

July 2017

Examining the Effectiveness of a Sentence Construction Intervention Combined with Self-Regulation Instruction Using a Regression Discontinuity Design

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<https://doi.org/10.7275/9712295.0> https://scholarworks.umass.edu/dissertations_2/997

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EXAMINING THE EFFECTIVENESS OF A SENTENCE CONSTRUCTION
INTERVENTION COMBINED WITH SELF-REGULATION INSTRUCTION USING A
REGRESSION DISCONTINUITY DESIGN

A Dissertation Presented

by

WILLIAM M. FUREY, JR.

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2017

College of Education
School Psychology

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DEDICATION

Ma, Pa, Wendy, and Heidi

ACKNOWLEDGMENTS

Many thanks are due to those who made this project possible. First, thank you Dennis, Kristen, Jenny, and the 4th grade team for your space, time, flexibility and patience. Your willingness to problem solve around snow days, assemblies, fire drills, parent/teacher conferences, and all the other challenges that go with school-based research was essential to the study's success. Thank you Victoria Greene and Project Read for allowing me access to the *Framing Your Thoughts* curricular materials. And I am very grateful to Group 2, most notably Caroline Shackett and Laura Findlay. I'm sure you read more pieces of 4th grade writing than you ever cared to. Joshua Marland and Craig Wells, thank you for your statistical assistance and expertise, and for patiently answering each of my questions, often more than once.

I am also indebted to those who supported me throughout the process. Catherine Rossi and Brooke DeWitt, I could not have asked for a better cohort. I believe we complimented each other quite well, and I already miss our regular conversations over pitchers and wings. Bobby Storey, Lisha Daniels Storey, and Franklin "Sir Sniff-n-Tells Reach For the Top" Storey, for being my western Mass family and doing all those things families do. Whenever you sensed I was getting frustrated or overwhelmed, you always seemed to know exactly what I needed, be it a stiff drink or a ridiculous meme. Luis Oliveira, you modeled true work ethic while living with us. Whenever I was tempted to take a break from reading or writing, I could hear your voice in my head saying, "No excuses. You *will* start *and* finish the literature review this week."

And a sincere thank you to Mary Lynn Boscardin for your mentorship, pep talks, and hours of invaluable advice and guidance that were instrumental in keeping me on track towards meeting my professional goals. Thank you also to Joyce Abrams Ball who first exposed me to the importance and power of small-group, explicit instruction.

I also wish to express my appreciation for the support and guidance of my committee members David Arnold, John Hintze, Craig Wells and especially my advisor Amanda Marcotte. Thank you for your thoughtful feedback and advice during every phase of this study. Amanda, I hope to emulate your balanced style of mentorship with any future advisees I may have. Always providing the exact type of support needed for the situation, you were thoughtful, encouraging, motivating, and when necessary super direct. You get me --- you allowed me to get excited and sometimes carried away with plans, joining in in the excitement but still knowing the exact right moment to say, "Ok, now let's talk feasibility" without being a total dream-squasher. I look forward to continued collaboration.

And a special thank you to my parents, William and Debbe, and sister, Wendy, who have always been my biggest cheerleaders. I am very grateful for your love and overwhelming support.

And lastly, to Heidi. I am very lucky to have a partner and best friend who is so supportive. You know I'm not the best at writing or talking about feelings and how I have them... so here I will just thank you for building me The Fort of Focus and Concentration with old moving boxes and allowing my style of organizing articles,

books, and materials to take over our dining room for way longer than I said it would. You make me happy.

"Hey Heidi!!!... Is this sentence clear?"

ABSTRACT

EXAMINING THE EFFECTIVENESS OF A SENTENCE CONSTRUCTION INTERVENTION COMBINED WITH SELF-REGULATION INSTRUCTION USING A REGRESSION DISCONTINUITY DESIGN

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The Language and Writing strands of the Common Core State Standards place a heavy emphasis on sentence-level conventions including syntax/grammar and mechanics. Interventions targeting these foundational skills are necessary to support struggling writers as poorly developed sentence construction skills inhibit more complex writing tasks. This study examined the effects of a supplemental intervention on the writing skills of fourth grade students identified as struggling writers. The intervention used explicit instruction and the Self-Regulated Strategy Development (SRSD) framework to teach students a sentence construction strategy along with self-regulation procedures. A regression discontinuity design was used to test whether students included in the intervention group outperformed their predicted scores on assessments of writing conventions and story quality. Results indicate the intervention was successful for improving struggling writers' ability to

use accepted orthographic and grammatical conventions during composition. The intervention was not effective for improving the broader domain of story quality.

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CHAPTER 1

INTRODUCTION, BACKGROUND, AND PURPOSE

Introduction

Proficient written expression is central to academic success. Not only does writing allow students to demonstrate and share their knowledge, it has been found to be effective in facilitating students' understanding across curricular content areas (Bangert-Drowns, Hurley, & Wilkinson, 2004). Unfortunately, many students struggle to attain writing skills necessary to support their expressive communication needs. Interpreting the 2014 SAT results, the College Board (2014) concluded merely 42.6% of high school graduates met the benchmark for College and Career Readiness. Remedial writing instruction has not only become necessary in colleges and universities (Goen-Salter, 2008), but it has also become a costly expense for many businesses (National Commission on Writing, 2004).

The prevalence of difficulties with written expression is apparent well before it is time for students to take college entrance exams or enter the workforce. On the 2011 National Assessment of Educational Progress (NAEP), 74% of 8th grade students performed below the proficient level in writing. In 2002, the most recent year 4th grade students participated in the writing portion of NAEP, 72% of scores fell below the proficient level (National Center for Educational Statistics, 2012, 2015). Despite statistics such as these, as well as findings from a 2009 epidemiological study suggesting the rate of written language disorders is as high as the rate of reading disorders (Katusic, Colligan, Weaver, & Barbaresi, 2009), past

initiatives to improve student achievement and prevent later failure have focused primarily on reading and mathematics while neglecting writing. Evidence-based preventive interventions targeting prerequisite component skills are critical to the success of struggling students, and are fundamental to the implementation of prevention-oriented instructional approaches (Brown-Chidsey & Steege, 2010; Kame'enui & Simmons, 1990).

Writing Instruction Within a Preventative Instructional Framework

The preventative educational model promotes student achievement through a tiered system of supports, ongoing student assessment, evidence-based instructional practices, and data-based decision making (Glover, 2010). At the primary prevention level, evidence-based instruction is provided to all students through general education. Universal screening is conducted to identify struggling students who may benefit from small-group, supplemental support aimed at the remediation of skills and prevention of further difficulty. Supplemental supports may include increased academic engaged time and extra guided practice or remedial instruction for missing prerequisite skills. Students who are not responsive to supplemental intervention may require more intensive support to strategically address individual needs.

Although there is an abundance of research addressing tiered interventions within a preventative instructional framework for reading, less work has been done in the area of writing (De La Paz, Espin, & McMaster, 2010; Saddler, Asaro-Saddler, 2013; Troia, 2013). Providing evidence-based remedial instruction to students identified as at-risk for reading failure can prevent the development of further

problems and reduce achievement gaps between these students and typically developing peers (e.g., Bollman, Silberglitt, & Gibbons, 2007; Vaughn et al., 2009). As writing develops in stages similarly to reading (Fitzgerald & Shanahan, 2000), and because critical knowledge and skills at each stage are teachable (Kame'enui & Simmons, 1990), theoretically writing instruction can also be successfully integrated into a preventive tiered instructional model. Despite the expansive extant research on writing instruction, writing assessment, and analyses examining differences between skilled and less-skilled writers, very little is known about how to effectively incorporate this knowledge into a preventative framework (Saddler & Asaro-Saddler, 2013).

To date, five published empirical studies (Berninger et al., 2006; Berninger et al., 2008; Harris, Graham, & Adkins, 2015; Hooper et al., 2013; Lane et al., 2011) and one descriptive study (Johnson, Hancock, Carter, & Pool, 2012) directly address screening and intervention in writing within a tiered service delivery model. Though not comprehensive, the available research does provide initial support for these practices. Interventions targeting graphophonics delivered to writers identified as at-risk were found effective in both increasing the rate at which students gain foundational skills such as encoding phonemes, spelling, and handwriting (Berninger et al., 2006; Hooper et al., 2013), and improving the overall quality of students' writing (Berninger et al., 2006; Berninger et al., 2008; Hooper et al., 2013). Additionally, supplemental instruction targeting planning and the syntax of larger texts was effective in increasing the use of genre specific elements (Harris et al., 2015; Lane et al., 2011) and improving overall quality of writing (Berninger et al.,

2006; Harris et al., 2015; Lane et al., 2011). In each study, at-risk students who received supplemental writing interventions outperformed at-risk students who solely received writing instruction delivered via the general curriculum. As the research is limited, however, there are few recommendations available regarding which writing interventions are useful for supplemental programming versus intensive programming (De La Paz et al., 2010). There is a need for more research identifying and validating writing interventions that address varying levels of student need (Saddler & Asaro-Saddler, 2013; Troia, 2013) in order to successfully incorporate writing instruction into a preventive tiered educational model as was done with reading instruction.

Sentence Construction Instruction

Composing sentences is one foundational component of writing where many students struggle (Houck & Billingsley, 1989; Myklebust, 1973; Newcomer & Barenbaum, 1991). Poorly developed sentence-level composition skills inhibit more complex writing tasks, and therefore, serve as a barrier to proficient written expression (Datchuk & Kubina, 2012; Kame'enui & Simmons, 1990). Constructing a sentence is a linguistically demanding task in which students must use syntactic knowledge to generate text by combining words into groups that, not only convey intended meaning, but also are grammatically acceptable (Saddler, 2012). It is too often assumed, that by fourth grade, students have mastered these fundamental writing skills. While instruction shifts towards more complex aspects of writing, such as the inclusion of genre specific elements, many students continue to have

difficulty effectively communicating their ideas through writing due to their inability to clearly express their thoughts in basic sentences.

Fitzgerald and Shanahan (2000) developed a stage theory of writing development in which they outlined critical knowledge at each stage that is prerequisite to subsequent stages. Graphophonics, which includes phonological awareness, grapheme awareness, and morphology, is critical knowledge at the earliest stages before one can produce sentences. Syntax of sentences is also critical knowledge in the stages preceding those that include the production of larger chunks of text (Fitzgerald & Shanahan, 2000). More simply put, a writer must know how to properly form a letter prior to forming a word, to properly form a word prior to forming a sentence, and to properly form a sentence prior to writing larger forms of connected text. Struggling at the basic text production level, which includes both transcription (i.e. handwriting and spelling) as well as text generation (i.e. turning ideas into words and sentences), theoretically places demand on working memory leaving fewer cognitive resources to acquire and employ strategies for planning and revising, and therefore, negatively influences overall text quality (McCutchen, 2006).

Sentence-level interventions are necessary to provide struggling writers with foundational linguistic skills. In a meta-analysis of research-based writing practices Graham, Harris, and Santangelo (2015) highlighted the importance of explicitly teaching sentence construction skills yet lamented, “there are surprisingly few studies testing the effects of teaching sentence construction or the skills that go into creating a correct sentence” (p 512). Only three studies were available to include in their meta-analysis of true- and quasi-experiments on teaching sentence

construction skills, and each of these investigated the same intervention, sentence combining. Additionally, Datchuk and Kubina's (2012) review of handwriting and sentence-level instruction only included nine studies regarding sentence construction, and in these studies, only five writing interventions were examined.

Results from available studies are mixed in regards to the effectiveness of sentence-level instruction on overall quality of student writing. In many of the studies where a significant improvement or difference in overall quality was found, the sentence-level instruction was embedded within a larger unit of study covering several aspects of writing (Anderson & Keel, 2002; Bui, Schumaker, & Deshler, 2006; McCurdy, Skinner, Watson, & Shriver, 2008; Viel-Ruma, Houchins, Jolivette, Fredrick, & Gama, 2010; Walker, Shippen, Alberto, Houchins, & Cihak, 2005). The majority of studies in which sentence construction was taught in isolation investigated the effects of sentence combining instruction (Saddler, Asaro, & Behforooz, 2008; Saddler, Behforooz, & Asaro, 2008; Saddler & Graham, 2005), which has been shown to be moderately effective at improving overall writing quality with an average-weighted ES for writing quality of 0.56 (Graham et al., 2015). Sentence combining, however, does not require students to produce their own ideas. Rather, students are provided simple sentences and clauses and taught how to combine the pre-determined sentence content. Generalizing sentence combining skills to a student's own writing can, therefore, be challenging for some writers. Andrews and colleagues (2006) conducted a systematic research review comparing sentence-combining to traditional formal grammar instruction, and although they found sentence combining had a more positive effect than formal

grammar instruction, for which they found no evidence indicating it to be effective, they stated there is insufficient quality of research available to advocate for either approach to instruction. Echoing the sentiment of Graham, Harris, and Santangelo (2015) as well as Datchuk and Kubina (2012), Andrews and colleagues (2006) also emphasize the need for more research examining various methods of teaching sentence construction.

Recently, Datchuk and colleagues (2015) explored the efficacy of a sentence construction intervention other than sentence combining in two separate studies. Results indicated explicit instruction in the construction of simple sentences combined with a fluency-building practice procedure increased the speed and accuracy of complete sentences and correct word sequences on one-minute sentence construction assessments delivered at the end of each session for four elementary-aged students (Datchuk, Kubina, & Mason, 2015). Similarly, the intervention was effective in increasing fluency of complete sentences for four adolescents with writing difficulties (Datchuk, 2015). These single subject studies, however, did not include outcome measures to examine whether fluency in the sentence-level foundational skill influenced overall writing quality of connected text.

Self-regulation In Writing Instruction

To be a proficient writer, students must not only have the basic skills and syntactic knowledge to construct meaningful sentences and text, they must also have strategies to plan what to write and then to review the text to make improvements (Flower & Hayes, 1981). Moreover, they must also develop behaviors

for self-regulating these processes while writing (Bereiter & Scardamalia, 1987; Berninger & Amtmann, 2003; Berninger, Garcia, & Abbott, 2009; McCutchen, 2006). Students who lack self-regulation have difficulty employing specific writing strategies (Graham & Harris, 2005). Interventions designed to teach writing strategies alongside self-regulatory behaviors to promote the use of the strategies support the cognitive aspects of effective writing.

The Self-Regulated Strategy Development (SRSD; Harris & Graham, 1999) model is a well-researched example of instruction focused on procedural facilitation delivered through explicit instruction where teachers play an integral role directing lessons that help students develop and internalize cognitive strategies. SRSD was designed to improve a student's strategic knowledge, self-regulation skills, content knowledge, and motivation (Harris & Graham, 1999). Several meta-analyses indicate its use has a meaningful effect on the writing of both typical and struggling writers (Graham & Harris, 2003; Graham et al., 2015; Graham & Perin, 2007; Graham, McKeown, Kihara, & Harris, 2012; Rogers & Graham, 2008).

Only recently has a sentence-level intervention been combined with SRSD instruction. In the study conducted by Limpo and Alves (2013), sentence combining was first explicitly taught and then students were provided instruction and guided practice to integrate the skill into composition. Results of the study indicate that teaching sentence combining through SRSD was effective at increasing the targeted skill of sentence combining ($ES = 1.06$) as well as improving overall essay quality ($ES = .72$). Students who received sentence-combining instruction scored better at each of the sentence construction measures indicating they were not only able to

use the skills in isolation, but they were able to apply them when producing connected text.

Results of the Limpo and Alves (2013) study along with the extant research supporting SRSD instruction to improve revisions (e.g. De La Paz, Swanson, & Graham, 1998; Graham, 1997) suggest that for students who are struggling with sentence composition, an intervention that explicitly teaches a strategy to produce and revise their own sentences combined with self-regulation instruction may be beneficial for improving their overall written expression.

Regression Discontinuity Design

Within the field of educational research, randomized experiments are not always practical or feasible, and the Regression Discontinuity design (RD) is a strong alternative to use when the purpose of the study is to evaluate the efficacy of an intervention program (Cook, Shadish, & Wong, 2008; Lipsey, 2007; Shadish, Cook, & Campbell, 2002; Trochim, 1984). RD is a quasi-experimental design where participants are assigned to treatment or control based on whether or not they fall above or below a cutoff point on an assignment variable (Shadish et al., 2002; Trochim, 2006). For this reason, the use of RD designs effectively aligns to a preventative instructional framework where students identified as at-risk on a screening measure receive supplemental instruction. All students continue to receive core instruction, while those identified as at-risk on the assignment variable receive supplemental instruction. The assignment variable can be any continuous quantitative measure taken prior to intervention and the cutoff point must be followed without exception so that only those participants whose scores place them

in the treatment group receive intervention (Trochim, 2006). All participants are administered a post-intervention measure and the treatment effect can be observed as a discontinuity in the regression lines at the cutoff point on the assignment variable (Shadish et al., 2002; Trochim, 2006). This is due to the underlying assumption that if there were no treatment effect, the relationship between the assignment variable score and the score on the post-intervention measure would be the same for all students regardless of who did or did not receive the intervention.

The RD design yields unbiased estimates of treatment effects if all of the five central assumptions are met (Shadish et al., 2002; Trochim, 2006). First, the cutoff criterion must strictly be followed when assigning students to the intervention and no intervention groups. Second, the relationship between pre- and posttest scores must be describable as a polynomial function. Third, the no intervention comparison group must be large enough to adequately predict the regression line. Fourth, all participants in both the intervention and no intervention groups must come from the same continuous pre-intervention distribution in order to avoid selection bias. Lastly, the intervention must be delivered to all participants in a consistent manner.

Educational researchers are increasingly using the RD design to evaluate the efficacy of instructional interventions, in part due to the design's compatibility with a preventative tiered service delivery model where at-risk students who are most in need receive the targeted interventions. The design has been used to examine the effects of a Tier 2 mathematics intervention (Bryant, Bryant, Gersten, Scammacca, & Chavez, 2008), a Tier 3 reading intervention (Vaughn et al., 2009), a Tier 2 literacy intervention (Chaparro, Smolkowski, Baker, Fien, & Smith, 2012), and an intensive

vocabulary intervention (Ashworth & Pullen, 2015; Tuckwiller, Pullen, & Coyne, 2010).

The Present Study

The purpose of the present investigation was to examine whether participation in a supplemental writing intervention that combined sentence construction strategy instruction with self-regulation procedures resulted in significant improvements to the performance of struggling fourth grade writers. The intervention's effectiveness was examined using standardized, norm-referenced assessments of standard writing conventions and story quality. A regression discontinuity (RD) design was used to test whether students included in the intervention group outperformed their predicted scores on each of the outcome measures. I hypothesized that the struggling writers would significantly outperform their predicted scores on both measures of standard writing conventions and story quality. I predicted the intervention, aimed at building fluency in foundational sentence-level skills, would directly improve performance on the standard conventions measure. Additionally, I theorized that fluency in prerequisite sentence-level skills would allow students to allocate more cognitive effort towards planning and making substantive revisions, and thus significant improvements in story quality would be observed.

CHAPTER 2

REVIEW OF THEORETICAL AND EMPIRICAL LITERATURE

Introduction

Through the adoption of the Common Core State Standards (CCSS; National Governors Association & Council of Chief State School Officers, 2010) writing instruction was elevated to the role of a fundamental educational imperative alongside reading and mathematics in school improvement efforts. The standards, which specify the content all students are expected to master and successfully apply at each grade level, correspond to overarching anchor standards for College and Career Readiness (CCRA). They are intended to improve K-12 instruction and increase student achievement. The CCSS neither mandates nor recommends the "how" part of teaching. However, their adoption has required many teachers to shift their approach to literacy and writing instruction in order to more directly address the conventional, linguistic, and cognitive components targeted in the Standards.

One component of writing prominent within CCSS is the command of standard English conventions (CCSS.ELA-Literacy.CCRA.L.1; CCSS.ELA-Literacy.CCRA.L.2). The efficacy of written language largely depends on these socially agreed upon rules for grammar (i.e. the syntactic and semantic structure of sentences) and mechanics (i.e. capitalization, punctuation, and spelling) (Shanahan, 2009). While arbitrary, these rules are a necessary tool to ensure the meaning of a text is clearly conveyed to the reader in a uniform manner (Culham, 2003). Unfortunately, many students leave high school without a firm grasp of these

foundational skills. Both professors and employers have expressed frustration with the lack of proficiency displayed by students and newly hired young professionals in basic writing skills, specifically at the sentence level (Foltz-Gray, 2012; National Commission on Writing, 2004; Quible, 2008; Sanoff, 2006). Remedial writing instruction has consequently become a necessary and time-consuming expense for universities and businesses (Goen-Salter, 2008; National Commission on Writing, 2004).

In order to prevent future academic difficulty stemming from missing prerequisite skills, teachers must systematically teach their students a progression of component skills building up to overall composite skills (Kame'enui & Simmons, 1990), and the provided instruction must target the knowledge and skills most salient for their students' developmental level (Fitzgerald, 2013). The Language and Writing strands of the CCSS provide a systematic, developmental K-12 framework outlining a sequence of learning goals to guide instruction that will hopefully minimize and prevent an overwhelming need for remediation at the university and occupational level. In the earliest grades, graphophonics, which includes phonological awareness, grapheme awareness, and morphology, is critical, as it is a prerequisite to sentence production (Berninger & Swanson, 1994; Fitzgerald & Shanahan, 2000). In the following grades, sentence-level conventions including syntax/grammar and mechanics become more critical, as they are prerequisites to developing more advanced composition abilities (Berninger & Swanson, 1994; Fitzgerald & Shanahan, 2000). The basic sentence is, after all, the foundation of written expression (Kame'enui & Simmons, 1990), and poorly developed sentence-

level composition skills do inhibit more complex writing tasks (Berninger, Nagy, & Beers, 2011; Datchuk & Kubina, 2012). Prior to being able to write paragraphs and pieces of connected text, a writer must first be able to use syntactic knowledge to properly form a sentence that conveys her or his intended meaning through the combination of words in grammatically acceptable groups (Fitzgerald & Shanahan, 2000; Kame'enui & Simmons, 1990; Saddler, 2012, 2013). A sentence is a "composition in miniature" (Flower & Hayes, 1981). And because constructing a sentence is a cognitively and linguistically demanding task (Fayol, 2016; Myhill, 2008), it cannot be assumed that all students will develop the necessary knowledge, skills, and strategies without explicit instruction. Unfortunately, much K-12 instruction solely focuses on macrolevel writing processes (Wakely, Hooper, de Kruif, & Swartz, 2006), such as choosing a topic, organizing ideas, and drafting and editing without explicit instructional attention on the discrete composition skills. However, as noted earlier, too many students are completing their K-12 education without ever mastering the basic sentence or standard English conventions, let alone developing the more complex compositional skills expected of them in college and the workforce.

Resistance to Teaching Standard Conventions and Sentence-level Skills

Common Core's attention to standard English conventions and the necessary instructional shift, has not come without controversy (Gartland & Smolkin, 2016; Locke, 2009). There is a worthy debate, well beyond the scope of this chapter, concerning the appropriateness of a prescriptive approach to teaching standard English as the single correct way to write (e.g. Delpit, 1986; Kolln & Hancock, 2005;

Labov, 1972; Scarcella, 2003; Smith, Cheville, & Hillocks, 2006). Many educators argue that teaching standard English as how one ought to write devalues other forms of English. For purposes of this chapter, I take the position that standard English is a teachable text generation skill. While not intrinsically superior, it is the variety of English associated with educational and socioeconomic success and mobility (Scarcella, 2003). And for this reason, I assume it is important all students be given access to the generally accepted conventions and be taught how to apply the skill during particular situations (Delpit, 1986). Along with this assumption, I also acknowledge that the rules and conventions considered acceptable and relevant for today's writing are bound to shift (Leu, Slomp, Zawilinski, & Corrigan, 2016).

It is important to note, one can take the position that standing cultural conventions necessitate students to become proficient in standard English without assuming that such proficiency is a gauge of a learner's abilities. Just as it is conventional to wear a suit to an interview despite the fact the suit itself is often irrelevant to whether or not the interviewee can perform the job's required duties, it is expected that written communication be presented following a generally accepted set of rules even if a deviation does not influence a reader's comprehension of the content and ideas contained in the text. And while unfortunate, it is the case that grammatical errors, much like attire, often negatively influence judgments made by employers (Forsythe, 1990; National Commission on Writing, 2004) and teachers (Graham, Harris, & Hebert, 2011) about one's competence, not just their ability to apply standard conventions in writing. On this

point, Graham, Harris, and Hebert (2011) conducted a meta-analysis of studies examining presentation effects on scoring writing, and calculated an average weighted effect size of -0.56 indicating that papers with grammatical errors were more harshly graded for content and quality than identical papers with fewer or no grammatical errors. The overall aim, of course, should be to eliminate presentation effects in assessment, especially when the tests are designed to assess content knowledge. However, until this is done, all students must be taught how to apply standard English conventions when it is an expectation to ensure access to fair evaluation.

Additional arguments are made opposing the inclusion of conventions in the curriculum. Some educators argue that focusing too much on the "surface aspects" of writing can discourage the development of authorial voice, individual style, and organization (Smith et al., 2006). Humphrey, Davidson, and Walton (2014) suggest teachers are forced to neglect these other important aspects of writing because standard English conventions are too prominent within CCSS and consequently largely emphasized on high stakes tests. Furthermore, some educators trained in strict social-constructivist or sociocultural teacher preparation programs do not directly address conventions based on theoretical grounds. Teachers in these programs are taught to believe that writing should not be broken into smaller components for explicit instruction. Rather, they are taught that students will naturally learn all the knowledge and component skills necessary for proficient composition, including those pertaining to standard English conventions, as they mature, write about topics of their choice during authentic writing tasks, and

receive feedback from peers prior to revising each piece (Applebee, 2000). A large body of evidence, however, suggests this type of generative instruction is not as effective as supplantive instruction that systematically promotes skill building (e.g. Kirschner, Sweller, & Clark, 2006; National Reading Panel, 2000), especially for struggling learners.

While less extreme than a purely generative model of instruction that depends heavily on incidental learning, many of the core underlying principles guiding the process approach to writing instruction- the most widespread form of writing instruction today- are also based in sociocultural and constructivist theory. In a national survey, 72% of elementary teachers reported using a process approach to writing instruction combined with some traditional skills instruction (Cutler & Graham, 2008). In process approach oriented classrooms, writing for authentic purposes is emphasized over systematic, explicit instruction on skills at the sentence, word, and subword level. Instruction on basic skills and components of writing such as conventions may occur through class mini-lessons, individual conferences, and "teachable moments."

The process approach to writing alone, however, is not effective for struggling and at-risk writers because skill instruction provided through minilessons, writing conferences, and teachable moments is not intensive enough for these learners to secure necessary basic skills such as sentence construction (Berninger et al., 2009; Graham & Harris, 1997a, 1997b; Graham & Sandmel, 2011; Spiegel, 1992; Troia, Lin, Monroe, & Cohen, 2009). Moreover, three separate meta-analyses suggest the process approach to writing instruction, while effective, is not

particularly powerful for general education students either when compared to other instructional treatments (Graham et al., 2012; Graham & Sandmel, 2011; Graham & Perin, 2007). Coupling the process approach with systematic, explicit instruction on requisite knowledge and skills, as well as strategies to apply such knowledge and skills, is more effective for general education students at improving the overall quality of writing than simply engaging students in the writing process (Graham et al., 2012; Graham & Perin, 2007).

Educators reluctant to teach standard English conventions for any of the reasons described above may prevent students from acquiring necessary basic grammatical skills. Still, students may struggle to achieve grammatical proficiency in writing even in cases where teachers believe in providing instruction on conventions. There are many teachers who wish to provide this instruction, not only because of their prominence in the Standards and consequent emphasis in standardized tests, but because they hope eliminating surface errors will improve the overall quality of writing (Smith et al., 2006). Yet, unless these teachers have a thorough understanding of the stages of writing and syntactic development, the cognitive processes that mediate successful writing, and evidence-based instruction appropriate for learners of different skill and developmental levels, they are likely to employ practices such as traditional decontextualized grammar instruction, (Berninger et al., 2009; Troia & Olinghouse, 2013) a practice which research suggests is not effective at improving overall written expression (e.g. Andrews et al., 2006; Graham et al., 2012; Hillocks, 1984; Hillocks & Smith, 2003). There are, though, research-supported practices that can be used to teach grammar and other

sentence-level standard conventions to typically developing and struggling writers as required by CCSS within a process-oriented writing program that continues to provide authentic opportunities for students to cultivate other components of writing such as authorial voice and style (Fearn & Farnan, 2007; Graham & Harris, 2013; Graham et al., 2015; Hudson, 2016).

In this chapter, I aim to provide information that can help guide educators in choosing effective instructional practices to ensure their students learn basic writing skills as outlined in the Language and Writing strands of CCSS. I will first offer a brief explanation of theoretical models of written language and its developmental stages to justify the Standards' emphasis placed on teaching sentence-level grammar and mechanics in the elementary grades. I will then review what is known about sentence-level text generation instruction - what works and for whom - and frame the extant research within theoretical models of grammar instruction.

Theories of Writing Development

In order for teachers of writing to be most effective, a theoretical understanding of writing and its development is essential. This understanding enables clarity of instructional goals because theory influences pedagogical decisions about what components of writing are emphasized, and the way in which these components ought to be taught (Fitzgerald, 2013). There are two general theoretical approaches to writing that have guided much of the developmental and instructional research over the past few decades; a cognitive perspective and a sociocultural perspective. The cognitive stance views writing as a complex problem-

solving activity that involves the integration of the writer's knowledge, skills, strategies, language, and motivational resources in order to meet their communicative goals (MacArthur & Graham, 2016). The sociocultural stance views writing as "a complex social participatory performance in which the writer asserts meaning, goals, actions, affiliations, and identities within a constantly changing, contingently organized social world, relying on shared texts and knowledge" (Bazerman, 2016, p. 18). From either perspective, however, linguistic competence, which includes syntax/grammar, is essential to proficient written expression (Myhill, 2008).

The sociocultural perspective on the causal factors for deficits in writing outcomes is that struggling writers lack a solid understanding of the important relationship between authors and readers (Fitzgerald, 2013). On the other hand, cognitive theory provides greater insight into different reasons why some writers struggle and how their difficulties might be remediated. Fitzgerald (2013) suggests the cognitive perspective affords a problem-solving framework for assisting struggling writers, because researchers with this theoretical stance have explored the knowledge, skills, and processes necessary during composition, their development, and how they might be bolstered through various instructional methods. The assumption is that the difficulty, or problem, exists due to a deficit in requisite skills, strategies, or specific linguistic and content knowledge, each of which contributes to writing development and performance (Graham, 2006). The specific component that needs strengthening can be identified and then targeted through explicit instruction to improve writing performance. Conversely,

instruction based on a firm sociocultural perspective in which teachers facilitate opportunities for students to engage in authentic and meaningful writing activities, does not allow for the overall composite skill of writing to be broken down into its smaller components. Therefore, while acknowledging that writing and understanding do develop in social contexts, this chapter focuses primarily on research and instructional practices based on cognitive theoretical models.

Cognitive Perspectives on Writing

The most influential cognitive model of writing is that of Hayes and Flower (1980), which was developed through the analysis of think-aloud protocols completed by adults as they produced a written product. The theoretical model, which conceptualizes writing as a complex problem-solving task, involves three core components; 1) the writer's long-term memory which includes their knowledge of the topic, intended audience, and planning activities that have been previously effective in helping them accomplish past writing tasks, 2) the task environment which includes external influences such as the topic, audience, and text produced so far, and 3) the cognitive processes of planning, translating, and reviewing. During composition, the writer must plan what to say and how to portray these ideas in words. They must then translate the plans into written text before evaluating and revising that text to make improvements.

Critics of the Hayes and Flower model do not believe the social and interactive nature of writing is adequately addressed. Rather than being central, intended audience is included as an appurtenant component within task environment (Nystrand, 2006). Hayes (1996) later revised the model to more

thoroughly include the social aspects of writing. And in this updated version, he also highlighted the importance of linguistic and genre knowledge, as well as the constraints and role of working memory. Still, the revised model did not capture significant differences between beginning writers and skilled writers. Clearly, writing instruction for students in the early stages of development should not look like writing instruction for adults honing their skills. Unfortunately though, elementary school instruction based on models of adult or expert writing can tend to overemphasize the macrolevel writing processes while discounting the importance of prerequisite skills and knowledge (Wakely et al., 2006). Thus, developmental theories offer greater insight and depth into theories of writing acquisition.

Developmental Perspectives on Writing

Writing proficiency is dependent upon the development and integration of skills and processes at the physical, neurological, cognitive, and linguistic levels (Berninger, Fuller, & Whitaker, 1996; Berninger et al., 1992). Because there exist developmental constraints at each of these levels while children are learning to write, the developing novice writer cannot be equated to a skilled adult writer (Berninger, Mizokawa, & Bragg, 1991; Berninger & Swanson, 1994). Taking a developmental perspective, Berninger and Swanson (1994) modified the Hayes and Flower model based on constraints to writing acquisition, and these constraints' relative importance at different ages. They adapted the Hayes and Flower model by dividing the process of translating into two components: transcription and text generation, both of which emerge prior to one's ability to skillfully plan or review

text. Transcription, which includes handwriting, keyboarding, and spelling, skills paramount in primary grades, is dependent upon physical and neurological development. Text generation, which involves transforming ideas into words, sentences, and paragraphs, is dependent upon linguistic development. While transcription skills act as a constraint early on, and thus receive the majority of their attention in the primary grades, linguistic knowledge and skills that allow writers to produce sentences and connected text of appropriate syntax and grammar become a more significant constraint to writing proficiency in the intermediate grades. The ability to plan, organize thoughts, and review/revise the written product for cohesion is dependent on development at the cognitive level, which Berninger and Swanson (1994) suggest becomes most salient in junior high. Cognitive constraints, however, are not just relevant during this developmental stage. They are involved at all developmental stages, owing to the fact that every component of writing requires cognitive resources (Bourdin & Fayol, 1994).

Working Memory and the Capacity Theory of Writing

Planning, translation - both transcription and text generation -, and reviewing each rely on the writer's skills and strategies, as well as their content, linguistic and domain knowledge (Fayol, 2016; Graham, 2006). And during composition, these are all coordinated and balanced within working memory (Berninger, 1999; Bourdin & Fayol, 1994; McCutchen, 2000; 2006), which itself has a limited capacity (Baddeley, 1986; Swanson, 1992). Working memory is responsible for storing and processing information from both the environment and long-term memory during any task, and due to its limitations, there is a trade-off

between the two functions (Baddeley, 1986; McCutchen, 1996; 2000). Storage, processing, or both are adversely affected when cognitive demands exceed resources. For the complex task of writing, cognitive resources devoted to planning, translating, or reviewing result in diminished resources available for the remaining two components (Bourdin & Fayol, 1994; McCutchen, 2000). Even though translating is the least demanding of the three processes (Kellogg, 1994), lack of fluency in text production taxes the writer's limited resources and can prevent her or him from adequately planning and revising, which consequently, negatively influences overall writing quality (McCutchen, 2006; McCutchen, Teske, & Bankston, 2008).

Developing and struggling writers who do not adequately plan or revise resort to using an approach to writing Bereiter and Scardamalia (1987) called knowledge-telling. Writers who rely on this low-level strategy simply retrieve topic-appropriate knowledge from long-term memory to immediately write down. Each brief chunk of text serves as the cue or stimulus for the next idea, resulting in a string of loosely related ideas often organized in fragments or run-on sentences (Berninger et al., 2011; Graham, 1990). Without planning and reviewing, writers who rely on knowledge-telling have difficulty taking the perspective of a potential reader. They instead focus on their own thoughts and not how the text literally reads (Kellogg & Whiteford, 2009). The same limited capacity of working memory that results in trade-offs between planning, translation, and reviewing does not allow developing writers to simultaneously access their own representation of the text as the author, the literal text itself, and the reader's representation of the text

(Kellogg & Whiteford, 2009). Without access to all three text representations, the author cannot make the intended meaning of the communication clear.

Research suggested this low-level form of composition can not only be prevented through explicit instruction on planning and revision strategies (Graham & Harris, 2005), but effective instruction in the components of translation can also reduce writers' reliance on limited knowledge-telling (Berninger et al., 2011). Theoretically, the cognitive load, or demand on working memory resources, required for a task can be reduced when any of its component skills and processes become relatively more automatic and efficient through instruction and practice (Kellogg & Whiteford, 2009; Sweller, 1988). For younger writers, both transcription and text generation are fairly inefficient when compared to typical adult writers who have developed relative automaticity. Multiple studies have found transcription requires more cognitive demand for children than for adults (e.g. Bourdin & Fayol, 1994; Bourdin, Fayol, & Darciaux, 1996; Olive & Kellogg, 2002). Research also suggests systematic instruction for developing writers on handwriting and spelling is effective in building overall compositional fluency (e.g. Berninger et al., 1997; Berninger et al., 2002; Berninger et al., 2006; Berninger & Graham, 1998), theoretically because demand on working memory is reduced as the component skills become relatively more automatic (McCutchen, 2006).

Text generation, just like translation, also requires more cognitive demand for children than for adults (Bourdin & Fayol, 1994; Kellogg, 1994). While the burden vocabulary retrieval and generating text at the sentence level impose on typical adult writer's working memory is nearly indiscernible, the cognitive demand

for developing writers is quite large (Berninger, Cartwright, Yates, Swanson, & Abbott, 1994; Bourdin & Fayol, 1994). Children are just developing an understanding of how oral and written language necessitate different linguistic codes and syntactic constructions (Myhill, 2008; 2009), and those structures associated with writing are understandably more complex than speaking (Shanahan, 2006). The effort developing writers must place on linguistic and syntactic decisions within the set of accepted rules inhibits their ability to focus on the meaning they are intending to convey through text (Van Gelderen & Oostdam, 2005). Much like teaching transcription skills influences overall composition by reducing cognitive load, theoretically, teaching text generation skills and the requisite linguistic knowledge will reduce translation demands opening up more resources for planning and reviewing. And while it isn't expected for sentence-level text generation skills to become automatic in the same way as transcription skills, it is the relative automaticity and fluency that matters (Cheng, 1985; Kellogg & Whiteford, 2009).

Findings from a study completed by McCutchen, Covill, Hoyne, and Mildes (1994) are consistent with the theory that fluency in text generation skills may allow writers to attend to other components of writing to improve overall quality. They found that across grade levels, those classified generally as skilled writers had greater sentence-level fluency than unskilled writers. Additionally, Van Gelderen and Oostdam (2005) found students who participated in fluency training on various sentence-level linguistic operations made proportionally fewer errors related to text meaning than a control group during a writing task. The authors suggest their

findings support the theory that increased fluency in producing various acceptable sentence structures allows writers to better attend to the overall meaning of the text.

In summary, according to cognitive and developmental theories of writing, teaching the orthographic and linguistic knowledge and skills necessary for translation may improve overall written expression just as teaching skills and strategies for planning and reviewing text can. By reducing the cognitive demand required for transcription (i.e. handwriting and spelling) and text generation (i.e. producing sentences of appropriate syntax/grammar), writers may be less likely to resort to knowledge-telling. This is because they will have more cognitive resources available to apply to planning, reviewing, and taking a prospective reader's point of view. Unfortunately, educators have not embraced grammar and sentence-level text generation instruction in the same way they have accepted spelling and handwriting/transcription instruction. There are several reasons this might be the case, some of which were previously discussed. Additionally, the past twenty years of writing instruction and writing instruction research can be characterized as a backlash from the studies that demonstrated traditional decontextualized grammar instruction was found to be ineffective. This resulted in completely grammar-free instruction for two decades, which means that many of today's teachers do not have the necessary understanding of syntax to effectively teach grammar and sentence-level writing skills (Hudson, 2016).

Grammar and Sentence Construction Instruction

Given that 1) linguistic knowledge and sentence-level text generation skills may significantly constrain writing proficiency in the intermediate grades (Berninger & Swanson, 1994), and 2) fluency or relative automaticity in sentence-level text generation skills may improve overall writing proficiency by making available more cognitive resources for planning and reviewing (Kellogg & Whiteford, 2009), the emphasis CCSS places on standard English conventions during elementary and intermediate grades is warranted. It is important to keep in mind, however, that the Standards do not recommend methods through which teachers should support and guide their students in meeting these expectations. We must, therefore, look to research in order to find effective practices for teaching sentence-level skills. Within the literature, methods of teaching standard conventions and other sentence-level skills tend to fall under two general headings; sentence construction (SC) instruction and grammar instruction.

While it is now argued that SC instruction is actually a form of grammar instruction (Hudson, 2016), the latter tends to refer to traditional decontextualized methods such as sentence diagramming. An abundance of research, synthesized in multiple meta-analyses, has found traditional methods of grammar instruction to have no influence on children's writing quality (Andrews et al., 2006; Graham et al., 2015; Graham et al., 2012; Hillocks, 1984; Hillocks & Smith, 2003). This has driven many educators to fully abandon the idea of teaching grammar by any means. Hudson (2016) argues against the complete abandonment of grammar instruction in education. He cites multiple reasons why the conclusion that it is ineffective

should be reconsidered. One major flaw pointed out by Hudson is that the narrow definition of what constitutes teaching grammar in these meta-analyses excluded SC instruction. Teaching students to construct grammatically correct sentences, whether basic or syntactically complex, however, is a clear example of teaching grammar.

Sentence-combining, one form of SC instruction, is a well-researched alternative to traditional methods of teaching grammar. Through a series of systematic lessons, the instructor explicitly teaches students to combine two or more kernel sentences or clauses into a syntactically complex sentence (Saddler, 2012, 2013). The instruction helps students develop a metalinguistic awareness, which allows them to make thoughtful syntactical choices with the reader in mind. Repeated guided practice builds syntactical fluency with a variety of complex sentence constructions. In a study conducted by Saddler and Graham (2005), students in the sentence combining treatment group were twice as likely to produce a grammatically correct sentence containing all critical ideas from the kernel sentences than those students in the traditional grammar instruction comparison group. The researchers reported effect sizes of 1.31 for sentence combining on the researcher made end-of-unit tests and 0.81 for the TOWL-3 Sentence Combining subtests. Additionally, sentence combining has been shown to be moderately effective at improving overall writing quality (Saddler, Asaro, & Behforooz, 2008; Saddler, Behforooz, & Asaro, 2008; Saddler & Graham, 2005) with an average-weighted effect size of 0.56 (Graham et al., 2015).

Forms of SC instruction other than sentence combining have also been found to be effective. Anderson and Keel (2002) examined the effects of the first unit in the *Reasoning and Writing* program (Engelmann & Silbert, 1991). The unit is a series of explicit and systematic lessons beginning with the construction of simple sentences before gradually progressing to compound and complex constructions. The researchers reported medium effect sizes for syntactic maturity (ES = 0.48) and overall Spontaneous Writing on the TOWL-2 (ES = 0.47). Additionally, Datchuk, Kubina, and Mason, (2015) found explicit teaching on the construction of simple sentences combined with a fluency-building practice procedure was effective for increasing the speed and accuracy of complete sentences and correct word sequences for elementary-aged students. In a second study, the SC instruction was effective in increasing fluency of complete sentences for four adolescents with writing difficulties (Datchuk, 2015). Although neither of the studies included an outcome measure of overall writing quality, writing researchers theorize that the increased fluency in text generation skills will allow the writers to allocate more cognitive resources to planning and reviewing.

In addition to SC instruction, recent research has found other forms of teaching grammar to have positive effects on writing. It should be noted, however, that participants in the following studies were in high school. Fearn and Farnan (2007) compared what they termed functional grammar instruction in writing to traditional decontextualized grammar instruction. Rather than focusing on identifying parts of speech and editing grammatically incorrect sentences, those in the treatment group were explicitly taught the purpose and function of word types

and sentence parts within complete sentences. The teachers of the treatment group purposefully capitalized on students' grammatical instinct within the students' own writing to illuminate differences between nonstandard forms of grammar and the accepted conventional forms of grammar. Although there was no difference in the performance of the treatment and control groups on a traditional grammar test and measures of mechanical accuracy, the students receiving functional grammar instruction performed significantly better on a measure of overall writing quality.

Similarly, Jones, Myhill, and Bailey (2013) and Myhill, Jones, Lines, and Watson (2012) found explicit grammar instruction that focuses on building an understanding of how language functions to positively improve high school student writing. The intervention in this set of studies taught grammar as a meaning making resource. Students learned how specific grammatical choices could help communicate their intended ideas to readers. Effects of the intervention were found both at the syntactic level of the sentence and overall text composition. The researchers found, however, it was significantly more beneficial for stronger writers. The intervention did not have the same beneficial effects for struggling writers. As discussed earlier, struggling writers can have difficulty accessing the reader's representation of the text due to cognitive constraints (Kellogg & Whiteford, 2009). This may be the reason why a metalinguistic language-heavy intervention aimed at using grammar as a tool to convey meaning to a reader was not as beneficial for these students.

In addition to this evidence supporting forms of grammar instruction not included in the meta-analyses, Hudson's case against full abandonment is further

cemented by the fact that research suggests even traditional grammar instruction shows promise for students with learning disabilities (Rogers & Graham, 2008). Additionally, there is a large evidence base supporting its use for English language learners (e.g. DiCerbo, Anstrom, Baker, & Rivera, 2014; Williams, 2013).

Hudson's Theoretical Model of Teaching Grammar

Hudson (2016) offers a theoretical explanation as to why certain methods of grammar and SC instruction are effective and why others are not. He states that there are, in general, two approaches to teaching grammar; preventative and reactionary. Preventative instruction aims to systematically teach grammatical knowledge and skills in order to prevent students from making mistakes in their own writing, thus improving overall text quality. Reactionary instruction, on the other hand, occurs only in context and when it is relevant. This means that teaching occurs in reaction to specific mistakes made in authentic writing with the intent of improving the overall text quality. Hudson proposes a set of theoretical models of grammar instruction useful in describing the potential and shortcomings to both general instructional approaches. In the models, "teaching grammar" means instruction on the ideas and terminology of the grammatical system. His simple 3-step model of grammar teaching for writing is as follows:

1. Teaching grammar produces knowledge about grammar
2. Knowledge about grammar enables applying grammar
3. Applying grammar improves writing

In a more complex model, he also states that teaching grammar leads to a greater awareness of grammar. The awareness enables one to notice grammatical

patterns and choices when reading, which then furthers knowledge. Again, the knowledge enables the student to apply the patterns and choices in their own writing, which would result in improved text. This line of reasoning directly aligns with Berninger, Nagy, and Beers' (2011) theory that developing syntactic awareness in young writers can enhance their ability to translate their thoughts more clearly in grammatically acceptable sentences.

In both of Hudson's models - the simple 3-step model and the more complex model - there is no direct connection between the knowledge about grammar produced through instruction and the improvement to writing itself. Much of the work involving the preventative approach to teaching grammar, however, assumes this direct connection exists. Rather than a 3-step model, this view implies a 1-step model where teaching grammar simultaneously produces knowledge about grammar and improves writing. There is an assumption that grammar is applied simply because a writer possesses knowledge about it. Developing writers, however, do not necessarily apply their knowledge unless they are explicitly taught strategies to do so (Graham & Harris, 2000). This is especially true for struggling writers.

The reactionary approach to teaching grammar also assumes a 1-step model. This approach, according to Hudson, assumes applying grammar and teaching grammar are one and the same. When instruction solely occurs in reaction to problems in authentic writing, there is no system put in place to prevent similar problems from occurring in future writing and no terminology attached to errors and corrections. As a result of this approach, students are left with a hodgepodge of grammatical knowledge they have applied, which they often cannot name or

explain. As noted earlier, instruction through reactionary teachable moments is not effective in teaching struggling writers necessary skills (Berninger et al., 2009; Graham & Harris, 1997b; Graham & Sandmel, 2011; Spiegel, 1992; Troia et al., 2009).

Grammar and Sentence Construction Instruction with Strategy Instruction

According to the 3-step model, grammar instruction only improves overall writing given that the grammar is applied (Hudson, 2016). Teachers must, therefore, explicitly teach their students the requisite grammar knowledge and skills as well as strategies to apply the knowledge and skills during writing. Strategies involve the procedural knowledge necessary to accomplish a task and can serve as a step-by-step guide to assist a student in organizing his or her own actions and behaviors (Weinstein & Mayer, 1983). Through instruction and repeated practice, strategies and procedural knowledge become stored in long-term memory where they are available for recall during relevant tasks. Recalling a learned, efficient strategy reduces the cognitive load necessary to complete a task because the individual is no longer required to use the limited working memory resources to problem solve through possible procedural steps. Although some students are able to develop their own strategies, struggling learners and those with learning disabilities often do not learn efficient and effective strategies without explicit instruction (Brown & Campione, 1990; Derry & Murphy, 1986; Swanson & Hoskyn, 1998). Research indicates explicit strategy instruction for planning, composing, and revising benefits both struggling and typically developing writers (Graham et al., 2012).

Two studies have examined the effectiveness of sentence-level grammar instruction paired with strategy instruction. The first, conducted by Bui, Schumaker, and Deshler (2006), examined the effects of a comprehensive writing program that utilized the Strategic Instruction Model (Deshler & Schumaker, 1988) and included the *Fundamentals of Sentence Writing* (Schumaker & Sheldon, 1998). The first lessons first taught the 5th grade students in the sample the requirements of a complete simple sentence and were followed by lessons on sentence-level strategies for 1) identifying the subject and verb in a sentence, 2) identifying action and linking verbs, 3) identifying infinitives and prepositional phrases, 4) writing four types of simple sentences, 5) identifying main subjects, adjectives, and helping verbs, and 6) identifying and using coordinating conjunctions to join two simple sentences. Following a gradual release model of explicit instruction, students learned the PENS MARK writing strategy which stands for Pick a sentence formula, Explore words to fit the formula, Note the words, Search and check, Mark out the imposters, Ask if there is a verb, Root out the subject, and Key in on the beginning, ending, and meaning. Students who received the intervention increased significantly from pre- to posttest on the proportion of complete sentences (ES = 1.64) and the proportion of complicated sentences (ES = 1.18). Students with LD who received the intervention made a mean gain of 47% on proportion of complete sentences and 19% on proportion of complicated sentences. Students without LD in the intervention group made a mean gain of 38% on proportion of complete sentences and 23% on proportion of complicated sentences. Those students in the control

group showed no improvement on complicated sentences and decreased in the proportion of complete sentences.

Limpo and Alves (2013) also examined the effectiveness of teaching grammar paired with strategy instruction. The intervention examined in this study additionally included instruction in self-regulation procedures. Self-regulation refers to internal thoughts, feelings, and actions that are used to obtain personal goals (Schunk & Zimmerman, 2007), and the development of these cognitive regulating behaviors influence the acquisition and application of knowledge and skills. Importantly, at-risk writers need more support in developing self-regulation procedures than their peers to ensure the use of strategies throughout each step of composition (Wong, Harris, Graham, & Butler, 2003). In the early stages of writing development, all writers are dependent upon others, be it their teacher or peers, to regulate their planning, composing, evaluating, and revising (Berninger & Amtmann, 2003). External supports are necessary to reduce the cognitive processing burden, and therefore, the role of a teacher is to provide scaffolding to simplify the complex processes involved in writing. For typically developing writers, dependence on others for regulation of cognitive processes gradually shifts to self-regulation as they integrate and internalize strategies throughout the writing process. For struggling writers, this shift from other-regulation to self-regulation does not always occur as they have difficulty acquiring and using strategies without explicit guidance and support (Graham & Harris, 2000).

In order to promote self-regulation during composition, Limpo and Alves (2013) integrated SC instruction into the Self-Regulated Strategy Development

(SRSD) model. SRSD was designed to improve a student's strategic knowledge, self-regulation skills, content knowledge, and motivation (Harris & Graham, 1999). It focuses on procedural facilitation and can be applied to various writing interventions that employ explicit instruction. Goal setting and self-monitoring are integral to the model. Several meta-analyses indicate SRSD has a strong effect on the writing of both typical and struggling writers (Graham & Harris, 2003; Graham et al., 2015; Graham & Perin, 2007; Graham et al., 2012; Rogers & Graham, 2008).

During the Limpo and Alves study, those in a sentence combining intervention group learned the mnemonic DICA, which is the Portuguese acronym for: *what do you want to say?, what is the idea?, choose your best connective, and enrich with adjectives and adverbs*. They set the goal to write well-crafted sentences with connectives, opinion markers, and adjectives/ adverbs, and then learned to self-monitor by counting the number of each of these sentence components. Results indicated the intervention increased students sentence construction skills. Those who received the sentence combining intervention were able to successfully combine more sentences at mid-test and posttest than those receiving an alternate intervention and those in the control group (ES = 1.06). The intervention also had a positive effect on overall opinion essay quality (ES = 0.72). Students who received sentence combining instruction scored better at each of the sentence construction measures and word level measures within connected text. This indicates the students were not only able to utilize their skills in isolation, but they were able to apply them in text production.

Conclusion

In order to become college and career ready by high school graduation, students are expected to master standard English conventions, the socially agreed upon rules for grammar and mechanics. Unfortunately, an overwhelming proportion of students are completing school without becoming proficient in these sentence-level conventions (National Commission on Writing, 2004), which allow for clear written communication and are associated with academic achievement and socioeconomic mobility (Scarcella, 2003). Disfluency at the sentence level is a barrier to proficient written expression, and many employers are frustrated with the inability of their new hires to communicate clearly through writing (National Commission on Writing, 2004). Cognitive and developmental theories of writing suggest relative fluency in sentence-level text generation skills can improve overall writing by reducing cognitive load, allowing more resources to be allocated to planning and reviewing (McCutchen, 2006). There are multiple instructional practices supported by research that can be used to teach sentence-level text generation skills and build syntactical fluency. Theoretical models of teaching grammar suggest these methods of SC and grammar instruction can improve one's overall writing provided the knowledge and skills learned are also applied when writing connected text (Hudson, 2016). Therefore, teachers should explicitly teach students procedural strategies for application alongside the requisite linguistic knowledge. Additionally, self-regulation procedures, which can be taught through the SRSD framework (Harris & Graham, 1999), are especially beneficial for struggling writers. A well-designed writing program can include explicit sentence-

level text generation instruction along with strategy instruction for planning and revising within a process-oriented structure (Graham et al., 2015). And by emphasizing how grammatical choices at the sentence level can influence the presentation and clarity of a writer's ideas, authorial voice and individual style can be developed rather than sacrificed.

CHAPTER 3

METHODOLOGY

The present investigation was designed to test whether participation in a supplemental writing intervention that combined sentence construction strategy instruction with self-regulation procedures resulted in significant improvements to the performance of struggling fourth grade writers. Using a regression discontinuity (RD) design, I tested whether struggling writers would significantly outperform their predicted scores on measures of standard writing conventions and story quality after receiving the writing intervention.

Participants and Setting

The study took place in a suburban elementary school serving 4th and 5th grade students in the northeast. Of the 131 fourth graders in the school, study participants included 107 students who did not have goals specific to written expression in their Individual Education Program (IEP) and whose guardians consented to their child's participation. Coincidentally, all African American students and all but two Hispanic students were excluded from participating because they already received supplementary writing instruction as outlined in their IEPs. Demographic characteristics are included in Table 1.

The school was selected because a large sample could be recruited for an adequately powered RD design. Capperlleri, Darlington, and Trochim (1994) completed a power analysis and provided sample size recommendations for RD to detect small, medium, and large effect sizes at $\alpha = .025$. In order to detect a medium

effect size, a sample of 96 would have power of .60 while a sample of 150 would have power of .80. A sample size falling within the 96-150 range would have power above .90 for detecting a large effect size. In the only other study investigating the effects of a similar sentence construction intervention combined with SRSD instruction, large effect sizes were reported for strategy-specific measures (ES = 1.06), sentence level measures (ES ranging from .86 to 3.68), and writing quality (ES = .72) (Limpo & Alves, 2013).

Measures

Curriculum-based Measurement - Written Expression (WE-CBM)

Correct Minus Incorrect Writing Sequences (CMIWS) elicited from WE-CBM served as the screening variable for this study. CMIWS is a scoring index that captures both fluency and accuracy. To calculate CMIWS, each writing sequence - two adjacent writing units - is classified as either a correct writing sequence (CWS) or an incorrect writing sequence (IWS) in context using Videen, Deno, and Marston's (1982) scoring rules. IWS are then subtracted from CWS. CMIWS has demonstrated adequate reliability and strong correlations to teacher holistic ratings and state achievement tests in multiple studies (Espin et al., 2000; Furey, Marcotte, Hintze, & Shackett, 2016; Jewell & Malecki, 2005).

A randomly selected WE-CBM probe from the story prompt list provided through AIMSweb (NCS Pearson, 2015) was administered using standardized directions from the AIMSweb assessment manual for written expression (Powell-Smith & Shinn, 2004) in order to gather the writing samples from which CMIWS scores were derived. The sampling time, however, was increased from one minute

of planning with three minutes to write, to one minute of planning with ten minutes to write. The prompt was repeated five minutes into the writing period. Students who scored below 43 CMIWS were assigned to the intervention group. These procedures and cut score previously demonstrated adequate classification accuracy (Sensitivity = .91, Specificity = .54, AUC = .80) with fourth grade students (Furey et al., 2016).

Test of Written Language, 4th edition (Form B; TOWL-4)

The two outcome measures included the Contextual Conventions and Story Composition subtests from the TOWL-4 (Hammill & Larson, 2009). These subtests are scored using the same writing sample. To administer this section of the TOWL-4, the primary investigator read the sample story that was paired with a picture to the students. The examiner then pointed out how the story had important elements such as a clear beginning, middle, and ending, as well as interesting characters that show emotions, in accordance with the standardized test directions. The students were then provided a stimulus picture and were directed to compose their own interesting story. They were given five minutes to plan followed by fifteen minutes to write.

The Contextual Conventions subtest represented the proximal outcome measure for this study. Its score was computed using 21 items associated with the proper use of punctuation, spelling, and grammar. The subtest measures a student's ability to use accepted orthographic and grammatic conventions during composition. The test developers reported the coefficient alpha for 4th grade Form B of Contextual Conventions to be .69 and the standard error of measurement to be

1. They reported correlations ranging from .58 to .62 between the subtest and other measures of literacy.

The Story Composition subtest represented the story quality outcome measure for this study. To obtain a Story Composition score, the writing sample was evaluated using 11 items associated with the presence of mature vocabulary, a coherent plot, and an appropriate organizational structure. The coefficient alpha for 4th grade Form B of the Story Composition subtest was reported to be .68. The standard error of measurement was reported to be 2. They reported correlations ranging from .39 to .56 between the subtest and other measures of literacy.

Scoring Procedures

Screening

Trained school psychology graduate students scored responses for CWS and IWS. Excel was used to calculate CMIWS. Interscorer agreement was calculated using procedures described in Gansle, Noell, VanDerHeyden, Naquin, and Slider (2002) for 21% of probes. Mean agreement between scorers was .93 for CWS and .77 for IWS. Samples were not typed prior to scoring, which may have contributed to the lower interrater agreement.

Outcome Measures

Outcome assessments were conducted during the two weeks following the completion of the intervention. Graduate students scored the writing samples according to criteria in the TOWL-4 Record/Story Scoring Form. Prior to scoring the samples included in the study, the students received training and practiced scoring multiple stories from the test's Supplemental Practice Scoring Booklet. Following

the procedures the test authors used, an index of agreement was calculated for the study sample. The correlation between the results of two independent scorers for 20% of the stories was .91 for Contextual Conventions and .83 for Story Composition. According to Hammill and Larson (2009), coefficients in the .80s are high enough to be accepted as scorer reliability. The average mean correlation (Forms A and B) reported by the test authors was .97 for Contextual Conventions and .80 for Story Composition. I calculated percent adjacent agreement between the scaled scores as a second measure of interscorer agreement. For Contextual Conventions, 77% of scaled scores fell within 1 point of each other, and 100% fell within 2 points. For Story Composition, 55% of scaled scores fell within 1 point of each other, and 82% fell within 2 points.

Intervention

General Instructional Procedures

The principal investigator, a former elementary school teacher, provided the small group instruction. The intervention took place two times per week for seven weeks. Each session was 35 minutes in length and scheduled so students did not miss writing instruction in their general education classroom. On average, students missed less than one session. Attendance data are provided in Appendix C. After an absence, the interventionist taught the student missed material during the independent work portion of the session.

Instructional Sequence

There were 14 intervention sessions. General topics introduced in each lesson are provided in Appendix D, and a sample lesson plan is provided in

Appendix E. The intervention followed the six stages of instruction in the SRSD framework (Graham & Harris, 2005). Through the intervention, students were taught discrete skills for composing sentences, a mnemonic to guide the application of the composition skills, and meta-cognitive self-regulation strategies. Prerequisite knowledge and skills needed to understand and execute the new strategy were taught in the *Develop Background Knowledge* stage during lessons one through six. Material taught during these lessons was based on the Sentence Structure portion of *Framing Your Thoughts* written expression program created by Project Read Language Circle (Greene & Enfield, 1997). *Framing Your Thoughts* is a sequential and systematic program delivered using explicit instructional methods. The program objective is to instruct students "to build sentences with confidence, accuracy, and creativity" (Greene & Enfield, 1997).

Stage two, *Discuss It*, consisted of the teacher and student meeting one-on-one to examine the student's own writing samples. Strengths and areas in need of improvement were discussed prior to setting specific goals. During stage three, *Model It*, the interventionist modeled the proper use of the strategy mnemonic (F-SPEED) that was designed to support sentence composition, and self-statements to help regulate strategy use. Students were required to memorize the steps of the strategy during stage four, *Memorize It*. To do so, students received flash cards and were quizzed on the steps at the beginning of each session. During stage five, *Support It*, students had the opportunity to practice the strategy with assistance from the interventionist and peers. Students continued to use instructional aids while the teacher provided corrective feedback. Data on the inclusion of strategy

specific elements of the sentence were collected, allowing students to reflect and compare performance to goals. Scaffolding, anchor charts, and checklists were gradually removed as students became more adept at using the strategy. Practice occurred repeatedly until the students could independently apply the strategy with success during the final stage of SRSD, *Independent Performance*.

F-SPEED

Beginning in Lesson 8, students learned a sentence construction strategy and its mnemonic, F-SPEED, which incorporates language and skills explicitly taught through the *Framing Your Thoughts* program. Students were guided to edit each sentence, determining if it was a complete thought by asking themselves two questions: 1) *Is my sentence Framed with a capital letter and ending punctuation?* and 2) *Does my sentence have a Subject and a Predicate?* Next the students were guided to Evaluate their sentence. During this step, students ask themselves, a) *Will the reader be confused by my sentence?* and b) *Will the reader find my sentence interesting?* Finally, the students ask themselves, *Can I Expand my predicate?* and *Can I Describe my subject?*

Self-regulation Procedures

In the first lesson, students were generally introduced to goal setting. In the early stages of the intervention, all students had the same general goal; *to write texts filled with well-crafted and interesting sentences*. After discussing each individual's own writing during the *Discuss It* stage, specific goals were incorporated. Students eventually wrote their own goals such as, *"I will expand 2 sentences using predicate expanders and at least 2 sentences with subject describers," "I will frame every single*

sentence with a capital letter and a stop sign," and "When I revise, I will make more sentence variety by moving some predicate expanders to begin sentences [sic]."

Self-monitoring was introduced when students began individualizing their goals. Students received a goal and self-monitoring sheet that included the group's overall goal and a space to write their individual goal before each practice prompt. Following the writing activity, students checked off whether or not they met their goal, then recorded the number of complete sentences, the number of predicate expanders used, and the number of subject describers used as they revised. Accuracy of counts was checked and corrected prior to the next session.

Fidelity of Implementation

The interventionist used a script for the explicit instruction portion of every lesson, and all examples were included in slideshows using interactive whiteboard software. Along with the script, each lesson included an "Essential Steps Checklist" which the interventionist completed to ensure all instruction was delivered. All steps were completed except for two sessions when lesson closure and independent practice components did not occur due to time constraints.

Regression Discontinuity Design and Data Analysis

I implemented a RD design to test whether students included in the intervention group outperformed their predicted scores on each outcome measure. Within the field of educational research, randomized experiments are not always practical or feasible, and the RD design is a strong alternative when the purpose of the study is to evaluate the efficacy of an intervention program (Shadish et al., 2002; Trochim, 2006). RD is a quasi-experimental design where participants are assigned

to treatment or control based on whether they fall above or below a cutoff on an assignment variable (Shadish et al., 2002). For this reason, the use of RD designs effectively aligns to a preventative instructional framework where students identified as at-risk on a screening measure receive supplemental instruction. Educational researchers are increasingly using the RD design to evaluate the efficacy of instructional interventions. The design has been used to examine the effects of a Tier 2 mathematics intervention (Bryant et al., 2008), a Tier 3 reading intervention (Vaughn et al., 2009), and an intensive vocabulary intervention (Ashworth & Pullen, 2015; Tuckwiller et al., 2010).

The RD design yields unbiased estimates of treatment effects if five central assumptions are met (Shadish et al., 2002; Trochim, 2006). First, the cutoff criterion must strictly be followed when assigning students to the intervention and comparison groups. Second, the relationship between pre- and posttest scores must be describable as a polynomial function. Third, the comparison group must be large enough to adequately predict the regression line. Fourth, all participants in both intervention and comparison groups must come from the same continuous pre-intervention distribution in order to avoid selection bias. Lastly, the intervention must be delivered to all participants in a consistent manner.

I followed steps outlined by Trochim (2006) to conduct the RD analyses after ensuring all central assumptions were met. First, I transformed the pretest scores so that the cut score was equal to 0. In a RD design, a main effect is indicated through a change in level while an interaction effect is indicated through a change in slope. Next, I visually examined the scatterplot of the transformed pretest and posttest

scores to determine if there was a clear discontinuity at the cut score and if the relationship between scores on the assignment measure and outcome measure was linear or curvilinear. Multiple regression was used to analyze the data. As Trochim (2006) suggested I started with an overspecified initial model to minimize bias despite sacrificing statistical power. Therefore, a multiple regression model was used to fit the data for each outcome measure using the transformed pretest scores, a treatment variable (0 = control, 1 = treatment) and two polynomial terms (squared and cubic terms) as predictors. Lastly, the model was refined for efficiency by removing nonsignificant terms one term at a time. Once efficiency was achieved without introducing bias, the regression coefficient for the treatment variable was the estimate of the treatment effect. The associated *t*-statistic determined whether the treatment effect was statistically significant.

Table 1. Sample Demographics

Variable	Total Sample <i>n</i> = 107	Not At Risk <i>n</i> = 88	At Risk <i>n</i> = 19
Gender			
Male	43.93	39.77	63.16
Female	56.07	60.23	36.84
Race			
White	92.52	92.05	94.74
Hispanic	1.87	2.27	0.00
Asian/Pacific Islander	4.67	5.68	0.00
African American	0.00	0.00	0.00
Native American	0.93	0.00	5.26
Special Education Services			
Yes	8.41	6.82	15.79
No	91.59	93.18	84.21

Note: At Risk students include those who scored below 43 Correct Minus Incorrect Writing Sequences on the screening measure. Not At Risk students include those who scored at least 43 Correct Minus Incorrect Writing Sequences on the screening measure.

CHAPTER 4

RESULTS

The purpose of this study was to test whether a supplemental writing intervention that explicitly taught sentence construction strategies and self-regulation procedures would result in significant improvements to the performance of struggling fourth grade writers. The quality of the observed writing conventions and the observed story quality were measured from student participants' standardized writing samples. I hypothesized I would observe improvements on the standard conventions measure for the struggling writers who received the intervention that was specifically aimed at building fluency in foundational sentence-level skills. Additionally, I hypothesized improvements in sentence-level skills would allow the students to allocate more cognitive effort towards the higher order thinking skills involved in the writing process, and thus I would observe significant improvements in story quality. The study made use of a regression discontinuity (RD) design to test whether students included in the intervention group outperformed their predicted scores on each of the outcome measures, because this method allows quasi-experimental research to be conducted in the multi-tiered systems of intervention delivery commonly used in schools. I used regression analysis to predict intervention group participants' ($n = 19$) posttest scores based on the functional relationship between the comparison group participants' ($n = 88$) screening and posttest scores.

Analyses of Underlying Assumptions

The data met all underlying assumptions necessary for conducting a RD design. Students were assigned to the treatment by strictly adhering to the assignment score, and based on visual inspection of the scatterplot (Figures 1 and 2), the relationship between the transformed assignment score and the posttest measures could be fit using a polynomial function.

The comparison group ($n = 88$) was large enough to adequately predict the regression line, and all participants in both intervention and comparison groups were included based on the same continuous assignment score. Finally, nearly all intervention components were delivered to all participants in a consistent manner, with the exception of the lesson closure and independent practice from two intervention sessions. The underlying assumptions of linear regression were analyzed because inferences are drawn from the functional relationship between the comparison group participants' screening and posttest scores. As previously stated, the linearity assumption was tested through visual inspection of the scatterplots (Figures 1 and 2).

Normality was tested for the transformed screening score for the entire sample ($n = 107$). The Skewness of the CMIWS screening scores was .446 (SE = .234). The Skewness statistic falls just inside the range of +/- twice the standard error of Skewness indicating the distribution is approximately normal. The Kurtosis of the CMIWS screening scores was .080 (SE = .463). The Kurtosis statistic falls within the range of +/- twice the standard error of Kurtosis indicating the

distribution is approximately normal. Examination of the histogram and Normal Q-Q Plot (Figures 3 and 4) also indicate the distribution is approximately normal.

Normality of the two posttest measures was tested for the comparison group only ($n = 88$). The Skewness of the Contextual Conventions scores was .374 (SE = .257) and the Story Composition scores was .467 (SE = .257). Both Skewness statistics fall within the range of +/- twice the standard error of Skewness indicating the distributions are approximately normal. The Kurtosis of the Contextual Conventions scores was -.463 (SE = .508) and the Story Composition scores was -.184 (SE = .508). Both Kurtosis statistics fall within the range of +/- twice the standard error of Kurtosis indicating the distributions are approximately normal. Examination of the Contextual Conventions histogram and Normal Q-Q Plot (Figures 5 and 6), as well as the Story Composition histogram and Normal Q-Q Plot (Figures 7 and 8) also indicate the distributions are approximately normal. However, the Kolmogorov-Smirnov statistic for both Contextual Conventions and Story Composition were significant suggesting a violation of the normality assumption.

Descriptive Statistics

Table 2 provides descriptive statistics for the screening measure and two posttest measures for the intervention and comparison group.

Relationship Between Variables

Correlations between each measure used in the study are presented in Table 3. A strong correlation between CMIWS derived from the story starter prompt with a 10-minute sampling period and the Contextual Conventions subtest for the comparison group suggest the two measures captured similar constructs. Both

measure the student's ability to accurately use accepted grammatic and orthographic conventions. The correlation between these measures for the intervention group was weak, presumably due to the effects of the intervention on the students' ability to use conventions in their writing.

Contextual Conventions

Visual analysis of the scatterplot suggested a linear relationship between Contextual Conventions scores and transformed screening scores. The first model tested was a quadratic relationship because it was two degrees higher than the number of bends observed. I squared the transformed assignment score and then created interaction terms for both the transformed assignment score and its squared counterpart by multiplying them by the dichotomous group variable. I regressed the Contextual Conventions score on the transformed screening score, the quadratic term, the interaction terms, and the grouping variable. The model was statistically significant ($F(5, 101) = 26.303, p < .001$) and accounted for approximately 56.5% of the variance in the posttest score. I then removed the quadratic term along with its interaction term because they did not reach significance. The model, again, was statistically significant ($F(3, 103) = 44.603, p < .001$) and accounted for approximately the same amount of variance ($R^2 = .565$). Lastly, I removed the transformed assignment score's interaction term as it was not statistically significant. The resulting linear model was statistically significant ($F(2, 104) = 67.295, p < .001$). Again, the model accounted for approximately the same amount of variance in the Contextual Conventions score ($R^2 = .564$). The slope for the group assignment variable, which is an estimate of the treatment effect,

indicated those who received the supplemental intervention performed on average 4.09 points higher than would be predicted had they only received instruction as usual in the classroom. The difference is illustrated by the discontinuous regression line illustrated in Figure 9.

Table 4 reports the results from the final regression model. The effect size, which was determined by dividing the treatment effect by the standard deviation of the control group was large (2.36).

Story Composition

Visual analysis of the scatterplot suggested a linear relationship between Story Composition scores and transformed assignment scores (Figure 10). A discontinuity at the cut score was not apparent.

Following the same procedures where nonsignificant terms were removed from the overspecified models, I observed no significant difference between the control and treatment groups, which is consistent with the lack of discontinuity observed in Figure 10. Statistical analyses confirmed there was no treatment effect observed for the Story Composition scores (Table 4).

Table 2. Means and Standard Deviations by Group

	CMIWS	Contextual Conventions	Story Composition
Intervention (<i>n</i> = 19)	25.53 (12.88)	12.37 (1.86)	9.00 (1.63)
Comparison (<i>n</i> = 88)	87.92 (33.33)	12.26 (2.75)	11.14 (2.37)
Total (<i>n</i> = 107)	76.84 (38.91)	12.28 (2.61)	10.76 (2.40)

Table 3. Correlations

	CMIWS	Contextual Conventions	Story Composition
Comparison Group (<i>n</i> = 88)			
CMIWS	--	.78	.53
Contextual Conventions	.78	--	.40
Story Composition	.53	.40	--
Intervention Group (<i>n</i> = 19)			
CMIWS	--	.34	.57
Contextual Conventions	.34	--	.68
Story Composition	.57	.68	--
Total Sample (<i>n</i> = 107)			
CMIWS	--	.58	.60
Contextual Conventions	.58	--	.39
Story Composition	.60	.39	--

Table 4. Statistics From the Final Regression Analysis

	Unstandardized coefficients	Standardized coefficients	<i>t</i>	Significance
	B	β		
Contextual Conventions Posttest				
Grouping/Condition	4.09	.60	7.33	< .0001
Transformed Assignment Score	.06	.95	11.60	< .0001
Story Composition Posttest				
Grouping/Condition	.30	.05	.48	.63
Transformed Assignment Score	.04	.63	6.39	< .0001

Figure 1. Contextual Conventions Scatterplot

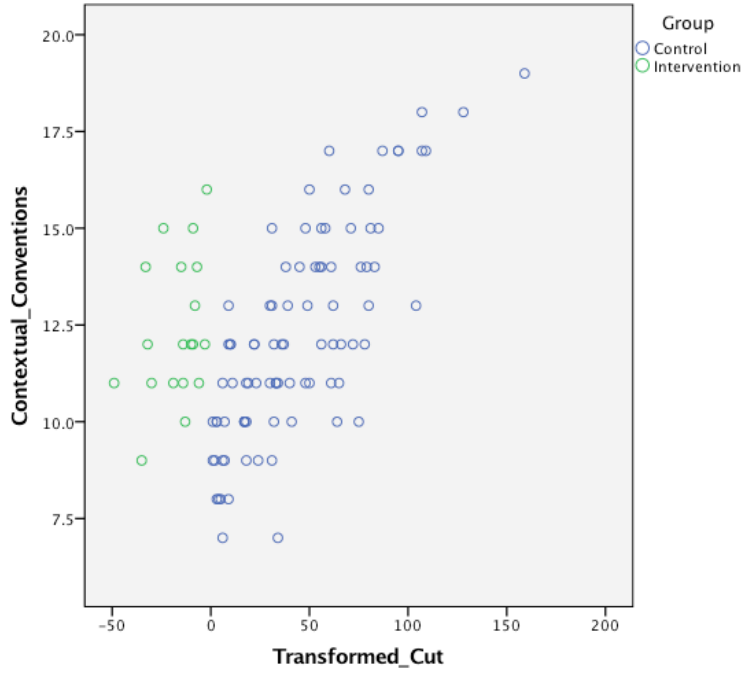


Figure 2. Story Composition Scatterplot

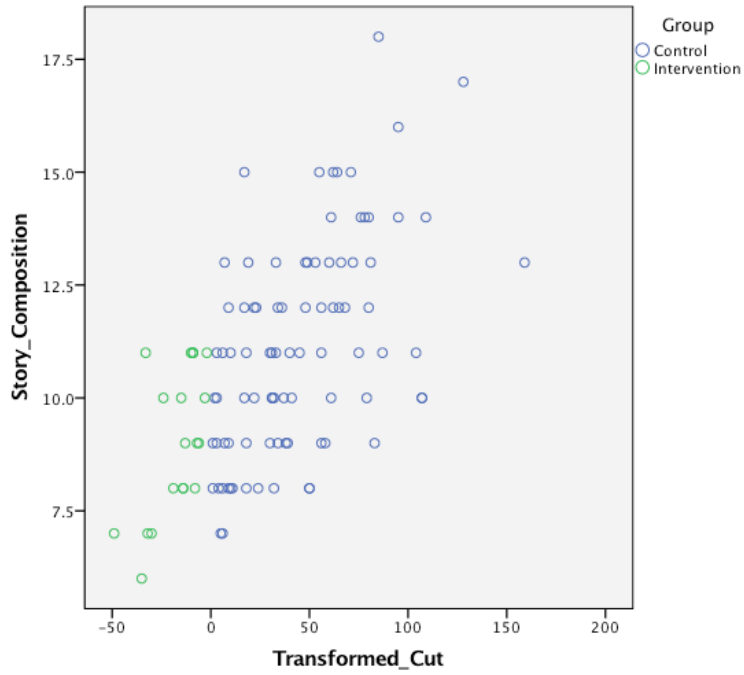


Figure 3. Histogram of the Transformed Screening Scores

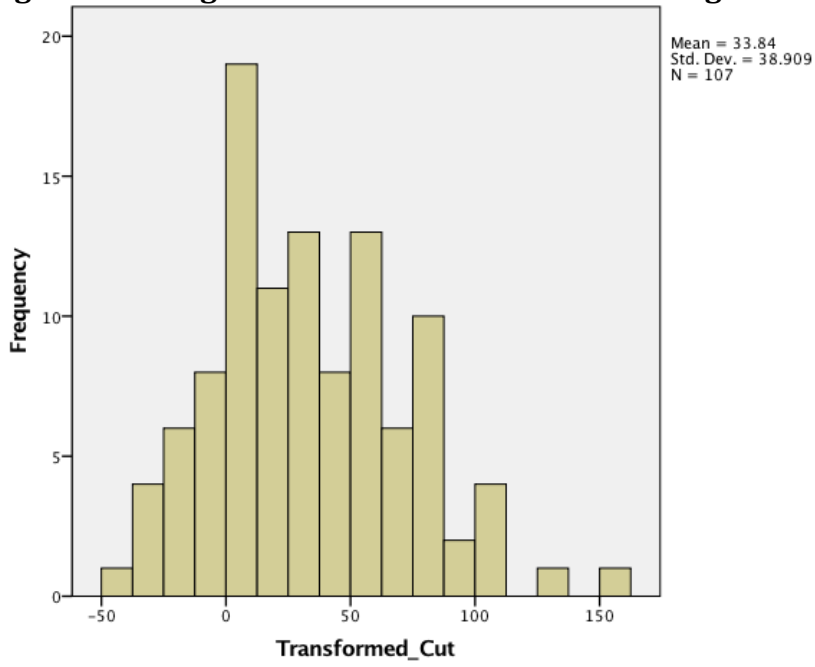


Figure 4. Normal Q-Q Plot of Transformed Screening Scores

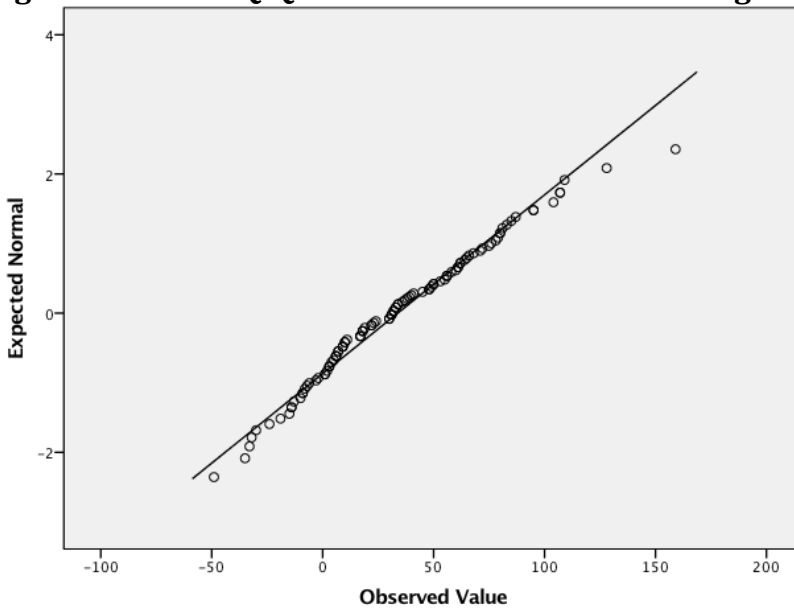


Figure 5. Histogram for Comparison Group Contextual Conventions Scores

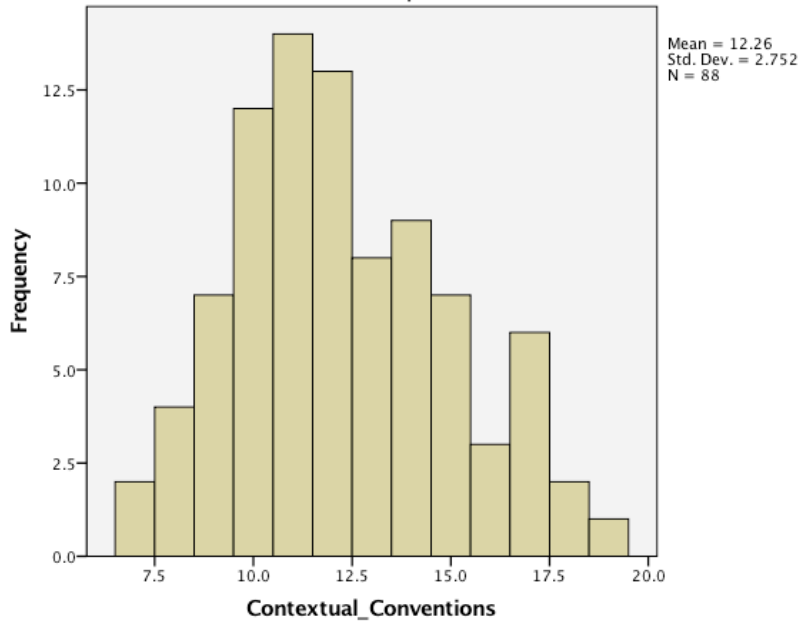


Figure 6. Normal Q-Q Plot for Comparison Group Contextual Conventions

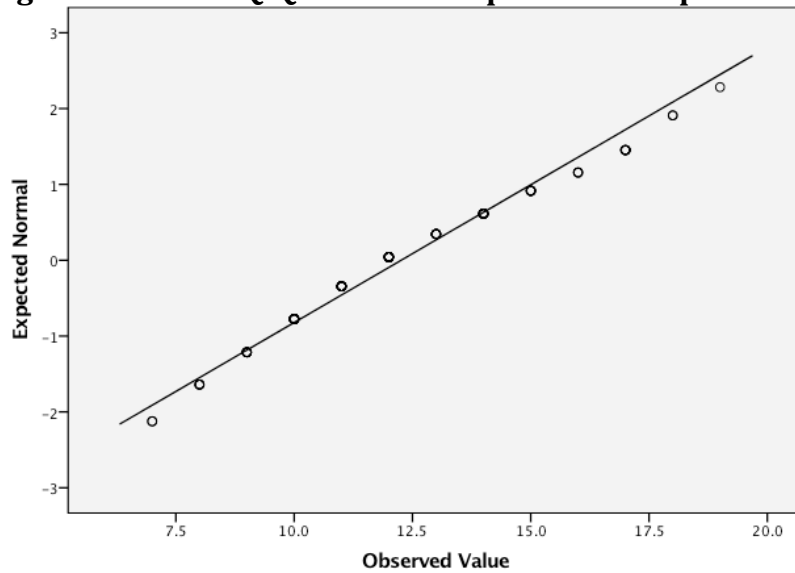


Figure 7. Histogram for Comparison Group Story Composition Scores

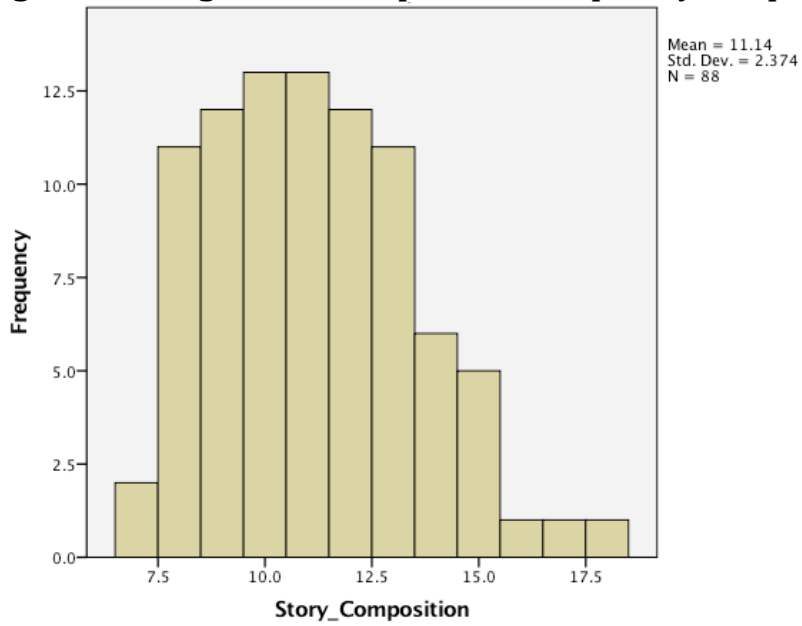


Figure 8. Normal Q-Q Plot for Comparison Group Story Composition

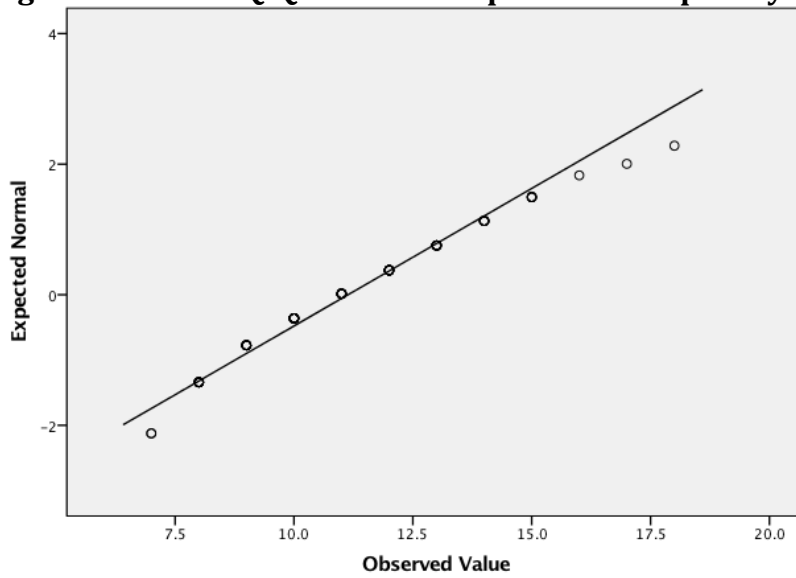


Figure 9. Contextual Conventions Scatterplot and Regression Line

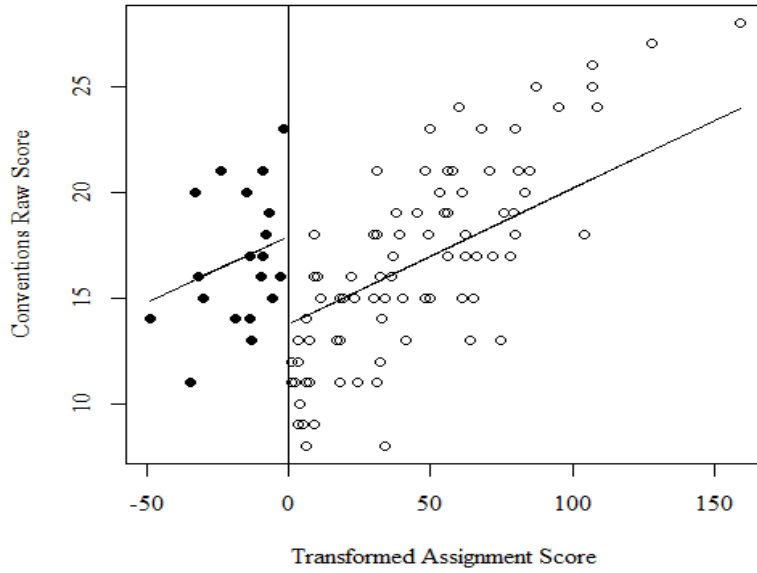
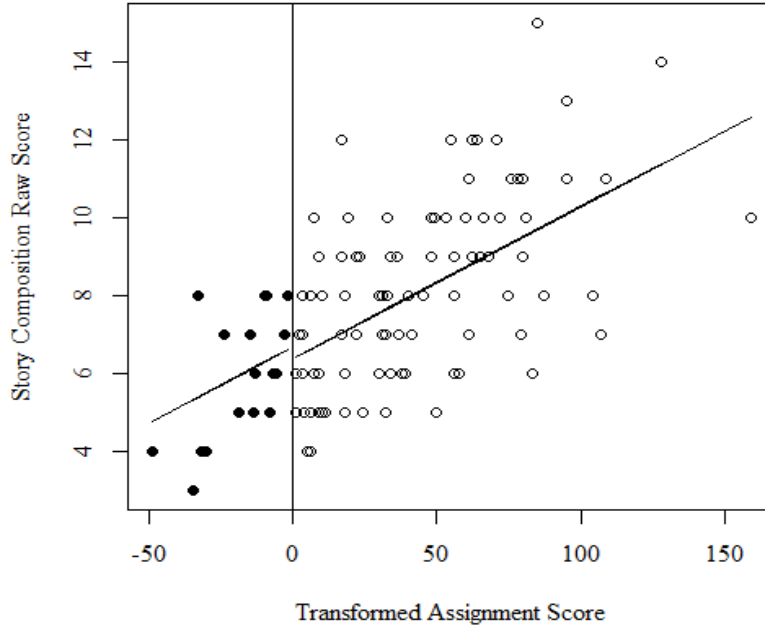


Figure 10. Story Composition Scatterplot and Regression Line



CHAPTER 5

DISCUSSION

The present investigation examined the effects of a supplemental intervention on the writing skills of fourth grade students who were identified as struggling writers. The intervention used explicit instruction and the SRSD framework (Graham & Harris, 2005) to teach students a sentence construction strategy along with self-regulation procedures. A RD design was used to test whether students included in the intervention group outperformed their predicted scores on the Contextual Conventions and Story Composition subtests of the TOWL-4 based on the regression line of their peer control group.

The intervention in this study was designed to improve accuracy and fluency in constructing complete sentences within connected text. Poorly developed sentence-level skills may constrain more complex writing tasks. Building fluency in component skills such as spelling, handwriting, and sentence-construction, theoretically reduces cognitive load. This then allows writers to focus on the more cognitively complex aspects of writing such as planning and revising to improve overall text quality. Sentence-level conventions including syntax/grammar and mechanics are critical text generation skills in the intermediate elementary grades (Berninger & Swanson, 1994; Fitzgerald & Shanahan, 2000). Additionally, the Language and Writing strands of the Common Core State Standards (CCSS; National Governors Association & Council of Chief State School Officers, 2010) place a heavy emphasis on gaining mastery of standard English conventions and other sentence-

level skills (CCSS.ELA-Literacy.CCRA.L.1; CCSS.ELA-Literacy.CCRA.L.2). In order to more directly address the conventional, linguistic, and cognitive components of writing targeted within the Standards, many teachers need to shift their approach to writing instruction. Much K-12 writing instruction is based on theoretical models of adult or expert writing. These approaches tend to overemphasize the macro-level writing processes while discounting the importance of prerequisite skills and knowledge (Wakely et al., 2006). Too many students are completing their K-12 education without ever mastering the basic sentence, let alone developing the more complex compositional skills expected of them to be college and career ready (Foltz-Gray, 2012; National Commission on Writing, 2004; Sanoff, 2006). Therefore, evidence-based instructional interventions targeting basic, sentence-level skills are necessary. As was done with the intervention investigated in this study, sentence construction interventions for struggling writers can be incorporated into an overall process-oriented program that continues to provide authentic writing opportunities.

Summary of Findings

We hypothesized the supplemental sentence construction intervention, facilitated through explicit instruction and SRSD would directly improve student performance on measures of contextual conventions and that improvements in these foundational sentence writing skills would result in significant improvements in story quality. Results from this study indicate the intervention was successful for improving struggling writers' ability to use accepted orthographic and grammatic conventions during composition. The scoring criteria for the TOWL-4 Contextual

Conventions subtest includes eight items measuring behaviors directly related to skills taught during the intervention. For example, points are awarded if sentences begin with a capital letter, include coordinating conjunctions other than "and," and contain introductory phrases and clauses. Additionally, points are earned for the inclusion of compound sentences and the exclusion of fragments and run-on sentences. The CMIWS scores derived from a 10-minute writing sample, which were used as the screener prior to intervention, similarly captured the accuracy with which the students used accepted orthographic and grammatic conventions. There was a strong correlation ($r = .78$) between the screening scores and Contextual Conventions outcome scores for the comparison group. The discontinuity in scores at the cut point, as well as the relationship between the screening measure and the subtest suggest the results are meaningful, as predicted.

The nonsignificant results for the higher order outcome indicate the 14-session intervention focused on sentence composition was not effective for improving the broader domain of story quality. I can hypothesize alternative theories for these results. First, if fluency enables the application of skills in broader contexts, I would have hoped to see improvements in composition quality. However, because there was no fluency measure outcome, I cannot determine if students who received the intervention became fluent in applying the sentence construction skills during composition. Accurate sentence construction may not have become automatic, meaning the skills and procedures had not yet been transferred into long-term memory, and applying these skills and procedures continued to demand disproportionate cognitive effort. A follow-up study may measure sentence

composition fluency to examine its effects on composition quality like I originally hypothesized.

Alternatively, these students may have primarily focused on individual sentences during revision rather than revising them as part of the larger text, a behavior typical for struggling writers (Graham, 1997; McCutchen, 2006). Struggling writers tend to make revisions that do not affect plot, character development, pace, or structure, and therefore do not influence overall text quality (Graham, MacArthur, Schwartz, 1995). Struggling students benefit from explicit instruction for the skills and behaviors expected of them. Subsequent steps of their supplemental intervention may explicitly address planning and making substantive revisions through SRSD. Research indicates SRSD is effective in increasing struggling writers' knowledge and use of planning strategies (e.g. Harris, Graham, & Mason, 2006; Lane et al., 2011) as well as the number and quality of substantive revisions made (e.g. De La Paz et al., 1998; Graham, 1997; MacArthur, Schwartz, & Graham, 1991). The core instruction provided in the regular classroom regarding planning and revising, components of writing that influence story quality, may not have been powerful enough for the struggling writers. Core writing instruction occurred through the Writers' Workshop model using Lucy Calkins' (2013) *Units of Study in Opinion, Information, and Narrative Writing*. Research suggests, that without explicit instruction in specific skills and strategies necessary at each stage of the writing process, simply engaging students in the process through Writers' Workshop and providing instruction through mini-lessons and teachable moments is not powerful

enough for students who struggle with writing (Graham & Harris, 1997a, 1997b; Graham & Sandmel, 2011).

Limitations and Future Directions

Several limitations must be noted. First, the primary researcher delivered all instruction. Future research evaluating intervention efficacy when delivered by an in-house interventionist or classroom teacher should be completed. Additionally, the sample only included fourth grade students, limiting the generalizability of findings. Moreover, the diversity of the sample was restricted as I excluded students who had supplemental writing goals in their IEPs. Coincidentally, this criterion excluded all but eight minority students from participating.

There are also limitations regarding outcome measures. First, outcome measures were administered within two weeks of completing the intervention and there was no maintenance measure. Future studies may also include an assessment directly after the initial instructional phase of the intervention to examine effects of explicit instruction prior to strategy instruction. Additionally, as previously discussed, a fluency measure could be included as well as a method to determine whether students applied self-regulatory procedures.

Future studies may also extend the length of the intervention and employ further fluency-building procedures similar to those used by Datchuk (2015) and Datchuk, Kubina, and Mason (2015) to ensure automaticity prior to application in larger text. Lastly, SRSD instruction in sentence construction should be taught in tandem with research supported SRSD planning strategies such as POW+TREE and POW+WWW or revision strategies such as SCAN (Harris, Graham, Mason, &

Friedlander, 2008). The combination could potentially improve writing conventions and overall quality and content of text produced by struggling writers.

Contributions to Extant Research and Practice

The current results extend the body of research suggesting explicit instruction is effective to teach writers who are identified as at-risk missing foundational text generation skills (Datchuk, 2015; Datchuk et al., 2015), strategies to apply the skills, and procedures to self-regulate writing processes (Graham et al., 2012). More specifically, like the Limpo and Alves (2013) study, results indicate teaching sentence construction skills through the SRSD framework is effective. The current study, along with those recently conducted by Datchuk (2015; Datchuk et al., 2015), begins to fill in the gap identified by Graham, Harris, and Santangelo (2015) in the extant research regarding the investigation of sentence construction interventions. While they recommend including sentence construction instruction as part of an overall effective writing program to ensure students learn the conventional and linguistic components of writing outlined in the CCSS, they noted more research in the area is necessary to determine evidence-based practice.

Similar to studies where the sentence-level instruction was embedded within larger units covering multiple aspects of writing (Anderson & Keel, 2002; Bui et al., 2006; McCurdy et al., 2008; Viel-Ruma et al., 2010; Walker et al., 2005), the students in the current study continued receiving instruction on other components of writing through core instruction in the regular classroom. The difference, however, is that in the other studies, sentence-level instruction was part of an overall systematic progression rather than an isolated, supplemental intervention separate from core

instruction. It is possible the link between the sentence construction skills and other components of writing covered in the regular classroom was not fully clear for the students who received the supplemental intervention. They may not have been able to incorporate their learned sentence construction strategy and skills with what they learned about other aspects of writing such as planning and revision in their regular writing instructional block. This lack of connection may have contributed to the absence of a significant effect on overall writing quality. In contrast, in the studies of sentence-level instruction where a significant improvement or difference in overall writing quality was found (Anderson & Keel, 2002; Bui et al., 2006; McCurdy et al., 2008; Viel-Ruma et al., 2010; Walker et al., 2005), the connection may have been more clear as sentence construction was one part of the systematic unit. This suggests the importance of educators explicitly linking supplemental instruction to core instruction in a tiered service delivery model.

Additionally, this study, along with findings from Ashworth and Pullen (2015) who found results from a RD design and an experimental design to be comparable, highlights the potential of using RD when examining interventions for at-risk students within a tiered instructional framework. The use of randomized controlled experiments in educational settings is not always feasible. Ashworth and Pullen (2015) pointed to ethical reasons why RD is more appropriate than randomized experiments for educational intervention research, and why school administrators may be more willing to cooperate in research endeavors. In RD, there is no control group where at-risk or struggling students are withheld instruction that could potentially be beneficial. All at-risk students receive the

targeted intervention. Because of its compatibility with the tiered instructional model, educational researchers are increasingly using RD to investigate effects of specific interventions (Ashworth & Pullen, 2015; Bryant et al., 2008; Tuckwiller et al., 2010; Vaughn et al., 2009) as well as the tiered instructional model itself (Balu et al., 2015).

The IES NCEE report evaluating RtI practices for elementary school reading (Balu et al., 2015), highlights the importance of investigating specific Tier 2 supplemental interventions as was done in the current study. The large-scale RD investigation found that supplemental Tier 2 reading support in an RtI model had a negative effect on the reading achievement of first grade students identified as at-risk. There was no significant effect for at-risk second and third grade students. Due to the nature of the study, however, specifics regarding the Tier 2 interventions provided at each participating school are not known. Whereas some are interpreting the results as a failure of the RtI model (e.g. Sparks, 2015), the results instead show the importance of first determining through research what supplemental interventions are effective, and then providing these research-supported, evidence-based interventions with fidelity. The preventative tiered instructional model requires access to effective interventions across each academic domain, so research investigating the effects of interventions such as the one in the current study must be completed.

Additionally, it is of interest to look at the results of the current study and explore what is considered successful and effective instruction, and what types of measures should be used to determine efficacy. The significant results on the

proximal measure, the sentence-level skills directly taught through the intervention, and the nonsignificant results on the more distal measure of writing quality, can lead to different interpretations. If one solely defines success as improvement to the overall composite skill, the intervention tested in this study would not be effective. If one defines success as improvement to a prerequisite skill that is one necessary component of the overall composite, the intervention tested would be considered effective. While there might not be immediate effects on the overall composite, solidifying prerequisite skills prevents further difficulty in the future and provides the foundation for further skill development (Kame'enui & Simmons, 1990). A struggling writer ought to be supported through the combination of multiple evidence-based instructional interventions targeting various component skills. In addition to receiving sentence construction instruction to solidify text generation skills and the use of accepted conventions, struggling writers should receive interventions targeting transcription skills as well as the executive functions involved in planning, monitoring, and reviewing during composition. Furthermore, attainment of each component targeted through instruction should be monitored through proximal measures in addition to a general outcome measure of overall writing quality.

While much is known about writing instruction, writing assessment, and differences between skilled and less-skilled writers, Troia (2013) as well as Saddler and Asaro-Saddler (2013) noted more research directly addressing screening and intervention for writing within a tiered service delivery model is needed. This study represents movement towards effectively incorporating writing instruction into a

preventative tiered instructional model. At-risk writers were identified through universal screening and provided supplemental instruction targeting and improving an important component of written expression. As further research is conducted to identify 1) accurate screening tools, 2) effective interventions targeting the various cognitive, linguistic, and physical skills and knowledge necessary for proficient written expression, and 3) methods to monitor progress in skill attainment, schools will hopefully use the results to integrate writing instruction into a tiered model as has already been done with reading and mathematics.

APPENDICES

APPENDIX A

RECRUITMENT MATERIALS

Study Overview

The proposed study will examine the effectiveness of a preventive, Tier 2 writing intervention aimed to teach a foundational skill in writing and address the needs of fourth grade students at-risk for writing failure. The intervention combines a sentence-level composition and revision strategy with self-regulation instruction. By fourth grade, instruction shifts towards more complex aspects of writing such as the inclusion of genre specific elements while many students continue to struggle with written expression due to their inability to clearly express their thoughts in basic sentences. Sentence level interventions are necessary to provide struggling writers with foundational linguistic skills that are critical to proficient written expression.

The study's design maps directly onto Response-to-Intervention (RtI) practices. All fourth grade students will participate in universal screening, and the supplemental Tier 2 intervention will be provided to students identified as at-risk for writing failure. Post-intervention, all fourth grade students will participate in outcome assessments, and the performance of students who received the Tier 2 intervention will be compared to their predicted scores had they received Tier 1 instruction only.

General Timeline (*Flexible: will work with school to create timeline conducive to their schedule*)

Universal Screening:

- Between October 5th and 23rd based on school availability

Intervention with at-risk writers (approximately 20-30 students):

- 2x/week in 30 minutes sessions for 8 weeks

Outcome Measures/Benchmarking:

- Between December 7th and December 22nd

Assessment Data provided to school

All assessments will be administered and scored by researchers. The school will be provided the data on the writing performance of the entire fourth grade.

Descriptions of each assessment can be found in the attached table. The scores on the TOWL-4, a standardized norm-based assessment, can be utilized not only by teachers to look at individual student performance to drive instruction, but as a whole by principals and curriculum leaders to evaluate the universal writing instruction provided at Tier 1 in general education. Additionally, universal screening data will identify students at-risk of later writing failure so they can be provided with supplemental writing instruction at Tier 2. The classification accuracy of the screening instrument was recently examined to see how well it predicted fourth grade students' proficiency on the Composition component of the MCAS. When using the 25th percentile as a cut point, there was a .07 false negative

rate meaning very few students whose performance did not meet the proficient level on the composition subtest of MCAS were not already identified as at-risk by the screening tool. All students whose scores fall below the 25th percentile, and are therefore at-risk, will be provided with supplemental writing instruction.

Intervention Instruction provided to at-risk writers

Following the Self-Regulated Strategy Development (SRSD; Harris & Graham, 1999) model, students will be taught a strategy to expand their sentences that can be used during initial sentence composition as well as during revision. Components from the Sentence Structure portion of *Framing Your Thoughts* written expression curriculum created by Project Read Language Circle (Greene & Enfield, 1997) will provide necessary background knowledge to successfully apply the writing strategy. In addition to the specific writing strategy, students will be guided in developing the self-regulatory procedures of goal setting and self-monitoring. An outline of the basic topics can be found in the attached table.

Interventionists

Those delivering the intervention will be dependent upon the participating district. If you would like to use in-house interventionists, para-educators and/or literacy specialists will be trained to implement the intervention. If you prefer outside interventionists to deliver instruction, graduate students in education will be trained to implement the intervention along with the primary researcher, a former elementary school teacher.

APPENDIX B

ASSENT AND CONSENT MATERIALS

October __, 2015

Dear parent or guardian:

I am a doctoral candidate in the School of Education at the University of Massachusetts Amherst. Under the supervision of Dr. Amanda Marcotte, I conduct research about writing instruction and different tests that are designed to measure writing skills of elementary school students. I have permission from your child's school to gather data from fourth grade students using various brief assessments. Principal __ will share all of the gathered information with the fourth grade teachers and ELA specialist to help guide decisions and better writing instruction in the school. For research purposes, however, all data will remain confidential and all personal identifiers will be removed to protect the identity of the students and the school.

Attached you will find a consent form that outlines the details of my study and the tasks that will be asked of your child. The participation of each student in any study activity outside the normal scope of the school day is strictly voluntary. Please read the details of this study on the attached form. If you have any questions or concerns about your child's participation in this process, please feel free to contact Principal __ at _____ or me at wfurey@educ.umass.edu.

Thank you for your consideration in letting your child participate in my study.

Sincerely,

Mac

William Furey, M.A.T., M.Ed.
Graduate Student
School Psychology Program
University of Massachusetts Amherst

WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of the study is to evaluate the effectiveness of a supplemental writing intervention for struggling writers within a preventative instructional framework. Students identified as at-risk on a screening measure will receive the supplemental instruction. The performance of these students will be compared to their predicted scores had they received core instruction only. The predicted scores will be determined using the screening and outcome scores of students who did not receive the intervention.

WHERE WILL THE STUDY TAKE PLACE AND HOW LONG WILL IT LAST?

The assessment portion of the study will take place on one day in October lasting approximately 12 minutes, and on two days during December totaling approximately 45 minutes to 1 hour. All assessment activities will occur in your child's regular classroom.

WHAT WILL YOUR CHILD BE ASKED TO DO?

In October, students will be given a story starter prompt and instructed to think about the topic for 2 minutes. They will then be asked to write about the topic for 10 minutes.

In December, students will be administered the Sentence Combining, Contextual Conventions, and Story Composition subtests of the Test of Written Language – Fourth Edition (TOWL-4; Hammill & Larson, 2009). On the Sentence Combining subtest, students are asked to combine multiple sets of 2 to 6 short sentences into single comprehensive and grammatically correct sentences. The test is untimed but typically takes between 15 and 20 minutes. For the Contextual Conventions and Story Composition subtests, a model story and picture prompt are presented to students, and the examiner points out important story elements. Students are provided with picture prompt, given 5 minutes to plan, and 15 minutes to write. Additionally, students will complete the Writer's Self Perception Scale (Bottomley, Henk, & Melnick, 1998) which is 38-item "fill in the bubble" instrument to assess students' self-efficacy beliefs regarding their writing skills.

These tests resemble typical classroom writing activities and tests. As with any test, there is the possibility your child may experience mild anxiety. While this is unlikely, they may ask to stop participating at any point.

In addition to the data we gather from your child's written responses, we will also ask your school administrators to report your child's demographic data to us including their gender, race, language status, special education, and instructional supports. These data will not be used to identify your child in any way, but are necessary to reflect the diversity of students who participated in our study. We will also request access to the 2015 ELA scores on the MCAS or the PARCC for all students in the sample. All personal identifiers will be removed in the dataset upon data entry. We will work closely with the school's data manager to gather these data and protect the identity of your child.

This is a voluntary project. You are free to decide whether your child will participate. If you do not wish to have your child participate or if you have any questions or concerns about your child's participation in this process, please feel free to contact Principal ____ at _____ or me at wfurey@educ.umass.edu. There will be no penalties to you or your child if you choose for them not to participate.

October __, 2015

Dear parent or guardian:

As you may remember, I am working with Principal __ and the fourth grade team to conduct a study evaluating the effectiveness of a supplemental writing intervention. Following similar procedures already used within the school's RtI framework in the areas of reading and math, we recently conducted a screening for written expression. Your child's score on the screening measure suggests she or he may benefit from supplemental writing instruction beyond the core instruction provided in the classroom.

With your permission, your child will receive supplementary instructional support two days per week over the course of eight weeks.

Attached you will find a consent form that outlines the details of my study and the tasks that will be asked of your child. The participation of each student is strictly voluntary. Please read the details of this study on the attached consent form and decide whether or not you wish for your child to receive the supplemental writing instruction. *Please check the appropriate box, sign the form, and have your child return the signed form to his or her teacher.* If you have any questions or concerns about your child's participation in this process, please feel free to contact Principal __ at ____ or me at wfurey@educ.umass.edu.

Thank you for your consideration in letting your child participate in my study.

Sincerely,

Mac

William Furey, M.A.T., M.Ed.
Graduate Student
School Psychology Program
University of Massachusetts Amherst

WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of the study is to evaluate the effectiveness of a supplemental writing intervention for struggling writers within a preventative instructional framework. Students identified as at-risk on a screening measure will receive the supplemental instruction. The performance of these students will be compared to their predicted scores had they received core instruction only. The predicted scores will be determine using the screening and outcome scores of students who did not receive the intervention.

WHERE WILL THE STUDY TAKE PLACE AND HOW LONG WILL IT LAST?

The intervention portion of the study will take place over the course of 8 weeks. Students will receive small group instruction in 30-minute lessons two times per week. The intervention will occur within the school, either in the students’ regular classroom or another available classroom. A member of ___ Intermediate School’s staff will be present at all times.

WHAT WILL YOUR CHILD BE ASKED TO DO?

Students will receive explicit instruction on sentence-level writing skills and a strategy to apply these skills during the composition and revision phases of the writing process. Additionally, they will receive instruction on the self-regulatory procedures of goal setting and self-monitoring during the writing process. Students will engage in various group, pair, and independent writing activities which provide opportunities to practice applying the skills and strategies taught.

WHO WILL PROVIDE THE INSTRUCTION

Small groups will be randomly assigned to either receive instruction from a trained interventionist or myself. The trained interventionist is a disability studies and education minor at a nearby university. Prior to graduate school for school psychology, I was a certified elementary school teacher in Connecticut and Rhode Island for 6 years. I also currently work in the elementary teacher preparation program at the University of Massachusetts Amherst. All CORI procedures will be adhered to prior to any interaction with students, and a _____ Intermediate School staff member will be present at all times.

This is a voluntary project. You are free to decide whether your child will participate. If you have any questions or concerns about your child’s participation in this process, please feel free to contact Principal ___ at _____ or me at wfurey@educ.umass.edu. ***Please sign this letter and return it to your child’s teacher.*** There will be no penalties to you or your child if you choose for them not to participate.

Please check the appropriate box, sign and return to your classroom teacher.

I agree to my child receiving the supplemental writing instruction.

I do not wish for my child to receive the supplemental writing instruction.

Child’s name: _____

Parent/Guardian Signature: _____

Date: _____

APPENDIX C

ATTENDANCE DATA

Student	Session														Total Sessions Missed
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
A					A										1
B												A			1
C															0
D									A		A				2
E															0
F									A						1
G						A									1
H															0
I			A												1
J															0
K								A		A					2
L					A										1
M				A											1
N															0
O											A				1
P															0
Q															0
R										A			A		2
S				A											1

Note: A = Absent

APPENDIX D

INSTRUCTIONAL SEQUENCE

SRSD Stage: Develop Background Knowledge

Lesson 1

- Why complete, well-crafted, and interesting sentences are important
- General goal setting: To write texts filled with well-crafted and interesting sentences
- Fundamentals of a basic sentence
 - Framed with a capital letter and ending punctuation
 - Subject and Predicate

Lesson 2

- “Where” predicate expander and associated starter words
- “How” predicate expander and associated starter words

Lesson 3

- Mobility of predicate expanders to increase sentence variety
- Confusing run-on sentences

Lesson 4

- “When” predicate expander and associated starter words
- “Why” predicate expander and associated starter words

Lesson 5

- “Physical,” “Behavior,” and “Number” subject describers

Lesson 6

- “Ownership” and “Set-apart interrupter” subject describers

SRSD Stage: Discuss It

Lesson 7

- Examine student writing and set goals
- Introduce “Goal and Self-monitoring sheet”

SRSD Stages: Model It and Memorize It

Lesson 8

- Introduce and model F-SPEED
- Guided revision of screening probe using F-SPEED

SRSD Stages: Memorize It, Support It, and Independent Performance

Lessons 9-14

- Practice F-SPEED for sentence construction in response to picture prompts
 - Complete 10-minute story prompts
 - Guided revision of text using F-SPEED and “Goal and Self-monitoring sheet”
 - Gradually fade teacher support and use of starter words anchor charts
-

APPENDIX E

SAMPLE LESSON PLAN

LESSON 3

Adapted from Framing Your Thoughts: Sentence Structure (Greene & Enfield, 1997)

INTRO

- Quickly review why it is important to write complete and interesting sentences. Review the definition of simple sentence, subject, and predicate using corresponding actions.
- A sentence is framed with a capital letter and ends with a stop sign. Every sentence has two parts. The subject names the person, place, thing, or idea that the sentence is about. The predicate shows the action of the subject.
- Ask students to picture the predicate symbol in their mind's eye and then ask, ***How many mountains or triangles make up the predicate symbol?***
Answer: Four

SLIDE 1

- ***Remember, each of these mountains or triangles represents a question we can answer to expand the predicate. Expanding the predicate makes our sentences more interesting for the reader. Who can tell me the first predicate expander question word we learned about last time?*** Remove the box to reveal the answer, 'where.' ***We learned that the where predicate expander begins with a position word. We have our sheet of where starter/position words we can refer back to in our notebooks.***
- Remove the second box to reveal the word 'how.' ***Today, we will focus on the 'how' predicate expander. We will answer the 'how' predicate expander to give the reader more detail about the action of the subject.***

SLIDE 2

- ***The starter words for the 'how' predicate expander are single words ending in _ly, like, with, and without.***
- ***We are first going to start with single words that end in _ly.***
- Direct students to look at the _ly word list in their binders. State that this will be a helpful reference for them to use.

SLIDE 3

- ***Look at your list of _ly words. Think about a word that would appropriately express the 'how' of this sentence.***

SLIDE 4

- Model your choice of 'confidently' for the students.
- ***The 'how' -ly expander should stay as close to the predicate word as possible.***
- Move around sentence parts to show how you can write the sentence as:
 - Jordan skis confidently down the steep snow-packed hill.
 - Jordan confidently skis down the steep snow-packed hill.

- Note that you can technically move confidently to the end, however, when sentences begin to have more parts, it gets confusing for the reader if -ly is not really close to the action/predicate word.

SLIDE 5

- Repeat the same process with “The rabbit darted.”

ACTIVITY

- Distribute bags with cut up sentences to students.
- **Arrange the sentence pieces into a sentence in front of you. Pick an appropriate -ly word and write it on the ‘how’ predicate expander piece.**
- Check student work and provide prompt corrective feedback if necessary. Praise students choices of -ly words and the placement of the -ly expander close to the predicate word.

SLIDE 6

- **How expanders often start with the words, like, with, without, when the expander is a group of words. When a single -ly word is used, the how expander needs to stay close to the predicate word.**

SLIDE 7

- Model how the sentence can be either
 - The lightning flashes brightly like a neon sign in the night sky.
 - The lightning brightly flashes like a neon sign in the night sky.

SLIDE 8

- Ask the students to brainstorm appropriate how expanders that begin with like for the sentence.

SLIDE 9

- Possible answer to show after fielding student responses:
 - The child jumps like a bunny around the room.
 - The child jumps around the room like a bunny.

SLIDE 10

- Show the students the sentence using a how expander starting with ‘with’.
 - The audience applauds with enthusiasm.
- Ask students to brainstorm other how expanders starting with ‘with.’
 - Possible answers: with delight, with appreciation, with glee, etc.

SLIDE 11

- Show the students the sentence using a how expander starting with ‘without.’
 - Meg skated without help.
- Ask students to brainstorm other how expanders starting with ‘without.’
 - Possible answers: without a care in the world, without falling, without using the boards to help, etc.

SLIDE 12

- Have students turn to Worksheet 3. Model identifying each part of the sentence for number 1. Have students help on number 2.

INDEPENDENT PRACTICE

- Have students complete numbers 3 through 10 independently. Provide praise and correctly feedback.

SLIDE 13, CLOSURE, and EXIT TICKET

- ***Writers, let's use everything we have learned so far to write a complete and interesting sentence about this picture. Remember that your sentence should be framed with a capital letter and ending punctuation. Make sure you have a subject and predicate. Try to make your sentence interesting by including 2 or 3 predicate expanders. You may refer to the where and how starter word sheets for ideas. Remember that -ly how expanders should be close to the predicate word.*** On the board write, "a) Framed with capital letter and ending punctuation, b) subject and predicate, c) 2 or 3 predicate expanders

If time remains, have student(s) who met objective share out.

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