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EFFECTS OF SELF-REGULATED STRATEGY
DEVELOPMENT ON THE WRITING SKILLS OF
SCHOOL-AGE CHILDREN WITH ATTENTION-
DEFICIT/HYPERACTIVITY DISORDER

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Structured Abstract

Clinical Question: Does the self-regulated strategy development (SRSD) intervention model improve the writing skills of school-age children with attention-deficit/hyperactivity disorder (ADHD)?

Method: Systematic Review

Study Sources: ASHA, ASHAWire, Google Scholar, Academic Search Complete, Education Full Text, Education Research Complete, Education Source, ERIC, Psychology and Behavioral Sciences Collection, PubMed, EBSCOhost, PsycINFO

Search Terms: attention-deficit/hyperactivity disorder OR ADHD AND writing OR writing intervention OR writing treatment OR written expression OR composition AND self-regulated strategy development OR SRSD AND school-age OR student

Number of Included Studies: 13

Primary Results:

The self-regulated strategy development model (SRSD) has been shown to improve writing skills for school-age students with ADHD.

When examining specific outcomes, most students with ADHD improved the length, quality, and completeness of their writing when using SRSD strategies.

Conclusions: Students who struggle with writing have been shown to benefit from specific, explicit writing strategies such as those used in an SRSD model. Although most studies employed single-subject design and were carried out by a small number of researchers, the use of SRSD as a means of teaching writing strategies should be considered as a therapeutic intervention to improve writing in students with ADHD.

Effects of Self-Regulated Strategy Development on the Writing Skills of School-Age Children With Attention-Deficit/Hyperactivity Disorder

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Clinical Scenario

Jake, a speech-language pathologist (SLP), works in a large school district and has provided speech and language services to middle and high school students for nearly five years. Recently, he has found an increasing number of students with ADHD who have been referred for speech-language services; specifically, these students qualify for therapy because of significant written language deficits. Jake discovered he needs to provide direction before, during, and after writing assignments, since it appears that his students are not learning or generalizing writing techniques and strategies.

Jake is required to wear many hats and juggle the needs of many students on his caseload and he has questions about how to provide the best and most effective writing interventions for his students with ADHD. Jake consulted with the special education teacher at his school who specializes in learning disabilities (LD). The teacher told him about self-regulated strategy development (SRSD) as a validated instructional technique for teaching reading comprehension and writing. She told Jake that she has successfully used the SRSD technique when helping students with ADHD improve their reading comprehension, and that she knew of research supporting this as an evidence-based practice (Hedin, Mason, & Gaffney, 2011; Rogevich & Perin, 2008). However, she was unsure of any research on SRSD specific to writing skills for students with ADHD. Jake decided to investigate the current research to determine if this strategy would be a viable option for students with ADHD on his caseload. He was excited to learn more about the evidence base for this intervention.

Background Information

To begin, Jake borrowed textbooks from the local library to build an understanding of SRSD. The premise of SRSD is to encourage independent writing by combining instructional support and explicit feedback

with self-regulation techniques in order to facilitate using independent writing strategies throughout the writing process. SRSD comprises six stages through which students progress to ensure mastery: 1) pre-skill development and background knowledge, 2) discussion, 3) modeling, 4) memorizing, 5) supporting use of the strategy, and 6) performance of the skill(s) independently (Harris, Graham, Mason, & Friedlander, 2008). Self-regulation is integrated throughout the SRSD method through a collaborative process between the student and teacher or peer using goal-setting, self-monitoring, self-instruction, and self-reinforcement (Harris & Graham, 1996). These skills are developed using self-talk and have been shown to facilitate task completion and self-regulation (Reid, Trout, & Schartz, 2005). Essentially, SRSD helps students prepare, organize, and execute the writing strategy and requires mastery at each stage before progression to the next (Graham & Harris, 2003; Graham & Perin, 2007b).

One of the defining features of an ADHD diagnosis is self-regulation (Barkley, 1998); students with ADHD have difficulty maintaining attention, have difficulty with overall language use for communicating (Tannock & Schachar, 1996), and have written expression deficits (Yoshimasu et al., 2011). As such, Jake decided to systematically review using the SRSD model for writing interventions in school-age students with ADHD.

Clinical Question

Jake wanted to know whether students with ADHD who demonstrate difficulty in writing would benefit from self-regulated strategy development. Jake used the PICO (population, intervention, comparison, and outcome) format to shape his question and develop inclusion and exclusion criteria for his research: Do school-age children with ADHD (P) who received writing strategy instruction using SRSD (I) as compared to an alternative or no intervention (C) show improvement in their writing skills (O)?

Search for the Evidence

Jake began the research process by delineating the inclusionary criteria for his search. He included studies that met these criteria: 1) included school-age students with a primary or secondary diagnosis of ADHD, 2) evaluated writing interventions that were facilitated using the SRSD model, 3) provided the results of measured outcomes, 4) were original research, 5) were published in a peer-reviewed journal, and 6) were reported in English. Research design and treatment duration did not limit study inclusion.

ASHA, ASHAWire, Google Scholar, Academic Search Complete, Education Full Text, Education Research Complete, Education Source, ERIC, Psychology and Behavioral Sciences Collection, PubMed, EBSCOhost, and PsycINFO were searched using the following terms: attention-deficit hyperactivity disorder OR ADHD AND writing OR writing intervention OR writing treatment OR written expression OR composition AND self-regulated strategy development OR SRSD AND school-age OR student. Using these search terms, Jake identified 102 article abstracts. After excluding duplications and utilizing the inclusion criteria, the list was narrowed to 17 possible article abstracts. Jake reviewed the complete journal articles for these 17 abstracts to ensure they met the inclusionary criteria and completed a hand search of reference lists from these articles to determine if any articles had been missed during the online search. Jake visited his local university library to search the databases and to access the articles he needed.

Of the 17 articles, 13 were intervention studies (summarized in Table 1), two were systematic reviews (Reid, Hagaman, & Graham, 2014; Taft & Mason, 2011), one was a meta-analysis (Perry, Albeg, & Tung, 2012), and one was a literature review (Mason, Harris, & Graham, 2011). Jake used the systematic reviews and meta-analysis to confirm his search of intervention studies was complete and for their interpretation across studies. He used the literature review as a means of reference to ensure he understood the history of SRSD and writing strategies.

Evaluating the Evidence

For his systematic review, Jake selected and included the 13 intervention studies that focused on the effects of SRSD writing interventions for students with ADHD. The 13 studies were conducted between the years 2001 and 2014 and included 35 of 77 elementary, middle, or high school

age students who had a diagnosis of ADHD. Jake reviewed the results that were specific to the students with ADHD.

The next step in the systematic review process was to assess the selected studies' value by assigning levels of evidence (see Table 3). Jake used the guidelines outlined by Logan, Hickman, Harris, and Heriza (2008) to appraise the quality of each study's single-subject research design. He began by outlining the number of participants included, the number and name of dependent variables, and the type of treatment design used within each study before aligning this information with the hierarchy outlined by Logan et al. (2008). Five levels within the hierarchy are inversely related to their assigned numbers (e.g., Level I = strongest single-subject design through Level V = weakest single-subject design). Level assignment indicates the strength of the relationship between the intervention and changes in the measured behavior for the study participants.

Across the 13 studies, only one qualified as Level I, the strongest level of evidence, as its design incorporated a multiple-baseline alternating treatment (A-B-C-D) (Cramer & Mason, 2014). These researchers evaluated the effects of SRSD on the writing skills of eight middle school students with emotional and behavioral disorders, four of whom had also been diagnosed with ADHD. Improvement was noted in the students' overall writing ability; specifically, two of the students with ADHD nearly doubled the number of words in their writing following the intervention.

The remaining 12 studies used a multiple-baseline multiple-probe design with three or more participants or dependent variables, earning them a Level II rating. In the study by De La Paz (2001), two middle school students with ADHD demonstrated significant improvement in their essay writing and their approach to writing following SRSD instruction focusing on planning, length, quality, story elements, and vocabulary. Although limitations in student gains were noted, including in mechanics and word usage, both students sustained post-instruction gains during maintenance.

Lienemann, Graham, Leader-Janssen, and Reid (2006) used an SRSD model to help second grade students plan and draft stories. Instructors were trained to provide SRSD instruction for story planning and writing via the mnemonic POW (Pick my ideas, Organize my notes, Write and say more) previously introduced in the literature by Saddler, Moran, Graham, and Harris (2004). Table 2 provides an explanation of common writing strategies. The student with ADHD increased the number of story elements included

in her writing, doubled her story length, and improved her story quality overall. To determine the effects of SRSD instruction on length and quality of story writing in third and fourth graders, Reid and Lienemann (2006) presented writing strategies to three students diagnosed with ADHD. The mnemonic POW was used to aid the students' story planning while WWW, What = 2, How = 2 (Who, Where, When, What do the main characters do, What happens next, How does the story end, and How do the main characters feel) was used to ensure students included all the necessary story elements. Each student increased their number of story elements, resulting in improvement on length, completeness, and quality of writing. Two of the students demonstrated maintenance of these gains.

Lienemann and Reid (2008) utilized SRSD to teach persuasive story writing to fourth and fifth grade students with ADHD. In this study, instruction was individualized and continued until each student reached criterion. The TREE strategy (**T**opic sentence, **R**easons, **E**xamples, **E**nding) shaped the opinion essays while the POW strategy was used for planning and writing. Following SRSD intervention, students' essays were longer, more complete, and better in overall quality than baseline.

Mason and Shriner (2008) assessed the opinion essays of second to fifth grade students with emotional/behavioral disorder (EBD) before and after SRSD instruction. The one student in this study with a comorbid diagnosis of ADHD demonstrated improvement in overall persuasive essay writing following POW and TREE instruction, but struggled with maintenance and ultimately returned to baseline. The authors suggest this was due to the student's behavioral difficulties which were so severe that hospitalization was required during the course of the study.

Researchers Jacobson and Reid (2010) found that SRSD improved persuasive writing in three high school students with ADHD. Individual instruction for these students incorporated the planning mnemonic STOP (**S**uspend judgment, **T**ake a side, **O**rganize your idea, **P**lan more while you write) and essay writing mnemonic DARE (**D**evelop a topic sentence, **A**dd supporting ideas, **R**eject at least one argument, **E**nd with a conclusion). Following instruction, which incorporated self-regulation strategies and mnemonic tools, students' baseline scores improved. In a later study, the same authors introduced the SRSD model to four students in the tenth and eleventh grade focusing on persuasive writing (Jacobson & Reid, 2012). Students received individualized instruction three times per week

and were encouraged to use STOP and DARE academic tools when writing. Results indicated longer essays as well as increased planning skills and overall higher quality writing, using more transitional words and phrases than at baseline.

Mason, Kubina, Valasa, and Cramer (2010) looked at the effects of SRSD using POW and TREE writing interventions on the persuasive quick writing skills of middle school students with EBD. The student also diagnosed with ADHD improved in her quality of written responses. Similar research by Mason, Kubina, and Taft (2011) found that SRSD instruction using POW and TREE planning strategies was effective for students' writing persuasive narrative compositions. The three students with ADHD improved their overall writing scores following instruction. In another study, Mason and colleagues assessed the effectiveness of SRSD on a quick persuasive writing task using POW and TREE strategies (Mason, Kubina, & Hoover, 2013). Results showed improvements in quality, persuasive elements and number of words, and improved their overall persuasive writing.

Kiuhara, O'Neill, Hawken, and Graham (2012) looked at the effect of specific and explicit writing interventions for tenth grade students with writing difficulties by introducing SRSD to help students plan and write persuasive essays. The researchers found that the two students with a diagnosis of ADHD spent more time planning and writing and produced more complete and better quality essays following their individualized pull-out SRSD intervention. Finally, a recent study by Evmenova et al. (2016) examined the effectiveness of computer-based graphic organizer (CBGO) combined with SRSD for students with writing difficulties. The four students with ADHD demonstrated improvement in their number of words, sentences, transition words, essay elements, and overall quality.

Jake noted that a primary limitation over all studies reviewed was that some studies included students whose only reported diagnosis was ADHD, but others included students with comorbid diagnoses (e.g., emotional-behavioral disorder or learning disability). Jake also noticed that the majority of studies were carried out by a small group of researchers and that only a single type of methodology (single-subject design) was employed. Jake's conclusions about this body of literature were that additional research is needed by a more varied group of researchers, using a wider variety of methodologies, and that the possible effect of comorbid diagnoses should be explored.

The Evidence-Based Decision

The identification of intervention strategies for writing deficits in school-age students with ADHD can be challenging. Jake learned about a teaching technique that facilitates the independent use of writing strategies through systematic scaffolding from the field of special education and learning disabilities. By bridging disciplines, Jake extended his knowledge and expanded his repertoire of evidence-based practice through the identification of an evidence-based teaching technique for written language—SRSD.

Based on his reading and interpretation of the literature, Jake concluded that SRSD is an evidence-based method he could use in written language intervention for students with ADHD. However, Jake identified two possible complications of implementing SRSD as it was designed in the studies he reviewed. First, the treatment in the studies was provided with high intensity (e.g., 3 to 5 times per week) over a short period of time (e.g., a few weeks). In order to adhere to an effective treatment schedule, Jake knew that he would have to work closely with the teachers to ensure that their schedules would allow multiple sessions per week and he may have to adjust the schedules of other students on his caseload during this time period. Second, the population of students in some of the studies was younger than Jake's middle and high school students. Although Jake knew from his readings that SRSD can be an appropriate teaching method across grades, he realized he would have to think carefully about selecting writing strategies and genre that are academically appropriate for his students and that consulting with the special education teacher would be essential in this regard.

Taking these two factors into account, Jake developed treatment plans using SRSD techniques to improve the persuasive quick writing skills of his students with ADHD. He decided to follow the intervention schedule of Mason and colleagues (Mason et al., 2013; Mason, Kubina, et al., 2011) to introduce POW and TREE strategies using the six-step SRSD model. Over the course of one month, Jake introduced and implemented these self-regulated strategies to his students in five 30- to 45-minute sessions. He collected quick writing samples from the students prior to the start of intervention, at the end of each session, and again after the intervention had ended, analyzing the samples for quality, length, completeness, and structure. Jake was eager to evaluate the effectiveness of his new intervention approach.

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Table 1. Summary of Studies Reviewed

Reference	Study design and level of evidence*	Participant description	Intervention intensity/duration	Outcomes in maintenance phase (for ADHD students only)**	Main findings
Cramer & Mason (2014)	Alternating treatment-multiple baseline (A-B-C-D), Level I	<i>N</i> = 8 (4 ADHD); grade range 7–8	Five 45-minute sessions per week, over approximately 2–3 weeks	Quality: increase 167% to 308% Primary traits: increase 116% to 424% Number of words: two showed increases of 215% and 500%; two showed decreases to ~90% of original length	Improvement was noted in the students' overall writing ability. Two of the students with ADHD nearly doubled the number of words in their writing results following the intervention.
De La Paz (2001)	Multiple-baseline/multiple-probe design across participants, Level II	<i>N</i> = 3 (2 ADHD); age range 13:0–14:8 years	Intervention occurred across six instructional class periods; data only collected during post-instruction and maintenance phases	Plans: average 4 (up from average 0.1) Length: increase 128% to 209% Elements: increase 158% to 342% Quality: increase 174% to 210% Vocabulary: increase 154% to 206%	The students' approach to writing became more advanced and quality, length, and structure of compositions improved. Although limitations in student gains were noted, including in mechanics and word usage, both students sustained post-instruction gains during a 4-week maintenance session probe.
Evmenova, Regan, Boykin, Good, Hughes, MacVittie, Sacco, Ahn, & Chirinos (2016)	Multiple-baseline/multiple-probe design across participants, Level II	<i>N</i> = 10 (4 ADHD); age range 12:7–14:2 years	Four 50-minute instructional sessions; writing probes embedded after lesson four across five data points	Number of words: increase 136% to 196% Number of sentences: increase 104% to 600% Number of transition words: increase 392% to 712% Number of essay parts: increase 150% to 274% Quality: increase 206% to 530%	The four students with ADHD demonstrated improvement in their number of words, sentences, transition words, essay elements, and overall quality when SRSD was used with the CBGO.
Jacobson & Reid (2010)	Multiple-baseline/multiple-probe design across participants, Level II	<i>N</i> = 3 (all ADHD); grade range 11–12	Three 40-minute sessions per week over two weeks (6–8 total sessions)	Planning time: increase to 18–31 minutes (up from 0) Number of essay parts: increase 133% to 257% Number of words: increase 161% to 343% Quality: increase 165% to 300%	SRSD was shown to increase the quality, length, and completeness of persuasive essay writing in high school students with ADHD over a brief number of intervention sessions.

Table 1. Summary of Studies Reviewed (continued)

Reference	Study design and level of evidence*	Participant description	Intervention intensity/duration	Outcomes in maintenance phase (for ADHD students only)**	Main findings
Jacobson & Reid (2012)	Multiple-baseline/multiple-probe design across participants, Level II	<i>N</i> = 4 (all ADHD); grade range 10–11	Three 40-minute sessions per week until criteria met (6–7 total sessions)	Planning time: average 10.6 minutes (up from 0) Writing time: increase 312% to 877% Number of essay elements: increase 347% to 1100% Number of words: increase 236% to 416% Transition words: average 6.1 (up from 0.4) Quality: increase 200% to 350%	Following SRSD instruction, students indicated longer essays as well as increased planning skills and overall higher quality writing using more transitional words and phrases than at baseline.
Kiuhara, O'Neill, Hawken, & Graham (2012)	Multiple-baseline/multiple-probe design across participants, Level II	<i>N</i> = 6 (2 ADHD); age range 15–16 years	Intense instruction over three treatment sessions with fading support over remaining four treatment sessions; duration not provided	Total essential elements: increase 205% and 311% Total functional elements: increase 301% and 394% Total words: increase 227% and 398% Planning time: average 13:55 minutes (up from 0:15) Writing time: average 42:32 minutes (up from 6:19) Total composing time: average 56:23 minutes (up from 6:35) Quality: increase 177% and 266%	The two students with a diagnosis of ADHD spent more time planning and writing and produced more complete and better quality essays following their individualized pull-out SRSD intervention.
Lienemann, Graham, Leader-Janssen, & Reid (2006)	Multiple-baseline/multiple-probe design across participants, Level II	<i>N</i> = 6 (1 ADHD); age range 7:3–8:0 years	Up to eight 30–45 minute sessions; duration not reported	Number of story elements: average 5.8 (up from 2.1) Number of words: 149% to 467% increase; except one student who regressed Quality: 113% to 277% increase. The student with ADHD demonstrated 1–3 story elements at baseline, 5–6 following instruction, and 4–5 during maintenance.	Using SRSD was an effective strategy that improved story completeness and quality.
Lienemann & Reid (2008)	Multiple-baseline/multiple-probe design across participants, Level II	<i>N</i> = 4 (all ADHD); grade range 4–5	Four 20–30 minute sessions, 4 days a week for 2–3 weeks	Number of essay elements: increase 343% to 578% Number of words: increase 315% to 639% Quality: increase 285% to 417%	Following SRSD intervention, students' essays were longer, more complete, and better in overall quality than baseline.

Table 1. Summary of Studies Reviewed (continued)

Reference	Study design and level of evidence*	Participant description	Intervention intensity/ duration	Outcomes in maintenance phase (for ADHD students only)**	Main findings
Mason & Shriner (2008)	Multiple-baseline/ multiple-probe design across participants, Level II	<i>N</i> = 6 (1 ADHD); age range 8–12 years	Eleven to thirteen 30-minute sessions; duration not reported	Quality: increase to 4.0 average from 0.0 Number of words: increase 450%	Persuasive writing was improved post-instruction for the student with ADHD but not maintained. The effectiveness of SRSD in students with EBD and comorbid ADHD requires further investigation.
Mason, Kubina, Valasa, & Cramer (2010)	Multiple-baseline/ multiple-probe design across participants, Level II	<i>N</i> = 5 (1 ADHD); age range 12:10–14:4 years	Five 30-minute sessions and three 10-minute sessions over a 2–3 week period	Quality: increase 175% Parts: increase 104% Word count: increase 112% Fluency: increase 120%	The results of SRSD for POW and TREE indicated that the student with EBD and ADHD improved the quality of a persuasive quick write response. Once a writing strategy has been taught and learned, students with disabilities need extended writing practice. This is especially important when restricting writing time, as was done in this study.
Mason, Kubina, & Hoover (2013)	Multiple-baseline/ multiple-probe design across participants, Level II	<i>N</i> = 3 (all ADHD); age 15–17 years	Five to seven 30-minute sessions over a 20–35-day period	Quality: increase 159% to 227% Number of parts: increase 135% to 229% Number of words: increase 151% to 240%	Writing strategies facilitated using the SRSD model bolstered persuasive quick writes for the students in this study with ADHD. Specifically, quality, response parts, and word count improved.
Mason, Kubina, & Taft (2011)	Multiple-baseline/ multiple-probe design across participants, Level II	Study 1: <i>N</i> = 6 (2 ADHD) Study 2: <i>N</i> = 10 (1 ADHD) age range across both studies 12:7–13:9 years	Five or six 45-minute sessions; duration not reported	Study 1: (GA-led) Quality: increase 113% to 318% Length: increase 118% to 172%, with one decrease to 90% of original length Study 2: (Teacher-led) Quality: increase 123% to 223% with one decrease to 87% of original quality and one the same as original quality Length: increase 110% to 207%	SRSD instruction using POW and TREE planning strategies were effective for students' quick writing of persuasive narratives. Although the students with ADHD also had either a diagnosis of specific learning disability (SLD) or Other Health Impairment (OHI), their overall writing scores improved.
Reid & Lienemann (2006)	Multiple-baseline/ multiple-probe design across participants, Level II	<i>N</i> = 3 (all ADHD); age range 9–10 years	Seven or eight 30-minute sessions; duration not reported	Number of story parts: increase 200% to 215% Number of words: increase 206% to 681% Quality: 186% to 407%	SRSD interventions are well suited for students with ADHD. All students improved in story length, completeness, and quality post-intervention. Long-term maintenance is a concern.

* Levels from Logan, L. R., Hickman, R. R., Harris, S. R., & Heriza, C. B. (2008). Single-subject research design: Recommendations for levels of evidence and quality rating. *Developmental Medicine & Child Neurology*, 50(2), 99–103. doi:10.1111/j.1469-8749.2007.02005.x

** "Quality" is often rated holistically and based on ideation, organization, sentence structure, word choice and grammar (Graham & Perin, 2007a).

Table 2. Summary of Studies With Strategy Acronym and Strategy Definitions

Study	Strategies used	Strategy definition
Cramer & Mason (2014)	POW + TREE	Guides students' composition of opinion essays. TREE creates a framework during the second step of POW.
De La Paz (2001)	PLAN + WRITE	Prompts students to plan before starting to write and to reflect on qualities of good writing while composing.
Evmenova, Regan, Boykin, Good, Hughes, MacVittie, Saccos, Ahn, & Chirinos (2016)	IDEAS with a computer-based graphic organizer	Prompts students to identify their opinion, identify reasons, and provide examples of or evidence for those reasons in a persuasive essay.
Jacobson & Reid (2010) Jacobson & Reid (2012)	STOP + DARE	STOP aids in the planning for persuasive essay writing. DARE ensures the essay contains all the required elements determined in the planning phase.
Kiuhara, O'Neill, Hawken, & Graham (2012)	STOP + AIMS + DARE	STOP aids in the planning for persuasive essay writing. AIMS helps the student develop an appealing introduction that contextualizes information. DARE ensures the essay contains all the required elements determined in the planning phase.
Lienemann, Graham, Leader-Janssen, & Reid (2006)	POW + WWW, What = 2, How = 2	Helps students generate ideas and notes for each of the seven basic parts of a story.
Mason & Shriner (2008)	POW + TREE	Guides students' composition of opinion essays. TREE creates a framework during the second step of POW.
Mason, Kubina, & Hoover (2013)	POW + TREE	Guides students' composition of opinion essays. TREE creates a framework during the second step of POW.
Mason, Kubina, & Taft (2011)	POW + TREE	Guides students' composition of opinion essays. TREE creates a framework during the second step of POW.
Mason, Kubina, Valasa, & Cramer (2010)	POW + TREE	Guides students' composition of opinion essays. TREE creates a framework during the second step of POW.
Reid & Lienemann (2006)	POW + WWW, What = 2, How = 2	Helps students generate ideas and notes for each of the seven basic parts of a story.

Note. POW = Pick my ideas, Organize my notes, Write and say more; TREE = Topic sentence, Reasons, Ending, Examine; PLAN = Pay attention to the prompt, List main ideas, Add supporting ideas, Number the major points; WRITE = Work from your plan, Remember your goals, Include transition words, Try to use different kinds of sentences, Exciting, interesting, million-dollar words; IDEAS = Identify your opinion, Describe three reasons, Examples of reasons, Add transition words, Summarize; STOP = Suspend judgment, Take a side, Organize your ideas, Plan more as you write; DARE = Develop a topic sentence, Add supporting ideas, Reject the other side, End with conclusion; AIMS = Attract the reader's attention, Identify the problem, Map the context, State the thesis; WWW, What = 2, How=2 = Who, When, Where, What does the main character do? What happens then? How does the story end? How does the main character feel?

Table 3. Levels of Evidence for Single-Subject Research Designs

Evidence	Level	Interpretation
Randomized controlled <i>N</i> -of-1, alternating treatment (ATD), and concurrent or nonconcurrent multiple-baseline designs (MBDs) with clear-cut results; generalizability if the ATD is replicated across three or more subjects and the MBD consists of a minimum of three subjects, behaviors, or settings	I	Causal inferences
Nonrandomized, controlled, concurrent MBD with clear-cut results; generalizability if design consists of a minimum of three subjects, behaviors, or settings	II	Limited causal inferences
Nonrandomized, nonconcurrent, controlled MBD with clear-cut results; generalizability if design consists of a minimum of three subjects, behaviors, or settings	III	Limited causal inferences
Nonrandomized, controlled design with at least three phases (ABA, ABAB, BAB, etc.) with clear-cut results; generalizability if replicated across five or more different subjects	IV	Hints at causal inferences
Nonrandomized controlled AB single-subject research design with clear-cut results; generalizability if replicated across three or more different subjects	V	Suggests causal inferences (testing of ideas)

Adapted from Logan, L. R., Hickman, R. R., Harris, S. R., & Heriza, C. B. (2008). Single-subject research design: Recommendations for levels of evidence and quality rating. *Developmental Medicine & Child Neurology*, 50(2), 99–103. doi:10.1111/j.1469-8749.2007.02005.x