather on-going instructional measurements to make continual changes to instruction throughout the process. If the impact is positive, teaching children to self-monitor through self graphing against their own goals will be highlighted and will contribute to self-regulation skills of the individual student.

Statement of Purposes

The purposes of this study are to: (a) evaluate the use of the Reasoning & Writing Direct Instruction program when teaching writing expression to students with disabilities; (b) examine the use and differences of the suggested curriculum-based measurement tools using timed writing probes for writing assessment; (c) examine the impact of teaching students with disabilities self-management techniques, including self-monitoring, self-graphing, and then self-reflecting on their own writing data (d) review how self-reflections toward writing and writing performances change through the process.

Research Questions

The research questions of this study are as follows:

1. Do writing fluency and quality measures of total words written and correct word sequence increase when instructing students with the Reasoning and Writing Direct Instruction Program?
2. Do writing fluency measures of total words written and quality measures of correct word sequence increase further when students learn to self-score and then self-graph their own writing probes?
3. Do student self-reflections improve or become more accurate when teaching students with disabilities to self-score and self-graph their own writing probes?

Chapter 2

Literature Review

While national and state testing has highlighted the need to identify and utilize effective writing instruction practices for students who struggle, Graham and Harris (2005) found that nationally, primary grade teachers who self-reported in their instructional practices still did not sufficiently adapt instruction to meet the needs of these struggling writers. Rarely are the complex comprehension and metacognition skills required for writing proficiency intuitively acquired by the learning disabled (Riot & McKenzie, 2001). Writing instruction programs which provide explicit, teacher-directed, rule-based instruction including specific strategies for prewriting and planning have evidence to be effective to those with writing difficulties. Direct Instruction (DI) is one of these programs and is a research-validated instructional method for students with LD (Walker, Shippen, Alberto, Houchins, & Cihak, 2005). This chapter reviews research on DI in writing for students with LD, as well as self-management processes to support these students.

Reasoning and Writing

While there are few published studies regarding specific DI programs used to teach writing skills, two programs have been found. The *Reasoning and Writing* (SRA-McGraw-Hill) program is one of these programs, with grade appropriate curriculum for both students with and without disabilities. The program covers a wide array of writing genres including narratives, expository passages, essays, directions, summaries, critiques, and letter writing skills. Three studies were located using the *Reasoning and Writing* DI

program in particular, two of which examined students with learning and/or behavioral disorders, while a third utilized the program with gifted students.

The first study using *the Reasoning and Writing* DI program was conducted with eight students eligible for special education due to learning disabilities (Roberts, 1997). A single-subject multiple baseline across-students design was utilized. All students received daily instruction in a special education resource room. A significant relationship between the treatment and the TOWL-3 scores were found, as were significant differences in pre and post tests on three of the composite TOWL-3 scores, including spontaneous writing and overall writing composite.

Keel and Anderson (2002) examined how the *Reasoning & Writing* direct instruction program impacted writing development with ten elementary students in the fourth and fifth grade. Of these students, six had classifications of LD, while the remaining four were classified under Behavior Disorders (BD). A comparison was used as one group received the direct writing instruction, while the control group received the regular general education curriculum without the intervention. Students in the intervention group were instructed in a resource room for 50 minutes per day over 5 weeks, receiving 25 of the 50 *Reasoning and Writing* Lessons. When compared to the control group, the intervention group showed statistical gains on three of the subtests on the standardized TOWL in the areas of syntactic maturity, contextual spelling, and contextual style composites.

A third study was published implementing the *Reasoning and Writing* DI program with gifted students in the same year (Ginn, Keel, & Frederick, 2002). Significant gains

between pre and post standardized tests of written achievement were also found (Walker et al, 2005).

All three studies using the *Reasoning and Writing* DI program show evidence of significant increases between pre and post tests on TOWL, though in different composite areas. Two of the three studies also had gains being maintained for up to seven months after treatment instruction ended. As such, there is evidence that this intervention warrants further study, particularly as there is variation as to what areas of writing specifically this program targets.

Expressive Writing

A similar DI program called *Expressive Writing* was used as an intervention to support writing outcomes of students with LD. *Expressive Writing* is similar to *Reasoning and Writing* but is limited to narrative writing genre exclusively. The program is designed to accelerate skills of students who have writing difficulties by presenting key components, including sentence and paragraph writing, and writing processes, such as drafting, revising, and editing. Students must master pre-skills before applying them and there are many opportunities for practice and review.

In the 2005 study by Walker et al., the *Expressive Writing* DI program was provided to three high school students with LD. A single subject design with multiple probes was used in the study. Curriculum-based measurement (CBM) and the standardized TOWL-3 was utilized to measure student performance. The CBM included Correct Word Sequence (CWS) written within the first 3 minutes of a timed writing sample. CWS was defined as two adjacent, correctly spelled and capitalized words, capitalized and correctly spelled beginnings of sentences, and correctly spelled and

punctuated endings of sentences. All phrases had to be acceptable standard English usage. The second dependent variable was the posttest rating scores of the spontaneous writing scales of the TOWL-3. The spontaneous writing composite scales included contextual conventions, contextual language, and story construction subtests, and included subtests for vocabulary, spelling, style, logical sentences, and sentence combination. Results showed a functional relationship between the *Expressive Writing* DI program and number of CWS. All three students had remarkable gains with steady upward trends rapidly emerging after the intervention. Existing literature indicates that students should make an increase of about 10 CWS over the course of a year, and these students experienced 7, 8, and 10 CWS growth after treatment. Additionally, all three participants self-reported by completing a four question, yes/no formatted survey, to assess whether they felt their writing skills had improved. All three participants did feel they had become better writers. All three students also made gains in overall and composite standardized measures of the TOWL-3, indicating an improvement in writing skills and demonstrating the generalization from narrative paragraphs to standardized assessment. Limitations to the study included the group being formed for the study versus having not naturally occurred in the school setting. In addition, the student's typical writing instructor did not provide the writing instruction during the study, as would occur naturally. Overall, results of this study showed positive effects of using a DI program to teach writing skills to students with LD beyond the elementary ages.

In another study, Viel-Ruma et al. (2010) examined the effect of the *Expressive Writing* DI program for high school students with LD. In a similar multiple-probe across participants design, student progress was compared using an abbreviated number of

lessons (Keel & Anderson, 2002). A total of six students with LD participated in the study, three of whom were also English Language Learners (ELL). To measure student progress, both a standardized writing assessment (TOWL-3) and the two CBM measures of total words written (TWW), and CWS were used. Student progress was found in writing performance through increased TWW and CWS for all participants, but results were to be viewed with caution as the CWS performance lacked an immediate response to the intervention and the increases were small, due to the short five week intervention period. Also, TWW was noted to be too simple a measure of writing performance for secondary students. These particular CBM measures were reported to be less technically adequate in the higher grades and for mature writers (Hessler & Konrad, 2008), and a different combination of measurements should be used, such as Correct Word Sequence minus Incorrect Word Sequence (CWS-IWS) for a better predictor of writing quality. The TOWL-3 results showed post-test gains with five of the six students but again, these results were to be viewed with caution due to the short intervention period having possible effects on internal validity of the test scores. It is noted that students who were both LD and ELL showed similar progress trends as the English-only speakers (Viel-Ruma et al., 2010).

As such, it appears that DI programs such as *Reasoning and Writing* and *Expressive Writing* show significant promise as an intervention for students with LD, both in elementary and secondary levels, as well as a variety of placement settings. Research has shown evidence that these types of programs also support students who have the additional challenge of being ELL.

Self-Management Skills in Writing

In writing instruction, teaching students how to practice good management of their own writing process is critical. Effective writers are said to be self-managing (sometimes called self-regulating) as they analyze tasks, articulate goals, select, adapt, or invent strategic approaches, monitor their success and efforts, and then adapt and adjust their process as needed (Stotz et al., 2008, Trammel, Schloss, & Alper, 1994, and Harris, Graham, & Mason, 2003). Trammel et al. (1994) discussed student success in writing requiring the development of self-management skills, including self-monitoring, self-evaluation, and self-reinforcement. Students with LD need direct instruction to develop these metacognitive skills, as they are not able to intuitively do so (Roit & McKenzie, 2001). Additionally, the effectiveness of utilizing a DI method to teach these metacognitive skills has been demonstrated by improved performances of students with LD across a variety of tasks.

Self-monitoring. Self-monitoring is a critical part of the self-management process as it affects both behavior and academic performance (Harris, Friedlander, Saddler, Frizzelle, & Graham, 2005). When students are taught to self-monitor performance, they are encouraged to assess, evaluate, and record particular aspects of their academic performance, focusing on academic accomplishment (Harris, Graham, Reid, McElroy, & Hamby, 1994). Self-monitoring during the academic processes of writing often includes developing knowledge of skills and strategies involved in writing and developing the ability of students to monitor and manage their own writing (Harris et al., 2003).

Self-monitoring of writing performances was examined in Harris, Graham, Reid, McElroy, and Hamby's study (1994) with four male fifth and sixth graders with LD.

Interventions were provided in their self-contained special education classroom with both their natural teacher and a graduate student teacher. Prior to the self-monitoring intervention, students were taught to identify and include story elements using who, when, where, what (x2), and how (x2). During the intervention, students were given a black and white picture as a stimulus and were instructed to write a story using the stimuli. Following, stories were scored for TWW to measure changes in length of text, as well as a holistic rating scale ranging from 1 to 8 for story elements. Students were then taught to count and record their TWW in their own writing samples as their self-monitoring intervention. Positive effects on both the length and quality of written stories were found. Individual mean scores for TWW at baseline were 46, 72, 47, and 36, rising to post intervention mean scores of 102, 137, 126, and 72. Individual holistic rating scores for elements also showed increases from baseline to post intervention, with baseline mean scores of 2.3, 4.5, 1.3, and 2.0 rising to post intervention means of 5.0, 5.5, 3.0, and 4.0. Self-monitoring should be considered a mature intervention for students with LD, particularly with productivity measures such as TWW and story elements (Reid, 1996).

This research was extended to elementary students with both LD and attention deficit hyperactive disorder (ADHD) in Shimabukuro, Prater, Jenkins, and Edelin-Smith's study (1999). Three sixth and seventh grade males diagnosed with both LD and Attention Deficit Disorder/Attention Deficit Hyperactive Disorder (ADD/ADHD) participated in the study. These students were instructed in a self-contained special education setting of their naturally occurring educational placement. During the subjects of Math, Reading, and Writing, students were taught to self-correct then record the total

number of items assigned, total number of complete items, and total number of items correct to measure academic accuracy and academic production. Both academic production and academic accuracy yielded positive results, although there were higher production increases for all three students with larger increases in Reading and Math over Writing. Production rates for Reading and Math grew to above 90% completion rate for items assigned, while Writing remained below a rate of 80% of assigned items completed. Limitations were discussed regarding generalization of findings to general education settings. Social validity was also a concern as there were no formalized procedures to measure student satisfaction or self-reflection of self-monitoring skills.

Student self-monitoring, including assessment and recording of academic progress, showed increases for students with both LD and ADD/ADHD across a range of academic areas, tasks, and ages. It is evident that this self-management strategy has positive effects on student writing.

Self-graphing. Self-graphing is another component of self-management that has also been shown to be effective, adding to impact of other interventions. Fuchs and Fuchs (1986) found in their meta-analysis of 26 studies across age and types of disability, students with disabilities responded in greater levels when using formative assessments with data evaluations at regular intervals. Most importantly, the effect sizes increased further when data was graphed by students vs. just recorded as part of their self-monitoring skills (Gunter, Miller, Venn, Thomas, & House, 2002). Cooper et al. (2007) describes self-graphing as a continuation of self-monitoring with an added graphing component. He further states that effects of student graphing on written expression in

particular are much less known, as research is much less common regarding self-monitoring with graphing and writing.

Moxley (2007) has published numerous articles regarding the use of self-graphing by teachers and states that self-graphing seems to increase whatever target behavior is being graphed. The phenomenon of the effects of graphing are discussed to be a “reactivity of self-monitoring”, as performance data grew when random checks or data reinforcements for data accuracy between the teacher and the student occurred. There are nine advantages to self-monitoring (self-recording and self-graphing) including reasons why this phenomenon may occur: 1) the student has a conspicuous sign of progress to a goal that is naturally reinforcing, 2) provides immediate feedback, 3) highly motivating, 4) realistic opportunity for almost guaranteed progress when steps are small enough, 5) helps communications with parents, 6) children can show and tell (explain) themselves, 7) can facilitate positive interactions between student and teacher as the data is within student progress vs. between student comparisons, 8) a lack of interest calls for the teacher and student to revise goals (Moxley, 2007).

Moxley, Lutz, Ahlborn, Boley, and Armstrong (1995) examined student self-graphing on writing fluency among general education students in the first through fourth grades (Moxley, 2007). Each grade had a variation of procedures but all students learned to self-record and graph their own results. In the first grade general education class, there were 13 boys and 11 girls. Once or twice a week for the entire school year, students were given a topic which they first drew a picture then wrote for 15 minutes. TWW were graphed at the class level where they began at 140 TWW and rose to 451 TWW by end of year with the median of individual TWW rose from 5 to 18. It was noted the first graders

were able to plot their individual scores on a line graph successfully. In the second grade, twelve boys and fourteen girls “free wrote” daily for 15 minutes without a topic provided. It was found that TWW improved considerably. In the third grade class, there were ten girls and eleven boys who wrote for a five minute timed probe as well as a “loose” 15 minute period. Under the “loose” constraint, writing numbers decreased when compared to the timed probe. The fourth grade class contained nine boys and six girls who were all considered gifted per their IQ scores. These students were given a topic and a teacher facilitated brainstorming session, then a 3 minute timed writing period. Individuals graphed their own TW, as well as having a class graph posted for all to follow throughout the year. Pre to post study gains ranged from a 28% increase in TWW, to a 252% increase. Across the variety of procedures that were utilized within this year-long study, the self-monitoring component of self-management skills, including individual and class graphing of TWW, seems to support positive increases in writing fluency.

The effect of student graphing on free writing was examined among a class of general education fourth graders (Kasper-Ferguson & Moxley, 2002). In a year-long treatment only study, twenty students including ten girls and ten boys, were given writing activities one to three days a week, including relevant seasonal or current event topics. After the class discussed the topic, students were given five minutes to complete their writing task. Students were told prior to the writing activities, that they would be timed to see how many words they could write in the five minutes and were told to write quickly, at all times, and to cross out mistakes versus erasing. Following, students counted their total words written and traded papers with another student to recount. Beginning in October and ending in May, students graphed their individual totals on

individual bar graphs at the end of each week, seeing if their individual totals increased. Students who made individual increases at the end of the week were given individual praise and stickers and ten minutes of free time. Writing rates of total words written per minute for all students improved over the course of the year, as did the quality of the writing samples as measured by teacher counted number of invented spellings per total and qualitative review in narrative form. It was noted that higher rates of total word counts did not appear to increase the number of invented spellings. Omissions of punctuation were seen at higher rates of total words written, although this often improved over time. These results again show TWW in student free writing to increase with the use of self-graphing, supporting previous research findings. This study had the additional motivation and possible reinforcement of a public posting of a class graph showing class average increases in TWW, as well as individual reinforcements for students with increases in their quantity of writing. Limitations were discussed regarding these studies being treatment-only designs, and thus no causal effects can be stated. Regardless of the inability to determine causal effects, Moxley (2007) does discuss the numerous benefits of student graphing, including informing the teacher if modifications or instructions are working and providing individual instruction and feedback.

Further, student self-graphing as part of a self-management intervention for writing was delivered during language arts instruction in a resource room (Stotz et al., 2008). Three students in the 4th grade, having IEP goals addressing written expression, were selected to participate in the study. Two of the students were classified under Specific Learning Disability (SLD) and the third as emotionally disturbed (ED). Data collection and intervention took place 4 of the 5 days during the week's daily Language

Arts resource instruction. A special education master's student provided the intervention individually to each student, while the remainder of the group received their normally planned Language Arts lesson. Story starters were randomly selected to read aloud, and one minute of think time followed. Students were then given three minutes to "Write a story about what happens next". No prompting was given, other than reminding students who were off task or had stopped writing to "do their best". TWW was measured as any series of letters separated by another series of letters by a space. CWS was also recorded and included any two adjacent correctly spelled words that are semantically and syntactically acceptable within the context of the sentence according to an English native speaker. Correct capitalization and punctuation were also counted as correct "words". The student with the most stable baseline of TWW was selected first to begin the intervention and once they responded to the intervention they were moved to maintenance. Again, a functional relationship between student graphing and the measurement of written fluency and expression via an increase in TWW and CWS was found. This again extended research suggesting the positive effects of developing self-management on student writing skills, as it appears to have a positive effect with students with disabilities served in a resource setting, as well as in the general education classroom.

Self-evaluation. In addition to self-monitoring and self-graphing of assessment and recording of performance data, another component of self-management required for students to become proficient writers is self-evaluation (Trammel et al., 1994, Stotz et al., 2008, Cooper et al., 2007). Self-evaluation is referred to as student attitudes towards writing and understanding of their own writing (Gersten & Baker, 2001). These types of

internal thinking skills represent the metacognitive abilities that proficient writers are required to possess. Cooper, Heron, and Howard (2007) found that self-evaluation could increase student's independent functioning and promote generalization. In a literature review, Gersten and Baker (2001) summarized 7 of 13 experimental or quasi-experimental studies, to examine the writing performance of students with LD, using student self-evaluation. This literature demonstrated a great deal of variability among studies, but overall small effect sizes were typically found regarding positive changes in student attitudes towards writing and their feelings about themselves as writers, when writing interventions were provided to improve their performance.

Two additional studies in the Gersten & Baker (2001) meta-analysis on interventions and writing performances of students with LD were discussed at length for having considerable gains/effect sizes, as well as some contradictory results of predictions. These studies included instructional strategy interventions, self-monitoring such as self-recording and graphing, as well as self-evaluation in the form of goal setting. The first study by Graham and Harris (1989) utilized two groups of fifth and sixth graders. Both groups received the writing strategy instruction while only the second group was also taught the self-monitoring skills of recording the numbers of story writing elements and incorporating the self-evaluation skills of goal setting. In this study, the opposite of the expected effects occurred, as both groups made considerable gains with the greater gains going to the strategy only group. Sawyer, Graham, and Harris, (1992) replicated the study with the exception of having three groups of fifth and sixth graders with LD. The first group was a strategy only group, while the second group utilized both the strategy and the self-regulation skills. A third group was added as a control group

without the self-regulation. Again, both groups had strong effects when using the writing strategy, but the group receiving the instruction and implementing the self-regulation practice had greater increases on writing performances.

Summary

Evidence based-practices are required for educating students with disabilities. Writing is a critical area to focus on, particularly for students with LD. Research supports the use of DI programs to teach writing to students with LD. The positive impacts of teaching self-management strategies, including self-monitoring, self-graphing and self-evaluation are also evident. This study will provide the combination of these interventions to writing instruction to elementary students with LD, in efforts to add to the research supporting these students. As students with LD benefit from direct instruction in the development of their written expression skills, research needs to be continued to address how to best develop the meta-cognitive skills needed for proficient writing. Following, this study will continue to explore how the use of the Reasoning and Writing DI program, with additional instruction to develop the skills of self-monitoring, self-graphing and self-evaluation, impacts student performances in writing within a naturalistic setting for elementary students with LD.

Chapter 3

Method

Setting

The study was conducted at a public elementary school in suburban southern New Jersey. The elementary school is part of a large district which enrolls nearly 12,000 students, of which 2,100 students are eligible for special education programs and/or services. The district includes one early childhood center, twelve elementary schools, three middle schools and three high schools, one of which is an alternative high school. The ethnic distribution of students within the district is 68% White, 16% Asian, 9% African American, and 7% Hispanic. The district is known to be a high performing district within the state, where 99.5% of students graduate and 94% of students continue their education after their graduation.

The elementary school where the study was conducted had nearly 450 students enrolled, in grades kindergarten through five. This particular school did not qualify as a Title One school, as did four of the 12 elementary schools within the district. The elementary school was considered to be the top performing elementary school within the district, as measured by state test scores for grades 3-5. In 2010, 97% of students in grades 3-5 scored proficient or advanced proficient in the Mathematics portion of the NJASK, while 92% of students scored within proficient and advanced proficient range in Language Arts. Of those students who did not achieve proficiency in Mathematics and Language Arts, the majority were students with disabilities.

Within the elementary school where the study was conducted, there were four classrooms at each grade level with 15-26 students per class. One co-teaching inclusion

classroom was available at each grade level as a placement for students with disabilities to access the general education curriculum and be with their typical peers. In these co-teaching inclusion classrooms, support and in-class resource instruction is provided to up to 8 students per class from a dual-certified elementary special education teacher, who works in conjunction with the general education co-teacher. One additional K-5 resource teacher was available for students with disabilities who needed replacement instruction in reading, writing, or math due to wider achievement gaps and the need for a small group setting. At the time of the study, this resource setting had groups of one to four students per period of instruction. This external resource setting is where the study took place.

Participants

Three fifth grade students attending the resource room for replacement writing instruction participated in this study. All three students were male and 11 years old at the time of the study. Two of the students were classified as having a Specific Learning Disability (SLD) and the third student was classified under the Other Health Impaired (OHI) category due to ADHD.

Students

Student One, classified as having SLD, was receiving all of his fifth grade instruction within the co-teaching classroom, with the exception of writing. In the previous year, this student had the same co-teaching inclusion placement with replacement writing instruction in the external resource room.

Student Two was also classified as SLD and received replacement writing instruction in the external Resource Room. Unlike Student One, he was not placed in the co-teaching classroom, but rather in a general education classroom with one fifth grade

teacher. In addition, Student Two also received replacement reading instruction and supplemental math instruction from the K-5 Resource Teacher.

Student Three had a disability classification of OHI due to ADHD. He also received all of his fifth grade instruction within the fifth grade co-teaching inclusion classroom, with the exception of writing. Student Three received replacement writing instruction in the Resource room setting both in the current year, as well as in the previous year. This is important to note as Student One and Student Three consequently received a grade 4 version of direct writing instruction via the SRA *Reasoning & Writing* program that was delivered as part of the intervention in this study. See Table 1 for general information of participating students.

Table 1						
<i>General Information of Participating Students</i>						
Student	Grade	Age	Gender	Disability Classification	Fall 2012 MAPS Score: <i>Reading*</i>	Spring 2011 NJ ASK Scores: <i>Language Arts Literacy**</i>
1	5 th	11	Male	SLD	206	208
2	5 th	11	Male	SLD	198	205
3	5 th	11	Male	OHI (ADHD)	204	229
*national average RIT score grade five=207						
**NJ ASK proficient score = 200-249, advanced proficient score = 250-300						

Teacher

The Resource Room instructor who delivered the students replacement writing instruction on a daily basis during the current year, also instructed students in the interventions conducted in the current study. The instructor held a B.A. in Psychology and dual-certification in K-5 Elementary Education and K-12 Teacher of Students with Disabilities. She had a total of 8 years teaching experience with students with disabilities, including both public and private school settings, within self-contained, co-teaching, and resource placements. The teacher was completing her Master's Degree in Special Education, with this study fulfilling her thesis requirement for completion of the graduate program. Additionally, the resource room teacher had all three participants as students in her co-teaching setting in the previous year and had provided all three students' writing instruction from the beginning of their fifth grade year within the resource setting.

Research Design

A single subject with change of conditions design was used in this study to determine if direct instruction and self-management techniques increased student writing skills in terms of total words written and correct word sequences. Student reflections were also examined as pre and post tests to review whether self-reflections became more accurate or positive after self-management strategies were taught.

Materials

Instructional materials. The SRA-McGraw-Hill direct instruction program, *Reasoning and Writing, Level E* for grade 5 was used. Students had individual textbooks for independent work, while the teacher utilized the accompanying Presentation Manual

with scripted instruction for each lesson. A teacher's guide was also utilized to support fidelity to program instruction and guide feedback to students, including scoring of independent exercises.

Measurement materials.

Weekly writing probes. A district provided set of standardized writing prompts for the grade level, as well as a reference manual for how to institute and score writing probes was utilized for the study. Individual writing samples were kept by the teacher in individual student folders, and later transferred to student's individual writing binders. Additionally, the teacher set up on her computer an Excel file for each student to add data and graph progress for Total Words Written (TWW) using chart wizard within Excel. Two sheets of half inch, double spaced writing paper was always provided for students to use when writing probes were required. The additional sheet of paper was given to students specifically for planning purposes. The teacher kept a stopwatch available to time the probes.

Student self-reflection survey. A pre/post self-reflection survey from was used by the teacher with students as part of their self-management intervention. Sixteen questions regarding students' assessment of their own writing skills, preferences, and feelings towards writing were included, using a Likert rating scale of 1-5 (see Appendix).

Procedure

Instructional procedures.

Direct instruction. The direct instruction SRA *Reasoning & Writing* program (Level E) was used to teach participating students approximately 40 minutes per day, 4-5 days per week over weeks. In total, 25 *Reasoning and Writing* lessons were

implemented during the study. Level E was determined appropriate for all three participating students as requirements to read at a minimum fourth grade level, copy words at a rate of 15 words per minute, and write basic paragraphs were met. In-program tests were utilized every tenth lesson to ensure materials were being mastered, and re-teaching remedies were utilized when necessary. The lessons were considered to be “spiral” as individual topics were taught and practiced across the weeks. Skills were taught in isolation but then funneled into more complex applications. The scope and sequence of the twenty-five direct instruction lessons are shown in Table 2.

Table 2		
<i>Direct Instruction (SRA Reasoning and Writing Program - Level E)</i>		
Week	Lessons	Lessons Scope and Sequence
1-2	1-5	Retell, Parallel Construction, Parts of Speech & Sentence Analysis (subject/predicate), Clarity (editing)
3-4	6-10	Retell, Parallel Construction, Parts of Speech & Sentence Analysis (subject/predicate, nouns/not nouns in subject, two-word verbs, contractions), Clarity (editing, unclear words), Writing (inaccuracies)
5-6	11-15	Retell, Parallel Construction, Parts of Speech & Sentence Analysis (subject/predicate, two-word verbs, questions/ statements, contractions), Clarity (editing, unclear words), Writing (inaccuracies)
7-8	16-20	Retell, Parallel Construction, Parts of Speech & Sentence Analysis (subject/predicate, questions/statements, adjectives), Clarity (editing, unclear words, unclear this/that, phrase placement), Writing (inaccuracies)
9-10	21-25	Retell, Parts of Speech & Sentence Analysis (subject/predicate, questions/statements, adjectives, using position), General/Specific, Clarity (editing, unclear words, unclear this/that, phrase placement), Writing (inaccuracies)

Writing probe instruction. At the beginning of the school year, students were instructed that they would be frequently practicing a type of writing which involved thinking quickly for one minute about a provided topic and then writing as much as they could for three minutes on the topic. A mini-lesson and practice on how one could use this planning time was given, including the use of their own experiences and/or imagining what the situation would be like. Students were instructed to use one sheet of planning paper to write or organize any words, ideas, or pictures down during the minute of planning time. The teacher also encouraged the students to use some of the visual organizers that they were familiar, such as a web or list, to plan and organize ideas in the one minute pre-writing period.

A lesson on different types of writing and their associated purposes was also given prior to beginning the short timed writing probes. Included in the rationale was the idea that this type of writing helps one practice how to think and write quickly, on demand. This process was compared as similar to their standardized test taking prompts and different from the published pieces they were familiar with writing across a span of days or weeks. A reminder rationale as to why this type of practice was important was included each time students were notified that it would be a day which a writing probe would be given.

Self-management Instruction.

Self-recording instruction. As the first step in their self-management instruction, students were taught how to conduct a self-count of their total words written. As defined in measurement procedures, students were taught to count any word they had written within the three minute time period that was separated from another written word,

including titles or proper nouns. Students were taught that words were counted regardless of spelling, but numbers not written in word form did not count. Students were instructed to record the TWW number at the bottom of their probe.

Self-graphing instruction. Students were instructed how to enter their total words written and the date in an excel spreadsheet that had been set up for them by the teacher. They were then given step by step instructions as to how to use the excel chartwizard to create a line graph of their data.

Measurement Procedures.

Writing Probes. Twice per week, students were given notice that they would be doing one of their three minute writing probes. Reminders as to why they would be practicing this type of writing were given, as well as how to use the prompt and planning time to generate ideas. A topic would be written on the board and read to the students by the teacher. The prompt was reread and restated two to three additional ways. The teacher then would notify the students that their one minute of planning/think time was beginning. At the end of the minute, the teacher instructed students to begin writing. If students were not active during this time or looked frustrated, the teacher would encourage the student with a verbal prompt of “Do your best”. If students stopped writing before the time ended, the teacher would verbally prompt students to use all of the three minutes to write as much as they could, to think of something more to add, and use a verbal reinforce, “Do your best.”

Total Words Written (TWW). A baseline of TWW was established by giving students bi-weekly writing probes for 2 weeks, prior to beginning the direct instruction or self-management interventions. During both the student self-recording and self-graphing

interventions, these writing probes continued on a twice weekly basis in order to have students measure and graph their TWW. TWW was measured as any word written that was separated from another written word, including titles or proper nouns. Students were taught that words were counted regardless of spelling but numbers without writing in a word form did not count.

Correct Word Sequence (CWS). After each probe, the teacher would count each successive pair of writing units that was correct, including word to word, word to punctuation, and punctuation to next word. Correct spelling, grammatically correct words, and necessary marks of punctuation excluding commas had to be intact to count a writing unit as correct. With the exception of dates, numbers written in numeral form were not counted as correct. Words in each writing sequence also had to make sense in the context of the sentence. A caret (^) was used to mark the presence of a correct writing sequence.

Self-Reflection Survey. Prior to the start of the baseline, as well as after the completion of all interventions, students were given a self-reflection survey. Students responded to 16 questions, rating their preferences for writing, the ease of writing, and their self-image in regards to writing abilities. Students could strongly disagree, disagree, be unsure, agree, or strongly agree. The scale was converted to a rating score of 1-5 and compared pre and post across students.

Data Analysis

Weekly probe data for each student are presented in a line graph across the span of the study showing variable performance data and means of TWW and CWS across

each condition of the study. Additionally, self-reflection is examined by looking at changes to means between pre and post survey responses.

Chapter 4

Results

Table 3 presents student performance data across baseline and intervention conditions. Three minute writing probes were given twice a week for all phases. Student 1 completed a total of 23 probes, Student 2 completed 24 probes, and Student 3 completed 23 probes. The mean and ranges were calculated for total words written (TWW) and correct word sequences (CWS) across each condition for all three students.

Table 3												
<i>Student Performance Data with Mean and Range by Conditions</i>												
	Student 1				Student 2				Student 3			
	Baseline A	B	C	D	Baseline A	B	C	D	Baseline A	B	C	D
TWW												
mean	46	44	49	69	47	40	40	57	28	25	27	34
range	(8-64)	(16-61)	(38-56)	(61-81)	(28-56)	(28-56)	(23-46)	(38-76)	(18-36)	(16-31)	(19-30)	(16-58)
CWS												
mean	34	33	33	50	32	31	32	47	23	23	23	28
range	(8-52)	(10-47)	(27-38)	(32-64)	(18-45)	(23-49)	(18-38)	(27-62)	(15-32)	(12-27)	(15-32)	(14-57)

For all students, the mean of TWW showed the most increase during intervention D, which included direct instruction, student self-scoring (monitoring) of TWW, and student self-graphing of TWW. This result was similar for CWS. When looking at ranges of TWW across conditions, student 1 showed the most variance of range during the baseline for both TWW and CWS and least variance of range during intervention C, which included direct instruction and self-scoring. Students 2 and 3 showed the most

variance of range during intervention phase D, which included direct instruction, student self-scoring and student self-graphing.

Figure 1 and 2 present student performance means. Figures 3-5 show individual student performance data.

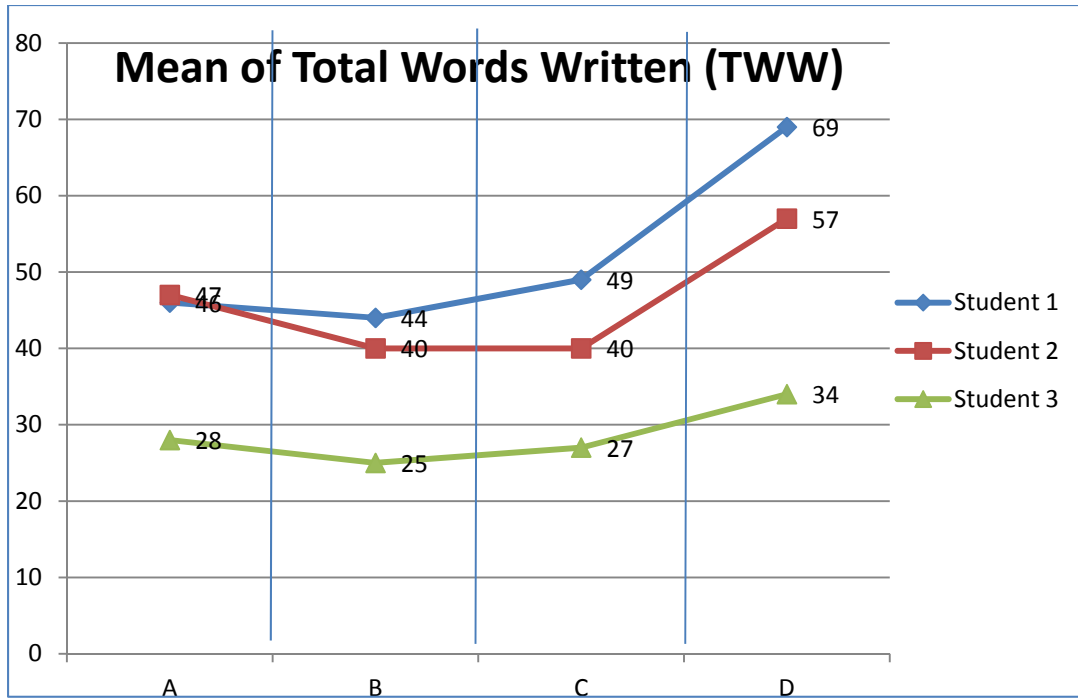


Figure 1. Student means of TWW across conditions

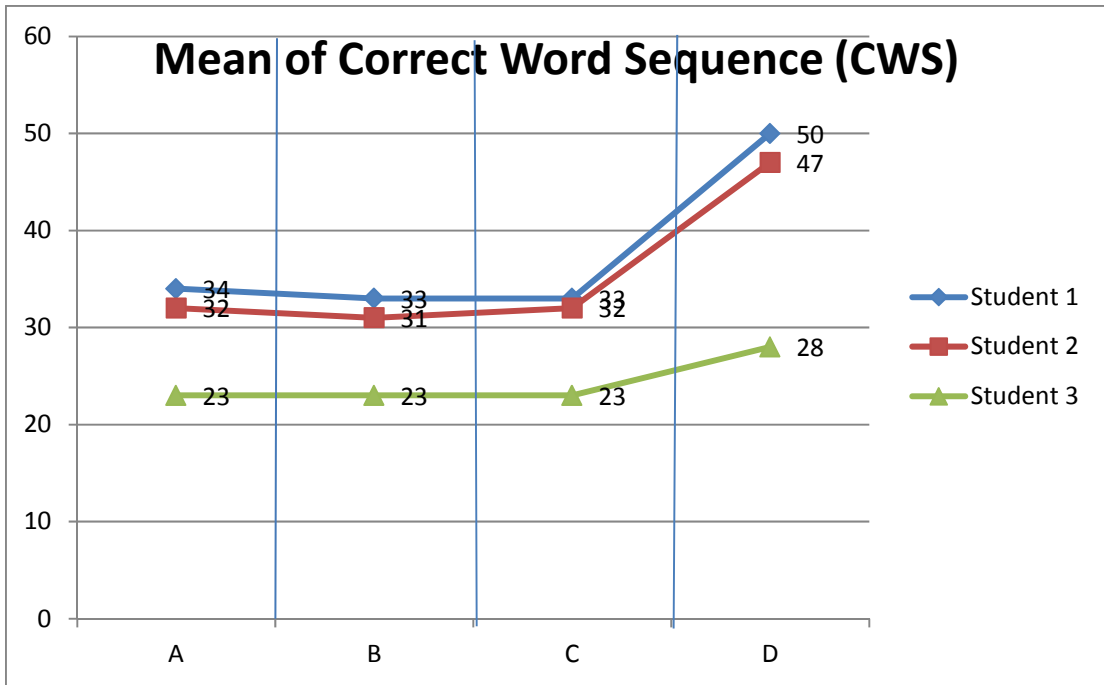


Figure 2. Student means of CWS across conditions

Table 4

Individual and Group Average Percent Change of Mean TWW and CWS Between Conditions

	<u>A to B</u>	<u>A to C</u>	<u>A to D</u>	-	<u>A to B</u>	<u>B to C</u>	<u>C to D</u>
<u>TWW</u>							
Student 1	-4%	7%	50%		-4%	11%	41%
Student 2	-15%	-15%	21%		-15%	0%	43%
Student 3	-11%	-4%	21%		-11%	8%	26%
Group Average Change	-10%	-4%	31%		-10%	6%	37%
<u>CWS</u>							
Student 1	-12%	-3%	47%		-12%	0%	52%
Student 2	-3%	0%	47%		-3%	3%	47%
Student 3	0%	0%	21%		0%	0%	21%
Group Average Change	-5%	-1%	38%		-5%	1%	40%

Table 5			
<i>Use of Non Overlapping Points Analysis to Measure Effect of Condition</i>			
	<u>Condition</u>		
	<u>B</u>	<u>C</u>	<u>D</u>
	(Direct Instruction)	(DI + Self-Counting)	(DI + Self-Counting + Self-Graphing)
Student 1			
TWW	none	none	moderate effect
CWS	none	none	slight effect
Student 2			
TWW	slight effect	none	moderate effect
CWS	none	none	moderate effect
Student 3			
TWW	none	none	slight effect
CWS	none	none	slight effect

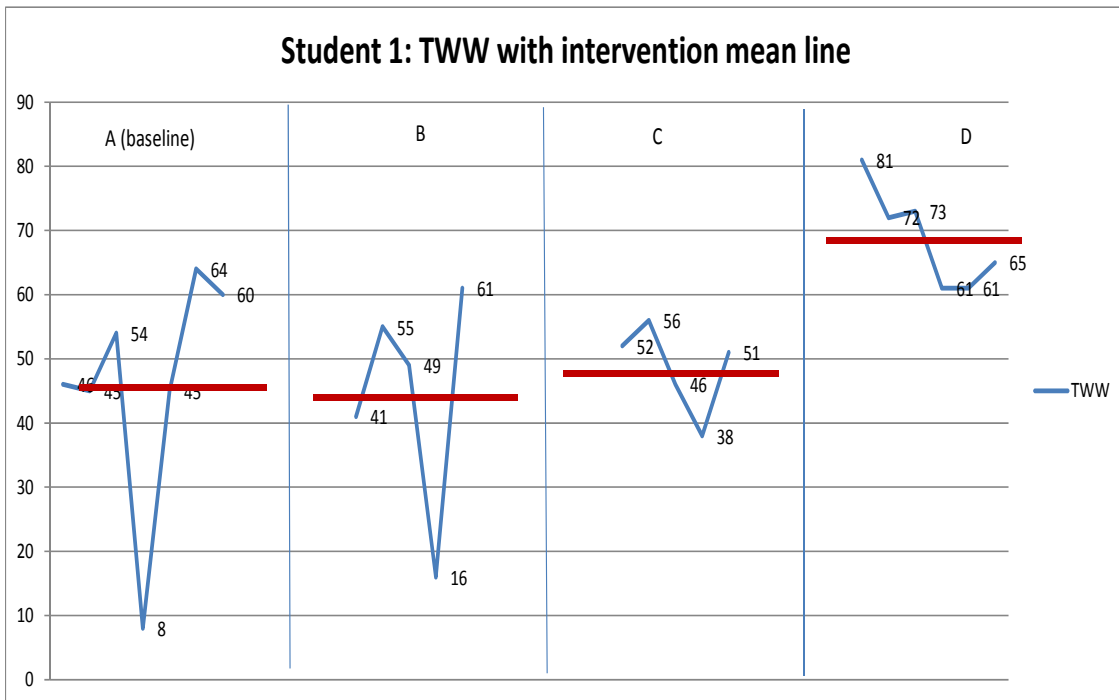


Figure 3. Student 1 TWW performance data

In Figure 3, Student 1 showed a slight decrease of the average TWW when the direct instruction Reasoning and Writing program began in condition B. This was followed by a slight increase of average TWW when the intervention of self-monitoring was added. When self-graphing was added in the final intervention phase (D), Student 1 showed a mean increase of nearly 20 total words written. When analyzing across interventions using non-overlapping points (Scruggs, Mastropieri & Casto, 1987)), a slight effect was found for intervention B, no effect was found for intervention C, and a moderate effect was found for intervention D.

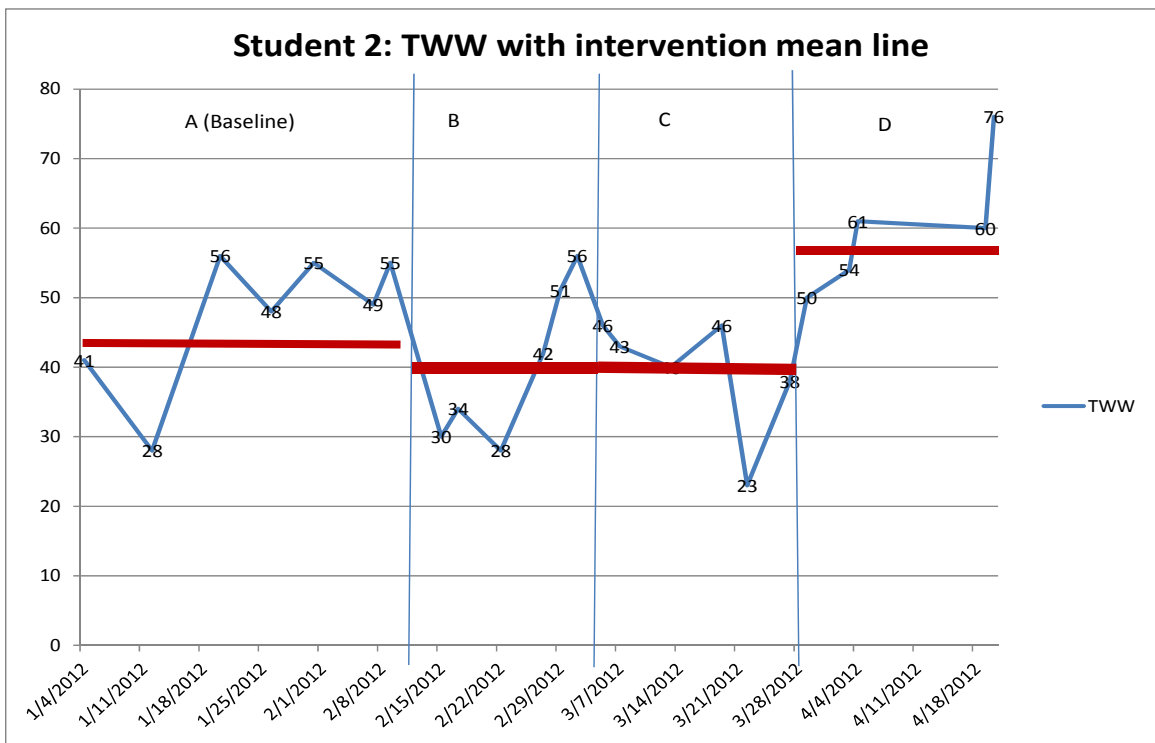


Figure 4. Student 2 TWW performance data

Student 2 had TWW mean decreases when direct instruction and self-counting interventions began, but like Students 1 and 3, showed a mean increase when the self-

graphing intervention was added. When analyzing Student 2 CWS across interventions using non-overlapping points, no effect for interventions B and C were found, while intervention D, which added the self-graphing, had a moderate effect.

Student 3 showed TWW mean decreases when direct instruction and self-counting interventions began, similar to Student 2. (Figure 5) As was consistent across the study of all three students, Student 3 showed a mean increase when the self-graphing intervention was added in the final condition. A non-overlapping point analysis, showed no effect for interventions B and C, with a slight effect for intervention D.

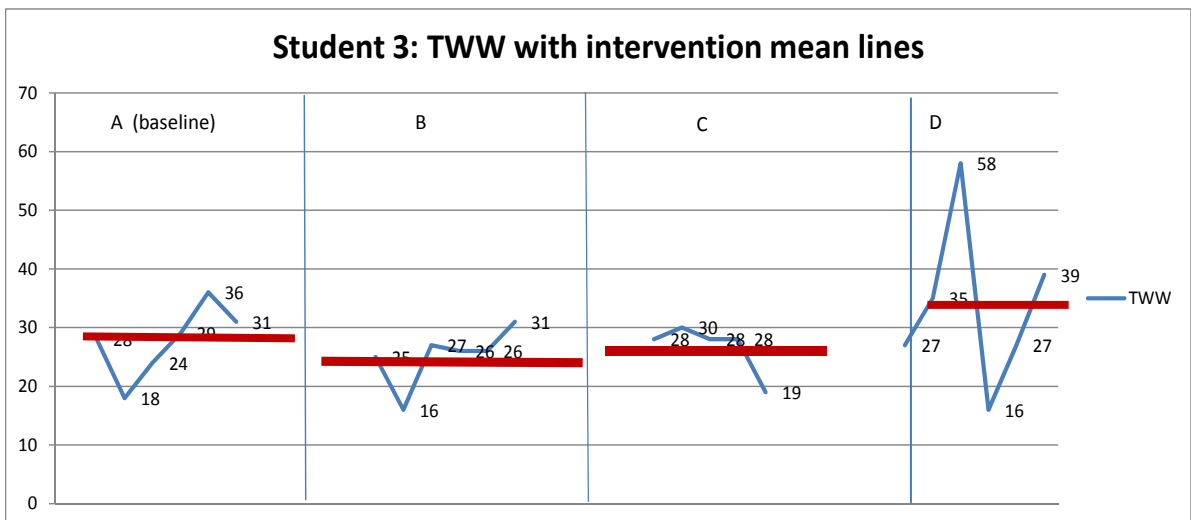


Figure 5. Student 3 TWW performance data

Figures 6-8 show graphs of individual student performance data with intervention mean lines for CWS. Student 1 performance data for the qualitative measure of CWS are shown in Figure 6. A non-overlapping point analysis for Student 1 CWS found no effect for interventions B and C, and a slight effect for the self-graphing addition of intervention D. When looking at mean CWS across interventions, there was very little

change of the average CWS across conditions A through C, including the direct instruction and self-counting conditions. Student 1 showed a nearly 20 point increase in mean of correct word sequences when the self-graphing intervention was added in the final condition.

Student 2 performance data for the qualitative measure of CWS are shown in Figure 7. There was again very little to no change of average CWS when looking across conditions A through C, followed by a 15 point increase in mean of correct word sequences when the self-graphing intervention was added in the final condition. A non-overlapping point analysis of CWS for Student 2 found no effect for interventions B and C, and a moderate effect for the self-graphing addition of intervention D.

Performance data for the qualitative measure of CWS for Student 3 are shown in Figure 8. The mean CWS remained flat across conditions A through C, with a 5 point increase in mean of correct word sequences when the self-graphing intervention was added in the final condition. A non-overlapping point analysis of CWS for Student 3 found no effect for interventions B and C, and a very slight effect for the self-graphing addition of intervention D.

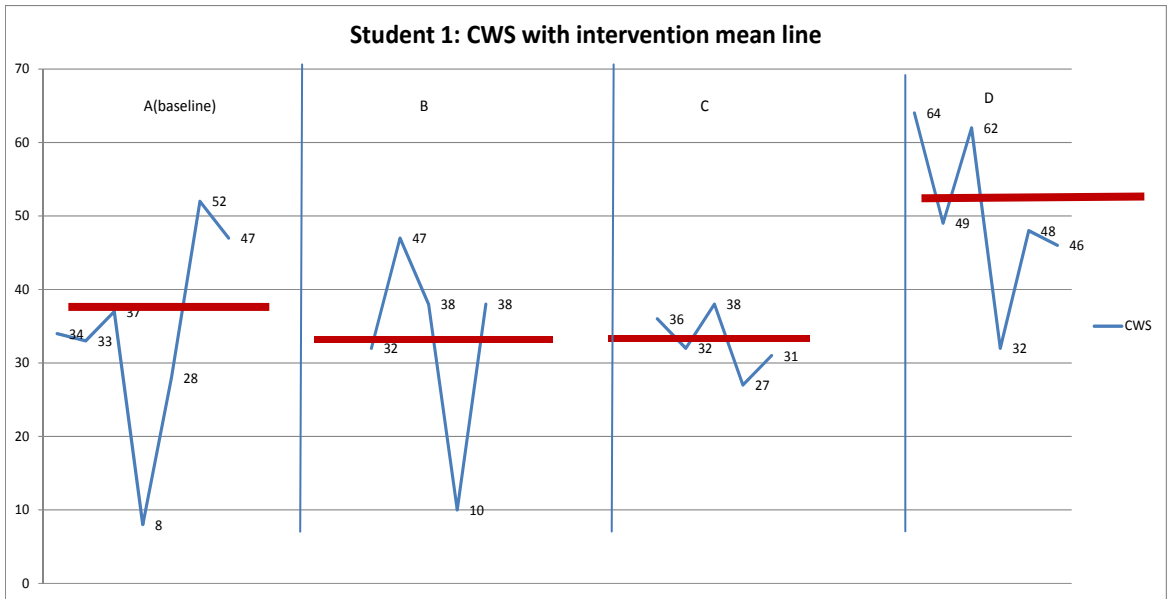


Figure 6. Student 1 CWS performance data

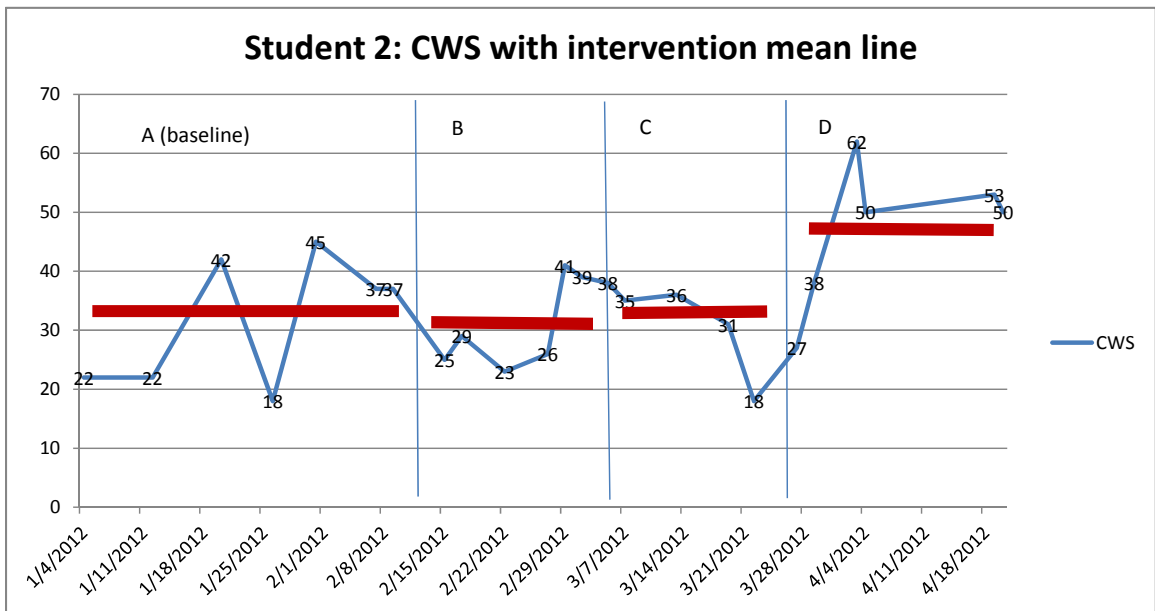


Figure 7. Student 2 CWS performance data

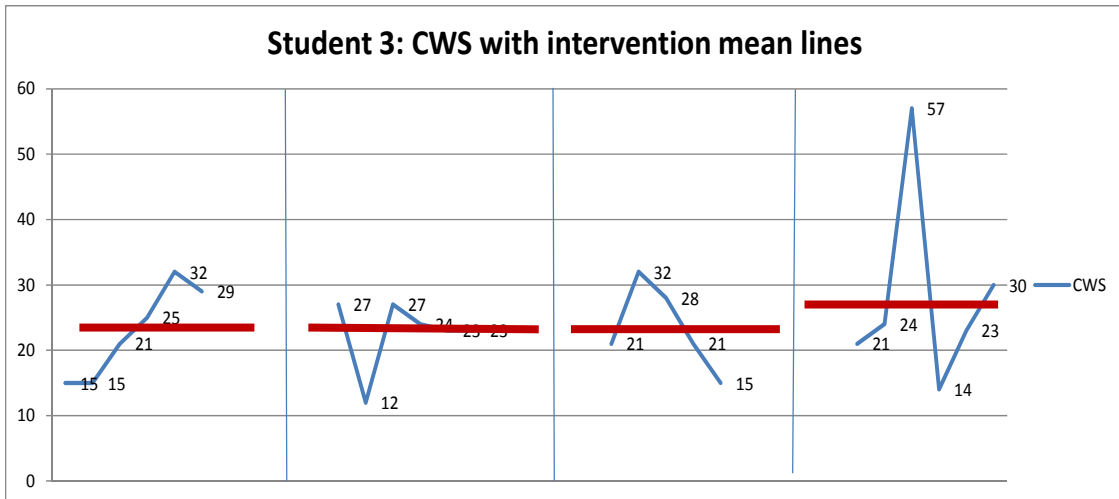


Figure 8. Student 3 CWS performance data

Student self-reflection rating means pre and post interventions are presented in Table 5.

	PRE	POST
<i>PREFERENCE TOWARDS WRITING</i>		
I like to write.	3.0	3.7
I would rather write than do math problems.	3.0	2.3
I do writing on my own outside of school	2.7	1.7
I would rather read than write.	4.0	2.7
I avoid writing.	4.3	4.3
Writing is a waste of time.	1.7	2.0

<i>EASE OF WRITING</i>		
When writing a paper, it is easy for me to get ideas.	2.7	3.3
When writing a paper, it is easy for me to get started.	2.0	3.0
When writing a paper, I find it easy to make all of the changes I need to make.	3.3	2.0
When writing a paper, it is easy for me to write my ideas into good sentences.	3.0	3.0
When writing a paper, it is hard for me to organize my ideas	4.3	3.0
When writing a paper, it is hard for me to correct my mistakes.	1.7	3.3
When writing a paper, it is hard for me to keep the paper going.	3.3	2.0
<i>SELF PERCEPTION OF WRITING ABILITY</i>		
When my class is asked to write a story, mine is one of the best.	2.3	2.3
When my class is asked to write a book report, mine is one of the best.	2.7	3.0
When my class is asked to write a report, mine is one of the best.	1.7	3.0
<hr/>		

In the area of student ratings of preferences towards writing, a comparison of pre and post mean scores in survey responses showed movement from neutral feelings to students having some preferences towards or over writing. Specifically increases in students preferring math to writing were found, while at the same time, writing became preferred to reading. Writing avoidance remained admittedly strong, including an increase in ratings on the response that writing is not done outside of school. Students still rated writing to be worthwhile and not “a waste of time”.

Comparing the mean scores of responses to statements addressing students ease with writing processes, students showed an increase in their ease or decrease in difficulty with the planning and organizing processes. This included statements about ease of idea generation, starting the writing process, and organizing ideas. Also shown was an

increase in ease around writing stamina. Conversely, an increase in ratings showed increased difficulty with statements relating to the editing and revising process.

In response to the statements of self-perception, the means showed no changes in view of story writing and book report writing abilities, while improved self-perception was found in report writing.

Chapter 5

Discussion

Summary of Findings

This study evaluated whether direct instruction, both alone and with additional self-management strategies, would improve writing fluency, writing quality, and self-perceptions toward writing of students with learning disabilities. The first research question examined the effects of direct instruction alone, asking if writing fluency and quality by measuring total words written and correct word sequence were increased the Reasoning and Writing Direct Instruction Program was provided. After four weeks of daily lessons, TWW and CWS were found not to increase overall. One student, classified SLD, did show a slight positive effect on TWW fluency by reviewing non-overlapping points, but all mean comparisons between the baseline and Intervention 1 (Phase B) showed decreases of -4%, -11%, and -15% TWW when only the specific direct instruction program was applied. Similarly, mean percentage changes for CWS from the baseline to Intervention 1 showed declines of -3% and -12% for two students, while there was little effect for the third student.

Overall, this study showed that introducing this particular direct instruction program alone had a slightly negative impact on writing fluency and writing quality when measuring student writing samples using the evidence based CBM's of TWW and CWS. This differs from previous findings of Keel & Anderson (2002), Viel-Ruma et al. (2005), and Walker et al.'s (2005), who found that positive effects resulted from Direct Instruction with similar programs for students with LD. Two of these previous studies had similar conditions to this study, including what was considered to be an abbreviated

intervention time of 5 weeks, including 25 of the 50 lessons. As limited research could be found on this particular program, further investigation is needed, to validate results using standardized measurement.

The second research question asked if writing fluency measures of TWW and quality measures of CWS, would increase when students learned to self-score and then self-graph their TWW from their own writing probes, in addition to the Direct Instruction. Results were separated into two different conditions, including the self-scoring component and the addition of self-graphing. Results differed by condition, with generally no effect when adding self-scoring and moderate to strong positive effects when self-graphing was used.

As students learned to self-score their writing probes in Intervention 2, a non-overlapping point analysis found no effect for all three students on both TWW and CWS. When comparing mean percentage changes from baseline to Intervention 2, there was only one student who had a very slight increase (+7%) for TWW, while the remaining students had negative effects of -4% and -15%. When comparing effects on condition with qualitative variable of CWS, no effects were found. These results differ from similar studies such as Harris et al. (1994) and Reid (1996), who found that student self-monitoring in form of self-scoring TWW of three minute writing probes increased scores of student writing length and quality.

However, when adding instruction and practice of student self-graphing in Intervention 3, results had overall positive effects in both the TWW and CWS measurements by both non-overlapping points analysis and mean percentages. Group mean percentages from baseline to Intervention 3 were 31% increased for TWW and

38% for CWS, and even higher from Intervention 2 to Intervention 3 with an increase of 37% for TWW and 40% for CWS. Overall, the addition of self-graphing had the greatest positive impact of the three total conditions, as strong increases were found with all three students for both TWW and CWS. This finding supports previous research by Gunter et al. (2002), where effect sizes increased further when data was graphed by students vs. just recorded as part of their self-monitoring skills. Additionally, the results show that quality of writing does not seem to decrease as writing fluency increases.

The third component of self-management skills, self-reflection, has been stated to be an important part of the writing skill development of writers with learning disabilities. Following, the third research question asked if student self-reflections would improve or become more accurate when teaching students with disabilities to self-score and self-graph their own writing probes. Some improvements were found between pre and post surveys, but responses were varied. Perceptions of ease of planning and organizing increased while responses rated editing and revising as more difficult after interventions. One thought is that the direct instruction program may have highlighted skills in this area for these students to become more aware of the difficulty. At the same time, there was also an increase in rating abilities with report writing, versus story and book report writing. This may have been a function of report writing elements being addressed early in the direct instruction program versus story and reading response writing.

Unfortunately, writing avoidance ratings remained strong on both pre and post surveys.

Future research could utilize reflections more frequently within and between the interventions, as well as include narrative or interview responses to facilitate further reflection. This survey format was a rating scale which may not have created adequate

reflection for further effects or accurate ratings. The surveys may not have required participants to spend adequate time thinking about their writing skills and beliefs about themselves as writers.

Limitations

Research design, sample size, and length of study were the primary limitations. As this study utilized a single subject design, there were no group comparisons between conditions. The single subject design, although having three conditions, was unable due to the resource setting, to use a multiple baseline design and stagger the introduction of the three interventions across subjects. Restricted duration did not allow for any replication of conditions. Additionally, only three subjects included in this current study is very limited.

Other limitations involved the scoring of the CWS measure. Previous research has noted that double scoring is necessary for this measure to hold its validity and this was unable to be done during the time constraints of this study. Further analysis with the current set of writing probes could be investigated to see if this could strengthen the validity of scoring measures.

Implications

As the self-graphing component of self-management skills practiced with writing seems to have a positive effect on writing fluency and writing quality, future studies could investigate how graphing can be integrated into other curriculum based measurements such as for oral reading fluency, to see if student self-graphing has the same positive effects. There was increasing excitement when the students began the self-

management interventions, particularly the self-graphing. The ownership and the visual picture seemed to make quite an impact on student motivation in writing.

Writing avoidance ratings remained strong after these interventions, as found by Santangelo & Olinghouse (2009), and therefore, future student reflections could include ratings on student motivation in attempts to develop more of an understanding as to how motivation may play a role in this process. Future research may investigate these motivational aspects involved in the writing process with hopes that the prolonged use of self-graphing and its positive effects could play a part an important role in writing process.

Conclusion

Seemingly, the benefits of this type of intervention would be far-reaching beyond the increases in writing fluency performance. The time the student spends on utilizing self-graphing has the added benefits to students learning mathematical and computer graphing skills and motivating their interests in education, building sound inferential reasoning related to goal setting and data responses, and continuing reinforcement effects (Moxley, 2007). In addition, self-monitoring requires less adult supervision, but serves as a student directed intervention which is very important for students with LD in the mainstream setting (Trammel, 1994). Not only do these types of self-management skills seem to improve student writing skills, but for those with disabilities who are required to be part of their own IEP process, they can become an avenue for meaningful participation in this process (Joseph & Konrad, 2009).

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Appendix A

Grade Level Prompts/Story Starters

Grade 5

Building a fort
Discovering a new friends
Going to the dentist
I'd like to invent a machine that
What it's like to use a wheelchair
Grandma's attic
Looking at a globe
How we divide chores at my house
An excellent birthday party
My favorite clothes
Gone fishing
Rings on her fingers
Pizza is...
Why my mother and father are the greatest
Getting my first pair of glasses
Summer games
What I use a computer for
My favorite form of exercise
How to stop hiccups
A trip in a submarine
A special photograph
Creatures that live in the ocean
A cartoon character I like
Things I see when I take a walk
Why I like/dislike playing team sports

Appendix B

STUDENT WRITING SURVEY

Instructions: Put an "X" in the box that tells how you feel.

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
I like to write.					
I would rather read than write.					
I do writing of my own outside of school.					
I avoid writing whenever I can.					
I would rather write than do math problems.					
Writing is a waste of time.					
When writing a paper, it is easy for me to get ideas.					
When writing a paper, it is hard for me to organize my ideas.					
When my class is asked to write a report, mine is one of the best.					
When writing a paper, it is easy for me to get started.					

Appendix C

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
When writing a paper, I find it easy to make all of the changes I need to make.					
When writing a paper, it is easy for me to write my ideas into good sentences.					
When my class is asked to write a story, mine is one of the best.					
When writing a paper, it is hard for me to keep the paper going.					
When my class is asked to write a book report, mine is one of the best.					
When writing a paper, it is hard for me to correct my mistakes.					