Self-Regulation Writing Approach for

Middle School Students with Autism

by

Patricia Finn

English Bachelor of Science in Education, West Chester University, 2014

Reading Specialist Master of Arts, Teachers College, Columbia University, 2016

Submitted to the Graduate Faculty of the

School of Education in partial fulfillment

of the requirements for the degree of

Doctor of Education

University of Pittsburgh

2021

UNIVERSITY OF PITTSBURGH

SCHOOL OF EDUCATION

This dissertation was presented

by

Patricia Finn

It was defended on

June 15, 2021

and approved by

Joanna Newlin, Ed.D., Assistant Director, Middle School Learning, Falk Laboratory School

Emily Rainey, Ph.D., Assistant Professor, Department of Language, Literacy, and Culture

Dissertation Director: Tessa McCarthy, Ph.D., Assistant Professor, Department of Teaching, Learning, and Leading

Self-Regulation Writing Approach for

Middle School Students with Autism

Patricia Finn, Ed.D.

University of Pittsburgh, 2021

Expository writing is a complex task for middle school students with autism, requiring skills in self-regulation, executive functioning, content knowledge, and paragraph writing. A lack of these skills can lead to low writing performance and low self-efficacy towards writing. In the present study, the effectiveness of implementing components of the Self-Regulation Strategy Development (SRSD) were examined when applied to expository writing. Two middle school students with autism, who attend a private K-8 school, were individually given explicit instruction on developing positive self-statements and as well as how to plan, write and edit text-based paragraphs. Self-efficacy was measured through student surveys at baseline and post-intervention. Holistic writing quality was measured at baseline and post-intervention through a rubric. After the intervention, both students improved their holistic writing scores, specifically improving their ability to include and analyze evidence and increasing their use of topic and conclusion sentences. Additionally, both students reported an improvement in their self-efficacy towards writing. These findings add to previous research about the effectiveness of SRSD for students with autism while specifically focusing on expository writing. Future research should expand upon these results by including a larger sample size of students and how peer support can further improve the writing experience for students with autism.

Table of Contents

List of Tables

List of Figures

Acknowledgements

To my parents, Joe and Laura Finn, for instilling a love of learning in me from a young age and for your constant support. To my mom for showing me the importance of serving others. To my dad for teaching me to continue to be "curiouser and curiouser" about the world around me. To Christie, who taught me to be brave and run with the wild horses. To Stephen, who showed me the joys of writing and imagination. The four of you were my first teachers.

To all the wonderful teachers I've gotten to know and work with, especially at Falk, whose dedication to students, creativity and humor have kept me grounded.

To my students, you are the real reason for our work. You are what keeps me going each day as a teacher, and I'll continue to keep you at the center.

To Steve, for your love and support throughout this process and every day. Thank you for always listening to me; you are my rock.

To Dr. Tessa McCarthy, thank you for your help. Your dedication to our field has been an inspiration.

To my EdD cohort, especially the SPED Arco, thank you for all that you've taught me the past three years and for your friendship.

Lastly, this work is dedicated to my two grandmothers, Dorothy Dubinsky and Joan Finn, who passed away in 2020. I keep you both close to my heart.

1.0 Framing the Problem of Practice

1.1 Broader Problem Area

Individuals with autism commonly have significant difficulty with self-regulation, including establishing goals, holding goals in memory, persisting towards goals, and shaping behaviors to achieve goals (Harris & Graham, 2016). Self-regulation can be particularly problematic for students with autism during expository writing assignments on subject-based material (Hilvert, Davidson & Scott, 2019). Some characteristics that may contribute to this difficulty include literal thinking, difficulty elaborating thoughts, and a lack of organizational skills and self-regulation. Further, students with autism may lack self-management and fail to use self-directed speech and behaviors (Asaro-Saddler, 2010).

The students with autism enrolled in middle school at my K-8 school, have difficulty fully demonstrating their content understanding through expository writing when faced with these complex self-regulation demands. I am employed as a Learning Specialist for grades 6-8 at a progressive, urban, private school. According to teacher and parent interviews, student surveys, and direct observations I conducted, students with autism in the general education classrooms are frequently able to verbally explain content but have difficulty completing writing assignments that demonstrate their understanding. Instead, the students rely on frequent teacher prompting to remain on-task and struggle to independently identify daily or weekly writing goals for longer writing assignments. This problem can further lead to unfinished writing assignments and frustration of students with autism.

As a result, students have difficulty with communicating their content understanding through writing, which affects their academic grades and their self-esteem (Whitehouse, Maybery & Durkin, K., 2016). I've observed middle school students with autism describing themselves as "bad writers" and "not smart," even when they are able to verbally explain their understanding and only have difficulty with then translating their thoughts to writing. Middle school students with autism at my school have also self-reported frustration and distraction while writing for school assignments, which could be caused by a lack of self-regulation. These academic and emotional consequences need to be addressed for students with autism in my school.

1.2 The System

In my role as a Learning Specialist for grades K-8, I provide direct academic support to students with disabilities, consult with teachers on how to best support all students in their classrooms, and ensure that students with disabilities are receiving appropriate supports. My role places me on the Educational Support Team, which is comprised of other Learning Specialists and the Student Services Coordinator. Each Learning Specialist is assigned to support a grade band: Primary (K-2), Intermediate (3-5), and Middle School (6-8). At the core of my school and the Educational Support Team is the philosophy of nearly full inclusion with students with disabilities learning in the general education classroom for the majority of the day. The Educational Support Team has an internal mission statement from August 2019 that states:

"The purpose of the Educational Support Team is to:

●Work in partnership with teachers and parents to support the inclusion and growth of students with identified disabilities

●Collaborate with teachers in the design and implementation of instructional strategies that facilitate the learning of students with and without disabilities."

(*Educational Support Handbook 2019-2020*)

Inclusion of students with autism in the general education classroom is at the center of my problem of practice. Inclusion is also significant to the work of the school, yet the ever-expanding student population and increased admittance of students with disabilities into the school has left many general education teachers unprepared to differentiate within their classrooms and puts strain on the school's few Learning Specialists. Teachers who taught smaller classes with fewer students with disabilities and more in-class support prior to the expansion of the school now struggle with accommodating different learning needs within their classroom. They often rely on Learning Specialists for differentiation to occur. However, the crucial partnership between Learning Specialists and general education teachers becomes difficult to manage with Learning Specialists working within several classrooms during one day to support nearly full inclusion.

General education teachers, with the support of Learning Specialists, are responsible for not only the academic success of their students but also their emotional and social well-being. However, the main duty of the Learning Specialist is to "work directly with classroom teachers in planning and implementing individual or class-wide adaptations for curriculum, assessment, and instruction" (2019). This partnership is crucial and central to the work of the Educational Support Team though the focus should include both academic and behavioral support to account for students' multiple needs. My problem of practice focuses on writing concerns of middle school students with autism, these seemingly academic concerns are also social-emotional as self-regulation during writing is a complex process for many students with autism. The role of the Learning Specialist needs to be linked to more than just academics.

The majority of the onus of making decisions about differentiation and intervention within the classroom resides with the Student Services Coordinator. This role does not have formal duties listed in the Educational Support Team Handbook, but in practice, the Student Services Coordinator supervises the Learning Specialists and provides the final say on referrals, evaluations, and major interventions. The current Student Services Coordinator holds additional responsibility in the school through the Assistant Director position, which allows her to make decisions about admitting students with disabilities.

Having a school leader with a special education background can provide equity for students with disabilities. For example, the Assistant Director can make decisions about hiring more Learning Specialists, the type of professional development the faculty receives, and what direction differentiation should take in the classroom. These decisions influence the curriculum and how teachers approach inclusion in their classroom, an essential aspect of the Educational Support Team's mission.

The Educational Support Team controls the decisions about students with disabilities within the school with one member holding the majority of the responsibility. However, the Educational Support Team's mission statement is not always fully realized since limited personnel and lack of clear school-wide vision create barriers for inclusion. My problem of practice centers around the successful inclusion of students with autism in the general education classroom, which requires the whole system to work together to meet the needs of these students.

1.3 Systemic Root Causes of Problem of Practice

Several root causes that contribute to students with autism having difficulty with content-area writing (Appendix A). The lack of a set writing curriculum from kindergarten to eighth grade leaves a lack of consistency between grade bands since set standards are not developed. A lack of consistency is apparent with the creation of a new Language Arts curriculum committee that was developed during the 2019-2020 school year to address a lack of curriculum, common vision, and communication between grade bands. A teacher survey from January 2020 also confirmed that teacher attitudes towards writing instruction vary widely, contributing to a lack of consistency of writing instruction. The survey asked K-8 teachers at all levels to indicate the importance of certain types of writing instruction in their grade band on a scale from 0 to 4, bringing to light inconsistencies. For example, at the Primary grade band (K-2), teachers indicated that conventions, including grammar, spelling, and organization were a 2.3 level of importance whereas in the Middle School grade band (6-8), conventions were a 3.8 level of importance. Also, the Primary grade band indicated that teaching the writing process was a 2.8 level of importance whereas in the Middle School grade band, teaching the writing process was a 3.8 level of importance. These large discrepancies across grade levels indicate a strong difference of curricular importance of writing conventions and process that can influence how students, especially students with autism who generally need concrete guidelines to follow, develop their writing skills. Without basic writing conventions and learning the writing process as priorities in primary grades, students are learning conventions and the writing process in middle school when the content demands are higher.

Additionally, with support plans instead of Individualized Education Plan (IEP) goals, differentiation for students with autism is very difficult to maintain across grade bands. Students

with autism in public schools generally have specially designed instruction (SDI) as part of their IEPs; however, private schools do not always follow SDI that can benefit students with autism. Without differentiation through SDI, students with autism may struggle within an inclusive classroom. A January 2020 survey I created for my students with autism featured questions asking about how they experience the writing process during middle school. All of the students answered either "Sometimes" or "Most of the time" to the prompt: "I get distracted while writing for school." They also all responded "Sometimes" or "Most of the time" to the prompt: "Writing can be frustrating." Despite these expressed difficulties, they all answered "Most of the time" or "Always" to the prompt: "I enjoy writing for school." This survey suggests the root cause that students with autism can lack strong writing skills, leading to frustration and distraction while writing for school.

1.4 Stakeholders

Major stakeholders include: middle school students with autism, parents of middle school students with autism, teachers of middle school students with autism, Learning Specialists, Student Services Coordinator, and neurotypical classmates of students with autism. At the center are middle school students with autism whose daily academic expectations rely on a supportive system that advocates for their writing needs.

1.4.1 Middle School Students with Autism

Approximately 2% of the school's population has autism currently in the middle school. I teach three students with autism in grades sixth to eighth with the learning resource classroom.

One student is white and non-binary, one student is a Black male, and one student is a Black female. The students are in the general education classroom most of the day except they have a resource period four times of a six-day cycle. During resource period, I work with students on targeted skills which include organizing their writing and talking through assignments. All three students with autism have consistently shown frustration and anxiety when presented with a writing prompt. They have responded by stimming more frequently, talking faster, and asking for extra breaks when attempting a writing assignment. The students with autism I work with tend to "shut down" when presented with a stand-alone prompt and no writing supports such as a graphic organizer or one-to-one help by exhibiting avoidance behaviors. When provided with more structure, my students with autism still appear anxious but will write down short notes to create a longer piece. Self-regulation, and specifically self-talk, is a common difficulty for individuals with autism, who can have difficulty connecting thought with language (Whitehouse et.al., 2006). Self-talk in this context refers to a person's ability to talk internally or externally to themselves to help with motivation or focus through a multi-step process. Students with autism are at the center of the stakeholders and have important relationships with their parent(s), teachers and the Learning Specialist. Generally, they do not interact with the Student Services Coordinator.

1.4.2 Parents of Middle School Students with Autism

The parents of my students with autism greatly differ. One parent also has autism and advocates strongly for her child, providing suggestions for teachers. Other parents are supportive but are less involved, participating in parent-teacher conferences and seeking outside support for their child(ren), including occupational therapy, social skills group, and psychologists. The one parent that I interviewed has experienced frustration herself with the writing process because she

also is an individual with autism. She also has observed the frustration and anxiety her child has when asked to write, and when she provides support at home. The other parents ask for my input and other professionals' input on support at home for academics in general.

1.4.3 Teachers of Middle School Students with Autism

Middle school teachers at my school do not specifically have a special education background but have received professional development on differentiating instruction. The teachers are also all neurotypical and have various years of experience from three years to thirty years. The teachers create their own curriculums and are not set to a specific writing focus but are expected to follow student support plans, which serve as an IEP in my private school. The middle school teacher I interviewed expressed that he sees the frustration and anxiety some of his students with autism experience but does not know how to best support their writing while in an inclusive classroom.

1.4.4 Learning Specialists

My school currently has three full-time learning specialists and one part-time learning specialist. As the middle school learning specialist, I am responsible for helping teachers implement support plans within the inclusive classroom and also teach within a resource room setting. I meet with content-area teachers regularly to discuss specific students and assist in planning differentiated lessons. The other learning specialists work with students with autism and have expressed frustration with the lack of a writing curriculum and structure surrounding writing instruction. They see the frustration of their students with autism, as do I, and attempt to provide

organization during one-to-one instruction and through graphic organizers. However, teachers do not always have the time to provide one-on-one support to guide a student through a graphic organizer or other writing aid. Therefore, it would be beneficial for students, especially students with autism, to learn self-regulation skills to be independent when given a writing task.

1.4.5 Student Services Coordinator

The Student Services Coordinator has worked for the school for approximately ten years and is responsible for all students with learning differences receiving the correct in-school services. She works directly with the learning support teachers and was previously the middle school Learning Specialist. She specifically guides the learning support teachers in their coordinated efforts with general education teachers, providing advice on how to differentiate instruction and what level of support is best. She has expressed a need for a more structured, differentiated curriculum in middle school that incorporates writing support for all students. She has created a safe environment during our educational support meetings to discuss these concerns and allows time for brainstorming ideas for improvement.

1.4.6 Neurotypical Students of Classmates with Autism

Neurotypical classmates of students with autism are also important to consider. When teachers provide universally designed instruction to accommodate for their neurodiverse students, neurotypical students can also benefit (Rose & Gravel, 2010). For example, if teachers provide explicit instruction on how to use a graphic organizer for a writing assignment or conduct a think aloud, neurotypical students can also use these strategies in their own writing. Neurotypical

students can also learn from students with autism that there are multiple ways to approach writing and thinking about writing.

1.5 Statement of Problem of Practice

Middle school students with autism at my school need support with the complex self-regulation demands required to succeed. Specifically, support is needed for writing activities that require skills including establishing goals, holding goals in memory, persisting towards goals, and shaping behaviors to achieve goals. Self-regulation strategies that are integrated into the curriculum are essential for students with autism within not only the resource room setting but also within general education classrooms. Creating a strong partnership between general education teachers and Learning Specialists develops a shared responsibility for all students with support plans and reinforces the necessity for supports for students with autism in the general education classroom, leading to stronger differentiation techniques and universal design of learning (UDL) woven into all classrooms. Growing strong self-regulation skills is vital for students with autism who need to rely on these abilities for not only writing activities but also other academic and social aspects of their lives. Incorporating explicit self-regulation strategies into the broader writing curriculum across the school's middle school allows for a strong foundation that could contribute to a more cohesive focus with students remaining in the center.

2.0 Review of Supporting Research

Self-regulation is a critical component of the writing process that is specifically difficult for students with autism. To begin to understand these difficulties for students with autism, one must first comprehend the theorical background of self-regulation and Self-Regulated Strategy Development (SRSD), an approach to supporting self-regulation in the classroom. Both the theory of self-regulation and the components of SRSD has led to a deeper understanding of my problem of practice.

2.1 Self-Regulation

Schunk and Zimmerman (2007) define self-regulation as "self-generated thoughts, feelings, and actions that are systematically designed to affect one's learning of knowledge and skills" (p.8). During the writing process, self-regulation allows for writers to independently create and keep writing goals through frequent self-check-ins. Zimmerman (1998) developed three phases of self-regulation while writing:

(a) forethought, which precedes action and sets the stage for action,

(b) performance control, which includes processes that occur during learning that affect attention and action (social comparison, feedback and use of learned strategies), and

(c) self-reflection, which occurs after action by evaluating goal progress and adjusting strategies.

Each of these phases build upon one another to create self-sufficiency. Writers begin by developing

their purpose for writing during the forethought phases. During writing, writers use strategies they have learned to pursue their original purpose, receiving feedback from self, peers, or a mentor. Lastly, the writer compares his or her final writing to their original purpose and adjusts their strategies, looking forward to their next writing project.

Schunk and Zimmerman (2007) based their conceptualization of self-regulation on Bandura's (1986) theory of social cognitive development, which emphasizes the importance of modeling on early learning, especially for self-regulation. Bandura (1986) argues that modeling influences one's literacy skills as well as beliefs and attitudes about literacy. In social cognitive development theory, Bandura states that individuals acquire and maintain behavior through their observation of their social environment. Therefore, a student's environment can influence their writing. Also, receiving encouraging feedback from peers or teachers can also positively affect writing behaviors. Students learn best when a new behavior is modeled for them and they are then given an opportunity to practice. One instructional strategy for writing that incorporates explicit modeling of writing behaviors to improve both self-efficacy and composition is Self-Regulated Strategy Development (SRSD), developed by Karen Harris and Steve Graham in the 1980s.

2.2 Self-Regulated Strategy Development (SRSD) Overview

Karen Harris, Steve Graham and their colleagues developed SRSD in the early 1980s as a step-by-step approach to promote self-regulation while writing. The approach was originally designed to meet the writing needs of students with severe learning problems, including students with learning disabilities. Harris and Graham observed that students with writing issues also had difficulty with self-regulation, including comprehending task demands, re-producing learned

strategies, and using strategies. As a result of their difficulty in these areas, students may experience self-doubt, low self-efficacy, and low motivation.

Harris and Graham based their initial research in 1985 on the work of Hull (1981) who found self-monitoring and goal-setting effective for increasing college students' volume and frequency of journal writing. Harris and Graham modified a validated strategy developed by Schumaker et. al. (1982) for adolescents that was shown to increase the number of words in a composition and its quality. Their 5-step strategy included:

(a) Look at the picture and write down good action words

(b) Think of a good story idea to use my words in

(c) Write my story

(d) Read my story and ask-- did I write a good story? Did I use action words?

(e) Fix my story-- can I use more action words?

This initial approach included a general framework for SRSD, including pre-writing, self-talk and self-monitoring, and self-reflection. Harris and Graham centered their approach on three major goals for students, including:

1) To assist students in mastering the higher-level cognitive processes involved in planning, production, revising, and editing writing

2) To help students further develop the ability to monitor and manage their own writing

3) To aid students in the development of positive attitudes and beliefs about writing and about themselves as writers (Harris & Graham, 2008)

According to Harris and Graham, self-regulation is important for students to understand how and when to apply a strategy, independently use the strategy effectively, recognize their own meaningful improvements, improve their attitudes about themselves as writers, and maintain and

generalize strategic performance (p.12). Graham et.al. (2008) noted that explicit instruction and support assisted in developing self-regulation skills in students. Some tasks that are explicitly taught in SRSD include: goal setting, self-instructions, self-monitoring, self-assessment, self-recording, and self- reinforcement.

2.3 Task Features of SRSD

SRSD has several identifiable task features described in four steps that promote self-regulation throughout the writing process. The task features are meant to be recursive and teachers are encouraged to return to certain stages of instruction when necessary. Some components may not be needed depending on the students' background knowledge and/or abilities. The steps of SRSD correspond with Zimmerman's three phases of self-regulation (1998).

The first step in SRSD is developing background knowledge. During this stage, the teacher and students read genre-specific words to develop familiarity, vocabulary, and knowledge. Students then develop goals for themselves for the writing process that are specific and challenging yet attainable. This step parallels Zimmerman's "Forethought" stage as developing background knowledge and goals precedes all writing and sets the stage for the action of writing.

The second step is to discuss the process. The teacher and students discuss the steps of the writing process, and any genre-specific mnemonics are introduced. Self-monitoring of goals is discussed, and a method is determined for keeping track. Self-monitoring is the "Performance Control" stage according to Zimmerman as it occurs during writing and requires self-feedback. Self-instructions, which is a type of self-speech that helps orient, organize, structure, and plan behavior while writing, are discussed as well.

The third step is for the teacher to model the writing process. The teacher "thinks aloud" through self-instructions that promote focusing attention, self-evaluation, coping and self-control and self-reinforcement. The teacher and students then reflect on the effectiveness of the self-instructions and students have an opportunity to ask questions. This step parallels Zimmerman's "Self-Reflection" stage and is supported by Bandura's social cognitive theory (1986).

The fourth step is for students to memorize the steps in the composing strategy and any corresponding mnemonics. This step is important so that students are able to independently replicate the process. The fifth stage is for the teacher to support the student as they employ the strategy for the first time. Teachers are asked to provide prompts when necessary and gradually fade their support. The sixth and final stage is independent performance when students employ the composing process independently while using covert ("in the head") self-instructions. All tasks should be mastery-based and at the pace of the student.

2.4 In Sum

SRSD is an intervention designed to explicitly teach students self-regulation skills while writing, including goal-setting and self-monitoring (Harris & Graham, 2008). SRSD was designed with students with specific language-based learning disabilities in mind but has been studied with different populations, including students diagnosed with emotional and behavior disorders (EBD), Attention-Deficit/ Hyperactivity Disorder (ADHD) and Autism. Various task features include developing background knowledge and specific goals prior to writing, self-monitoring goals while writing, engaging with self-reflection after writing, and memorizing the process to develop independence and transference.

2.5 Effectiveness of SRSD for Students with Learning Disabilities

Beginning in 1985, Harris and Graham began testing the effectiveness of SRSD on students with learning disabilities. Their initial research questions centered around the holistic quality of student writing and student skill maintenance. Harris and Graham's initial study in 1985 found that the self-control strategy training approach improved students with learning disabilities' quality of story-writing in relation to word choice and number of words. Students were also able to maintain the quality of their writing over time because they memorized the five-step process. Students made spontaneous comments about their own progress, including "I met my goal, my story was good" (p.35). This initial study set a precedent for future research as SRSD produced positive results for not only quality as determined by word choice and number of words and maintenance of skills but it also changed students' attitudes towards writing as seen through their spontaneous self-praise.

Harris and Graham further assessed the skill maintenance associated with SRSD by researching if students with learning disabilities could generalize the self-regulation writing skills from one writing assignment to other writing assignments in multiple classroom settings. Harris & Graham (1989) studied the effects of SRSD on fifth and sixth grade students with diagnosed learning disabilities in a resource room. They found that not only did the training improve writing quality, students were able to generalize the self-regulation skills to other writing assignments in multiple classroom settings outside of the resource room, and students were able to maintain the quality over time.

Building upon the spontaneous student comments from their 1985 research, Harris and Graham also studied specifically how self-efficacy, an individual's belief in his or her capacity to execute behaviors necessary to produce specific performance attainments (Bandura 1986),

16

changed throughout the SRSD process. In their 1989 study, students judged their own writing abilities before and after the SRSD training with a scale assessment. Harris and Graham found that self-efficacy improved significantly among students as they rated their competencies as higher after the SRSD training. These findings align with Harris and Graham's 1985 study that showed that students with learning disabilities responded enthusiastically to self-regulation procedures and would highly recommend them to others experiencing learning problems.

As their research developed, Harris and Graham began studying how SRSD also affected prewriting, which aligns with Zimmerman's first phase of self-regulation: forethought. In 1992, Harris et.al. studied a specific pre-writing strategy: PLANS (Pick goals, List ways to meet goals, And, make Notes, Sequence notes). The researchers questioned if using PLANS would increase prewriting, writing time and quality ratings for student compositions as well as the length of the composition. They found positive results for all measures as students were able to memorize the acronym and apply the pre-writing strategy to different writing assignments. The use of a specific pre-writing acronym became a hallmark of SRSD. Later, Harris & Graham developed the POW (Pick my ideas, Organize my notes, Write and say more) planning strategy which remained constant in their later research. In 2006, Harris et.al. studied the effects of SRSD, and specifically the POW strategy, on struggling second grade students attending an urban elementary school serving a high percentage of low-income families. Harris & Graham (2006) again showed that use of SRSD increased planning time and higher holistic quality. SRSD's focus on pre-writing goal setting and metacognitive skills overall enhanced the amount of time that students spend before writing. In effect, students created longer compositions that were of higher quality than prior to receiving the training (Harris & Graham, 1992; Harris & Graham, 2006).

Bandura's theory of social-cognitive development (1986) led Graham and Harris to

question if the influence of peer support during SRSD training yielded positive results for students with learning disabilities. In 2005, Graham et.al. studied the effects of SRSD on struggling 3rd graders who received SRSD training on composing stories and persuasive essays along with receiving peer support, which was a novel component not incorporated into other SRSD studies. Graham et.al. found that students who received peer support wrote longer and more complete assignments, and they were able to maintain and generalize their skills than students who worked independently. These findings support Schunk and Zimmerman's argument about the impact of the social environment on writing (Schunk & Zimmerman, 2007). Social learning can benefit struggling writers as peers can help each other maintain and generalize strategies.

After decades of research on SRSD, Graham and Harris argued that SRSD could transform policy in curriculum and teacher development (Graham & Harris, 2016). Though SRSD is a writing approach and not a curriculum, the approach can serve as a framework in a universally designed classroom or resource room. Harris and Graham (2016) claim that elements of the SRSD approach to writing instruction can have meaningful effects on cognition, affect (including motivation and attitudes), and behavior (such as persistence with difficult writing tasks) during writing. Harris and Graham also noted that SRSD could benefit all students' writing and their concept of self as writers. Despite extensive research, Harris and Graham have limited their studies to students with learning disabilities, which created the need for future research on the effects of SRSD on other disability populations.

2.6 Effectiveness of SRSD for Students with Autism

The growing number of students being identified as having autism in the early 2000s led

to new research on the effectiveness of the SRSD intervention for this population, one third of which were educated in the general education classroom (U.S. Department of Education, 2001). Asaro-Saddler researched the effects of SRSD for students with autism in several studies in the early 2000s. Asaro-Saddler notes the wide variety of characteristics exhibited by students with autism and how some characteristics may inhibit their writing (Asaro-Saddler, 2010). Some of these characteristics may include literal thinking, difficulty elaborating thoughts, and a lack of organizational skills and self-regulation. Further, students with autism may lack self-management and fail to use self-directed speech and behaviors (Asaro-Saddler, 2010). Therefore, Asaro-Saddler argues for writing interventions that focus on self-regulation for students with autism and SRSD incorporate those supports. Asaro-Saddler was originally influenced by the Delano (2007) study, which is the first known study that researched the effects of SRSD on a student with autism.

In Delano (2007), the researcher worked with one adolescent student diagnosed with Asperger Syndrome and studied the effects of SRSD for story writing. Delano found that the student's use of action and describing words increased as well as revisions. The student's quantity and quality of text demonstrated gains as a result. The positive results held promise for the intervention's effects on students with autism; however, the single-subject design and single genre focus created limited generalizability and led Asaro-Saddler to extend Delano's research.

In a follow-up study, Asaro-Saddler and Saddler (2010) studied the effects of SRSD on three elementary aged students with autism's story-writing composition. The researchers were especially interested in the students transferring their knowledge of writing fiction to writing about themselves. This task could be difficult with students with autism who tend to think literally. Asaro-Saddler and Saddler found that all students with autism in their study increased their number of story elements (main character(s) identification, a description of time of story, what happens

after that, how the story ends, and how the character(s) feel) and average number of words. All students were able to transfer their skills to a personal narrative which demonstrated flexible thinking while writing. Both Delano (2007) and Asaro-Saddler and Saddler (2010) showed the promise of SRSD as a positive influence for the narrative writing of both elementary aged and middle school aged students with autism.

Next, Asaro-Saddler and Bak (2012) chose to study the effects of SRSD on the persuasive writing of elementary-aged students with autism. Persuasive writing is a style of critical narrative students learn during the elementary years. Students with autism may have difficulty with this particular genre as they are expected to take on others' perspectives. Asaro-Saddler and Bak (2012) studied how the SRSD persuasive writing strategy POW (Pick my ideas, Organize my notes, Write and say more) +TREE (Topic sentence, Reasons, Explanations, Ending Sentence) affected the writing of elementary-aged students with autism. The researchers found that instruction in planning and persuasive writing using the POW + TREE strategy showed improvements in the students' planning behaviors and holistic quality with the students writing more focused essays. Students' planning time increased from no evident planning time to overt, identifiable planning behavior using the POW strategy. Similarly, these results align with Harris and Graham (2006) who also found that the POW strategy affected students' overall planning time and may have influenced overall holistic writing quality. Focusing on a specific planning strategy (POW) appeared to positively affect the writing of both students with learning disabilities and students with autism.

Given the effectiveness of peer-assisted writing during the SRSD writing process for students with learning disabilities (Graham & Harris, 2005), Asaro-Saddler and Bak questioned if students with autism would benefit as well from the same peer-mediated intervention. Students

20

with autism may benefit from the direct response and feedback on their writing in a meaningful social context. Peer-mediated interventions are considered an evidence based practice for students with autism (National Professional Development Center on Autism Spectrum Disorders, n.d.). Asaro-Saddler and Bak (2014) once again studied the effects of SRSD on the persuasive writing of students with autism while also adding a peer-sharing and editing component. Once again, the use of the POW + TREE strategies increased planning time and holistic quality for all students. Additionally, peer interaction and collaboration increased with students providing encouraging reminders to one another to use their self-statements and mnemonics. These results showed how using peer support during the SRSD process can benefit student writing by peers providing strategy reminders and provides pro-social experiences for students with autism. Asaro-Saddler and Bak's positive findings regarding SRSD and peer mediation supports a similar argument of Harris and Graham (2006).

An initial goal of SRSD is to "aid students in the development of positive attitudes and beliefs about writing and about themselves as writers" (Harris & Graham, 2008, p.11). According to Graham and Harris (1989), self-efficacy improves after SRSD for students with learning disabilities. Similarly, Allen-Bronaugh (2013) found that students with autism reported that they saw themselves as more capable writers after the SRSD process using the POW + TREE strategy. Allen-Bronaugh (2013) also conducted parent interviews before and after the intervention. Before the intervention, parents reported their hopes for the intervention's outcomes and after the intervention, parents reported that their hopes came to fruition and their children appeared to be more confident writers. Parent input is significant in better understanding the effects of SRSD on student attitudes as it provides a more well-rounded perspective of student development throughout the process.

2.7 In Sum

Explicitly teaching SRSD improves both the writing process and quality of written content for students with autism. SRSD improved students' planning behaviors and increased self-monitoring behaviors throughout the writing process which led to higher holistic quality of content overall. Student success during the writing process improved students' attitudes towards writing. Additionally, peer and adult feedback was especially effective for students with autism throughout the writing process and promoted a social component of writing.

2.8 Synthesis

Writing is a complex process that involves constant self-regulation, potentially causing difficulties for students with autism who struggle with executive functioning skills. SRSD is an evidence-based intervention that builds upon Zimmerman's self-regulation phases and Bandura's theory of social-cognitive to meet the needs of struggling writers. The self-regulation phases parallel the SRSD approach as students follow the writing process from beginning to end, checking in with themselves throughout the process. These frequent check-ins help students develop positive writing habits. In both Graham and Harris' and Asaro-Saddler's bodies of work, the specific planning strategies were effective for struggling writers. Increased planning time when using a specific strategy consistently led to increased holistic writing quality and amount of content.

Social-cognitive theory is fundamental in SRSD, which appears through modeling and support. Adult modeling promotes self-regulation as students internalize SRSD's six steps and imitate the modeled process. Modeling of self-statements is especially critical as self-talk is a

unique hallmark of the approach and can lead to stronger self-efficacy and self-esteem. Peer interaction and collaboration also is critical in the SRSD process, especially for students with autism, as it provides strategy reminders and pro-social experiences. Though peer support was a task feature that was not initially a part of the SRSD approach, the feature promotes a social environment while writing that can lead to higher quality writing.

After exploring the effectiveness of SRSD and its task features for both students with learning disabilities and students with autism, I have developed a stronger understanding of the approach and its purpose. Specifically, SRSD can provide students with autism the structure necessary for writing using specific planning and writing strategies, as well as guiding students through a revision process independently or with peers. I better understand the significance of social-cognitive theory in relation to writing as the value of adult modeling and peer support shapes a writer's experience. Both structure and support from others creates a strong base for students with autism throughout the writing process with the goal of developing self-sufficiency. Understanding the importance of structure and support is critical for my problem of practice since I seek to not only improve my students' writing process and content but also their attitudes about themselves as writers.

Research on Self-Regulated Strategy Development has led to positive results for students with autism by providing an explicit approach that promotes self-sufficiency while also cultivating social relationships. However, the research focused only on persuasive and narrative writing and did not include any studies on informational writing. Informational writing, which can be multidisciplinary and frequently assigned to middle school-aged students, is another important genre to study in future research.

Reviewing the literature has led me to understanding my problem of practice in three major

ways. First, the research led me to a deeper understanding of self-regulation and how the self-regulation phases are realized within the SRSD approach. Second, I learned the specific task features, such as a specific planning strategy and peer support, that have shown to be effective for students with autism. Lastly, SRSD is shown to be effective for narrative and persuasive writing for students with autism and has potential for informative writing as well. With this knowledge-base, I can better support the self-regulation difficulties affecting my students with autism during the writing process.

3.0 Theory of Improvement

3.1 Aim Statement

My two primary aims are to improve the holistic writing quality and self-efficacy of middle school students with autism in content-based writing prompts. The T.I.D.E. graphic organizer (Appendix C) was developed by Harris and Graham as a support for informational paragraphs. Specifically, I aim to improve the holistic writing quality on T.I.D.E. (Topic introduction, Important evidence, Detailed examination, Ending) paragraphs by 10% and increase self-efficacy results by 15 mean points over a one-month period for the three students with autism. Improvement will be measured through comparison of baseline scores, during intervention scores, and post-intervention scores based on a rubric measuring genre-based elements. Self-efficacy will be measured through student self-evaluations. Several change ideas, developed from specific drivers, could contribute to the realization of this aim, involving executive functioning skills, differentiating writing and assessments, and self-efficacy (Appendix E).

3.2 Executive Functioning Skills

General education teachers can incorporate elements of SRSD into their curriculum to hone executive functioning skills while writing. Executive functioning skills include organization of ideas, producing goals and following through with goals in a timely manner, and revising ideas throughout the writing process. SRSD is designed to explicitly teach students self-regulation skills

25

while writing, including goal-setting and self-monitoring (Harris et.al., 2008). SRSD can provide students with autism the structure necessary for writing through specific planning and writing strategies, as well as guiding students through a revision process independently or with peers. Modeling the planning and revision process is an essential component of SRSD with gradual release of responsibility to students. Additionally, modeling self-talk statements for before, during, and after the writing process can assist students with producing and using self-statements independently. Explicit instruction through SRSD and use of self-talk can increase planning time, the times spent on revision, and improve holistic writing quality (Asaro-Saddler & Bak, 2012; Asaro-Saddler & Bak, 2014). SRSD can hone the executive functioning skills necessary for students with autism to navigate the complex writing process.

3.3 Differentiating Writing Instruction and Assessment

Special education teachers and general education teachers can differentiate writing instruction and assessment in the inclusive classroom. Differentiation, according to leading differentiation researcher Carol Tomlinson, refers to "an instructional approach to help teachers with individuals as well as content in mind" (Bell, 2017). In the inclusive classroom, teaching and learning must be effective for a full range of students, including students with autism who may need more scaffolded instruction in writing than their peers. Special education teachers can write specific writing goals for students with autism which can be supported in the inclusive classroom with evidence-based resources such as graphic organizers, checklists, and visual depictions of writing assignments (Bishop et.al., 2015). Students with autism can utilize these resources to produce writing that fits the teachers' goals for the unit as well as Common Core and state

standards. If necessary, students with autism can receive modified writing rubrics that fit their specific writing goals. Providing specific goals and modified rubrics allow for students with autism to work towards specific benchmarks that are tailored to their learning needs.

3.4 Self-Efficacy

Self-efficacy, or the belief one has about their own abilities, is an important aspect of writing development for students with autism. Allen-Bronaugh (2013) found that students with autism reported that they saw themselves as more capable writers after the SRSD process, which incorporates direct teacher or peer feedback. For feedback to be effective, teachers should develop their writing instruction around consistent positive feedback, referring to regularly planned check-ins with all students during their planning, writing, and revising stages. Student choice and voice affects both engagement and motivation for students, which can increase self-efficacy as well (Toshalis, E. & Nakkula, M., 2015). Some examples of student choice include choosing the type of writing prompt to answer, choosing the tools for answering the prompt from a few options, and/or choosing peers for feedback. When students are able to choose their own writing pathways, that are more engaged in the process since they are have some autonomy. Self-efficacy provides the confidence to continue to improve as writers for all students, especially students with autism.

3.5 PDSA Cycle

3.5.1 Plan

I conducted two PDSA cycles, reflecting on each cycle to improve the next. I recruited two students with autism for the study and obtain parent consent. I instructed each student individually; one student virtually and one in the school setting over the course of one month each. The interventions occurred from January 2021 to March 2021. For each student, baseline data included students writing three informative paragraphs graded by the T.I.D.E. rubric by two evaluators and a self-efficacy survey. The intervention included three instructional sessions where the student learns the T.I.D.E. organizer and self-statements through teacher modeling and 1 session of co-writing with the teacher and 1 session of independent writing. The paragraph produced by the student independently was assessed using the T.I.D.E. rubric and results were compared to baseline data. Additionally, the student completed the self-efficacy survey again and results were compared to the initial survey results. Two guiding questions lead the intervention:

- How effective is positive self-talk during the writing process on the self-efficacy of students with autism?
- Will the use of a combination of positive self-talk with writing strategies (teacher modelling, planning with visual organizer, following T.I.D.E. during process, editing/revision) affect the holistic writing quality?

Post-intervention, I predicted that each student's self-efficacy towards writing will improve by 15 mean score points. Additionally, I predicted that the holistic writing score for each student will improve by 10% based on the rubric.

3.5.2 Do

To collect baseline data, I asked the student to write three different science-focused informative paragraphs from prompts that ask for specific evidence. All three paragraphs were graded by the researcher using the T.I.D.E. rubric. The student completed the self-efficacy survey. I instructed the student individually over the course of one month on T.I.D.E. paragraphs, modeling how to create positive self-statements, planning with a T.I.D.E. graphic organizer, writing a paragraph with self-statements and graphic organizer as a roadmap, and revising/editing using a C.O.P.S. checklist (Appendix G). After the intervention, each student individually wrote their own positive self-statements and repeated the writing process as modeled. I followed a lesson protocol (Appendix D) as a procedural checklist to ensure lesson consistency and further analyze the effects of certain teaching practices. The students each produced at least two T.I.D.E. paragraphs independently. T.I.D.E. paragraphs were graded using the T.I.D.E. rubric. The students completed the same self-efficacy survey again and results were compared to pre-intervention.

3.5.3 Study

After each student's seven-session intervention, I compared their self-efficacy scores and holistic writing scores from before and after the intervention, noting if the scores increased, decreased, or stayed the same. Specifically, I was looking for a possible correspondence between the self-efficacy scores and holistic writing quality scores. This collective information determined whether my predictions were correct and if the one-month intervention was successful for the student. Reflecting on student observations, I made changes from Cycle 1 to Cycle 2. For example, I observed that Student 1 appeared more at-ease after asking if they had their necessary sensory

supports and reminding them that they could take a break. I decided to incorporate this routine into the second cycle for Student 2, as well. Additionally, I observed how Student 1 asked for assistance most often in finding important evidence in the text. As a result, I was more explicit about how to find important evidence during the modelling session for Student 2. Reflecting on what methods were effective and which were not also will assist in deciding what aspects of the intervention would fit best in the general education classroom. For example, both students did not appear to check their paragraphs thoroughly with the C.O.P.S. checklist after finishing writing their paragraphs during the post-intervention sessions. Both students spent only a few minutes on the checklist and did not notice all of their mechanical errors. If aspects of the intervention are incorporated into the general education classroom, I would recommend that the teacher provide the C.O.P.S. checklist for students to use the following class period so students take their time on editing.

3.5.4 Act

After reflection, I continued one further iteration of the PDSA cycle with the other student, making the stated revisions. After each PDSA cycle, I noted areas of strength in the intervention and areas that need adjustment. I noted the stated adjustments from each PDSA cycle to reference for when I apply this intervention to the general education classrooms in collaboration with other educators.

3.6 Methods, Measures, and Analysis

3.6.1 Self-Efficacy Survey (Appendix E)

Self-efficacy was measured through an adapted student self-efficacy survey (Allen-Bronaugh, 2013) and was given to each student at the beginning and end of the intervention. The self-efficacy survey asked 10 Likert scale questions on the students' self-efficacy and confidence regarding writing. Sample survey questions include: "How sure are you that you can find important evidence for your essay?" "How sure are you that you can include good transition words in your essay?" and "How sure are you that you can examine and revise your essay?" Students were asked if they are "0% confident," "25% confident," "50% confident," "75% confident" or "100% confident." I explained to each student how to interpret the percentages. For example, "0% confident" means "Not confident at all and would not attempt," "25% confident" means "Not confident but would still attempt," "50% confident" means "Somewhat confident but with doubts," "75% confident" means "Mostly confident," and "100% confident" means "Very confident." If necessary, we discussed specific examples. Percentage scores were compared from pre-intervention to post-intervention to measure any shifts in self-efficacy.

The self-efficacy survey was analyzed pre and post intervention as a social validity measure. I determined the mean score of the student both prior to the intervention and directly after the intervention. The aim was to increase the mean score by 15 points from pre-intervention to post-intervention, which was one of two process measures for the intervention. Since the sample size was very small, I analyzed the results of the survey on the individual level to determine if there was a change in how each individual student rated their self-efficacy. If the self-efficacy scores increased, then I knew that the direct instruction of the T.I.D.E. paragraph model with the self-

statements as one aspect of the framework was successful in improving self-efficacy. By supporting self-efficacy through self-talk, I sought to support executive functioning skills, a driver measure. Specific questions on the survey addressed executive functioning skills. For example, one question asks "How sure are you that you can plan before writing your essay?" By analyzing responses to those questions, I better determined how executive functioning skills were affected by the intervention.

By the 2022-2023 school year, my goal for my school's middle school is for self-regulation strategies to be taught in Language Arts general education classrooms. All students would receive the self-efficacy survey before and after each major writing assignment and receive direct instruction on creating self-statements to use during their writing. My focus will remain on the progress of students with disabilities and if their self-efficacy improves due to both direct instruction as well as practice with positive self-statements as one aspect of the framework. Though teaching self-efficacy is not currently in the writing curriculum and would increase teacher workload, developing these skills in all students may significantly increase their confidence while writing which may transfer to other aspects of their lives.

3.6.2 Holistic Writing Rubric (Appendix F)

Improvement in holistic writing was measured through comparison of baseline and post-intervention scores through scoring guidelines measuring T.I.D.E. elements that students were explicitly taught through the T.I.D.E. graphic organizer and teacher modeling. These guidelines were adapted from the Informative/Argument Scoring Guidelines provided through SRSD (thinkSRSD.com). Scoring guidelines were based on Common Core State Standards for Writing and Language. The T.I.D.E. graphic organizer has seven criteria based on the guidelines. Some

examples include: "Topic sentence includes a claim and responds to the prompt," "Evidence is clearly introduced, relevant and includes 2-3 rich details," and "Detailed examination of evidence synthesizes different points and conveys new insight beyond stating the obvious." Each criterion provides information on what would constitute the student receiving 0 points, 1 point, or 2 points with a total of 14 possible points for the paragraph.

The T.I.D.E. rubric was used to evaluate students' writing scores at both baseline and post-intervention and will mirror the T.I.D.E. graphic organizer. I gave each student three baseline informative writing probes and evaluated the paragraphs based on the rubric, using raw percentage scores or a mean percentage score if the individual students' scores are close. I recruited two other middle school teachers to grade both the baseline probes and post-intervention paragraphs using the T.I.D.E. rubric for reliability. We specifically examined how students performed in the major categories of criteria: Introduction/Conclusion, Evidence/Details, and Transitions/Conventions. Post-intervention, the researcher gave each student at least two informative writing probes with the expectation that students use the learned writing strategies. The post-intervention paragraphs were be evaluated by the same rubric, using raw percentage scores or a mean percentage score if the individual students' scores are close. We noted if the students' improved in any specific categories on the rubric and if they've improved overall.

The aim was to increase the holistic score by 10% for each student, the other process measure. Based on the individual student's performance, I determined whether or not the student should be evaluated for maintenance after a month. If a student did not show adequate improvement (<10%), the researcher continued working with the student on the T.I.D.E. graphic organizer and self-statements. If the student showed adequate improvement (>10%), the researcher provided a maintenance probe a month after the post-intervention probe. After each PDSA cycle,

I evaluated the effectiveness of the intervention and account for any potential changes necessary before working with the next student.

By the 2022-2023 school year, I strive to have both language arts teachers at the middle school level use visual organizers in their classrooms as part of teaching self-efficacy skills. Though there may be resistance to a change in instruction from both teachers and students, explicitly teaching writing skills may positively impact the executive functioning skills of all students.

3.6.3 Lesson Protocol (Appendix D)

The three lessons each have a procedural checklist that I used while teaching to ensure consistency between cycles. The procedural checklist may need to be adjusted after the first cycle if the student requires more or less direct support, repetition of lessons, or other changes that would enhance the instruction.

3.6.4 Observations

In addition to the self-efficacy survey and T.I.D.E. rubric measures, I also used observational data to determine the effectiveness of the intervention. I observed students while completing the baseline probes, noting if they've used planning or revision/editing strategies, if they remark on their own abilities or how they feel about the writing process, and if they appear frustrated or at ease. Observational data during the baseline probes was compared to the two process measures: self-efficacy survey and the holistic writing scores. I also observed students during the intervention and when they complete post-intervention probes, noting if they were planning by using the

T.I.D.E. graphic organizer effectively, using their self-statements, revising and editing their writing and if they appear frustrated or at ease. These observations were compared to both the post-intervention self-efficacy survey and holistic writing scores and I also used my observations to understand if executive functioning skills, specifically planning and revising/editing were strengthened throughout the observation.

3.7 PDSA Results

3.7.1 PDSA Cycle 1

3.7.1.1 Self-Efficacy Survey

Prior to the intervention, the student was given the self-efficacy survey to gather a sense of the student's beliefs about their own ability. Pre-intervention, the student reported a range of confidence from 25% to 75%. The student reported some notable areas of low confidence (25%), including making a plan prior to writing and writing good topic and conclusion sentences. The student's mean average for their pre-intervention self-efficacy survey was 60%. I initially predicted that the student's scores on the self-efficacy survey would increase by 15% from pre-intervention to post-intervention.

Post-intervention, the student reported, again, a range of confidence from 25% to 75%. However, in the areas of initial low confidence, the student reported an increase of confidence. The student's reported an increase of confidence from 25% to 100% in response to "How sure are you that you can make a plan before writing your essay?" and from 25% to 50% in response to "How sure are you that you can write good topic and conclusion sentences?" Other areas remained

mainly consistent from pre-intervention to post-intervention with the student's mean self-efficacy score remaining close to pre-intervention at 62.5%. The student's slight increase in self-efficacy did not meet hypothesized expectations.

3.7.1.2 Holistic Writing Rubric

The student produced three baseline paragraphs, each responding to a text-based science-related prompt. Each baseline paragraph was evaluated according to the T.I.D.E. rubric by myself and a second grader. The baseline paragraphs each scored closely to one another. Notably, the student consistently scored highest in finding evidence and including 2-3 rich details in their evidence. The student consistently scored lowest on including context to introduce the paragraph, a strong topic sentence, examination of evidence or an ending sentence. The student's average at baseline was 36%.

In the post-intervention paragraphs, the student planned, wrote, and edited two paragraphs independently. The student scored an average of 86% post-intervention. The student remained consistent in providing evidence for each paragraph since baseline. Their scores improved in all other rubric criteria after the intervention. On average, the student improved their holistic writing score 50 percentage points, far exceeding initial expectations.

3.7.1.3 Time Spent Writing

During baseline, the student averaged 7 minutes of writing time with a range of 4 to 8 minutes. The student didn't plan or edit their baseline paragraphs. In the two post-intervention sessions, the student planned, wrote, and edited their paragraph in 22 minutes and 30 minutes, respectively.

3.7.1.4 Sentences per Paragraph

During baseline, the student averaged 5 sentences per paragraph with a range of 3 to 6 sentences per paragraph. In the first post-intervention paragraph, the student wrote 6 sentences and in the second post-intervention paragraph, the student wrote 8 sentences.

3.7.1.5 Words per Sentence

During baseline, the student averaged 18 words per sentence with a range of 9 to 35 words per sentence. In the first post-intervention paragraph, the student averaged 15 words per sentence with a range of 9 to 23 words per sentence. In the second post-intervention paragraph, the student averaged 14 words per sentence with a range of 6 to 23 words per sentence.

3.7.2 PDSA Cycle 2

3.7.2.1 Self-Efficacy Survey

Prior to the intervention, the second student was given the self-efficacy survey. The student rated himself as having low confidence (25%) in three areas, including how confident he was in explaining evidence with detail, organizing a good paragraph and writing topic and conclusion sentences. The student showed high confidence (75% or 100%) that they could find important evidence, write good self-statements, continue to work on the essay if he was stuck. The student's mean average for their pre-intervention self-efficacy survey was 52.5%. I initially predicted that the student's scores on the self-efficacy survey would increase by 15% from pre-intervention to post-intervention.

Post-intervention, the student reported that their confidence increased in five of the ten areas, stayed the same in four of the ten areas and lowered in one area. All of the three areas where

the student originally reported low confidence pre-intervention increased, including explaining evidence with detail, organizing a good paragraph and writing topic and conclusion sentences. The one area where the student reported a lower confidence level post-intervention was in examining and revising their essay (50% to 25%). Overall, the student's self-efficacy mean average increased to 72.5%. The student's increase in reported self-efficacy exceeded expectations.

3.7.2.2 Holistic Writing Rubric

The student produced three baseline paragraphs, each responding to different text-based science-related prompt of a similar topic. Each baseline paragraph was evaluated according to the T.I.D.E. rubric by myself and a second grader. The baseline paragraphs scored an average of 45% with a range of 35.71% to 50%. The student scored consistently low on ending statements throughout baseline but showed inconsistencies in all other rubric areas.

Post-intervention, the student produced two paragraphs, each scoring 85.71%. The student's scores consistently improved in providing a context in his introduction, including evidence with two to three rich details, as well as having transition words. Though the student did not score full points on their ending statements, he did include an ending statement for each paragraph which was an improvement from baseline. On average, the student improved his holistic writing score 40 percentage points, far exceeding initial expectations.

3.7.2.3 Time Spent Writing

During baseline, the student averaged 11 minutes of writing time with a range of 5 to 15 minutes. The student did not plan or edit his baseline paragraphs. In the two post-intervention sessions, the student planned, wrote and edited his paragraph in 35 minutes and 24 minutes, respectively.

3.7.2.4 Sentences per Paragraph

During baseline, the student averaged 3 sentences per paragraph with a range of 2 to 4 sentences per paragraph. In both the first and second post-intervention paragraphs, the student wrote 8 sentences.

3.7.2.5 Words per Sentence

During baseline, the student averaged 22 words per sentence with a range of 10 to 44 words per sentence. In the first post-intervention paragraph, the student averaged 12 words per sentence with a range of 9 to 15 words per sentence. In the second post-intervention paragraph, the student averaged 11 words per sentence with a range of 6 to 15 words per sentence.

4.0 Discussion

4.1 Impacts on Problem of Practice

The PDSA cycles sought to improve both the holistic writing quality of content-based writing in students with autism as well as their self-efficacy towards writing by asking the following questions:

- How effective is positive self-talk during the writing process on the self-efficacy of students with autism?

- Will the use of a combination of positive self-talk with writing strategies (teacher modelling, planning with visual organizer, following T.I.D.E. during process, editing/revision) affect the holistic writing quality?

4.1.1 Positive Self-Talk and Self-Efficacy

Each student independently created their own positive self-statements during the co-writing stage. Student 1 created two positive self-statements: "I can write an engaging topic sentence" and "I can describe my evidence well." Pre-intervention, Student 1 initially rated themselves as having low confidence (25%) in writing topic sentences in comparison to post-intervention where they rated themselves as being 50% confident. Along with an increase in confidence, their writing scores on the T.I.D.E. rubric category of "Topic Sentence" increased from averaging a 17% at baseline to 100% in both post-intervention paragraphs. In regards to Student 1's statement "I can describe evidence well," they rated their confidence at 75% both pre-

intervention and post-intervention; however they increased their average score in this area on the T.I.D.E rubric from 50% to 75%. For their self-statements, Student 1 appeared to choose one area where they felt confident and one area where they felt less confident and was successful in improving in both areas.

Student 2 created three positive self-statements: "I'll do it," "I'm good at writing," and "I know what I'm going to write." His positive self-statements were broad and applied to most aspects of the writing process. I frequently referred back to his positive self-talk statements when he expressed confusion or frustration and he responded by repeating the statements to himself. Overall, Student 2's self-efficacy towards writing increased from 52.5% to 72.5% after using the self-statements while writing. These positive increases in self-efficacy are consistent with previous research where students with autism reported that they saw themselves as more capable writers after using positive self-statements during the writing process (Allen-Bronaugh, 2013).

4.1.2 Writing Strategies and Holistic Writing Quality

During both PDSA cycles, explicit writing instruction was present through teacher modeling of planning with the T.I.D.E. graphic organizer, creating and using positive self-statements, and editing. Explicit instruction is an essential component of SRSD that has produced positive results in holistic writing in students with autism (Allen-Bronaugh, 2013; Asaro-Saddler and Bak, 2012; Asaro-Saddler and Saddler, 2010; Delano, 2007). The instruction was scaffolded where both students received direct instruction in the modeling stage initially then learned to work independently during the co-writing stage with teacher support (Graham & Perin, 2007). The skills practiced during these stages were appropriately transferred into the post-intervention writing stage.

Explicit writing instruction appeared to improve both students' holistic writing scores which improved by 40 or more percentage points post-intervention. For Student 1, their scores increased in their topic and ending statements and detailed examination, which were explicitly taught during the modeling and co-writing sessions. For Student 2, his scores improved most significantly in his inclusion of important evidence, ending statements and transition words—all explicitly taught as well. Both students were able to identify each element of T.I.D.E correctly during post-intervention sessions and explained each element verbally prior to writing. Both used the T.I.D.E. graphic organizer and C.O.P.S. checklists independently with little to no prompting, demonstrating an internalization of each process. Explicit instruction provided a framework for both students to be successful in improving their paragraph writing holistically.

4.2 Impacts on the Driver Diagram

Developing executive functioning was the specific driver of the PDSA cycles. Executive functioning skills of focus included planning, organizing ideas, and editing ideas during the writing process. Prior to the intervention, neither student spent time planning paragraphs. Student 1 wrote for only 7 minutes on-average during baseline whereas they averaged 26 minutes during post-intervention when using their learned planning and editing strategies. Similarly, Student 2 averaged 10 minutes of writing per paragraph during baseline and averaged 30 minutes during post-intervention. These results remain consistent with previous research that noted how longer planning time led to longer paragraphs that scored higher holistically (Harris & Graham, 1992; Harris & Graham, 2006).

Additionally, prior to intervention neither student spent time editing their paragraphs. During baseline, Student 1 averaged 67% for writing conventions, which included focus on spelling, grammar, and sentence completion. During post-intervention, Student 1 scored 100% for writing conventions for both paragraphs after using the C.O.P.S. checklist as a tool. Similarly, Student 2 averaged 83% for writing conventions during baseline and also scored 100% post-intervention after using the editing checklist. These positive results are consistent with similar SRSD studies that explicitly taught editing or revision strategies and noted improvement in writing quality (Delano, 2007; Mills, 2012).

4.3 Expository Writing

Previously, research has not focused on implementing SRSD for expository writing for students with autism. However, expository writing is integrated into most content areas, especially during middle school. The Common Core Standards for English/Language Arts 6-8 recommend that students "Write informative/explanatory texts to examine a topic and convey ideas, concepts and information through the selection, organization, and analysis of relevant content" (National Governors Association, 2010). For students with autism, expository writing assignments on subject-based material can be particularly difficult (Hilvert, Davidson & Scott, 2019). Expository writing, as stated in the standard, requires conveying ideas by selecting, organizing and analyzing evidence that coherently produces a claim, requiring self-regulation throughout the writing process. Some characteristics of autism that may contribute to this difficulty include literal thinking, difficulty elaborating thoughts, and difficulties with organizational skills (Asaro-Saddler, 2010).

The T.I.D.E. graphic organizer developed a framework for both students that helped them organize their expository writing. Student 1 was able to select evidence for their paragraph prior in baseline but on average scored low on providing detailed explanation and analysis of the evidence (33%). While learning the T.I.D.E. graphic organizer, I specifically modeled how to not only find and include relevant evidence but explain why the evidence related to the topic sentence. Post-intervention, Student 1 averaged 75% on detailed examination, including analysis with the majority of their evidence. Student 2 had more difficulty in both including evidence (50% average) and analyzing evidence (33% average) at baseline. However, after learning the T.I.D.E. graphic organizer, Student 2 was able to find relevant evidence for both post-intervention paragraphs (100% for both paragraphs) and improved on his detailed examination (75% average). Providing explicit instruction of the T.I.D.E. graphic organizer allowed both students to learn how to select and analyze evidence as well as the organization of expository paragraphs.

4.4 Prioritizing Sensory Supports

Sensory differences for students with autism are essential to ensure comfortability and ultimately improving academic experience. When a person with autism experiences sensory disturbances, it can constrain their ability to communicate, relate to other people, and participate in life (Donnellan et.al., 2012). While planning each PDSA cycle, I reviewed each student's learning support plan to identify any necessary sensory supports that already benefit the students in the classroom. Student 1 had identified sensory supports and the second student did not. Before each session with Student 1, I asked them if they had their weighted lap pad available for sensory support and reminded them that they could take a break when necessary. The student appeared

relaxed throughout the sessions and didn't require the use of their supports. For the virtual session with Student 2, I asked the student to remove themselves from distractions and sit in a comfortable place to work. Though Student 2 had no known sensory needs, he seemed more focused when laying, which was a possible option when the student was virtual. When Student 2 was in-person, I ensured the student knew that he could take breaks at any time during the session and he appeared at-ease. Prioritizing sensory supports can allow students with autism to feel more comfortable and included in the classroom.

4.5 Limitations

Both PDSA cycles occurred during the Covid-19 pandemic, which presented challenges. For Student 1, all sessions were conducted virtually via Zoom and relied on internet connection and accessibility to a printer. One session needed to be conducted via FaceTime when the student's internet connection was unavailable. Additionally, inaccessibility to printing services required some student writing to be written on the computer instead of on paper as initially planned. The shift from paper to computer led to delays in instruction for both the student and myself. For Student 2, the first session was conducted virtually with the remainder of the sessions being in-person. Virtual sessions limited the extent of my student observations during the writing process. For example, I could not observe if the student was referring to the text while writing or if any other actions were happening on-screen or off-screen that would contribute to their writing (i.e. planning or revision).

Another major limitation was the small scale of the study with only two students involved. Autism is unique to each individual, so it is difficult to generalize the effects of the intervention

large-scale. The SRSD intervention and specifically the T.I.D.E. graphic organizer will not present these same results for all students with Autism and may need to be modified based on student needs.

4.6 Strengths

Though conducting lessons virtually presented challenges, the opportunity also uniquely allowed me to adapt my teaching to a new medium and receive feedback on its effectiveness. As stated, all sessions for Student 1 were conducted entirely virtually due to the Covid-19 pandemic. Despite occasional technology disruptions, the intervention occurred in parallel to the planned in-person sessions. Student 1 was able to complete and store the T.I.D.E. graphic organizer when a printer was unavailable, which allowed the student to independently reference previous T.I.D.E graphic organizers during future sessions. Additionally, the virtual sessions allowed Student 1 to work from a space of comfort with their own sensory supports available that may not have been possible in a classroom setting. Overall, Student 1's holistic writing scores show how virtual instruction can be just as effective as in-person instruction with its own unique benefits and drawbacks.

4.7 Next Steps and Implications

4.7.1 Incorporation into the General Education Classroom

Inclusion of all students in the general education classroom is an important aspect of my school's philosophy. For inclusion to be successful, general education teachers—with assistance from Learning Specialists—must ensure that all student academic, behavioral, and emotional needs are met in their lessons. For students with disabilities, some of these needs are met through accommodations and modifications specified on support plans. However, for successful inclusion to occur in the general education classroom, teachers need to utilize universal design of learning frequently in their lessons.

Central aspects of SRSD— including executive functioning, self-efficacy, and self-regulation—are not only skills important for students with autism but are important for all students learning how to write content-based paragraphs. At the middle school level, the writing focus turns to writing paragraphs with a strong topic sentence or thesis, corresponding evidence and explanations and a strong conclusion sentence. Students are expected to plan paragraphs and edit their paragraphs prior to submission. By incorporating explicit instruction through teacher modeling of the entire writing process, all students can benefit. Additionally, accessibility of graphic organizers and editing checklists to all students normalizes these supports in the classroom.

During their middle school years, students are also learning who they are as students and their own strengths and needs. Learning positive self-talk is crucial as adolescents are developing their own self-concept. If teachers model positive self-talk to all students while teaching writing, students may become more aware of their own internal self-talk during the writing process as well as other aspects of their lives. By practicing self-talk in a structured classroom setting, students

may also become comfortable applying the strategy socially, which can improve their social self-efficacy and reduce overall social anxiety (Rudy et.al., 2012). Normalizing positive self-talk in the classroom can have significant benefits for all students in the classroom, not just students with autism.

By the 2022-2023 school year, my goal is for self-regulation strategies to be taught in my middle school's Language Arts classrooms. The middle school language arts teachers have been supportive throughout the PDSA cycles as second graders in the study, understanding first-hand the effectiveness of the T.I.D.E. graphic organizer and explicitly teaching positive self-talk.

4.7.2 Future Research

Future research should address this study's limitations by expanding its generalizability and incorporating peer support. Due to the nature of the single-subject design, this current study was limited in its ability to generalize its findings. Future research on SRSD expository writing strategies and autism should include a larger sample size of students to further extend the body of research available on evidence-based writing practices for students with autism. Expository writing also includes a wide variety of different content-areas. The current study focused on science-based content; however, future research could extend to other content areas to incorporate all areas where students are expected to produce expository writing.

Additionally, future research should explore the effectiveness of peer writing support for students with autism for expository writing. Previous research reflected how using peer support during the writing process can benefit student writing through peers providing strategy reminders and providing pro-social experiences (Asaro-Saddler & Bak, 2014). However, the research does not reflect the effectiveness of peer support for expository writing. More research on peer support

during the writing process for students with autism could further extend this strategy into classrooms where most students could benefit from pro-social writing experiences that promote self-regulation.

4.8 Conclusion

Producing expository writing is a complex task that requires content knowledge and both self-regulation and executive functioning skills. For students with autism, this task may become more difficult as they are asked to elaborate thoughts and organize a paragraph with evidence while maintaining confidence in their own writing throughout. SRSD provides a framework that explicitly teaches necessary self-regulation and executive functioning skills that ultimately promote self-efficacy towards writing.

Before writing instruction occurs, the student's sensory needs should be met to ensure the student is comfortable and prepared to learn. Sensory needs vary depending on the individual and may appear as challenging behaviors if needs are not met. The teacher takes on the responsibility to provide this support through information from the student themselves, if possible, as well as other professionals working with the student and their parent/caregiver(s). Self-regulation for an individual with autism begins with being able to self-regulate their own bodies and minds before receiving instruction.

Explicit instruction through teacher modeling, access to graphic organizers and checklists, allows students with autism to successfully write expository paragraphs that reflect their understanding of the content. Providing an organized structure for writing can help students with autism write expository paragraphs that sufficiently develop upon a claim and demonstrate their

understanding of the content. Explicit instruction of writing skills to middle school students, not only students with autism, ultimately can assist in students internalizing paragraph structure that can serve as a reference for them as they progress as writers.

Several aspects of SRSD can improve self-efficacy towards writing for students with positive self-talk being the central aspect. Teaching positive self-talk creates an environment where students learn to encourage themselves throughout the writing process. For students with autism where self-talk may be difficult, they are able to practice explicit phrases of encouragement within the SRSD framework. Positive self-talk can go beyond the classroom and may improve students' emotional and social well-beings.

5.0 Reflection

Improvement science allows for disciplined inquiry in education without viewing persistent problems of practice in isolation. Instead, improvement science seeks to acknowledge the entire system, including stakeholders, socio-economic factors, leadership and general practices, to determine the root of the problem. While conducting my own research using improvement science, I was guided by The Carnegie Foundation's Six Core Principles of Improvement:

1. Make the work problem-specific and user-centered

2. Variation in performance is the core problem to address

3. See the system that produces the current outcomes

4. We cannot improve at scale what we cannot measure

5. Anchor practice improvement in disciplined inquiry

6. Accelerate improvements through networked communities

(Carnegie Project, 2009)

These guiding principles allowed me to contextualize my problem of practice. They structured my initial thinking to view the problem from both afar as I examined the system and up close as I learned about individual stakeholder experiences. While designing my PDSA cycles, I kept the framework the principles created in the forefront of my mind. Throughout the entire process, these 6 principles of improvement reshaped my thinking and pushed me to grow as a scholarly practitioner and leader in the field of education.

5.1 Make the Work Problem-Specific and User-Centered

While first framing my problem of practice, I decided that I needed to put my students with disabilities at the center. I asked myself, "What specifically are my students struggling with? What data shows this struggle?" These questions led to many answers that was narrowed down to one data-driven specific problem—middle school students with autism having difficulty with writing. However, the question also brought up many other questions as well. I wondered how much equity was a factor for my students with autism. I wondered how they would describe their own experiences in the classroom regarding this problem. In short, I really needed them at the center. This set of questioning led to student questionnaires and a parent interview, which both confirmed my own framing of the problem but also expanded it greatly. For example, interviewing a parent of a student with autism reframed how I viewed how individuals with autism may think when tasked to write, as well as the importance of sensory supports in the classroom. Furthermore, I also wanted to center general education teachers in my problem of practice to better understand what support they needed. An interview with a language arts teacher led me to find an intervention that could easily cross over into the classroom and be implement universally. Keeping the stakeholders in mind, I sought to create PDSA cycles that kept the needs to both students, parents, and teachers at the forefront.

5.2 Variation in Performance is the Core Problem to Address

While designing the PDSA cycle, I knew that I had a small sample size and would need to work individually with each student. However, it was also important that this intervention not only

be done in isolation in the learning support classroom. I involved both middle school language arts teachers from the start with the future hope of transferring the intervention to the general education classroom. The specific conditions in the learning support classroom with a small sample size is a start but does not account for the scale of reliability necessary to show wide-scale effectiveness. Receiving the positive results from both PDSA cycles begins the conversation to apply this intervention, and similar interventions, to general education classrooms. By coming into conversations with teachers with data from these two students, I hope to make large scale changes and continue to identity the efficacy of the intervention for the wider community of students.

5.3 See the System That Produces the Current Outcomes

Since the beginning of my time in the EdD program, I was asked to view my school as a system that contributes to the current problem of practice. I reviewed my school's philosophy, which centers on progressivism as well as inclusion and analyzed how this appears in practice. I also reviewed the data provided by the language arts curriculum committee around our writing curriculum, noticing the instructional gaps that teachers reported. These instructional gaps may have negatively impacted students with autism, and other students, who benefit from explicit instruction. However, the system itself has shifted in real time during my analysis. Most significantly, the school leadership has changed throughout my time in the EdD program and many positive changes occurred along with these changes, including a necessary look into our writing curriculum. It's been exciting to see the system shift to benefit all students and to be a part of that change by adding to the dialogue with the data from the PDSA cycles.

5.4 We Cannot Improve at Scale What We Cannot Measure

As a practitioner, I am constantly solving problems and putting forth interventions to help my students succeed and support teachers. Improvement science, in a way, is a part of everyday practice. However, the intentionality of identifying a specific problem, seeing the problem through theoretical and practices lenses, and conducting PDSA cycles with constant reflection taught me the skills of not only how to view a problem but how to measure the problem and intervention progress as well. For example, I may have in the past observed a lack of self-efficacy in a student and would have tried different small interventions to see if they improved the student's mindset. However, self-efficacy is difficult to measure through observation because it is a person's internal view of themselves. Now I feel equipped with not just an intervention that could improve writing self-efficacy, even if only measured at a small scale, but also a way to measure the self-efficacy. By quantitatively measuring student progress on self-efficacy at a small scale, I have the data I need to start discussing the efficacy of the intervention at a larger scale. The more abstract concept of self-efficacy becomes more accessible for teachers to identify and measure as research in this area grows. With the ability to measure self-efficacy, we will be able to improve on it.

5.5 Anchor Practice Improvement in Disciplined Inquiry
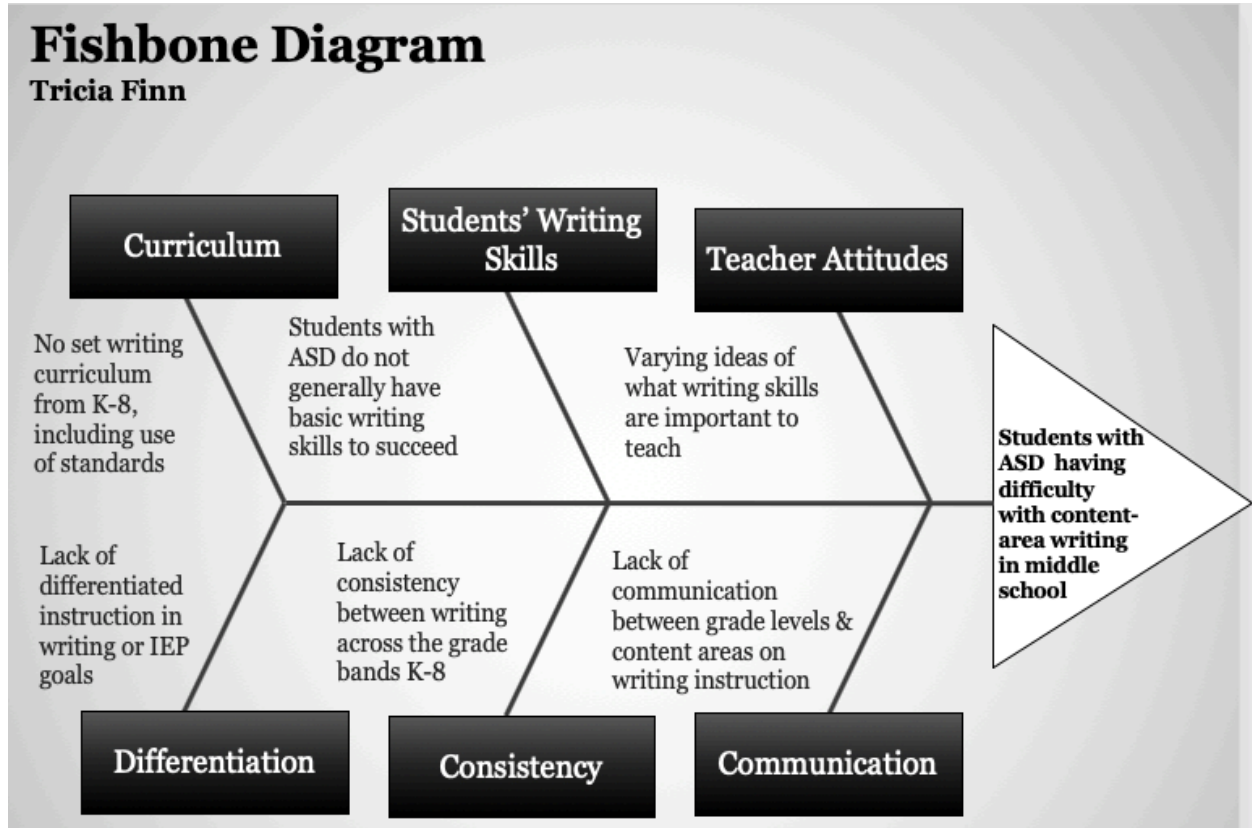
Having two PDSA cycles back-to-back allowed me to both identify and make changes quickly if necessary. For example, I recognized after my first PDSA cycle the importance of setting up sensory supports for the student prior to each session. For Student 1, I observed a release of tension in the student's facial expression and body after we quickly discussed what supports

they needed and I reminded them that they could take a break at any time. Noting this increase of comfort, I prioritized sensory supports for the remainder of the sessions with Student 1 and Student 2. Another change I made during the first PDSA cycle was including a second post-intervention session to receive more data from Student 1. I recognized that my data would be limited with only one post-intervention paragraph and wouldn't adequately demonstrate the student's understanding of T.I.D.E. and the writing process. By adding the second post-intervention paragraph in both PDSA cycles, I was able to better understand know the effectiveness of the intervention. The nature of the PDSA cycles parallels the nature of improvement science—constant reflection allows for quick changes that can ultimately enhance the intervention and the data.

5.6 Accelerate Improvements Through Networked Communities

Finally, knowledge should be shared for the betterment of the school community I serve, including all stakeholders. The PDSA cycles, formed through knowledge of the literature and knowledge from the stakeholders themselves, stretch beyond their initial purposes of improving one specific problem. The knowledge that I've gained from the two cycles will add to the school's mission regarding differentiation and inclusion as its applied to general education classrooms. I also seek to share what I've learned about improvement science with the teachers I support as we address other problems of practice, re-shaping how view the problem and how we choose to intervene. As educators, our primary purpose is to serve our community of students, and improvement science is a tool that allows educators to be both reflective and pro-active in our pursuit to serve.

Fishbone Diagram
Tricia Finn

Curriculum

No set writing curriculum from K-8, including use of standards

Students' Writing Skills

Students with ASD do not generally have basic writing skills to succeed

Teacher Attitudes

Varying ideas of what writing skills are important to teach

Students with ASD having difficulty with content-area writing in middle school

Lack of differentiated instruction in writing or IEP goals

Lack of consistency between writing across the grade bands K-8

Lack of communication between grade levels & content areas on writing instruction

Differentiation

Consistency

Communication

Appendix B Driver Diagram

Aims	Primary Drivers:	Secondary Drivers:	Change Ideas:
To improve the holistic writing quality on T.I.D.E. paragraphs by 10% and self-efficacy results by 15 mean points for middle school students with autism in a 1-month period. By the 2022-2023 school year, 90% of middle school students with disabilities will improve their self-efficacy results in their Language Arts classes.	Executive functioning skills	• Explicitly teaching self-talk strategies • Explicitly teaching planning • Explicitly teaching revision	Incorporate self-talk and Plan, Organize, Write (POW) aspects of SRSD into classrooms
	Differentiated writing instruction and assessment in the inclusive classroom	• Meet individual writing needs strategically • Provide resources to students (graphic organizers, checklists, visual depictions of assignment)	• Add writing goals to support plans to drive instruction for students with autism • Develop modified rubrics allowing for differentiated writing processes and products
	Sense of self-efficacy towards writing	• Allow for student voice and choice • Provide consistent teacher or peer feedback	• Include more student choice when choosing writing prompts • Develop a structure for regular teacher or peer check-ins or collaborations

Appendix C T.I.D.E. Graphic Organizer

(thinkSRSD.org, 2016)

T	**Topic Introduction** Context (time/place, definition, titles/summary): Coherent focus: TS:

	Important Evidence	Detailed Examination
I **D**	Important Evidence	Detailed Examination
	Important Evidence	Detailed Examination
	Important Evidence	Detailed Examination
E	Ending	

.

Appendix D Lesson Protocols

Lesson 1: Modelling T.I.D.E. (45 minutes)

o Introduce T.I.D.E. mnemonic as a helpful framework for informational paragraphs
  o Give a copy of the T.I.D.E. graphic organizer for the student
  o Write T.I.D.E. on the white board and explain that T.I.D.E. is used for informational paragraphs
o Introduce positive self-statements and model writing three different self-statements that remain on the whiteboard during the lesson
o Read aloud the text *Goodbye, Bottled Water* (Scholastic.com) and the prompt: "In a critical paragraph, explain why the city of San Francisco is banning bottled water and returning to tap water use only."
o Explain to the student that I will now write my T.I.D.E. paragraph using the graphic organizer first and that he or she should repeat what I am writing on their T.I.D.E. organizer
o Model thinking aloud writing a topic sentence that answers the prompt and write the topic sentence in the T.I.D.E. graphic organizer
o Model choosing 3 pieces of evidence from the article that supports the prompt and using a positive self-statement when thinking aloud having difficulty explaining the evidence
o Model explaining the evidence and providing new insight
o Model writing an ending sentence that ties back to the prompt and answers the question "So What?"
o Write each sentence again on a piece of paper and ask the student if there are transition words that would appropriately fit. If student is unsure, model appropriate transition phrases.
o Provide a copy of the C.O.P.S. editing/revising checklist to the student
o Model checking for capitalization, organization, punctuation, and spelling
o Read aloud the paragraph once more and ask the student if I have each aspect of T.I.D.E.

Lesson 2: Writing a T.I.D.E. paragraph together (45 minutes)

o Ask the student to explain each aspect of the T.I.D.E. mnemonic as I write the mnemonic on the board

o Provide the student with a new T.I.D.E. graphic organizer and the model T.I.D.E. graphic organizer from the first lesson

o Review positive self-statements using models from previous lesson and ask the student to write 2 to 3 positive self-statements on the top of the graphic organizer

o Read aloud the text *Statement from International Bottled Water Association regarding Concord, Massachusetts Ban of Bottled Water* (2012) and the prompt: "In a critical paragraph, explain why the International Bottled Water Association opposes the bottle water ban in Concord, Massachusetts."

o Ask the student to complete the following in the T.I.D.E. graphic organizer:

    o Write a topic sentence that addresses the prompt

    o Find important 3 pieces of evidence that supports the topic sentence; underline the evidence and paraphrase the evidence in the graphic organizer

    o Explain the evidence and provide new insights

    o Write an ending sentence that relates back to the topic sentence and answers the question "So What?"

o If the student expresses verbally that they are unsure of how to proceed while writing, ask him or her first to refer to their model T.I.D.E. graphic organizer before discussion and ask him or her to say their positive self-statement verbally to themselves

o Ask the student to read aloud the contents of their graphic organizer and transfer to paragraph form

o Prompt the student to add transition words or phrases at the beginning of sentences and provide examples ("For example," "This evidence shows that," "In conclusion.")

o Provide a copy of a C.O.P.S. checklist and ask the student to think aloud checking the 4 aspects

Appendix E Self-Efficacy Survey

Informative Writing Self-Efficacy

Directions: Answer the items below based on how confident you are on your ability to do what the question asks.

	0% Confident	25% Confident	50% Confident	75% Confident	100% Confident
How sure are you that you can write an essay that contains all parts of T.I.D.E.?					
How sure are you that you can find important evidence for your essay?					
How sure are you that you can make a plan before writing your essay?					
How sure are you that you can explain your evidence with detail?					
How sure are you that you can write an essay that is organized into a good paragraph?					
How sure are you that you can write good topic and conclusion sentences?					
How sure are you that you can include good transition words in your essay?					
How sure are you that you can write good self-statements while doing your essay?					
How sure are you that you can examine and revise your essay?					

How sure are you that if you get stuck you can continue to work on your essay?					

Appendix F T.I.D.E. Rubric

Criteria	0pt.	1pt.	2pt.
Introduction includes context of essay	No context	Context embedded in topic sentence	Context serves as first sentence of paragraph
Topic sentence includes a claim and responds to the prompt	No topic sentence	Topic sentence includes either a claim or responds to prompt	Topic sentence both includes a claim and responds to the prompt
Evidence is clearly introduced, relevant and includes 2-3 rich details	No relevant evidence	Evidence is clearly introduced and relevant but does not have 2-3 rich details	Evidence is clearly introduced, relevant and includes 2-3 rich details
Detailed examination of evidence synthesizes different points and conveys new insight beyond stating the obvious	No detailed examination of evidence	Detailed examination provides predictable explanation but does not offer a strong inference	Detailed examination synthesizes different points or conveys new insights beyond stating the obvious
Ending statement wraps up central idea and extends to the bigger picture	No/ irrelevant ending statement or ending statement that repeats topic sentence	Ending statement wraps up central idea in a novel way	Ending statement wraps up central idea in a novel way and extends to the bigger picture, asking "so what?"
Transition words connect ideas within the paragraph	No transition words	Formulaic transition words used throughout the paragraph (e.g. "first," "then," "next")	Transition words and phrases are used throughout the paragraph to connect ideas

Conventions: -90%+ grammar correct -98%+ words spelled correctly -Complete sentences	- 0-75% grammar correct - 0-75% words spelled correctly - 2+ run-on sentences or fragments	- 76%-89% grammar correct - 75%-98% words spelled correctly - 1-2 run-on sentences or fragments	- 90%+ grammar correct - 98%+ words spelled correctly - All complete sentences
Total			/14

COPS Editing Checklist

[Reprinted from *Think Write Book* by Ines Mevs]

Version II

Use the following checklist as a guide when you edit your writing. Also, use it when you are ready to proofread your final draft.

CAPITALIZATION

_____ Start all sentences with a capital letter
_____ Capitalize nouns that name specific people, places, and things (proper nouns)

ORGANIZATION

_____ Sentences should be clear and complete (combine simple sentences without creating a run-on sentence)
_____ Edit run-on sentences into 2 or more complete sentences
_____ Check that you have included a variety of sentence structures (having different lengths, using various introductory clauses/endings, effective use of transition words)
_____ Use powerful verbs, specific nouns, and colorful adjectives/ adverbs

PUNCTUATION

_____ Each sentence should end with an appropriate punctuation mark (. ! ?)
_____ Use commas after introductory clauses and transition words
_____ Use commas in a series (Larry, Moe, and Curly)
_____ Use commas before connecting words (and, but, or) in compound sentences
_____ Punctuate dialogue correctly (Mary said, "I did my homework!")

SPELLING

_____ Did I check for spelling (use spell check)
_____ Check for homonyms and make sure you used the correct form (too or to or two and your or you're)

Appendix H Student Writing Samples

Student 1: T.I.D.E. Paragraph at Baseline

National Park Service ended the ban because of Pressure from the IBWA (International Bottled Water Association) which said that banning bottled water limited the publics access to clean water, expesaly at parks in the desert. They most likely also want to suport the bottled water industry. If they ban and got increasingly more strict, the industry would collapse. They said that while Park Service was bottled water, it was other bottled drinks such as soda. They said that this was bad for the public.

Student 1: T.I.D.E. Paragraph Post-Intervention
In 2017, the National Park Service ended the ban on plastic water bottles after being pressured by the International Bottled Water Association [IBWA]. The IBWA claimed that it restricted the public's ability to stay hydrated. They said it limits their access to clean water. They also said that while the Park Service banned bottled water they did not ban other bottled drinks. So while people couldn't get bottled water they could still get bottled Coca-Cola, Sprite, Pepsi, etc etc. Therefore, the IBWA made the National Park Service end the bottled water ban.

Student 2: T.I.D.E. Paragraph at Baseline

The national park service stopped their ban on plastic water bottles because they were in an argument with IBWA over whether water bottles should be banned or not in the park. When the national park did ban water bottles IBWA said they removed their healthiest beverage at variety parks.

Student 2: T.I.D.E. Paragraph Post-Intervention
National parks unbanned the plastic water bottles in 2017. One reason the IBWA doesn't want to ban plastic bottles is because it's unfair. The National Park let bottled sweetened drinks sell their product but pushed away water companies. Another reason is because it's important for civilians to get hydrated. The IBWA spokesperson Jill Culora wants everybody to get safe, healthy, and convenient beverages. Lastly the ban policy takes away people's rights to stay hydrated. The

person should decide how to keep themselves and their family hydrated. In National Parks plastic water bottles are not banned.

Appendix I Tables

Table 1. Self-efficacy Surveys

	Student 1 Confidence Levels (%)		Student 2 Confidence Levels (%)	
	Pre-Intervention	Post-Intervention	Pre-Intervention	Post-Intervention
How sure are you that you can write an essay that contains all parts of T.I.D.E.?	50	75	50	75
How sure are you that you can find important evidence for your essay?	75	50	75	100
How sure are you that you can make a plan before writing your essay?	25	100	50	50
How sure are you that you can explain your evidence with detail	75	75	25	100
How sure are you that you can write an essay that is organized into a good paragraph?	50	50	25	75
How sure are you that you can write good topic and conclusion sentences?	25	50	25	75
How sure are you that you can include good transition words in your essay?	75	25	50	50
How sure are you that you can write good self-statements while doing your essay?	75	75	100	100
How sure are you that you can examine and revise your essay?	75	50	50	25
How sure are you that if you get stuck you can continue to work on your essay?	75	75	75	75

Table 2. Student 1 T.I.D.E. Rubric Scores

Criteria	Baseline 1	Baseline 2	Baseline 3	Post 1	Post 2
Introduction includes context of essay	1: Context embedded in topic sentence	0: No Context	0: No Context	1: Context embedded in topic sentence	2: Introduction includes context of essay
Topic sentence responds directly to the prompt	1: Topic sentence includes either a claim or responds to the prompt	0: No topic sentence	0: No topic sentence	2: Topic sentence responds directly to the prompt	2: Topic sentence responds directly to the prompt
Evidence is clearly introduced, relevant and includes 2-3 rich details	2: Evidence is clearly introduced, relevant and includes 2-3 rich details	2: Evidence is clearly introduced, relevant and includes 2-3 rich details	2: Evidence is clearly introduced, relevant and includes 2-3 rich details	2: Evidence is clearly introduced, relevant and includes 2-3 rich details	2: Evidence is clearly introduced, relevant and includes 2-3 rich details
Detailed examination of evidence synthesizes different points and conveys new insight beyond stating the obvious	1: Detailed examination provides predictable explanation but does not offer a strong inference	1: Detailed examination provides predictable explanation but does not offer a strong inference	0: No examination of evidence	1: Detailed examination provides predictable explanation but does not offer a strong inference	2: Detailed examination of evidence synthesizes different points and conveys new insight beyond stating the obvious
Ending statement wraps up central idea and extends to the bigger picture	0: No/irrelevant ending statement that repeats topic sentence	0: No/irrelevant ending statement that repeats topic sentence	0: No/irrelevant ending statement that repeats topic sentence	2: Ending statement wraps up central idea and extends to the bigger picture	2: Ending statement wraps up central idea and extends to the bigger picture
Transition words connect ideas within the paragraph	0: No transition words	0: No transition words	1: Formulaic transition words throughout the paragraph	1: Formulaic transition words throughout the paragraph	1: Formulaic transition words throughout the paragraph
Conventions: - 90%+ grammar correct - 98%+ words spelled correctly - Complete sentences	1: 90%+ grammar correct; <98% of words spelled correctly; Complete sentences	1: 90%+ grammar correct; <98% of words spelled correctly; Complete sentences	2: 90%+ grammar correct; 98%+ words spelled correctly; Complete sentences	2: 90%+ grammar correct; 98%+ words spelled correctly; Complete sentences	2: 90%+ grammar correct; 98%+ words spelled correctly; Complete sentences
Total (14 possible)	6	4	5	11	13

Table 3. Student 2 T.I.D.E. Rubric Scores

Criteria	Baseline 1	Baseline 2	Baseline 3	Post 1	Post 2
Introduction includes context of essay	0: No Context	1: Context embedded in topic sentence	2: Introduction includes context of essay	2: Introduction includes context of essay	2: Introduction includes context of essay
Topic sentence responds directly to the prompt	1: Topic sentence includes either a claim or responds to the prompt	1: Topic sentence includes either a claim or responds to the prompt	2: Topic sentence responds directly to the prompt	1: Topic sentence includes either a claim or responds to the prompt	2: Topic sentence responds directly to the prompt
Evidence is clearly introduced, relevant and includes 2-3 rich details	2: Evidence is clearly introduced, relevant and includes 2-3 rich details	1: Evidence is clearly introduced and relevant but does not have 2-3 rich details	0: No relevant evidence	2: Evidence is clearly introduced, relevant and includes 2-3 rich details	2: Evidence is clearly introduced, relevant and includes 2-3 rich details
Detailed examination of evidence synthesizes different points and conveys new insight beyond stating the obvious	1: Detailed examination provides predictable explanation but does not offer a strong inference	1: Detailed examination provides predictable explanation but does not offer a strong inference	0: No examination of evidence	2: Detailed examination of evidence synthesizes different points and conveys new insight beyond stating the obvious	1: Detailed examination provides predictable explanation but does not offer a strong inference
Ending statement wraps up central idea and extends to the bigger picture	0: No/irrelevant ending statement that repeats topic sentence	0: No/irrelevant ending statement that repeats topic sentence	0: No/irrelevant ending statement that repeats topic sentence	1: Ending statement wraps up central idea in a novel way	1: Ending statement wraps up central idea in a novel way
Transition words connect ideas within the paragraph	1: Formulaic transition words throughout the paragraph	1: Formulaic transition words throughout the paragraph	0: No transition words	2: Transition words and phrases are used throughout the paragraph to connect ideas	2: Transition words and phrases are used throughout the paragraph to connect ideas
Conventions: - **90%+ grammar correct** - **98%+ words spelled correctly** - **Complete sentences**	2: 90%+ grammar correct; 98%+ words spelled correctly; Complete sentences	2: 90%+ grammar correct; 98%+ words spelled correctly; Complete sentences	1: <90% grammar correct; 98%+ words spelled correctly; Complete sentences	2: 90%+ grammar correct; 98%+ words spelled correctly; Complete sentences	2: 90%+ grammar correct; 98%+ words spelled correctly; Complete sentences
Total (14 possible)	7	7	5	12	12

Table 4. Minutes Spent Writing, Words per Sentence, Sentences per Paragraph

	Student 1			Student 2		
	Minutes Spent Writing	Average Words per Sentence	Sentences per Paragraph	Minutes Spent Writing	Average Words per Sentence	Sentences per Paragraph
Baseline 1	8	18	6	15	26	3
Baseline 2	4	19	3	12	19	4
Baseline 3	8	17	5	5	25	2
Post 1	22	15	6	35	12	8
Post 2	30	14	8	24	11	8

71
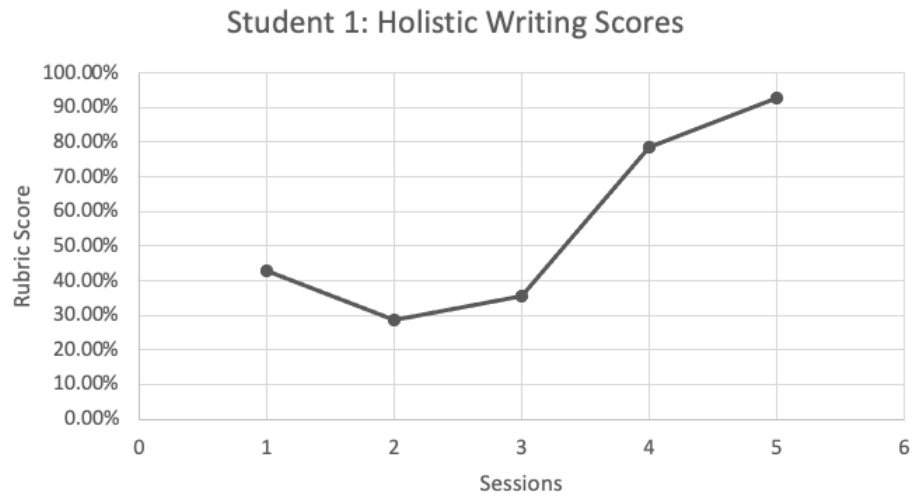
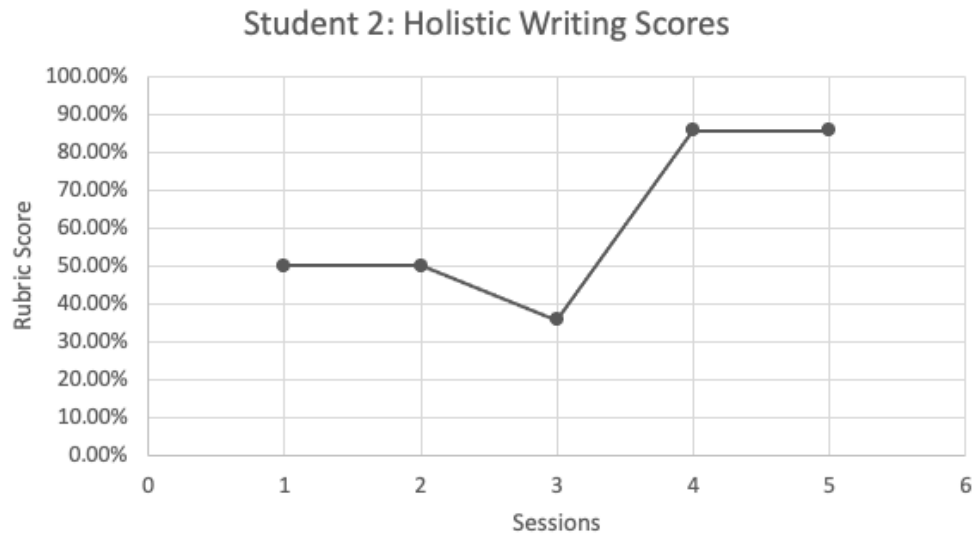**Figure 1. Holistic Writing Scores for Student 1**

.
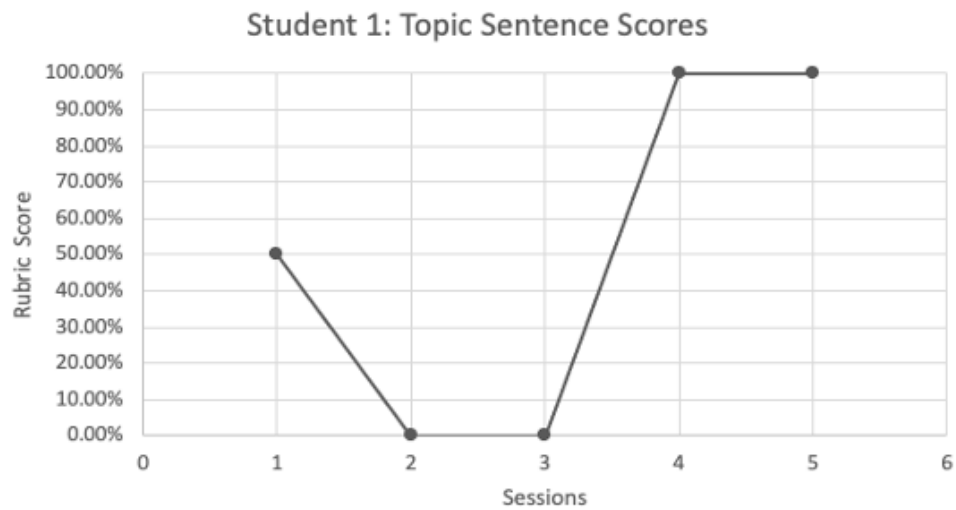
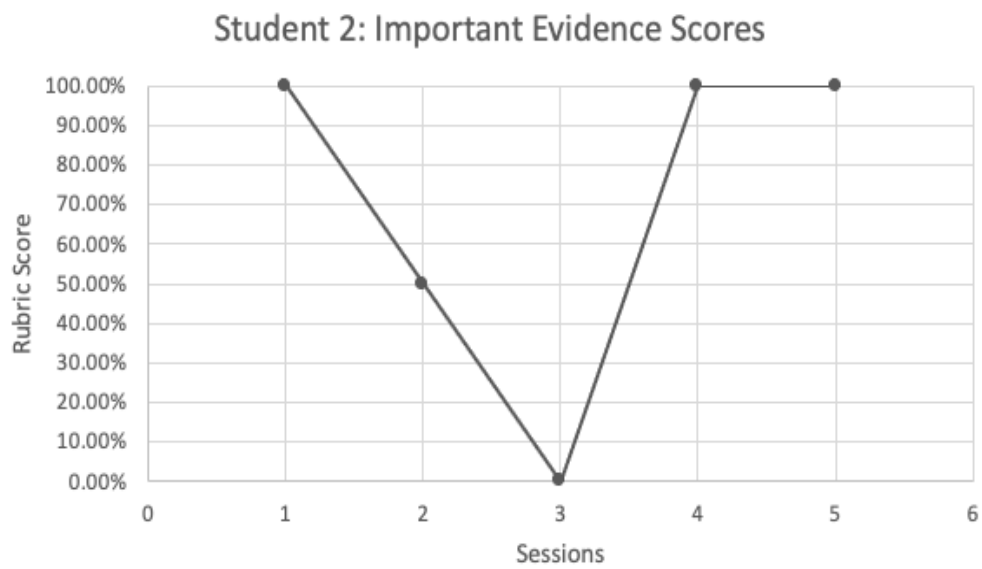**Figure 2. Topic Sentence Scores for Student 1**
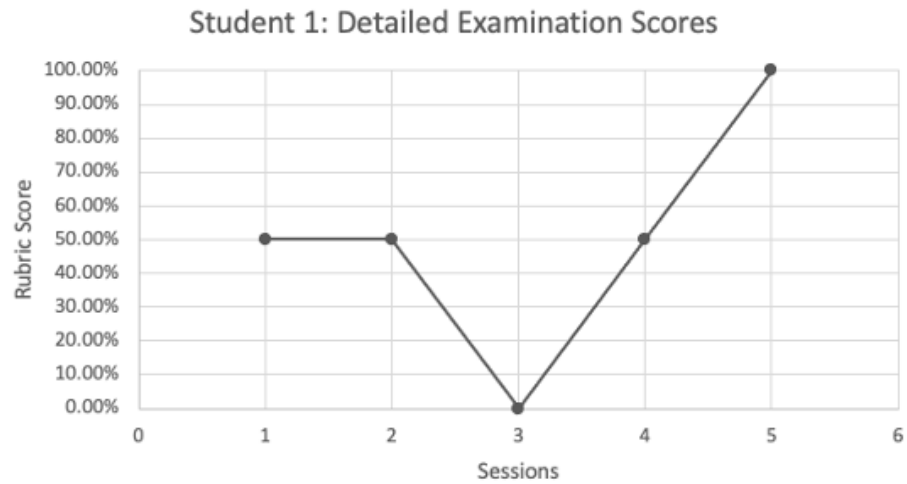
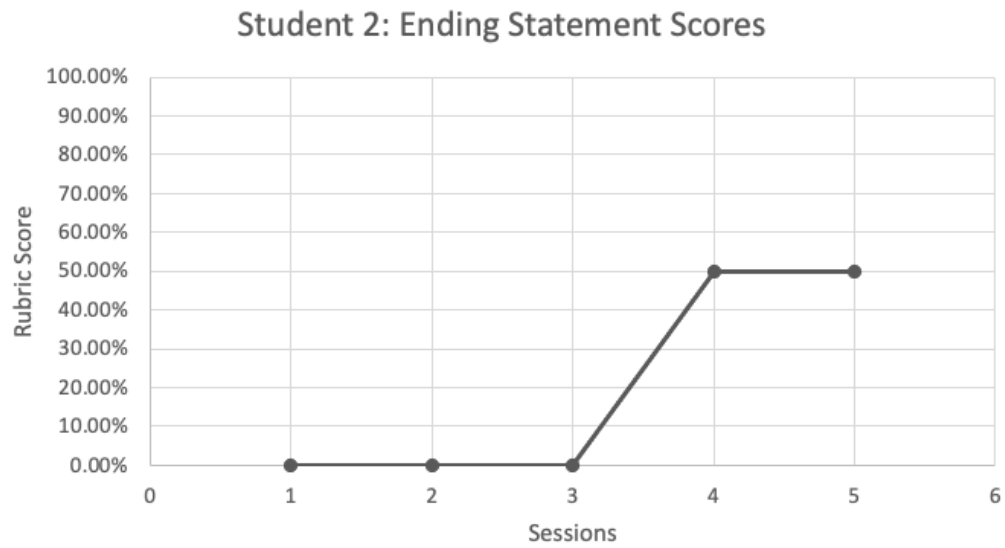**Figure 3. Detailed Examination Scores for Student 1**
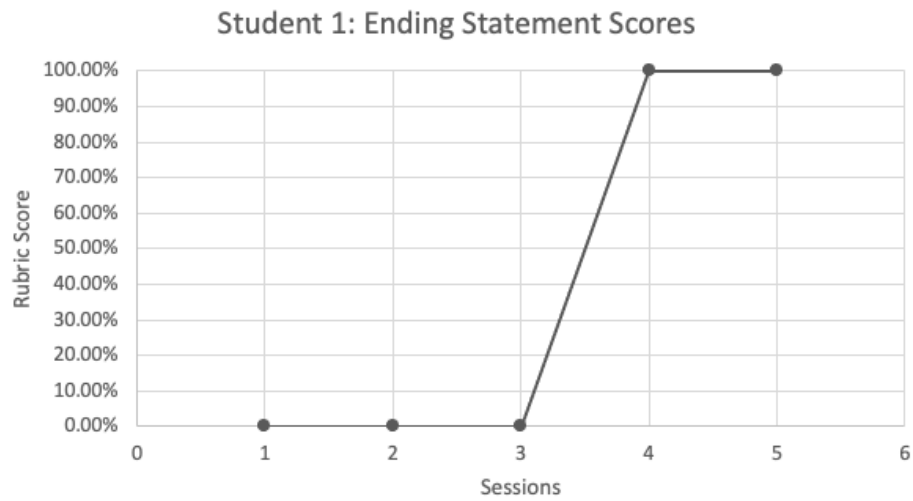
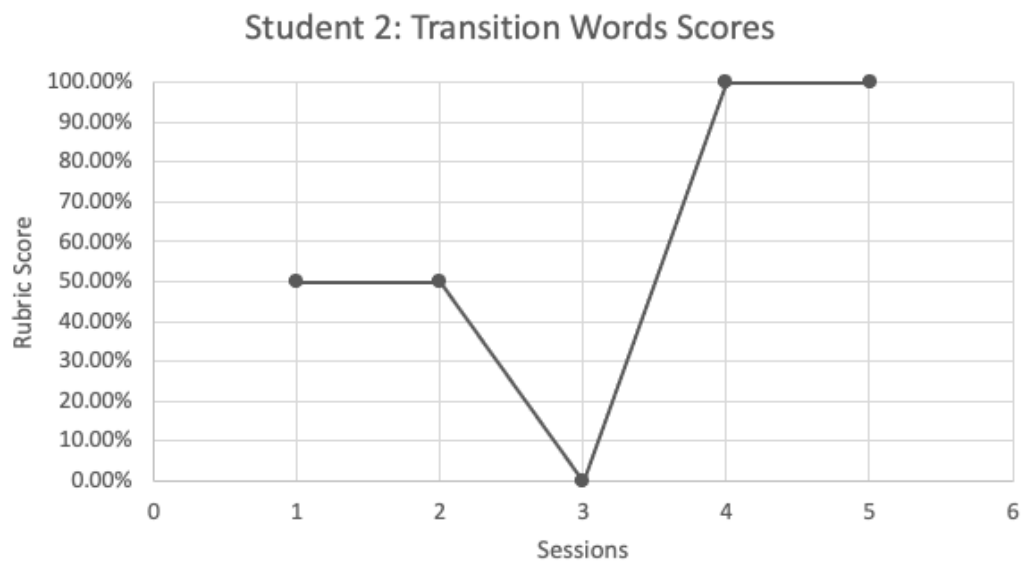**Figure 4. Ending Statement Scores for Student 1**

Figure 5. Holistic Writing Scores for Student 2

Figure 6. Important Evidence Scores for Student 2

Figure 7. Ending Statement Scores for Student 2

Figure 8. Transition Word Scores for Student 2

Bibliography

Allen-Bronaugh, D. (2013). *The effects of self-regulated strategy development on the written language performance of students on the autism spectrum* (Doctoral dissertation). Retrieved from ProQuest. (3562266).

Asaro-Saddler, L & Bak, N. (2012). Teaching children with high-functioning autism spectrum disorders to write persuasive essays. *Topics in Language Disorders, 32*(4), 361-378.

Asaro-Saddler, K & Bak, N. (2014). Persuasive writing and self-regulation training for writers with autism spectrum disorder. *Journal of Special Education, 48*(2), 92-105.

Asaro-Saddler, K. & Saddler, B. (2010). Planning instruction and self-regulation training: Effects on writers with autism spectrum disorders. *Exceptional Children, 77*(1), 107-124.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

Bell, L. (2017, August 10). *Carol Tomlinson on Differentiation.* University of Virginia. https://curry.virginia.edu/news/faculty-conversation-carol-tomlinson-differentiation

Bishop, M., Sawyer, M., Alber-Morgan, S. & Boggs, M. (2015). Effects of a graphic organizer training package on the persuasive writing of middle school students with autism. *Education and Training in Autism and Developmental Disabilities, 50*(3), 290-302.

Carnegie Project for the Educational Doctorate (CPED). (2009). Working principles for the professional practice doctorate in education. Retrieved from http://cpedinitiative.org

Delano, M. (2007). Use of strategy instruction to improve the story writing skills to a student with Asperger syndrome. *Focus on Autism and Other Developmental Disabilities, 22*(4), 252-258.

Donnellan, A.M., Hill, D.A. & Leary, M.R. (2012). Rethinking autism: Implications of sensory and movement differences for understanding and support. *Frontiers in Integrative Neuroscience, 6*, 1-10.

Educational Support Handbook 2019-2020. Pittsburgh, PA.

Graham, S., & Perin, D. (2007). A meta-analysis of writing instruction for adolescent students. Journal of Educational Psychology, 99, 445–476. doi:10.1037/0022- 0663.99.3.445

Harris, K. & Graham, S. (1985). Improving learning disabled students' composition skills: Self-control strategy training. *Learning Disability Quarterly, 8*(1*)*, 27-36.

Harris, K. & Graham, S. (1989). Components analysis of cognitive strategy instruction: Effects on

learning disabled students' compositions and self-efficacy. *Journal of Educational Psychology, 81*(3), 353-361.

Harris, K. & Graham, S. (2016). Self-regulated strategy development in writing: Policy implications of an evidence-based practice. *Policy Insights from the Behavioral and Brain Sciences, 3*(1), 77-84.

Harris, S., MacArthur, C., Schwartz, S. & Page-Voth, V. (1992). Improving the compositions of students with learning disabilities using a strategy involving product and process goal setting. *Exceptional Children, 58*(4), 322-334.

Harris, S., Graham, K, & Mason, L. (2005). Improving the writing performance, knowledge, and efficacy of struggling young writers: The effects of self-regulated strategy development. *Contemporary Educational Psychology*, 207-241. doi.10.1016/j.cedpsych.2004.08.001.

Harris, S., Graham, K, & Mason, L. (2006). Improving the writing, knowledge, and motivation of struggling young writers: Effects of self-regulated strategy development with and without peer support. *American Educational Research Journal, 43*(2), 295-340.

Harris, K., Graham, S., Mason, L. & Friedlander B. (2008). *Powerful writing strategies for all students*. Baltimore, MD: Paul H. Brookes.

Hilvert, E., Davidson, D. & Scott, C. (2019). An in-depth analysis of expository writing in children with and without autism spectrum disorder. *Journal of Autism and Developmental Disorders, 49*(8), 3412-3425.

Mills, S. (2012). The effects of instruction in peer-revision on the persuasive writing of students with emotional and behavioral disabilities (Unpublished doctoral dissertation). George Mason University, Fairfax, VA.

National Governors Association Center for Best Practices, & Council of Chief State School Officers. (2010). *Common Core State Standards for English language arts: Writing grades 6-8.* Author.

National Professional Development Center on Autism Spectrum Disorders. (n.d.). *Evidence-based practice: Peer-mediated instruction and intervention*. Retrieved from http://autismpdc.fpg.unc.edu /content /peer-mediated-instruction-and-intervention

Rose, D.H. & Gravel, J.W. (2010). Universal design for learning. In *International Encyclopedia of Education.* (p.119-124). Elsevier Ltd. https://doi.org/10/1016/B978-0-08-044894-7.00719-3.

Rudy, B., Davis, T.E., & Matthews, R.A. (2012). The relationship between self-efficacy, negative self-referent cognitions, and social anxiety in children: A multiple mediator model. *Behavior Therapy, 43*(1), 619-628.

Schunk, D. & Zimmerman, B. (2007). Influencing children's self-efficacy and self-regulation of reading and writing through modeling. *Reading and Writing Quarterly, 23*(1), 7-25.

Toshalis, E. & Nakkula, M. (2015). Motivation, engagement, and student voice. *Education Digest, 78*(1), 29-35.

U.S. Department of Education (2001). *Twenty-third annual report to Congress on the implementation of the Individuals with Disabilities Act.* Washington, D.C.: Government Printing Office.

Whitehouse, A. J. O., Maybery, M. T., & Durkin, K. (2006). Inner speech impairments in autism. *Journal of Child Psychology and Psychiatry, 47*(8), 857–865.