



Testing the Effects of a Supplemental Sentence Construction Intervention Using Regression Discontinuity

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Purpose

The purpose of the present investigation was to examine whether participation in a supplemental writing intervention, that combines sentence construction strategies with self-regulation strategy development (SRSD; Harris & Graham, 1999), results in significant improvements to the performance of struggling fourth grade writers.

Hypotheses

We hypothesized the struggling writers would significantly outperform their predicted scores on both measures of standard writing conventions and story quality. We predicted the intervention, aimed at building fluency in foundational sentence-level skills, would directly improve performance on the standard conventions measure. Additionally, we theorized fluency in prerequisite sentence-level skills would allow students to allocate more cognitive effort towards planning and making substantive revisions, and thus we would observe significant improvements in story quality.

Intervention Lesson Topics

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 descriptors

Lesson 6

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

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

Note: SRSD = Self-Regulated Strategy Development (Harris & Graham, 1999)

Methods

Participants

- 107 4th grade students without IEP goals specific to written expression

Screening Measure

- Correct Minus Incorrect Writing Sequences (CMIWS) elicited from a 10-minute Curriculum-based Measurement prompt
- Cut score = 43 CMIWS

Outcome Measures

- Tests of Written Language – 4th Edition
 - Contextual Conventions subtest
 - Story Composition subtest

Research Design

- Regression Discontinuity

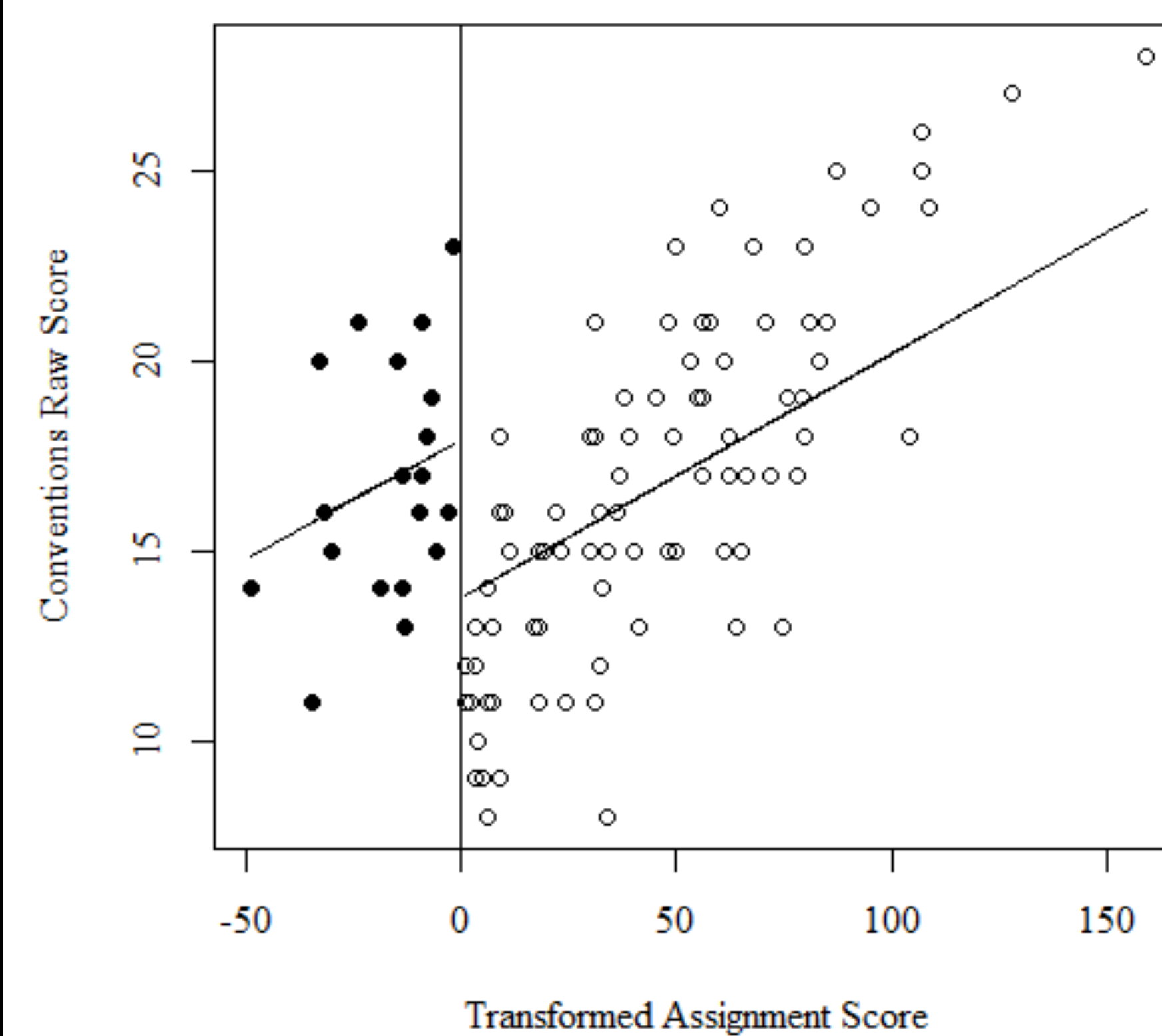
Sample Demographics

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

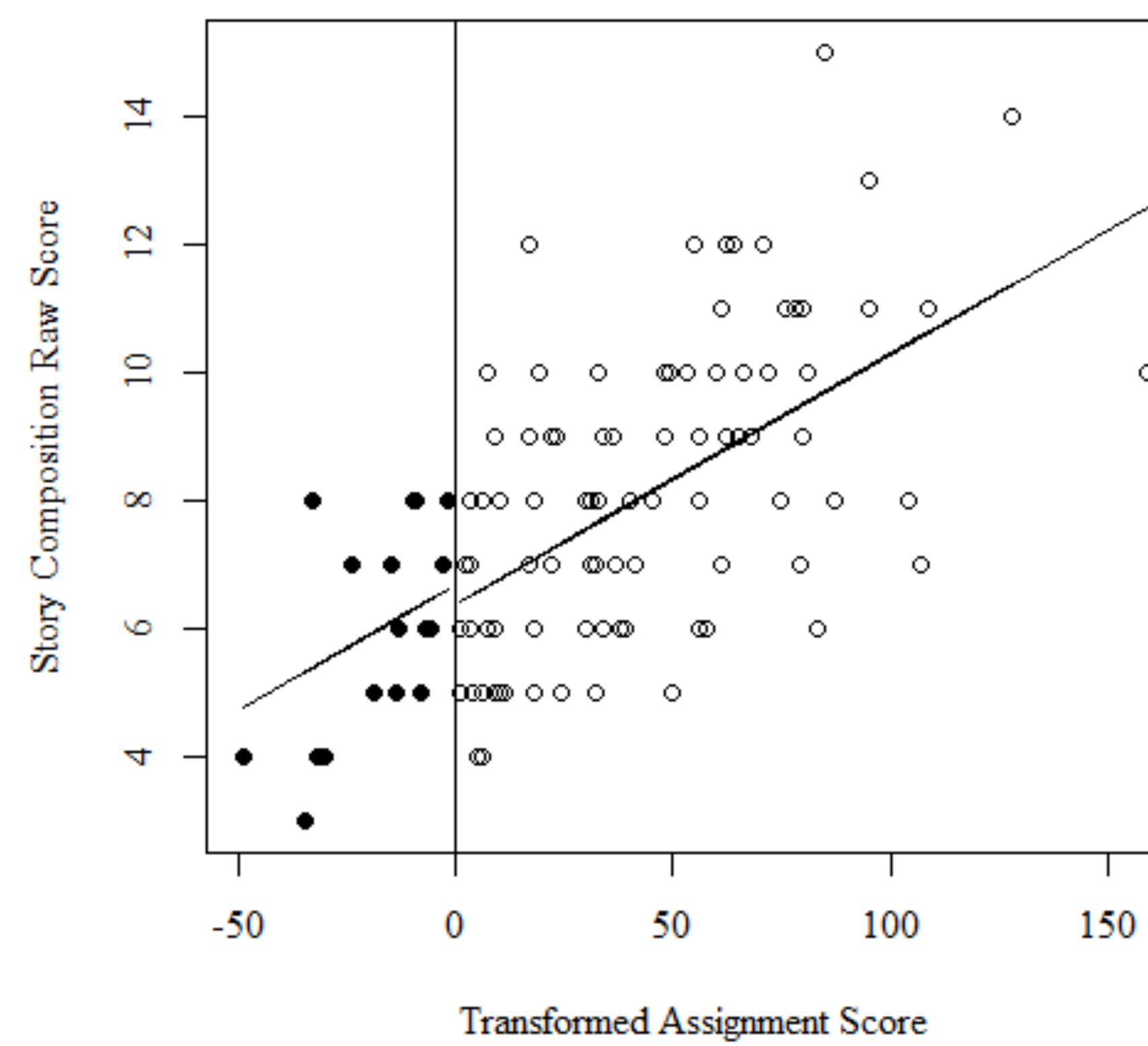
Note: At Risk students include those who scored below 43 Correct Minus Incorrect Writing Sequences on the screening measure. Not At Risk students include those who scored at least 43 Correct Minus Incorrect Writing Sequences on the screening measure.

Results

Contextual Conventions Scatterplot and Regression Line



Story Composition Scatterplot and Regression Line



Statistics From the Final Regression Analyses

	Unstandardized coefficients B	Standardized coefficients β	<i>t</i>	Significance
Contextual Conventions Posttest				
Grouping/Condition	4.09	.60	7.33	.00
Transformed Assignment Score	.06	.95	11.60	.00
Story Composition Posttest				
Grouping/Condition	.30	.05	.48	.63
Transformed Assignment Score	.04	.63	6.39	.00

Conclusions

Results from this study indicate the intervention was successful for improving struggling writers' ability to use accepted orthographic and grammatic conventions during composition as measured by Contextual Conventions. Those who received the intervention performed on average 4.09 points higher than would be predicted had they only received instruction as usual in the classroom. The effect size, which was determined by dividing the treatment effect by the standard deviation of the control group was large (2.36). The intervention was not effective for improving the broader domain of story quality as measured by Story Composition.

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), strategies to apply the skills, and procedures to self-regulate writing processes (Graham, et al., 2012). More specifically, results indicate teaching sentence construction skills through the SRSD framework is effective for improving the use of accepted writing conventions.

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 in a tiered instructional framework. Randomized experiments are not always practical or feasible, and RD is a strong alternative when the purpose of the study is to evaluate the efficacy of an intervention program (Shadish, Cook, & Campbell, 2002). Participants are assigned to treatment or control based on whether or not they fall above or below a cutoff point on an assignment variable. 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.

Limitations

The sample only included fourth grade students. Moreover, the diversity of the sample was restricted as we excluded students who had supplemental writing goals in their IEPs. Coincidentally, this criterion excluded all but eight minority students from participating.