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DIALOGUE JOURNALS IN ASSESSMENT OF STUDENT WRITING

by

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B.A. Georgetown University, 1990
M.Ed. Columbia University, 2000

DISSERTATION

Submitted in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Philosophy
Special Education

The University of New Mexico
Albuquerque, New Mexico

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DEDICATION

To George, Dorothy and Ada who are my life, and in memory of Joan and Fred Hart.

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And most of all, thanks to my beloved husband and children, George, Dorothy, and Ada.

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Abstract

Because writing is complex and draws upon so many psychological and cognitive processes, learning to write is even more challenging for students with disabilities than it is for typically developing students. Nonetheless, writing research in the field of education and special education lags behind that of many other academic subjects. The body of research that does exist indicates that affective factors (attitude toward writing, evaluation of self as a writer, enjoyment of writing) impact students' writing achievement. This paper explores whether including a response journal element as part of classroom writing assessment affects the attitude toward writing of students with disabilities. The project follows from understanding the unique cognitive characteristics of adolescents as well as current theories of writing development and writing assessment. Results indicated that the dialogue journals reflected and supported participants' cognitive development, and increased their confidence, self-efficacy, and self-image as writers as well as their motivation to continue to improve their writing. Implications for research include confirming previous research and filling a gap in the research with a successful strategy for improving adolescent writing.

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Chapter 1

This study will address the following problem: Because writing is a complex cognitive process that taxes the very processes impaired in students with disabilities, students with disabilities often find writing difficult and unmotivating. Writing is a complex skill that draws on multiple neurological and cognitive processes. Moreover, writing is also social and cultural in its aim to communicate with others and conform to ever-evolving genres and norms. Finally, writing is personal. We write to understand ourselves and become ourselves (Bazerman et al., 2017). Teachers of students who have been identified as having Specific Learning Disability and Attention Deficit Hyperactivity Disorder need to understand how these physical, social, and individual processes merge in classroom settings as students engage in acts of expository writing. This is especially important as students move from childhood into adolescence and face higher expectations to regulate and evaluate their writing (McCutcheon, 2011, Kellogg, 2008, Reiff & Barwashi, 2011). This study is needed because while there is an abundance of research about how students with disabilities plan writing, there is less information about how they evaluate their writing and themselves as writers. The purpose of this research is to explore whether a response journal between students and teachers introduced during the assessment phase of classroom writing assignments positively affects attitudes toward the writing of students with disabilities.

Chapter 2

Literature Review

In this review of literature, I will address writing development from social cognitive perspectives. Beginning with Flower and Hayes's (1981) seminal model of writing development, I will proceed to discuss ways in which the cognitive processes of students with disabilities differ from those of typically developing students. I will then discuss Zimmerman's (1986) theory of self-regulated learning, and how that theory might apply to assessing the writing of students with disabilities. A historical view of writing assessment leads to a look at how writing has been assessed in students with disabilities. In this review, I conclude with an examination of recent research on adolescent cognitive development and discuss how the findings might inform effective writing assessments for students with disabilities.

The Cognitive Process Model of Writing

To understand writing development in students with disabilities, it is useful to first consider the way writing ability develops in students without disabilities. The seminal text on writing development was produced by Flower and Hayes (1981). They proposed a cognitive process model of writing to replace the stage process model (see Rohman, 1965, and Britton, 1975) that had described a writer's thinking during composition theretofore. Flower and Hayes based their theory on five years of analyzing writers verbalizing their thoughts as they wrote. The authors' cognitive process model rests on four key points:

1. The process of writing is best understood as a set of distinctive thinking processes that writers orchestrate or organize during the process of writing.
2. These processes have a hierarchical, highly embedded organization in which any given process can be embedded within any other.

> 3. The act of writing itself is a goal-directed thinking process, guided by the writer's own growing network of goals.
> 4. Writers create their own goals in two key ways: by generating both high-level goals and supporting sub-goals that embody the writer's developing sense of purpose, and then, at times, by changing major goals or even establishing entirely new ones based on what has been learned in the act of writing. (Flower & Hayes, 1981, p.368)

With their cognitive process model, the authors moved away from an earlier model that described writing as a series of linear stages to one that described writing as a collection of cognitive processes that coexist and cooperate. According to this model, the experience of writing and the relationship between the processes are dynamic and evolve along with the writing and the writer's conceptualization.

The authors identify three elements of writing: the task environment, the writer's long-term memory, and the cognitive processes that interact as the writer composes. The authors define the task environment as "all of those things outside the writer's skin" (Flower & Hayes, 1981, p. 369) and might include such aspects of the writer's work as their reason for writing (a love letter, a school assignment, etc.), the audience, and even what they have already written. In Flower and Hayes's model, the writer's long-term memory refers to everything the writer knows about the subject, about writing, and the specifics of this task, including things like genre conventions and audience knowledge and preferences. Finally, the authors identify three cognitive processes that contribute to writing:1) planning, that is, figuring out how the piece of writing should progress in such a way as to meet the writer's goals; 2) translating, that is, corralling thoughts into the linguistic conventions of writing to make them understandable to others, and 3) reviewing, that is, considering the progress of the other two processes and deciding whether and to what extent to make changes. The authors describe these processes as controlled by a “monitor” (Flower & Hayes, 1981, p. 369) that decides when to move from one process to another.

Having described the cognitive processes involved in writing, Flower and Hayes (1981) explained how they work together. The authors posited that the processes are “hierarchically organized with parts embedded within other components” (p. 375). In other words, unlike the earlier model which envisioned a writer moving methodically from prewriting to writing to reviewing, in the Flower and Hayes model, the writing process flows continuously back and forth among the processes. Planning, translating, and reviewing are intertwined from the moment of contemplation of writing to the moment when the writer decides that they have a finished product.

Goals and goal-directed thinking are the foundation of Flower and Hayes’s (1981) cognitive process model. According to the authors, any writing starts with a goal, for instance, reviewing a book. This overall goal gives rise to other higher-level goals, perhaps having to do with audience or expression of opinion. To reach these higher-level goals, the writer creates and works towards lower and lower-level goals like writing varied sentences or just getting all ideas on the page. As the writer composes, they focus on different goals at different times, going back and forth among them as the text emerges. Importantly, the writer’s goals may change as they gain knowledge or understanding during their writing. In addition, the writer frequently turns from lower-level goals to higher-level goals to control the direction of the paper.

What constitutes writing development within the cognitive process model? According to Flower and Hayes (1981), a skilled writer is distinguished from a less skilled writer largely in their ability to control movement from one goal and from one type of goal to another. A beginning writer may have to focus completely on handwriting while a more skilled writer can focus on creating complete sentences. A writer further along in development can choose to switch from grammar to idea generation, and one who is still, further along, can switch between word choice, sentence structure, consideration of audience, and overall organization. Thus, for Flower and Hayes (1981), writing development involves increased skill in each of the cognitive processes that make up their model as well as increased intuition about when to move among them and the ability to form and then switch focus among a wide variety of higher and lower order goals.

Writing Development in Students with Disabilities

The processes emphasized in Flower and Hayes's model are compromised in students with learning disabilities. Impairment of executive function, which is necessary for planning and reviewing, is a hallmark of SLD and is a defining characteristic of ADHD (American Psychiatric Association, 2013). The ability to find words to express thoughts is impaired in students with language-based SLDs (Berninger et al., 2015). Students who struggle with attentional issues are disadvantaged in learning to write in several ways including output, idea generation, organization, and revision (Rodriguez et al., 2015).

Most recent research regarding the development of writing in students with disabilities has focused on cognitive processes. Over the last decade, Berninger and colleagues have conducted several studies exploring the ways cognitive processes in students with writing disabilities differ from those of typical students. Berninger et al. (2015) reported on two studies aimed at distinguishing among three types of specific learning disorders affecting reading: dysgraphia, which the authors defined as a disorder that is manifested on a sub-word level;

dyslexia, defined as a disorder manifested on the word level, and oral written language learning disorder (OWL LD), defined as a disorder manifested on the syntax level. Study 1 focused on behavioral manifestations of the three disorders. Participants in Study 1 included 88 children in grades 4-9. For Study 1, participants were classified into one of four groups: dysgraphia, dyslexia, OWL LD, and typical language learning controls. Parents filled out questionnaires addressing family history of language learning disorders and documenting the children's academic struggles throughout early and middle childhood. The researchers used inferential statistics to address three research questions: 1) can SLD be distinguished by type—i.e. dysgraphia, dyslexia, and OWL LD by distinguishing the level at which language is impaired, 2) is there a distinct pattern of working memory impairment associated with each type of learning disability, and 3) whether students in the different categories were significantly different in scoring on tests related to language-based SLD's.

The authors found that students with dysgraphia scored in the bottom third on measures of sub-word letter language impairment. Almost all the students in the dysgraphia group (24/26) showed impairments of the orthographic loop. Students with dyslexia had significantly low scores on word reading and/or spelling measures. Working memory profiles of students with dyslexia overlapped that of students with dysgraphia to some extent, but three aspects of working memory, phonological loop, and switching/flexible attention were prominent in students with dyslexia and not in students with dysgraphia. Students with OWL LD showed impairment in aural or oral syntax, as well as written syntax. Students with OWL LD were most likely to have impairments in orthographic loops rather than in other areas of working memory. Thus, the results of this study seem to support affirmative answers to all three research questions.

However, while each type of language-based SLD has its level of impairment and working memory profile, all three shared orthographic loop impairment.

Study 2 focused on “neurolinguistic profiles for fMRI (functional magnetic resonance imaging) functional connectivity” (Berninger et al., 2015, p. 1125), that is, the patterns of connections between neurons in four sections of the brain. This study (Berninger et al., 2015) addressed activity located in four brain regions in the three SLD groups and the control group using fMRI. Participants in Study 2 included 45 of the participants from Study 1. The researchers scanned students in the fMRI while students performed a spelling task. Results indicated that each of the SLD types had a distinctive pattern of activity in the regions observed. For the left occipital temporal region, the OWL LD group was least active while the dyslexia group was most active. In the left precuneus region, the controls were least active while the dysgraphia and dyslexia groups were most active. In the left inferior frontal region, the controls were least active while the dyslexia group was most active, and in the left supramarginal gyrus region, the OWL LD group was least active and the dyslexia group was most active. The authors concluded that Study 1 “provided conceptually grounded, behavioral evidence that three different persistent [language-based] SLDs during middle childhood and adolescence can be defined, identified, and diagnosed” (Berninger, et al. 2015, p. 1147). In addition, Study 1 distinguished three types of language-based SLDs and identified their distinguishing linguistic and working memory characteristics. The authors concluded that Study 2 provided evidence that each of the three types of language-based SLD is marked by a distinctive neuroimaging profile and that all three share markers that distinguish them from typical language learners.

Though Berninger and May (2011) wrote before the publication of the paper described above, they addressed many of the implications of that paper. Specifically, Berninger and May highlighted the importance of understanding language-based SLDs on as granular a level as possible. The authors examined two case studies, following two children with persistent challenges in reading and writing from referral through diagnosis and treatment. In both cases, the subjects of the case study did not respond to treatment/instruction because their initial diagnosis had not been specific enough. Once a diagnosis rendered more specific information and instruction was targeted to specific needs, both students experienced gains in achievement. As the authors put it, “Treatment nonresponders were transformed into treatment responders” (Berninger & May, 2011, p. 170).

In the first case study, a young adolescent with autism continued to have challenges in reading and writing after years of “age-appropriate” reading instruction had failed to result in any gains in reading achievement. A review of his records revealed that at age 7 an evaluation had assessed his cognitive abilities to be in the 99th percentile while his writing, both handwriting and composition, was severely delayed. This child participated in 16 3-hour tutoring sessions focused on motor and cognitive aspects of writing. After these sessions, he improved to “above population mean in sub-word handwriting…spelling… and text composing” (Berninger & May, 2011, p. 175). In the second case, a 5th grader had been diagnosed with SLD characteristic of dyslexia. He spent many unproductive years in instructional situations designed to address dyslexia. During the study, he was re-diagnosed as having OWL LD—a disorder on the syntax level rather than the word level. After his diagnosis, he was provided instruction that addressed language issues (morphological and syntactical understanding in addition to phonological awareness). After 14.5 3-hour sessions as part of the study, the student “showed marked gains in morphological and syntactic awareness and reading comprehension” (Berninger & May, 2011, p. 176). The authors concluded that both case studies indicate that writing development can arise from a variety of neuropsychological causes, and specific diagnosis allows instructional/ treatment professionals to craft interventions that “turn treatment non-responders into treatment responders” (Berninger & May 2011, p. 170).

Berninger et al. (2018) took the atomization of language-based SLDs a step further by envisioning language as having four components: visual, aural, oral, and motor. In addition, they included parent questionnaires from the Clinical Evaluation of Language Fundamentals (CELF-4) which addresses problems in listening, reading, writing, and speaking in their evaluations. Like the 2015 paper, this paper described two studies, one that observed behavior and one that observed brain activity via fMRI.

Participants in the first study (155 children in grades 4 – 9) were divided into four groups: those with dysgraphia, those with dyslexia, those with OWL LD, and a control consisting of typical language learners. Parents responded to 40 items on the CELF assessment describing their children’s use of language, and the children were assessed on measures of aural language, oral language, reading, and writing. As expected, the results of the CELF-4 parent questionnaire were correlated with the results of the standardized assessments of the children’s language abilities. “However, for each of the four language systems, the pattern of correlation varied across the typical and Specific Learning Disability-Written Language groups (dysgraphia, dyslexia, and OWL LD) confirming the diverse language learning strengths and weaknesses during upper elementary and middle school” (Berninger, et al., 2018, p. 6). That is, in all groups there was a range of the extent to which assessed ability was observable in day-to-day behavior, indicating that during the years from grades 4-9 children of all abilities learn and grow at significantly different rates.

Participants in the second study included 44 of the participants from the first study who could undergo brain imaging procedures and who gave consent and assent. The participants were asked to perform a task in which they decided whether a word was a correctly spelled standard English word while undergoing fMRI and DTI scans. Results of this study indicated that regions of the brain associated with motor function were highly active and highly connective when students were engaged in the reading and spelling tasks. In addition, activity in motor areas of the brain was correlated with the results of the CELF-4 parent questionnaire: “What was remarkable and not anticipated was the number of significant correlations between the parent ratings for reading and motor related brain regions other than primary motor area” (Berninger et al., 2018, p. 11). Authors’ conclusions from these two studies underscore the incredible complexity and diversity of neuropsychological causes of literacy delays: “All levels of the multiple language system matter in some way in literacy learning” (Berninger et al., 2018, p. 12), and no two children learn language at the same rate even if they are in the same literacy learning “group.”

Rodriguez et al. (2015) undertook a comparative study of how Attention Deficit Hyperactivity Disorder (ADHD) and Writing Learning Disabilities (WLD) affect the student writing process. The study included four groups: students with ADHD, students with WLD, students with ADHD and WLD, and typically developing students. Students wrote two essays and researchers explored how much time they spent on each of several components of the writing process: reading references, thinking about content, writing an outline, writing text, reading text, changing text, and time spent in activities unrelated to the writing process (p. 164). They also scored the essays based on structure, coherence, and quality. The authors found that students with ADHD produced about as much text as typical students, but that their essays were less coherent than those of typically developing peers. In addition, students with ADHD spent less time thinking about their writing while planning, writing, and reviewing. According to the authors, students with ADHD “seldom reflect on a text that they have composed, rarely reread it, and invest very little effort in correcting what they have written” (p. 171).

Rodriguez collaborated with a different group of colleagues (Rodriguez, Grunke et al., 2015) to review literature pertaining to students with ADHD and students with Writing Learning Disabilities. The authors found that the writing of students with ADHD is understudied compared to other academic skills and subjects (e.g., math and reading). The studies reviewed by Rodriguez et al. found that, compared to typically developing students, the writing of students with ADHD had more errors, was generally of lower quality, and used less varied vocabulary. In addition, students with ADHD were less productive when writing than typically developing students. Thus, ADHD and SLD affect students’ writing abilities in similar ways.

A growing body of literature shows how the deficits identified by Berninger and her colleagues and by Rodriguez and his colleagues affect students’ sense of self-concept and sense of self-efficacy. That blow to self-concept and self-efficacy results in lower achievement in academics in general and in writing in particular. Moller et al. (2020) found that achievement is related to self-concept. While this study involved typically developing students, it stands to reason that the result applies to students with disabilities as well. Refining the findings of Moller et al. somewhat, Gans et al. (2003) compared students with learning disabilities with their typically developing peers using the Intellectual and School Status and Behavior subscales—an instrument that measures, among other things, how students felt about themselves and their social status. Students with learning disabilities scored lower than typically developing students on both scales. Similarly, Bear (2022) found that students with learning disabilities perceived their academic ability less favorably than typically developing students even when their global self-concept was equivalent. Hagborg (1996) found that for the students with learning disabilities in the study, estimates of competence (as measured by the Scholastic Competence subscale on Harter's Self Perception Profile [Harter, 2012]) were positively correlated with both internal locus of control for positive outcomes and with greater self-worth. This confidence was shown by Pajares (2003) to have practical achievement implications as confidence positively correlated with writing achievement in students with learning disabilities. Teacher interaction is one source of positive self-concept. Rothman and Cosden (2022) found that higher achievement and social support both correlated with less negative beliefs about students' own learning disability, as well as with positive global self-confidence and more social support. Importantly, social support and self-concept were positively correlated even in the absence of higher achievement.

Zimmerman's Model of Self-Regulated Learning

The ability to learn is, of course, central to the development of writing ability for all learners, but even more so for students with disabilities. The self-concept and self-efficacy deemed by the researchers mentioned above to have a significant role in learning to write for students with disabilities are fully explored and expanded in theories of self-regulated learning, particularly those developed by Zimmerman (1986). Building on the foundation of Bandura's theories of self-efficacy and his tripartite vision of social cognitive theory (1977, 1986), Zimmerman developed a theory of self-regulated learning. Zimmerman's theory has two components that are relevant to this study. The first is the triadic structure of self-regulated learning.

Zimmerman (1986) described the relationship between the learner, their environment, and their behavior, averring that this is a recursive, reciprocal relationship. Learner attributes associated with self-regulated learning include knowledge, metacognitive skills, goals, and affect. Environment attributes associated with self-regulated learning include both the social and physical environment. Examples might include a teacher who supports a student's sense of self-efficacy and provides models and support for learning as well as a quiet, uncluttered place to work and resources such as a book, calculator, and computer. Behaviors associated with self-regulated learning include self-observation, self-judgement, and self-reaction. The learner's tendency or ability to see their performance clearly, judge that performance, and then react by continuing or changing their approach are examples of self-regulated learning.

In the years since his seminal works, Zimmerman has reimagined the above triad to focus on the processes of self-regulation in learners. Zimmerman (2000) outlined his understanding of the cyclical processes of self-regulation which includes forethought, performance or volitional control, and self-reflection. These processes are reiterative and reciprocal, not unlike the processes central to Flower and Hayes's cognitive model of written expression. In Zimmerman's model, the learner plans their learning experience in two interconnected ways: task analysis and self-motivational beliefs. The learner identifies the goal of the learning and the path to that goal. They also consider how likely they believe they are to reach the goal, what the outcome of their efforts is likely to be, and the value of the outcome and of the experience of attempting the task. The learner then enters the performance or volitional control phase in which they use self-control processes including attention focusing, imagery, self-instruction, and task strategies to perform the task or learning. These processes allow the learner to direct energy to the task, to imagine the set of steps necessary to complete the task, and to undertake the steps until the task is completed. Self-observation is also part of the performance phase and allows the learner to note how well their method of completing the task is working and to change course if the method seems inefficient or ineffective.

After the performance or volitional control phase, the learner enters the self-reflection phase, according to Zimmerman (2000). In this phase, the learner reflects on the extent to which their performance or learning met a standard. The standard can be normative, criterion-based, mastery-based, or collaborative. The learner also makes causal attributions regarding their performance/learning—that is they determine why it turned out the way it did. According to the author, attributing outcomes to strategies is preferable to other attributions because strategies are within the control of the learner and are easily changed. Zimmerman explains that these attributions lead to two important components of the self-reflection process—self-satisfaction and adaptive or defensive inferences. When a learner's attribution allows for high levels of self-satisfaction, the learner is usually motivated to continue striving and improving in the endeavor. Similarly, adaptive inferences allow the learner to see ways they might change their approach to improve their performance. Defensive inferences, on the other hand, encourage the learner to give up. Thus, considering the reiterative, reciprocal nature of Zimmerman's model, the self-reflective stage is particularly important because it leads back to the forethought stage, but, in the best scenario, allows the learner to reenter the cycle on a stronger footing. According to Zimmerman, the fruits of the self-reflection stage can be multiplied when learners employ techniques that allow them to internalize or take over social and environmental supports. This study will test a method for developing one such technique by allowing students to collaborate with their teachers in evaluating their own writing.

Deci and Ryan's Theory of Self-Determination

Deci and Ryan (2000) reviewed the decades-long development of their Self-Determination Theory outlining findings from dozens of studies that described the environmental factors that support motivation and those that thwart it. The authors describe intrinsic motivation as that which encourages people to do things for the inherent pleasure of the activity itself. They describe extrinsic motivation as that which compels action by promising the achievement of some goal other than the activity itself. According to the authors, extrinsic motivation can be described as a continuum from “external regulation” (Deci & Ryan, 2000, p. 72) in which behaviors are performed to gain a reward or avoid a consequence to “integrated regulation” (Deci & Ryan, 2000, p. 72) in which the value of the behavior is “fully assimilated into the self” (Deci & Ryan, 2000, p. 73), that is, the behavior may not be enjoyable or rewarding in itself, but the individual has examined the reasons for and goals of the behavior and found that they align with their own. According to Deci and Ryan (2000) extrinsic motivation characterized by integrated motivation shares all the performance and well-being benefits of intrinsic motivation.

Particularly important for this study, Deci and Ryan (2000) went on to establish three conditions for developing integrated regulation extrinsic motivation. The first condition is relatedness. According to the authors, people are usually prompted to engage in extrinsically motivated behaviors by someone they feel connected to or by someone they want to feel connected to. Thus, if a student has a sense of relatedness with a teacher, they will be most likely to not only follow the teacher’s lead but also begin to integrate the values inherent in the tasks into their own self-concept. The second condition is autonomy. According to the authors, when a person feels that they are engaging in an activity autonomously, rather than being forced to act, they are more likely to develop integrated regulation concerning that behavior. For instance, if a student feels that they are choosing to make decisions about their writing or other academic work, rather than just responding to the assessment of a distant teacher, they are more likely to internalize the underlying academic values. The third condition is perceived competence. According to Deci and Ryan (2000), students are motivated to do academic tasks when they believe that they can do them well. Thus, a student whose efforts are respected and who receives supportive feedback is more likely to want to get better at an academic task or skill than one who is demeaned or harshly criticized. Deci and Ryan's (2000) idea of integrated regulation is important to writing instruction because writing well involves mastering a host of rules and conventions, some articulated, others merely understood. Internalizing these rules and conventions rather than merely following them is one of the cornerstones of good writing, and creating an environment where students are motivated to make these rules part of their own writing style is an important step in this direction. As described above, students with disabilities are less likely than typically developing students to find writing to be an intrinsically motivating activity, so finding ways of helping them embrace an internally regulated extrinsic motivation is particularly important. The current study provides the opportunity for students to develop relatedness with their teachers through the response journal, to develop autonomy by considering their goals and reasons for their writerly choices, and competence by communicating on equal footing with their teachers concerning the assessment of their writing.

Writing Assessment

Existing Scales and Their Strengths and Weaknesses

It is clear from the articles discussed above that students with disabilities are disadvantaged in terms of writing development. The ways writing is assessed in schools and in large scale settings disadvantage them further. Students with disabilities are generally assessed in the same ways and using the same instruments as students without disabilities. These methods and instruments are generally applied to students with disabilities in such a way as to emphasize the ways they fall short of typically developing students rather than in such a way as to help and encourage them to write more and to improve their writing. Below is a general discussion of a variety of current assessments followed by a focus on writing assessments for students with disabilities.

Behizadeh and Engelhard (2011) trace writing assessment over the last hundred years, addressing developments decade by decade. According to the authors, the locus of early 20th-century writing assessment was the classroom. Writing assessment during this period was characterized by an attempt to establish objective standards for quality writing. The authors describe writing scales developed with the intent that classroom teachers could use them to rate their students' writing. The scales referenced by Behizadeh and Englehard took the form of a list of exemplars, rated from worst (1) to best (10). Each step on the scale was represented by a paragraph or so of text that teachers could compare to their students' writing and judge which step was most similar to the students' writing and thus how good of a writer the student was. Behizadeh and Englehard mentioned that large-scale high-stakes testing began to emerge at this time with college entrance exams just making an appearance in the form of a writing exam as part of the requirements for admission to Harvard and the early days of the College Board, then just a coalition of colleges with a variety of aims, one of which was to develop standardized college entrance exams.

The rise of large-scale testing led to a new approach to writing assessment according to Behizadeh and Englehardt (2011). The authors distinguish between "direct writing assessments" (Behizadeh & Englehardt, 2011, p. 198) in which teachers respond to individual aspects of student's work, and "objective" or "indirect assessments" in which assessors respond to work by way of a standardized set of criteria. They aver that a trend toward indirect assessments began in the 1930's and continued until at least the 1970's. In the 1930s, according to the authors, standardization and objectification were consistent with an effort to increase reliability and fairness in writing assessment as well as with the beginnings of a movement to establish levels of proficiency in writing largely to determine fitness for university admission. Standards were established to make it easier, quicker, and more cost-effective to determine students' proficiency in writing and through writing in content areas. These standards were prescriptive, reflecting the needs of the assessors rather than any observed continuum of development in writing.

According to Behizadeh and Engelhard (2011), this trend toward standardization continued through the next 30 years or so, as writing assessments incorporated multiple choice components as well as writing sample components and technologies for scoring both multiple choice and writing sample tests electronically were invented and improved. It was not until the 1970s that the pendulum began to swing the other way to an emphasis on direct assessment. While electronic assessment did not disappear, recognition of the importance of holistic, human evaluation of student writing samples grew. Discussions of writing assessment turned to questions of inter-rater reliability and rater bias.

Behizadeh and Engelhard's (2011) take on the current era of writing assessment (including the years from the 1990s until the present) is that the trend toward direct assessment continues. However, to address reliability and bias, the authors recognize a role for objective measures, such as multiple-choice portions of tests and some electronic scoring of essays to attenuate the inescapable effects of having human beings react to what is, after all, a very human function. The authors note the ascendancy during this time of the sociocultural approach to writing which posits that the definition of good writing depends to a large extent on the context and purpose of the writing, and the authors note the development of the portfolio method of assessment during this time. Throughout their article, Behizadeh and Engelhard trace a circular development in the assessment of writing—from an early point where writing assessment was the province of teachers and classrooms, to an era in which it seemed almost to move to the laboratory as the province of measurement theorists and back again to the classroom where teachers take the lead in developing cutting edge methods of deciding what good writing is. This tension between the direct, holistic human classroom approach to writing assessment and the indirect, standardized, objective approach continues.

Assessment of the Writing of Students with Disabilities

Applying any of these assessment approaches directly to students with disabilities is likely to put the students at a disadvantage when compared to their peers. Neither approach considers the specifics of how the child with ADHD or with a language-based learning disability approaches writing tasks differently from a typically developing student, and most assessments are developed with typically developing students in mind. The writing of students with disabilities is generally assessed using the same methods and instruments as the writing of students without disabilities (e.g. Hall-Mills & Apel, 2013; Nelson & Crumpton, 2015; Koutsoftas & Petersen, 2017). However, Corbett (2017) proposed assessing the writing of students with disabilities using universal design. His paper "draws on current research on learning disabilities (LDs) and writing pedagogy, writing assessment scholarship and [the author's] own case study research to explore options for an inclusive, multimethod model of writing assessment" (p. 23) for students with disabilities. Corbett situates this approach to assessing the writing of students with disabilities within the theory of universal design and posits that this kind of assessment has become the standard for students with disabilities because the needs of these students in terms of writing are more a question of degree or amount rather than of kind. The author sets out four principles of assessment. The first is that students with disabilities should have a voice in their placement within writing programs. The second is that assessment should be performance-focused rather than product-focused, attending more toward habits of mind and working with the assumption that these habits will lead students to improve their writing skills. The third is that assessment should be multi-method with a variety of points of view represented (including those of the students themselves and their peers), a variety of criteria represented, and based on a variety of tasks. Finally, the fourth principle is that assessment must be rooted in the goal of preparing students for their future lives. To this end, Corbett argues that assessments should be collaborative and longitudinal, that is, considering a body of work that shows development over time.

Some large-scale, well-researched assessments do conform to Corbett's suggestions in that they do take a longitudinal approach and invite the assessed to have some say in the judgments made about them, and these are effective for assessing writing at transition points; however, these assessments are usually used for placing English Language Learners in college writing programs. Nonetheless, these assessments meet many of the criteria suggested by the combination of Flower and Hayes, Zimmerman, and Berninger, and they deserve a look in the context of writing assessments for students with LD and ADHD. In 2019, the California Community College Chancellor's Office commissioned a review of the literature on assessment measures for late adolescent writing proficiency for students who are learning English (RP Group, 2019). The study reviewed 33 scholarly articles and divided their findings into five key themes: "Assessments using writing samples and essays; guided/directed self-placement assessment methods, assessments using multiple measures and questionnaires, assessments using

Test of English as a Foreign Language (TOEFL) [and] International Baccalaureate program assessments” (RP Group, 2019, p. 3). The reviewers found that writing samples combined with high school data such as grades or teacher recommendations is often a better indicator than standardized test scores of a student’s abilities to write in English. However, the cost of this approach as well as issues like threats to reliability and validity often discourage colleges and universities from using this method. The guided/directed self-placement assessment method, according to the authors, has the advantage of giving students a voice and a stake in the assessment of their English writing proficiency. These methods provide students with information about their options for post-secondary writing courses—such as samples of previous students’ writing, course context, syllabi, etc. and provide college personnel with students’ information such as high school information, standardized test scores, etc. The student and college personnel work together to find a good match between student goals, abilities, and interests and available college writing courses. According to the authors, this method results in a high level of student success relative to other methods. The RP Group (2019) also found that assessments using multiple measures questionnaires resulted in high levels of student success. This method starts with a pre-assessment questionnaire to elicit information about students’ background, interests, abilities, etc., and combines the results with other information such as high school grades and standardized test scores. While a conversation between the student and a counselor might be part of this process, it lacks the intensive participation of the student in their own assessment and ultimate placement.

Finally, the RP Group reviewed literature about two standardized approaches to assessing writing proficiency in students who are learning English. One is the TOEFL which they found to be the most common method of late adolescent English Language Learner writing assessment but also to be least likely among the methods they studied to result in good placement choices and accurate predictions of student success. Assessment based on The International Baccalaureate Program, on the other hand, does seem to result in accurate predictions of student success. These assessments are based on a student's performance throughout an entire curriculum of "uniform and accredited" (RP Group, 2019, p. 7) courses and so they yield a greater breadth and depth of information than might any one test (e.g. the TOEFL) or a less uniform collection of courses (e.g. the typical high school transcript). In addition, International Baccalaureate courses, according to the authors are truly college preparatory, so that "IB graduates outperform non-IB students in a multitude of areas while at the university" (RP Group, 2019, p. 8). Thus, while this review specifically targeted assessments of writing produced by English Language Learners, it found that the most successful assessments combined some of the elements suggested by what is known about what should make good assessments for students with learning disabilities: social support, student voice, and longitudinal assessment.

Student Voice in Assessment

The first principle of Corbetts's Universal Design for Writing Assessment is student voice. This researcher was not able to find any articles that specifically address student voice in the assessment of the writing of students with disabilities; however, student voice has garnered increasing attention in recent years. According to O'Connor (2022), definitions of student voice can be elusive, however, the author surveyed teachers in two urban and suburban school districts to try to understand how teachers understand the concept of student voice. Results indicated two main definitions: students' expressions of general topics such as their personal experience or world events and student input or influence on their academic lives. Vendasalam (2020) writes about the centrality of writing in the development of a student's identity and their academic identity. According to the author, “absence of voice…is the negation of a student’s identity” (Vendasalam, 2020, p. 13), and writerly identity is formed as a result of communication between teacher and student, as students wrestle with personal or complex ideas and work to express them so that others can understand: “the teacher’s function is to be supportive, not normative” (Vendasalam, 2020, p.14) as students struggle to corral their ideas into expressions that adhere to conventions of general or specific genres or disciplines. Whittingham (2022) reports on classroom strategies that serve to develop student voice and proposes that a “conversational” approach develops confident and competent use of language. The author proposes that hearing students first and valuing what they are saying/writing provides a foundation for a teacher to help students learn to express themselves in a variety of conventional structures. Inviting students into a conversation about their writing can open a door to helping them write in ways that meet academic conventions. This study proposes that the door can be opened during the assessment phase of a writing assignment as well as during earlier phases.

Assessing Soft Skills Associated with Writing

In addition to scaling and assessing students’ writing itself, some researchers have sought to assess and rank the soft skills that have been associated with successful writers. This is important because, as discussed above, all students, and especially students with disabilities, benefit when their self-efficacy and self-concept for writing is more positive rather than less positive, and when they then enjoy writing more rather than less. Golumbek et al. (2019) explored the extent to which students believe that they are good writers and can exert the control of attention necessary to complete a piece of writing. The authors developed a scale to measure self-efficacy for self-regulation of academic writing (SSAW). The authors began by analyzing the concept of self-efficacy for self-regulation breaking it down into several subprocesses:

forethought, performance, and reflection. They then identified actions that epitomized these processes and ultimately articulated them in 70 items. General self-regulatory skills were quantified in 10 items with questions asking respondents to rate themselves on items describing how well they could control and direct attention.

General self-efficacy skills were rated on a similar 10-item section which asked respondents to rate themselves on items gauging how confident they felt in their ability to affect the outcome of situations they encountered. The remaining 50 items were focused on respondents' self-ratings about self-efficacy and self-regulation specifically for writing tasks. The scale allowed responses via a 4-point Likert scale "1= not at all true and 4=exactly true" (Golumbek et al., 2019, p. 755) forcing respondents to answer either on the positive side or on the negative side for each item. The authors tested the scale in three studies—one to refine the items, one to determine convergent validity, and one to confirmatory factor analysis. The authors found high construct validity of the scale—in other words, according to Golumbek et al. (2019), the SSAW accurately assesses students' self-efficacy and self-regulation in writing.

Adolescent Cognitive Development

The study of human cognitive development can inform the study of writing assessment in that writing is the communication of human cognition. In addition, students' ability to communicate and their motivations for doing so are informed by, even at times subject to, their stage of cognitive development. The articles reviewed in this section have been chosen because of their focus on how adolescents' cognitive processes develop in areas that might affect their participation in and response to an assessment of their writing. The research reviewed below indicates that during adolescence, most students' cognitive development makes them particularly receptive to assessment in which they have some investment, and which allows them to interact directly with their teachers. The research into adolescent cognitive development over the past two decades can be said to fall into two camps—studies focusing on structural development during adolescence, and studies focusing on observations of adolescents' social development among their peers, families, and communities which track how their understanding of themselves in community changes. Both directions of study inform the best ways to assess adolescent writing, and they suggest that students at this age are growing in their ability to control and direct their own thoughts and actions and growing in their understanding of themselves as members of a group. Both areas of growth make them able to benefit from an assessment that allows them to consider their own performance and to engage in meaningful dialogue with teachers, as representatives of their communities, about their writing.

Studies of Brain Structure.

One approach to ascertaining how cognitive development proceeds in adolescents tends toward studies that try to look inside participants' brains using imaging or other methods, attempting to discover how the brain itself changes during adolescence. Crone and Steinbeis (2017), for instance, reviewed findings from recent neuroimaging studies as they explored structural correlates of the development of cognitive control during adolescence. They began by defining cognitive control as "the ability to control our thoughts and actions for the purpose of future goals" (Crone & Steinbeis, 2017, p. 205), and narrowed their focus to a key question: "how different cognitive control functions develop concerning one another" (Crone & Steinbeis, 2017, p. 205). The authors mentioned several specific instances of cognitive control that develop throughout adolescence and late childhood, including the ability to perform tasks that require deliberative processing. The authors also noted distinctions between cognitive processes used to control behavior according to pre-established rules versus control according to internalized decisions. They found that the latter developed later and was associated with more activity changes in the prefrontal cortex (PFC). The authors then posited two ways of thinking about cognitive control development: as hierarchical and as based on “connectivity and functional specialization of prefrontal cortical regions” (Crone & Steinbeis, 2017, 2011). The authors noted that cognitive control seems to depend, in general, on neural recruitment of the prefrontal cortex. Crone and Steinbeis (2017) reported on studies that implicate maturation of the dorsolateral PFC, which controls working memory, inhibition, feedback learning, and delay of gratification as central to increase in cognitive control throughout adolescence. The hierarchical model rests on the idea that there are basic functions inherent in cognitive control and that these functions are controlled by more complex functions. Working memory would be an example of a basic function; it is a function in itself, but it also plays a central role in more complex functions like task switching and error monitoring. According to the authors, the hierarchical model holds that basic functions develop first, and then complex functions develop later to coordinate and control more basic functions. The authors describe the connectivity and specialized function model focusing on the likelihood that “developmental changes, especially in higher-level cognitive skills, result from interactive specialization within the PFC and its connections to other regions in the brain (Crone & Steinbeis, 2017, p. 211). According to the authors, this model envisions the PFC as a hub for recruiting, organizing, and coordinating other frontal-parietal regions that develop at about the same time as the PFC regions. Thus, in their review of recent findings on cognitive control Crone and Steinbeis (2017) describe a variety of instances of cognitive control that develop over time and two possible explanations of how they develop. This work relates to the current study in that writing assessment might be more effective if it consciously considered the cognitive development of students, especially in the realm of cognitive control.

Like Crone and Steinbeis (2017), Leshem (2016) also explored PFC development during adolescence. In a review of research, he focused on the ways that changes in brain structure can affect specific behaviors. The articles Leshem reviewed focused on adolescent brain development and its relation to risk-taking that is associated with adolescence. Leshem (2016) created a foundation for the findings of the articles he reviewed by establishing those subcortical regions of the brain that control motivation and affective processes are among the earliest to mature while the prefrontal cortex which integrates these subcortical regions is among the latest. According to the author this results in adult-like motivation and emotion with child-like control. Leshem (2016) goes on to describe advances in three areas of study focused on the development of integration of the early maturing processes of the subcortical regions and the prefrontal cortex: imaging studies, behavioral studies, and theoretical discussions. Leshem (2016) begins with imaging studies. The author addressed four articles reporting on studies that examined the relationship between subcortical regions and the prefrontal cortex using imaging. The studies indicated that stronger connections between prefrontal functions and subcortical functions were associated with less risky behaviors. The author then turned to behavioral studies, examining four studies. These studies found that social cognition is built on a foundation of improved cognitive control, that preference for risky behavior does not have a familial basis, and that preferences for risky behavior and ambiguity develop differently. Finally, the author discussed theoretical approaches to the issue of the development of prefrontal control of subcortical regions, outlining a model in which “different aspects of impulsivity can be grouped into two distinct processes, one mediated by the socioemotional system, and the other mediated by the cognitive control system” (Leshem, 2016, p. 4). Thus, Leshem (2016) reviewed several articles on prefrontal control of subcortical processes indicating that their asynchronous development plays a part in the impulsivity characteristic of adolescence. In writing as in other areas of life, adolescents operate in a context of Leshem's adult motivation with childlike control. An aspect of writing assessment that directly allows a teacher to help a student develop adult control of their writing is likely to be effective.

While the above authors explored adolescent brain development as a function of age only, many recent studies have addressed the effects of sexual maturation on brain development. For instance, Juraska and Willing (2017) studied changes in the PFC during adolescence, but they explored the possible relationship between physical pubertal changes and the contemporaneous decrease in the size of the prefrontal cortex. They also studied maturation of behaviors controlled by the PFC. The authors examined this phenomenon in rats as well as humans. The authors noted that previous research has established that cognitive control improves throughout adolescence as manifested in control of behavior, cognitive flexibility, and a decrease in perseverative behavior. The authors asked whether this cerebral maturation is caused by or independent of pubertal changes that happen at the same time. Juraska and Willing (2017) reviewed studies of chemical changes in the brains of adolescent rats and chemical changes in the brains of adolescent humans to determine whether they could be causally linked to behavioral changes associated with adolescence and with changes in brain structure associated with adolescence. The authors noted that while pubertal status is "not typically examined as an experimental variable, there is some evidence that [it] plays a role in behaviors that mature during…adolescence" (p. 92). The authors reviewed studies that focused on the effects of the onset of pubertal hormones in humans and rats as well as studies that focused on the absence of typical pubertal hormones (e.g., ovariectomies in rats) and noted the extent to which each condition was associated with the decrease in cortical size (pruning) and with behavioral maturation typical of adolescence. The authors found that while few studies explicitly identify pubertal changes as a variable, “there is considerable evidence that puberty is a central event in the reorganization of the cortex, especially the prefrontal cortex, during adolescence in both humans and rats” (p. 92), and that, considering the well-established influence of gonadal hormones on many behaviors, it is likely that puberty affects adolescent neuronal reorganization in both rats and humans. This finding highlights the complexity of a classroom of adolescents in which each brain is maturing at an individual rate in response to a variety of biological factors making it advisable for teachers to have strategies to connect with students individually as well as on the classroom level.

While each of the above studies of individual cognitive development gathers data from imaging, others use behavioral observations to understand how the brain changes during adolescence. Gopnik et al. (2017) explored the causes and benefits of adolescent cognitive flexibility. They reported on a study designed to explore cognitive flexibility across the lifespan and to determine the extent to which the cognitive flexibility characteristic of childhood and early adolescence might allow for advantageous problem-solving strategies. The authors began by establishing that early in the lifespan, age is positively related to cognitive flexibility and negatively related to executive function. The authors posit that this may have an evolutionary function in that younger humans can explore and pick up a wide variety of knowledge while older humans begin to focus their attentions and energies more narrowly and specifically allowing them to exploit the learning of their youths and childhoods. The authors studied groups of 4-year-ols, 6-year-olds, 9- to 11-year-olds, 12- to 14-year-olds and adults. Each group was presented with several cause-inferring tasks. The researchers asked participants to explain outcomes in one mechanical situation and one interpersonal situation. In both situations, the participants had the opportunity to “learn” one reason for the outcome and then observe a slightly different outcome. In this way, the authors hoped to discern differences in the groups’ willingness to “unlearn” previous knowledge and hypothesize new reasons for old events. This willingness was considered evidence of cognitive flexibility.

The authors found that, in the physical case, adolescents were less willing to revise their previous understanding than the younger groups, but more willing to do so than the adults. However, in the social case, they were more willing than any other group to revise their knowledge. The authors explained their findings with a combination of biological and social conditions of adolescence. Neurological changes during adolescence including diminution of the number and volume of newly created neurons as well as pruning of unnecessary neurons might lead, according to the authors, to adolescents’ brains being less flexible in many situations, particularly about physical rules as they may have learned enough about the physical world to make them successful in navigating it. The authors posit that adolescents may be more flexible in terms of social situations, however, because “adolescence is not only a time of biological change; it is also a time of new social motivation and experience” (Gopnik et al., 2017, p.7897). Thus, the authors found that adolescence is indeed a time of cognitive flexibility, and the extent of the flexibility may have to do with an interaction between biological and experiential development. This being the case, writing assessment might be more effective if a teacher can directly encourage and take advantage of individual students’ ability to flexibly consider a variety of ways of thinking about an academic topic and ways of expressing their ideas.

The studies in this section focus on the development of the extent to which the individual can control cognitive activity. Leshem (2016) and Crone and Steinbeis (2017) found that cognitive control increases as a function of age, while Juraska and Willing (2017) found that cognitive control increases with sexual maturation. Gopnik et al. (2019) found that adolescents have more flexibility in their cognitive processes than do individuals at other times of life. These findings suggest that the most effective writing assessments for adolescents support and build upon adolescents' increasing cognitive control and unique cognitive flexibility.

Studies of Social Development

As the studies reviewed above indicate, adolescence is a time of vast changes in neural structure and resulting behaviors. Many contemporary researchers have studied how this individual cognitive development might be spurred by or result in the vastly expanding social awareness and engagement that occurs during adolescence. A useful overview of this research was provided by Sanders (2013). Summarizing articles spanning sixty years of research, Sanders (2013) described the cognitive and psychosocial changes that take place during adolescence. According to Sanders (2013), cognitive development in the adolescent years is characterized by an expansion of orientation from the personal and concrete to the general and abstract. First of all, the author contended that adolescents develop "the capacity to love, think about spirituality, and participate in advanced mathematics" (Sanders, 2013, p. 354) because they are developing the cognitive ability to loosen the bonds of the concrete and immediate and contemplate the abstract. As part of the expansion of point of view, adolescents begin to imagine others' perception of them, developing a "personal fable" in which their peers are always noticing and watching them. Pursuant to this, Sanders (2013) described adolescent risk-taking behavior, not as a failure of the ability to imagine consequences, but because of a higher emotional payoff for risk-taking in adolescence than for adults or children. Finally, Sanders (2013) counted metacognition as one of the signature developments of adolescence, explaining that as this capacity develops, adolescents can control their thought processes, but that it can also contribute to the “imaginary audience” (p. 355).

Sanders (2013) examined three aspects of socio-emotional growth in adolescence. First, she described the process of moving from the ego-centrism of childhood through same-sex peer groups in early adolescence and mixed-sex peer groups – both of which exert great influence on values and self-concept-- to establishing separate selves with a personal set of values as older adolescents. Closely related to this journey (according to the author) is the second task of adolescent socio-emotional growth described by Sanders: identity development. Sanders (2013) divided identity into self-concept and self-esteem—that is, adolescence is a period of determining who one is and how one fits into the world and of becoming comfortable with and even proud of oneself. Finally, Sanders counted “the ability for future orientation” (p. 356) among the tasks of adolescence. According to Sanders, this ability develops mostly in the later years of adolescence when young adults can base choices about vocation and career on their newly minted self-identities which can also form the basis of thoughts about what their world will be like and how they will act in it and influence it. Thus, according to Sanders, adolescence is a remarkably dynamic period of life in which the brain is constantly changing and growing in response to interaction with the social world. Effective writing assessments should reflect this developing interaction between students and their world.

In a more recent review of the interaction between individual neural development and the society in which it exists, Foulkes and Blakemore (2018) examined the literature on individual differences in adolescent psychological development. The authors focused on three factors that might affect brain development: socioeconomic status, culture, and peer interactions. They provided a base for their review by first reviewing studies on individual brain development. The authors established that brain structure changes significantly during adolescence in terms of "gray matter volume, surface area, and cortical thickness, as well as white matter volume and microstructure" (Foulkes & Blakemore, 2018, p. 315). However, according to the authors, the literature indicates that not all adolescent brains develop to the same extent or in the same way. The authors then explored differences in development associated with the three qualifiers mentioned above. First, they focused on socioeconomic development. The authors found that socioeconomic status (SES) is linked particularly to social cognition affecting response to social exclusion and conformity. The authors then turned their attention to the effects of culture on psychological development. They pointed out that despite clear cultural differences in the expectations and activities of adolescents, changes in brain structure during adolescence remain quite constant across cultures. However, the authors found in their review of literature, that "the varying cultures in which adolescents grow up can lead to individual differences in their behavioral development" (Foulkes & Blakemore, 2018, p. 319) though it is not clear how (or whether) this is reflected in neurocognitive differences as the field of cultural neuroscience is still in its infancy. Finally, the authors examined the literature dedicated to connections between peer environment and psychological development. The authors found that repeated peer rejection during adolescence led to a different developmental trajectory from that of peer acceptance. Social exclusion, according to the authors resulted in increased risk-taking and conformity to peer expectations, while consistent positive social experiences tended to reduce the likelihood of peer conflict and risk-taking. The authors concluded that adolescent psychological development is sensitive to a variety of environmental influences, specifically, "socioeconomic status, culture, and peer environment are three sources of variance that affect neurocognitive development in adolescence" (Foulkes & Blakemore, 2018, p.321). In light of these findings, writing assessments that make students feel connected, valued, and supported by the academic community as represented by teachers might mitigate the effects of environmental influences that can negatively affect development.

Del Boca et al. (2020) considered social effects on brain development in a smaller sphere than that examined by and Sanders (2013). These authors compared the effect of parents' time investment with adolescents' time investment in activities on cognitive development. Because adolescence is a time of increased agency and responsibility, the authors hypothesized that adolescents' decisions to spend time on academic or other enriching activities would be more powerful in increasing cognitive outcomes than the time their parents spent directing, overseeing, or engaging in adolescents' activities. Using data from the "Child Development Supplement (CDS) funded by the National Institute of Child Health and Human Development" (Del Boca et al., 2020, p. 571), the authors included participants living with both biological parents. They used data from two cohorts of children, examining time sample diary data and cognitive data from two time points—when the participants were between 11 and 15 years old, and when they were between 6 and 10 years old. They focused on time use data from one week for each child at each time point. The authors considered enriching activities as being not just typically academic activities such as homework, reading, practicing a musical instrument, etc. but also activities like engaging in sports and social interactions with friends. The authors found that parents spent significantly more time with younger children than with adolescents (9.5 hours per week vs. 5.5 hours per week respectively for mothers and 6 hours per week vs 4 hours per week for fathers). Time spent with parents is more important for cognitive development in childhood according to the authors' findings as adolescents whose parents did not spend as much time with them did not fare significantly worse on cognitive assessments, while children whose parents spent less time with them did show a significant difference from those whose parents spent more time. However, adolescents who spent more time in enriching activities showed significant cognitive advantages over those who did not choose to spend their time in enriching activities. Thus, Del Boca et al. (2020) show that during adolescence, individuals' choices regarding time investment affect their cognitive development: adolescents who choose to devote time to enriching activities increase their cognitive abilities more than those who make other choices about how to spend their time, and parental engagement seems to not affect this result. As adolescents' choice of enriching activities becomes more important to their success, and parental influence becomes less so, an assessment that encourages adolescents to spend time on writing and that helps increased teacher interaction fill the void left by decreased parent interaction might be particularly effective.

While the above authors studied how social engagement might affect brain structure, other studies have explored how changes in brain structure might spur changes in adolescents' relationships with their sociocultural surroundings. For instance, Blakemore (2012) studied neurophysiological changes related to social cognition during adolescence. The author defined adolescence as the time between the onset of puberty and the end of the teenage years for the study and focused on "mentalizing" (Blakemore, 2012, p. 113) as the salient characteristic of social cognition because it involves imagining what others are thinking—a foundational ability for engaging with others. The author established that adolescence is characterized by an increase in sociability, increasingly hierarchical and complex peer relationships, and increasing sensitivity to peer evaluation as compared to childhood. According to the author, there has been a dearth of neuropsychological evidence for social changes in adolescence, but a handful of studies showed decreasing activity in the mid-prefrontal cortex (mPFC) between adolescence and adulthood suggesting that, during adolescence, either individuals develop new cognitive strategies for social interactions or brain structure changes – most likely due to pruning. The author points out that these possibilities are not mutually exclusive. The author reported on one specific study that adapted an online task requiring participants to make practical decisions based on their imagining the viewpoint of a fictional character—participants in the experimental group moved items on a shelf depending on what they imagined a “director” could and couldn’t see, while those in the control group moved items from their own perspective. Participants ranged in age from 7 to 27. The author found that “while performance…followed the same trajectory (improved accuracy) from mid-childhood until mid-adolescence, the mid-adolescent group made more errors than the adults” (Blakemore, 2012, p.114) in the experimental group but not in the control group. The author concluded that this indicated that the neurophysiological changes noted in the mPFC during adolescence are connected to behavioral changes that continue throughout adolescence and even into young adulthood.

Blakemore (2012) posited that these findings indicate that adolescence is a sensitive period for learning social competencies just as early childhood is considered a sensitive period for academic learning. Because the social brain undergoes dramatic structural changes during adolescence, the author concludes that adolescence should be a time when educators emphasize the development of such abilities as “internal control, multi-tasking, and planning—but also self-awareness and social cognitive skills such as perspective taking and the understanding of other people’s minds” (Blakemore, 2012, p. 115). Thus, Blakemore (2012) combined evidence from neurophysiological and behavioral research to conclude that adolescence is a time when social cognition is changing rapidly and that this presents an important opportunity for educational policy and practice. This being the case, writing assessment is likely to be most effective when it takes advantage of adolescents’ heightened sensitivity to social development. An assessment strategy that puts students in direct conversation with teachers about their work might be particularly effective during adolescence at helping students gain the skills and attitudes necessary for joining the adult academic writing community.

Hardy and Carlo (2011) focused on how adolescents' sense of responsibility to their communities changes as the authors pursued questions surrounding the concept of moral identity and found that adolescence is a crucial period for its development. Specifically, they worked to define moral identity to determine how moral identity develops, and how moral identity leads to moral action. The authors proposed that the concept of moral identity may "be an important component of moral development" (Hardy & Carlo, 2011, p. 212). The authors reviewed several articles that proposed models of moral identity including Blasi's self-model (Blasi 1983) which posits that moral identity is motivated by a desire for consistency in one's personality and that it leads to moral action because of being "filtered through responsibility judgments" (Hardy & Carlo, 2011, p. 212) that arise from one's sense of identity. According to the authors, Colby and Dannon (1992) expanded on this model saying that a moral person is one whose moral identity is closely aligned with their personal goals.

The authors then turned to more recent literature which places moral identity within the realm of schemas indicating that moral identity develops over time as a collection of schemas that are accessible in any situation. Some models describe moral identity as the result of the overall mental structure of a good person, while others describe it as situational schemas—e.g., a good social person vs. a good businessperson. For moral identity development, the authors noted literature indicating that moral development and identity development are concurrent rather than separate systems. According to the authors, during childhood, moral identity is mostly based on parental injunctions; however, adolescents begin to form their own moral identities, fusing them with their sense of self: “Compared to adolescents, children feel less accountable, less ownership over their actions and identity, and less concern for integrity or self-consistency” (Hardy & Carlo, 2011, p.214). Finally, the authors addressed the development of moral identity schemas in adolescents concluding that adolescents have more of both the overall schemas about what it means to be a moral person and the individual schemas directing how to act morally in specific situations than children have. Because of this, adolescents are not only able to call upon these schemas to decide how to act morally but also, they “have conceptions of moral personhood that are more nuanced and principled” (Hardy & Carlo, 2011, p. 214). Thus, according to Hardy and Carlo (2011), adolescence is a crucial time in the development of moral identity because experience and agency work together to help individuals gather schemas to direct their moral decisions and forge a nuanced and complex understanding of what morality means, and their increased agency, independence, and concurrent formation of self-identity allows them to fuse moral identity with their sense of self. This study broadens the earlier studies’ emphasis on adolescence as a time when an individual is particularly sensitive to their community and when the community and community relationships and norms are particularly important to them. This is important to my study because it suggests that adolescents might be particularly poised to respond to and internalize suggestions made by a person who is older and more ensconced in the social/ academic world (i.e. a teacher), and to incorporate these schemas into their academic and writerly identities.

The studies of the interplay between social development and cognitive development reviewed here paint a picture of adolescence as a time when individuals are expanding and refining their places within their communities. Sanders (2013), and Del Boca et al. (2020) established that the social environment affects the way the brain develops and in turn, affects the way an individual might behave in society. Blakemore (2012), Hardy and Carlo (2011), and Chaisson (2017) show the ways that adolescents develop a sense of how they affect their communities and how they establish themselves as “good” members of a community. The results of these studies suggest that the assessment of adolescent writing should reflect and take advantage of adolescents’ journey toward finding their place in society.

Adolescence is a time of explosive growth and changes in individuals’ brain structure, their behavior, their identities as members of a community, and their understanding of themselves as individuals within their communities. The findings of the past two decades can be interpreted through the lenses of individual cognitive construction and social cognitive development. As an expression of cognitive processes, adolescents’ writing should reflect the dynamism of this period of life, and writing assessment should take into account the changing landscape of adolescent cognition. Allowing adolescents to participate in the assessment of their writing is a response to the current understanding of adolescent cognitive development.

Methodology

A relatively small body of research exists that explores the effects of writing assessment on students’ attitudes toward writing (Bazerman, et al., 2017). This dearth of research in adolescent writing assessment necessarily results in a similar lack of methodological exemplars for new studies. However, it is possible to piece together a methodological road map for a new study from a variety of similar studies. In this study, I explore how giving students a role in the assessment of their writing might affect their attitudes toward writing by examining empirical elements collected from surveys of student attitudes toward writing as well as qualitative data from dialogue journals in which students reflect with their teachers on their own writing and from student’s reflections on the experience of completing the dialogue journals. Though I have found few studies that encompass all these elements, I have found studies that are based on each of these elements. These elements include the following: multiple probe single case study design, use of surveys to collect data on students' attitudes toward writing and affective reactions to writing, and analysis of student reactions to their own writing. Studies exist that employ each of these methods concerning research on writing, and by combining these elements I constructed a robust methodological approach for my study.

Studies Using Sample Analysis and Survey Data

Few studies focused on adolescent writing combine analysis of data gleaned from writing samples with analysis of student attitudes gathered from surveys. Alharbi (2015) provides one example. Alharbi (2015) studied the discussion boards, blogs, and wikis embedded in the Blackboard learning platform and their effect on English language learners (ELL) writing skills. Specifically, she set out to determine whether these tools positively affect ELL students' reading and writing skills and whether they positively affect the students' attitudes toward reading and writing. The study combined an experimental design with an experimental group and a control group measured by data collected in pre-and post-tests of writing with qualitative data collected using student surveys. The duration of the study was one semester. Participants included 60 college students who were ELLs enrolled in a college writing course. The course taken by the experimental group combined face-to-face learning with online learning using the Blackboard platform; the control group was enrolled in an entirely face-to-face course. Both courses used the same integrated reading/writing curriculum. The experimental group approached the curriculum using the discussion board, wiki, and blogging features of Blackboard. Pre-test results were determined to indicate that experimental and control groups were similar in reading and writing skills at the beginning of the course. At the end of the course, post-test scores from both groups were subjected to t-tests to determine differences in skills between groups. Results indicated a significant increase in writing skills in the experimental (technology-assisted) group and a slight improvement in the control group. In addition, the author developed an attitude scale to gauge students' attitudes toward the e-learning experience. Students (experimental group only) were presented with seven Likert-type items with five possible responses ranging from Strongly Agree to Strongly Disagree. Survey responses indicated that students in the experimental group thought that the wikis, blogs, and discussion boards that were part of their course had a positive effect on their learning. They indicated that these tools helped them improve sentence and paragraph structure; revise, edit, and proofread their work; and that they fostered peer interaction, audience awareness, and appropriate register use. In addition, the authors found that students helped each other correct posts on all three electronic tools (wikis, blogs, and discussion boards) and that knowing other students would be reading and responding to posts motivated students to improve both the content and the structure of their posts. Alharbi (2015) provides an example of the feasibility of combining the analysis of writing samples with the analysis of survey data.

Writing Attitude Surveys

The body of research that uses survey data to understand students' attitudes toward their writing is a bit more robust than the body of research founded on the analysis of writing samples. For instance, Knudson (1991) reported on her development of a survey to ascertain the writing attitudes of students in grades 4 through 8. The survey consisted of 20 items presented as a Likert scale with five responses arranged with lower numbers signifying more positive responses. The responses ranged from 1 (Almost Always) to 5 (Almost Never). Knudson administered the survey to 398 students of lower-middle to upper-middle SES in one urban and one rural school district. Knudson calculated intercorrelations among items to determine internal reliability and to divide the items into groups: Group 1 indicated the extent to which students prefer writing; Group 2 indicated the extent to which students viewed themselves positively as writers; Group 3 indicated the extent to which students thought they were competent writers; Group 4 reflected students' beliefs about the extent of their achievement in writing; Group 5 reflected the students' beliefs in the importance of writing; and Group 6 determined the extent to which students used writing outside of the academic setting. The author submitted the data to factor analysis where the factors represented similar groups: factor 1 was "Positive attitude toward writing" and included Groups 1, 3, 4, and 5; factor 2 was "Letter/note writing" and included Group 6, and factor 3 was "Positive view of self as writer" and included Group 2. Noting that this survey was relatively quick and easy for teachers to administer and for students to take and that it had relatively robust internal consistency, Knudson concluded that this would be a useful instrument for teachers, allowing them to gauge students' attitudes toward writing and adjust instruction accordingly.

Knudson (1993) expanded her earlier work with a study "designed to develop an instrument that would reliably and quickly assess high school students' (Grades 9 to 12) attitudes toward writing…and to examine the effects of gender, grade, and ethnicity on these students' attitudes" (pp. 587-588). The survey consisted of 19 Likert items. Each item had five response choices from the lowest, "Almost Always," with a value of 1 point, to the highest, "Almost Never" with a value of 5 points. "Almost Always" was the most positive answer for each question, so lower overall scores were more positive than higher overall scores. English teachers administered the survey in their classrooms to 870 students in grades 9 – 12 in a high school in California. Means and standard deviations were calculated for all questions and compared regarding gender, ethnicity, and grade. Correlation analyses were performed to determine groups or “parcels” of questions in which “variables with correlations of .20 or higher were parceled together to present a conceptual framework for the questionnaire” (Knudson, 1993, p. 589). Results were submitted to a three-way ANOVA test using a 2 (gender) X 4 (grade) X 5 (ethnicity) design. The dependent variable was the total score on the survey with higher scores indicating less positive attitudes toward writing, and lower scores indicating more positive attitudes toward writing. The only interaction noted in this study was between grade and attitude toward writing. Twelfth-grade students reported more positive attitudes toward writing than students in grades 9 – 11. This was a reversal of the results of the survey for middle school students which indicated that attitude toward writing became less positive as grade level increased. Knudson concluded that this survey, like the survey for middle school students, provided a quick, efficient, and accurate measure of high school students’ attitudes toward writing.

Murphree (2014) went beyond Knudson’s work by studying older adolescents and by focusing on how they felt about their writing progress rather than how they felt about writing in general. She designed a survey to gauge student perceptions of their writing progress in a college U.S. history course. Murphree had designed the course to accomplish most of the content area knowledge acquisition through student writing assignments. Murphree (2014) employed an “inverted classroom structure” (p. 212) in which two of three 50-minute class periods were devoted to student discussions of content learned outside of class through assigned reading, videos, etc. and the third class period was devoted to “student application of what they had learned in the previous sessions through in-class writing assignments” (Murphree, 2014, p. 212). The goal was to encourage students to synthesize the material they had learned and to apply their skills of historical interpretation in writing. Murphree’s survey was administered at the end of the course by a colleague with no influence on students' grades in the course. The survey consisted of thirty-two questions of which six were free responses. The survey asked students to judge the extent to which they had gained knowledge and skills in U.S. history and historical interpretation, student engagement, and improvement in student writing. Multiple choice questions specifically focused on writing included those that asked students if the course had improved their writing in various ways, those that directly asked if the respondent thought the class had improved their writing, and those that asked the respondent to describe the effect of in-class essays in the overall structure of the inverted classroom. Finally, the survey asked students to compare the extent to which this class had improved their writing with the extent to which other classes had improved their writing. Free-response questions allowed students to respond to the writing requirements in their own words. Murphree performed descriptive analyses on the multiple-choice questions finding that while specific results varied by question, most students felt that the course had improved both their knowledge of U.S. history and their writing ability and had done so to a greater degree than other courses they had taken. According to Murphree, themes present in the free responses included the extent to which the writing in the class had improved both the quality of student writing and the skills necessary to produce writing (e.g. time management). In addition, students indicated doubt as to the extent to which the writing improvements they had made in this class could transfer to other classes, for instance, because they were not history majors and so would be writing in other disciplines, while others mentioned specific aspects of writing (e.g., supporting an argument, analysis, and synthesis of content area knowledge) that they felt would transfer to writing in any discipline.

More recently, Gadd et al. (2019) created a survey to ascertain how young adolescents felt about writing. Participants included 449 students in grades 5 through 8 in five New Zealand public schools. The schools were diverse in terms of economic and ethnic background. Students took the survey at the beginning and end of two different school years, and the second survey included an open-ended question asking students in what ways their writing had improved over the year. Before developing their survey, the authors examined previous literacy-related surveys, guidelines for creating and administering surveys, and effective practices of writing teachers. The survey they created had three categories of questions: attitudes toward writing, which focused on how much students liked writing and in what kinds of situations (e.g., at home vs. at school); students' self-efficacy as writers; and teachers' use of instructional strategies. All other questions were multiple choice with a question stem followed by several substantive choices (not a Likert scale). The authors chose closed questions to make the survey more manageable for students and to make numerical data analysis possible. They preferred numerical data analysis because they hoped to not only paint a comprehensive picture of attitudes but also to show how attitudes changed over the years. Data was subjected to descriptive analysis as the authors used percentages and means in their interpretations of results. This relatively simple survey and analysis yielded a great deal of information. For instance, the authors noted that boys' answers to a question gauging openness to having respondent's writing read by others almost doubled over the year, while overall attitudes toward writing remained stable from T1 to T2. The authors posited associations between gender and attitudes toward writing and between proficiency and writing attitudes; they found that students' attitudes and beliefs about writing remained stable over the year and that students' attitudes toward writing had little effect on teacher practice. However, the authors were able to make some specific recommendations regarding teacher practices based on this survey--for instance, the one teacher practice most associated with positive attitudes toward writing was assigning topics that students cared about. Despite simple design and data analysis, the survey created by Gadd et al. (2019) resulted in useful information.

Before and After Case Study Design

The before and after case study design has solid precedent in social science research, specifically in studies with small sample sizes that take a qualitative approach to determining the effects of an intervention. Lonnquvist et al. (2011) studied the effect of value change on Ingrian-Finnish migrants. One hundred ninety-two potential migrants in a language class for Russians hoping to migrate to Finland filled out questionnaires exploring their values. The researchers followed up with the participants after they had migrated, and the migrants filled out the questionnaires again. The researchers analyzed the change in participants' values as a result of this natural intervention.

Chen (2008) studied the change in students' self-assessment of oral performance in a university-level college class as a result of meetings with the instructor. Researchers used scores from two cycles of assessment and questionnaire responses. Quantitative results were analyzed using Spearman and Wilcoxon analyses, and qualitative results included written responses from the questionnaires and interviews, and they were classified and coded by the researchers. Researchers found that students made significant progress in their self-assessments after two weeks of the intervention.

Chapter 3

Method

The present study explored the effects of an intervention in which dialogue journals between students and teachers were added to the assessment stage of one classroom writing assignment. Eight high school participants (grades 9 – 12) were asked to complete a pre-survey before the intervention and a post-survey after the intervention. They were asked to participate in a dialogue journal with their writing teachers after they had turned in their writing assignments and to read their teachers' responses to them. Finally, they were asked to respond to four reflection questions at the end of the intervention. The pre-and post-survey scores were compared using paired samples t-tests, and the participants' dialogue journal responses and their responses to the reflection questions were coded by the researcher.

Statement of Problem and Need for Study

Because writing is a complex cognitive process that taxes the very processes impaired in students with learning disabilities, students with learning disabilities often find writing difficult and unmotivating. This study is needed because, while there is an abundance of research about how students with disabilities plan writing, there is less information about how they evaluate their writing and themselves as writers. This study proposes that an intervention in the assessment phase of classroom writing assignments can improve students' attitudes toward writing.

Research Question

Can introducing a response journal element in the assessment phase of classroom writing assignments positively affect attitudes toward the writing of students with disabilities?

Author Positionality Statement

My positionality as the author of this study is as follows. I identify as a non-Hispanic white woman. I am a learning specialist at the school where the study was conducted. In my position as a learning specialist, I coordinate all special education services for students with disabilities in the 6/7 Grade Division of the school. The 6/7 campus is physically removed from the 8-12 campus (the campuses are about 300 yards apart), and I have no contact with students or teachers in the 8-12 campus. My husband teaches 10th and 11th grade at the school; however, I did not discuss the study participants with him, and I do not know if he teaches any of the students who participated in the study. My daughter is a 10th grader at the same school. Because it is a relatively small school, I assume she knows some of the participants in the study, but we have not discussed them. Because of the relationship of my daughter and husband to the school, I have some knowledge of the English and History curricula, and by my association with the school, I have a good idea of its culture and general academic approach.

Setting

This study took place at a non-denominational, coeducational, college preparatory, independent school serving students in grades 6-12 in a medium-sized southwestern city. The school has a student body of 1,188 students in grades 6-12. Of these, 56% identify as students of color. Tuition for the 2023-2024 school year was $27, 066, and about 24% of students receive financial aid

The study was conducted as an intervention (i.e., dialogue journals) during the assessment phase of one writing assignment either in the participants' regular English class or their regular History class. For some students the writing assignment was take-home, and for some students the writing assignment was in-class; some assignments were more creative and some were more expository, but all required literary or historical analysis as the basis of the writing. The study was conducted during the third quarter of the school year (early January – mid-March), so the students had already had about 5 months of business-as-usual writing assessment; students were accustomed to the class routines and customs, and the students and teachers were familiar with each other. Communication between teacher and student for the study was digital. The student responded to dialogue journal prompts on a Google Doc, and the teacher responded to the student's responses on the same Google Doc. Both student and teacher had access to the Google Docs, so each could read what the other had written.

Data Sources

Data for this study was collected in three ways. First, students completed pre- and post-surveys (see Appendix A for survey questions). These surveys were Likert-style items designed to gauge students' attitudes toward writing in general, writing for school, and themselves as writers. Second, students communicated with their teachers by way of dialogue journals designed to allow the students to tell the teacher what they had hoped to achieve in their writing (See Appendix B for dialogue journal prompts). These journals were online. The link for a Google Doc with prompts was sent to each student. The student responded to the prompts and then the link for the Doc was sent to the teacher who responded to the student's responses. The student was informed when the teacher had finished their responses so that the student could see what the teacher had written. Finally, each student was asked to respond to four reflection questions (See Appendix C for reflection questions). These questions were designed to explore the students' estimation of how the intervention had affected them. The reflection was presented as an Opinio Survey. All questions were open-ended with unlimited free response text box answers. Students followed a link to the survey to complete the reflections.

Participants

The participant recruitment process began with my contacting high school (grades 9-12) English and History teachers to briefly describe the study to them and to see if they would be willing to communicate with one or more of their students via dialogue journal during the study. Several teachers agreed and allowed me to make presentations to their students inviting student participation in the study. I emailed a formal invitation to participate to each of the students in those classes. The students who responded to the invitation to participate were sent an email containing a link to a digital assent form, and their parents were sent an email containing a link to a digital consent form.

Ten students and their parents signed consent/assent to participate in the study. Two students dropped out of the study after consenting and after completing the pre-survey. One student completed all parts of the study except for the final reflection. That student's data was included in the survey results and the dialogue journal results but not in the analysis of student reflections. Of the eight students who remained in the study, five students (62%) identified as Non-Hispanic Asian, one student (12%) identified as Hispanic white, and two students (25%) identified as non-Hispanic white. Two students (25%) identified as students with Attention Deficit Hyperactivity Disorder (ADHD); one student (12%) identified as a student with Dyslexia/Specific Learning Disability (SLD), and five students (62%) identified as having neither Dyslexia/SLD nor ADHD. Two of the students (25%) were in 9th grade; four of the students (50%) were in 10th Grade; one student (12%) was in 11th grade, and one student (12%) was in 12th grade.

The eight students who remained in the study were given pseudonyms. Sam was a student in11th grade who identified as non-Hispanic white and had ADHD; Taylor was a student in 10th grade who identified as Hispanic white and had SLD/Dyslexia; Max was a student in 10th grade who identified as non-Hispanic white and had ADHD; Quinn was a typically developing student in 12th grade who identified as Asian; Rowan was a typically developing student in 10th grade who identified as Asian; Izzy was a typically developing student in 9th grade who identified as Asian; Kai was a typically developing student in 9th grade who identified as Asian; Lane was a typically developing student in 10th grade who identified as non-Hispanic white, and she completed all parts of the study except for the final reflection.

Procedure

The study began in January, during the third quarter of the school year (so students and teachers had known each other for approximately 6 months) and ended in March. Once consent/assent was obtained from students and parents, their teachers were contacted by email, and the study steps were explained to them in detail. Then, students were contacted by an email in which a link to the pre-survey was included. After each student completed the survey, their teachers let the investigator know the expected due date of the student's next formal writing assignment for the class. Once the assignment was turned in, the student and teacher engaged in a dialogue journal, which is the intervention for this study. The researcher emailed the student a link to a Google Doc containing the dialogue journal. All communication between the teacher and the student for the study was through Google Docs. Each student responded to seven questions about their writing process and about their attitudes toward the piece that they had just submitted. These questions were composed by the researcher, and all students responded to the same seven questions. The student emailed the investigator when they finished their parts of the journal, and the investigator emailed the link for the dialogue journal to the student's teacher. The teacher read the students' answers to the questions and then responded. When the teacher had responded to the student, the teacher informed the investigator, and the investigator re-sent the link to the student so that the student could read the teacher’s response. After reading their teacher’s response, each student completed a post-survey and a four-question final reflection.

Data Analysis

Quantitative Data

Quantitative data were analyzed using R Studio Software. Means and standard deviations of the scores of all participants were calculated for each question on the pre-survey and the post-survey. Change in scores was calculated using paired samples t-tests. The degree of freedom for all t-tests was 7. Alpha level was $\alpha=.05$. Means were also calculated for each of the students with a disability for the difference between the pre-survey and post-survey of all of their answers. For each student, this value was compared to the mean difference between pre- and post-survey for the aggregate of all of the students without disabilities.

Qualitative Data

Qualitative data was gathered from participants’ entries in their dialogue journals and from their responses to reflection questions at the end of the intervention. Because of the large amount of data generated by participants in their dialogue journals, after open coding, only three journals, randomly selected, were analyzed. All of the participants’ reflection responses were coded and analyzed. These data were analyzed by a coding method following principles described in Saldana (2021), Williams and Moser (2021), and Locke et al. (2022). The codes were analyzed to determine themes that provided a structure for understanding participants’ subjective experience of the intervention.

Coding Scheme. Participants’ dialogue journal entries and their final reflections were analyzed for themes relating to the research questions. Coding was accomplished by one coder (the researcher). A single coder approach was chosen because the data and the conditions of the study aligned with commentary favoring one coder (Morse, 1987; Keene, 2023). I was intimately familiar with the study site, and so was likely to recognize nuances and details of data that might not be apparent to a second coder and that would be difficult to lay out in a coding document meant for others to follow. In addition, the benefits of having a second coder were likely to be offset by the cost of overly simplified codes, themes, and analysis. The dialogue journals and the reflections were coded. All of the reflections were coded; however, the dialogue journals yielded a large amount of data, so after the open stage of coding, three students' journals were randomly selected for coding. This process was similar to the process of thematic (selective) coding described in Saldana (2021). The students whose journals were analyzed were Max, Izzy, and Taylor.

First-level coding was inductive and descriptive (Linneberg & Korsgaard, 2019) with the reflections coded first and the dialogue journals coded second. I began by reading all of the reflection responses several times until it became clear that some concerns, reactions, thoughts, etc. were repeated in several different students' responses. At this point, I created a Word document with a separate table for each collection of similar responses. I copied and pasted excerpts from the responses into the tables, grouping similar excerpts together by table. Some excerpts were simultaneously coded (Saldaña, 2021) because they spoke to more than one concern among the students. This initial stage of coding yielded the following codes in the student reflections: a) Relationship with teacher, b) Confidence, c) Better understanding of teacher expectations, comments, etc., c) Increased enjoyment, d) Teacher support/empathy, e) Use of time, f) Communication, and g) Noticing positive aspects of written product. Once I had described each table of excerpts with a code, I revisited the students' reflections, adding some new excerpts to some code tables and rearranging some of the excerpts that had already been assigned.

After these codes had been established and excerpts assigned, I reread the research question and the research described in the literary review portion of the proposal, following the suggestions of Saldana (2023) and Linneberg and Korsgaard (2019). With the research question and previous research in mind, I revisited the codes to determine themes. During this phase of analysis, the following themes emerged from the student reflections: a) Self-concept/self-efficacy/confidence, b) Self-reflection, c) Motivation, and d) Social cognition/cognitive control.

The process of coding the dialogue journals was identical to the process of coding the student reflections. However, in the proposal for this study, I mentioned that I would randomly select three students for analysis of their dialogue journals. To adhere to this process, after the first step described above (reading all of the responses several times until some thoughts, concerns, ambitions, etc. emerged) I randomly selected three students. I selected the students by assigning each student a number and then having a random number generator choose three numbers, and the three numbers chosen by the random number generator corresponded to the students whose journals I analyzed in more detail. The students whose journals were analyzed in detail were Taylor (SLD), Max (ADHD), and Izzy (typically developing). In the dialogue journals, the first stage of coding yielded these codes: a) Procedural knowledge, b) Declarative knowledge, c) Personal opinion, d) Personal struggle, e) Pride, f) Worry, g) Plans for next time, h) Editing/revision, i) Self-expression, j) Fulfilling assignment requirements/teacher expectations, k) Showing effort/work/time investment, and l) Time management. The following themes emerged from the students' dialogue journals: a) Acquiring and demonstrating knowledge, b) Practical concerns, and c) Connection/self-expression. Once I had determined the themes, I went back and reread the reflections and dialogue journals looking for excerpts that had not previously been identified but that might fit within the themes, and I also reorganized some of the excerpts that had been previously assigned to codes.

Chapter 4

Results

Quantitative Results

Quantitative analysis of survey results did not yield significant results on any of the questions. Using R Studio Software, aggregate pre-survey and post-survey means of all students' scores were compared for all questions using paired samples t-tests. Change between pre-and post-test scores was minimal for all questions, and some question responses were higher on the post-test than on the pre-test. Overall, the analysis indicated that there was no significant change between the participants' answers to the pre-survey and their answers to the post-survey. A list of survey questions appears in Appendix A. Table 1, below, shows the results of this comparison.

Table 1

Change in mean between students' pre-survey responses and students' post-survey responses

	Mean pretest	SD pretest	Mean posttest	SD posttest	T	P-value
Question 1						
I think this assignment showed that I am a good writer.	4.25	.70	4.25	.70	0	1
Question 2						
I think I have ideas that are worth writing about.	4.37	0.51	4.75	0.46	-1.42	0.19
Question 3						
When my teacher told us that we would have a writing assignment I was confident that I would do a good job.	4.37	1.06	4.12	0.99	1.53	0.17
Question 4						
	3.87	0.99	3.62	0.74	0.68	0.52

When I turned in the writing assignment, I felt confident the teacher would understand what I was saying.						
Question 5						
When I turned in the writing assignment, I felt confident that it would show my teacher how much I know about the subject.	4	1.06	4.12	0.64	-0.36	0.73
Question 6						
I have a clear idea of what I did well in my last assignment.	4.5	0.75	4.37	.744	0.55	0.59
Question 7						
I have a clear idea of what I can improve for next time.	3.87	1.12	4.12	0.83	-1	0.35
Question 8						
When I think ahead to the next writing assignment my teacher might assign, I have a good idea of how to approach it based on my last writing assignment.	3.75	1.28	4.25	0.88	-0.88	0.40
Question 9						
I enjoyed this writing assignment.	3.5	1.06	3.5	1.19	0	1
Question 10	3.37	1.06	3.62	1.18	-1.52	0.17
I enjoy writing for school.						
Question 11						
I feel confident that from now on, when I write for school, I will do a good job.	4.12	3.16	4.12	1.12	0	1

In addition to the comparison between the combined means of all students' pre-survey scores and their post-survey scores, the difference between pre-and post-survey scores for each of the students with a disability was compared to the mean difference for all students. Table 2, below, shows the results of these comparisons. Only one of these comparisons resulted in a significant difference. The comparison between the difference in means of Max's pre- and post-survey and the mean difference of the combined means of all of the students without disabilities was statistically significant. There was not a significant difference between the difference in means of Taylor's and Sam's scores. This suggests that Max's attitude toward writing changed throughout the dialogue journal intervention but that Taylor's attitude toward writing and Izzy's attitude toward writing did not change throughout the dialogue journal intervention.

Table 2

Students with Disabilities Compared to all Students

Student	Mean Difference between pre-and post-survey results for individual student	Aggregate mean difference of all students without disabilities	T-score	P-value
Max	.636	- 0.727	3.93	.008
Taylor	0.182	-.0.727	1.41	0.116
Sam	0.182	- 0.727	1.41	0.116

Qualitative Results

Below are data from the dialogue journals for the three students randomly selected to have their dialogue journals analyzed (Taylor, Max, and Izzy). The data are arranged according to theme, followed by data from student reflections arranged by theme. The themes that emerged from the dialogue journals were a) Acquiring and demonstrating knowledge, b) Practical concerns, and c) Connection/self-expression.

Dialogue Journals

Acquiring and Demonstrating Knowledge. All three of the students mentioned a desire to acquire or demonstrate knowledge in their writing for their respective assignments. Taylor (SLD) wrote that what she wanted to accomplish in this assignment was to "get better at wrising (sic)," in other words to increase her procedural knowledge of conventions, structures, etc. that constitute good writing.

Max (ADHD) also indicated that he wanted to gain expressive skills:

> The goal I aimed for in this essay was to coherently map out a complex and philosophical definition for love through and supported by Shakespeare's twelfth night (sic). Quote integration was also a big goal in this and kind of challenging because obviously shakespearean (sic) sentence structure, vocabulary etc… is really different from any style of modern literature,

and he expressed the sense that he had been successful in doing that and also that he had learned that expressing complex thoughts would serve them well in the future:

> I think the structure is really interesting and I think I did a good job of explaining such a complex prompt in a simplified way… I'm proud of myself for how much textual evidence I used in my essay… I think the structure and outlining I did for this piece is something I could carry to my writing in the future.

In addition, Max wrote that he wanted to show what he had learned and understood about *Twelfth Night*:

> I hope that this writing reflects that Shakespeare's definition of love can be split into 5 individual definitions: “Love is random, Love is circumstantial, Love sheds, Love is mad, Love is freedom…I hope this kind of thinking exemplifies complex understanding and character analysis of Twelfthnight (sic) and more broadly, of Shakespeare's writing.

Gaining and demonstrating knowledge was a central concern in (typically developing) Izzy’s dialogue journal comments. She expressed concern and satisfaction with her understanding of how to go about writing an analytical essay, and also how best to go about gaining knowledge and organizing writing:

> I hope [this essay] shows that I’ve placed a good deal of effort into each image’s commentary and that my work in class, on our notes/in-class assignments has paid off… When I was writing this essay, I created a thorough outline of how I wanted the structure of the paper to flow…I am proud of the visuals I created and the commentary I wrote for each image.

She also expressed concern that her teacher appreciated her declarative knowledge and the effort she expended gaining that knowledge:

> In the visual analysis essay, I wanted to answer the question of how successful I believed the French Revolution to be, while also making sure that I had all the required components of the essay…I hope that this writing reflects that I have a substantial understanding of the French revolution.

Self-Expression. Each of the three students (two students with disabilities and one typically developing student) also commented that being able to express themselves to their teachers and the world at large was important to them. Expression was a particularly central concern for Taylor. Taylor wrote that the main thing she wanted to accomplish in this assignment was to “get better at writeing (sic) clearly” and that she hoped her paper showed “My growth in the clearity (sic) of what I write.” She commented that this assignment is a reflection of her because “it is how i (sic)am expressing myself,” and that what she liked most about this writing was, “[t]he Abellity (sic) to express myself, on the matter.” Finally, she wrote that one thing she learned from this assignment that she would carry to other assignments was, “Just expressing myself and they (sic) worrying about editing later.”

Max’s comments also indicated that self-expression and clarity of expression were a concern for him. He expressed satisfaction in his ability to make his thoughts accessible to others: “I think I did a good job of explaining such a complex [response to the] prompt in a simplified way.” At the same time, he wished that he had shared more personal thoughts in his essay: “I think I shouldve (sic) spent more time connecting to personal opinion in this piece. I also feel like I shouldve (sic) focused less on romantic relationships… I think towards the end, this essay reflects me because I bring in some of my personal opinions surrounding love but I feel like if I were to go back and edit it, I would make it more personal.”

Izzy’s entries focused less on expression and self-expression than the other two students. Her only comment addressing this theme was: “I think my visual analysis essay is a satisfactory reflection of myself.”

Practical Concerns—Grammar, Editing, Time Management. All of the students addressed practical concerns in their dialogue journals. They all wrote about their approach to organizing/writing/editing their papers. They also considered how they might approach the next paper based on what they had learned this time.

Taylor reflected on her approach to editing, both that she wished she had edited the paper more this time, “I think i would like to have done more edits of it,” and also that she planned to do so in the future, “Edit or review two times before turing (sic) it in early.” She also addressed the relationship between composition and editing saying that one thing she had learned in this assignment that she could apply next time was “Just expressing myself and they (sic) worrying about editing later.”

Max also addressed editing, “if I were to go back and edit it I would make it more personal,” and thought ahead to how he might approach the next paper differently, “Honestly, this was something I procrastinated a lot and I think my writing benefits most when I give myself time between working on my essay to let my ideas sit.” Izzy’s comments addressed her process and thoughts about what she would do differently next time. She reflected “I think that because the paper was more laid back, I didn’t feel as pressured/rushed to spend time working on it each day… While I used my in-class time wisely to find the visuals, and sources, and briefly start on my paper, I wish that I had spent more time on the actual essay during class instead of spending so much time trying to find the perfect image to convey my message.” Looking ahead to her approach to her next paper she commented,

> When I was writing this essay, I created a thorough outline of how I wanted the structure of the paper to flow. For future essays, I’ll try to create an in-depth outline so that when I’m writing the essay, I can easily follow along with reference points from my outline…When I approach my next writing assignment, whether it be in history or other classes, I’ll make sure to work on small increments each day so that when the due date comes, I’ll have minimal work to do on the day before.

Student Reflections

Seven of the students responded to reflection questions about the intervention, and the responses of all 7 students were analyzed. As with the dialogue journal entries, student reflection responses were coded and analyzed. These results were coded following the same coding scheme as the dialogue journals. The themes that emerged from the student reflections were a) Self-concept/self-efficacy/confidence, b) Self-reflection, c) Motivation, and d) Social cognition/cognitive control.

Self-Concept, Self-Efficacy, Confidence. Six of the seven participants mentioned an increase in confidence as a result of communicating with their teachers in the dialogue journals. All three of the students who were not typically developing mentioned increased confidence, and three of the typically developing students reported that communicating with their teachers made them feel more confident as writers. Responses from the three students with learning disabilities indicated that the intervention added confidence where it had been lacking before: “It helped me to gain a bit more confidence in my writing” (Sam); I feel like my teacher gave me some good insight on how I can…be a bit more confident in my writing (Taylor); “[the dialogue journal] boosted my confidence in my writing skills (Max). The typically developing students also reported that the intervention made them more confident in their writing whether, like Quinn, they indicated that they were already confident writers: “I feel even more confident going into our next writing assignment that I will produce something I am proud of and earn a good grade,” or gave no indication of their level of confidence pre-intervention. Rowan reported that the communication with her teacher “builds confidence in writing” while Izzy reported that it “made me feel more confident about myself as a writer.”

Self-Reflection. All participants reported that communicating with their teachers via the dialogue journal encouraged self-reflection. All three students who were not typically developing and three of the typically developing students mentioned the extent to which the dialogue journal helped them to better understand their teachers’ expectations, attribute their performance to strategies rather than inherent personal qualities, and believe that they could do better next time. Sam reported, “I received more personalized feedback on my writing which helped me to better understand what I did and what I can improve on.” Similarly, Taylor wrote, “I feel like my teacher gave me some good insight on how I can improve.” Max, on the other hand, indicated that his teacher’s expectations did not need clarification: “[My teacher] does a pretty good job of making sure to be specific about what he’s looking for and what he expects from the essay so with this particular teacher, communicating one on one about expectations felt sort of unnecessary.”

All of the typically developing students endorsed feeling that communicating with their teachers helped them attribute performance to strategies and believe they could use strategies to improve performance next time. Quinn wrote: “This process allowed me to communicate one-on-one with [my teacher] and really understand my strengths and weaknesses in my writing…I got specific feedback on how to improve, analyze prompts, and validation that my writing is on point for the class I am in.” Rowan indicated that the dialogue journal “encourages self-reflection” and also helped locate control of performance in actions within Rowan’s control: “Communicating with my teacher helps me understand what specific things I did good/need to improve [and] shows me if what I was focusing on is what the teacher is focusing on.” Similarly, Izzy noted that the teacher commented on skills: “It was nice to see that [my teacher] thinks that my writing skills/historical skills are above proficient.” Kai also noted that the dialogue journal provided specific external reasons for the grade earned on the current assignment as well as ways to improve future assignments:

> I could see more of what [my teacher] had to say in addition to her comments on Canvas which allowed me to realize how I could have improved this writing assignment and how

> I can apply that amount of detail to my next writing assignment…This way of communicating with my teacher allowed me to recognize the minor mistakes I commonly make when writing and how I can improve my writing capabilities with feedback.

This theme also included comments indicating that the dialogue journals increased students' sense of satisfaction with their own writing. Two of the students with learning disabilities reported increased self-satisfaction as a result of the intervention. Sam wrote: "I saw my pride in my writing skills reinforced by my teacher. I also was told about strengths that I didn't fully realize I had before." Max's comments indicated that the dialogue journals alleviated fears of inadequacy as a writer and resulted in an overall higher opinion of his own writing ability: "I think I sold myself a little bit short in my reflection and seeing that this essay was more comprehensive than I thought boosted my confidence in my writing skills…It made me super happy and relieved to see that the risk I took in the way I structured my essay payed (sic) off and that it even made my essay better."

Three of the typically developing students also wrote comments indicating that the dialogue journal process increased their satisfaction with their own writing. Quinn wrote, "I think the direct communication validated how I feel about myself as a writer. [My teacher] left me comments specific to my writing that were overall positive, so it made me feel like I completed the assignment well…I think this process made me enjoy writing even more." Rowan also felt validated. writing that the process "shows me that what i (sic) might be particularly worried about comes off as okay to my teacher," as did Izzy: "it was nice to see that [my teacher] thinks that my writing skills/historical interpretation skills are above proficient."

Motivation. All of the participants mentioned motivating factors in their reflections. All three of the students with disabilities indicated that the intervention increased their feeling of connection with their teachers. Sam described feeling that the intervention improved communication with the teacher: “I received more personalized feedback on my writing which helped me to better understand what I did well and what I can improve on.” Taylor’s comments indicated that after completing the dialogue journal, she felt that her teacher understood how she experiences writing tasks: “I think that my teacher understand (sic) where I am struggling the most when writing for class.” Max’s comments mentioned benefits both in terms of feeling that he and the teacher understood each other and in terms of communication: “… I think it felt good to know that my teacher and I were on the same page… I was excited to see the comments about specific parts of my essay. Especially the ones I was more concerned about.”

The typically developing students mentioned that the dialogue journals improved their connection with the teacher. Quinn’s and Kai’s comments focused on communication only:

> Sometimes, I feel students can get lost in the grading process just because teachers have so much to grade. This process allowed me to communicate one-on-one with [my teacher] and really understand my strengths and weaknesses in my writing…I think the direct communication validated how I feel about myself as a writer. (Quinn)
>
> I could see more of what [my teacher] had to say in addition to her comments on Canvas which allowed me to realize how I could have improved this writing assignment and how I can apply that amount of detail to my next writing assignment…This way of communicating with my teacher allowed me to recognize the minor mistakes I commonly make when writing, and how I can improve my writing capabilities with more feedback. (Kai)

Rowan’s and Izzy’s comments mentioned both communication and support. Rowan wrote that the dialogue journals both “encourage better communication in the future [and] promotes better communication/outcomes" and "promotes good relations [and] shows me that my teacher is easily available to support me as a writer." Izzy's comments offered a bit more ambiguity. About communication, she wrote:

> I don't think that there were any severe drawbacks to communicating with [my teacher] throughout this process, but I think on a more personal level, it was kind of an embarrassing moment admitting that I procrastinated a bit on this assignment…On a personal level, I just have a fear/slight hatred about people reading my work and providing feedback on it, as it makes me feel a little fidgety, and I don't know if going through this process helped that as I was nervous to even look at [my teacher's] responses to my comments. (I guess this also relates to any drawbacks of communicating with my teacher).

With regard to enabling a stronger connection between Izzy and her teacher, Izzy commented:

> I feel like out of all my teachers, I'm not as close/willing to visit [this teacher] outside of class time, so communicating with him through this process, I think it has made me more willing to visit him during office hours if I have any questions about our assignments.

Most of the students also mentioned that communicating with their teachers through the dialogue journals both increased their enjoyment of writing and allowed them to recognize positive aspects of their writing that they had not noticed before. All three students with learning disabilities commented on ways the dialogue journals made them enjoy writing more and helped them see their writing more positively.

Max's comments encompassed both of these sentiments:

> It made me super happy and relieved to see that the risk I took in the way I structured my essay payed (sic) off and that it even made my essay better. Going forth into future

> writing assignments I look forward to being more experimental and thinking outside of the box…I think I sold myself a little bit short in my reflection and seeing that this essay was more comprehensive than I thought boosted my confidence in my writing skills.

Sam's understanding of his own strengths improved: "I also was told about strengths that I didn't fully realize I had before." While Taylor addressed enjoyment of writing, her comment indicated that the intervention did not make a difference in this area: "I don't think it really affected how I feel about writing in general, I have always had a love-hate relationship with writing."

Three of the typically developing students also addressed enjoyment of writing and noticing positive aspects of their writing. Like Max, Rowan indicated that this process helped her to feel less concerned about her teacher's evaluation of her writing: "[the dialogue journal]helps me understand what specific things i (sic) did good/need to improve [and] shows me that what i (sic) might be particularly worried about comes off as okay to my teacher" Quinn indicated that the intervention both helped her see positive aspects of her writing and made her enjoy writing more: "This process allowed me to communicate one on one with [my teacher] and really understand my strengths and weaknesses in my writing…I think the direct communication validated how I feel about myself as a writer. I think this process made me enjoy writing even more."

Plans for Future Writing. The final theme that emerged in the students' responses was their thoughts as to how to apply what they learned from the dialogue journals to future writing assignments. All three of the students with learning disabilities mentioned ways that what they learned from the dialogue journals would affect their future writing. Sam wrote that the intervention "helped me better understand what I did well and what I can improve on." Taylor mentioned that her teacher "gave me good insights on how I can improve," and Max wrote that, "Going forth into future writing assignments I look forward to being more experimental and thinking outside of the box." Two of the typically developing students mentioned ways in which the intervention made them think about future assignments. Rowan commented, "I think [participating in the dialogue journal] has made me more willing to visit [my teacher] during office hours if I have any questions about our assignments," and Kai wrote that communicating via the dialogue journals

> allowed me to realize how I could have improved this writing assignment and how I can apply that amount of detail to my next writing assignment…This way of communicating with my teacher allowed me to recognize the minor mistakes I commonly make when writing, and how I can improve my writing capabilities with more feedback.

Negative Aspects of Dialogue Journals. A final theme emerged from students' responses to the reflection question "What are the possible drawbacks of communicating with your teacher [using dialogue journals]?" Under this theme of possible negative effects of this intervention, most students mentioned time. The three students with learning disabilities had a variety of responses to this question ranging from no drawbacks to mentioning time as a negative aspect. Sam said, "The amount of time it took to formulate a reply as well as receive one, because we [both Sam and the teacher] are both busy, was a drawback." Max did not indicate a negative aspect of the dialogue journals per se but commented that

> I think [my teacher] does a pretty good job of making sure to be specific about what he's looking for and what he expects from the essay so with this particular teacher, communicating one-on-one about expectations felt sort of unnecessary.

Taylor's response to this question was "None that I know of."

Similarly, the typically developing students had a range of responses to this question ranging from no drawbacks to time as a negative aspect of the intervention. Two of the typically developing students mentioned time as a negative factor in this intervention. Kai commented, “Maybe the fact that we had to wait a bit [for the teacher to respond to dialogue journal], but that left time for me to work on other assignments for class and other classes,” Rowan succinctly answered the question with “extra time.” Quinn did not consider time to be a negative factor: “I saw no drawbacks to communicating with my teacher…I think this was a very positive experience,” and Kai commented that a negative aspect of her experience was trepidation in communicating directly with her teacher:

> I don't think that there were any severe drawbacks to communicating with [my teacher] throughout this process, but I think on a more personal level, it was kind of an embarrassing moment admitting that I procrastinated a bit on this assignment.

Chapter 5

Discussion

Summary of Findings

Quantitative Data

The quantitative results from this study did not indicate significant changes between students’ responses on the pre-survey and students’ responses on the post-survey, and on some questions, the mean of the responses was higher on the pre-survey than on the post-survey. The mean of all students’ responses on questions 2, 5, 8, and 10 were higher on the pre-survey than on the post-survey, and the mean of all student responses on the other questions were not significantly higher on the post-survey than on the pre-survey. The fact that the t-tests did not yield significant results is likely due in some part to the small sample size; however, there may be additional reasons for this outcome.

One explanation might be the short time frame of the study. The students were asked to answer survey questions thinking of “their last writing assignment” before the intervention (pre-survey) and then again after the intervention (post-survey). Communicating with their teachers throughout one writing assignment might not have been enough to change their answers on the surveys. In addition, the nature of the assignments in question both before and after the intervention might have affected the students’ responses. Writing teachers tend to assign a variety of types of writing over a year, and the subject matter tends to change as well. It is possible that the students felt more positive about one kind of assignment or one body of subject matter than another, and this might have affected survey responses. However, the students represented several different grades, courses, teachers, etc. and so, in light of the qualitative results, it would seem likely that the survey responses would show some significant differences.

This being the case, it seems likely that the survey questions themselves, or the timing of the survey might have contributed to the lack of significant t-test results. One issue may have been that the survey was not positioned optimally within the timespan of the intervention to capture change in attitude. As mentioned before, the students were asked to respond referring to their most recent writing assignment, and so when they took the post-survey after the intervention, they may have been thinking about how they felt about their writing as they started the assignment, before they turned the work in, and before they communicated with their teachers via the dialogue journals.

The comparison between pre-survey and post-survey scores was not consistent with qualitative results. As evident in the next section of this paper, the student's responses in their journals and their responses to the reflection questions did indicate changes in attitudes toward writing and toward themselves as writers. It is possible that these changes were not reflected in the survey results because the students did not perceive an overall change in their attitudes, even though they felt that the dialogue journals changed their attitudes temporarily. Continuing the dialogue journals over a whole semester or a whole school year might result in students' feeling that the attitude change was more permanent.

Quantitative results did not indicate a significant difference between survey responses from two students with disabilities, Taylor and Sam, and those from students without disabilities. One student with a learning disability, Max, did show a change between pre-and post-survey results that was significantly higher than the mean of the students without disabilities. The difference between the t-test results of all the typically developing students and the t-test results of Taylor and Sam was 0.11 in both cases. This indicates that Taylor's and Sam's results did not differ significantly from those of the typically developing students. Max's survey results were significantly higher than those of the typically developing students—the difference between his t-test results and the mean of the typically developing students' t-test results was .008. This suggests that Max's attitudes changed significantly more than those of the typically developing students. While this is an encouraging result, it should be viewed with caution as the same issues described above regarding the timing of the survey and confounding factors would seem to apply to Max's results. It is possible that the change in his results was caused by his comfort with the type of assignment and/or his familiarity with the subject matter rather than by the results of the dialogue journal intervention.

However, it is also possible that the difference between the change in Max's scores and the change in the typically developing students' scores was an authentic representation of the way the dialogue journal affected him. The qualitative results indicate that all students were affected positively by the opportunity to communicate with their teachers through the dialogue journals. It may be that Max's survey responses reflected this effect while other participants' survey responses did not. Max may have taken the survey more seriously, or he may have answered thinking about his next writing more than his last writing. It is also possible that Max genuinely had a more positive experience than other participants. His writing in his dialogue journal and his reflection indicate that he did feel that he grew as a writer both in terms of competence and in terms of confidence and that he felt more connected to his teacher than he had before. It may be that he felt these changes more intensely than his peers and that was reflected in the survey results.

Qualitative Data

The qualitative results from the students' reflections and their dialogue journals indicate that the intervention was effective in changing students' attitudes toward writing and themselves as writers. In their dialogue journals, the three students randomly selected for analysis all addressed concerns and issues that align with research about improving students' feelings toward writing.

Student Dialogue Journals. ***Cognitive Processes.*** Several participants addressed their own cognitive processes in their dialogue journal entries. Some mentioned concern with gaining mastery over these processes whether by making sure they were able to attend to their writing when they needed to, scheduling writing sessions, or making outlines. Others mentioned social cognition, which is concern with expressing or finding their identities or place in society.

Cognitive Control. The dialogue journals gave a glimpse into the students' concerns as they relate to cognitive processes of adolescents. Each of the students indicated that a major concern for them in their writing assignments was to show and develop knowledge, both procedural and declarative. While this is not surprising considering the nature and purpose of high school writing assignments, the kinds of concerns the students have bear some discussion. Each of the three students expressed unique concerns with the cognitive process of writing, indicating that the dialogue journals encouraged students to offer genuine, personal responses rather than just "trying to give the right answer." The content of the student's responses is also important in that each of the students offered comments that situate their cognitive control within the developmental trajectory indicated by the research reviewed in the literature review above. The three students whose journals were analyzed might be said to reflect the progression articulated by Crone and Steinbeis (2017, 2011) and from cognitive control directing attention, thinking, and actions according to pre-established, external rules to controlling attention and actions according to internalized decisions. In addition, some of the students' entries reflect

Gopnik et al.'s (2019) findings regarding adolescent cognitive flexibility, as demonstrated in the examples below.

Taylor, a 10th grader with SLD, commented simply that what she wanted to accomplish in this essay was to improve her ability to write clearly. This straightforward goal indicates her level of accomplishment so far in the process of analytic writing; it also suggests a desire to be successful in the academic world and to express herself in a way that is understandable to others. Both these concerns align with the cognitive tasks of adolescence as described by Crone and Steinbeis (2017, 2011) and Sanders (2013). Izzy, a typically developing 9th grader, also indicated a preoccupation with gaining and showing knowledge both of how to write and of what she had learned. Izzy writes about learning facts and expressing them correctly. Izzy's remarks indicate that her concerns are mainly focused on concrete learning of material presented by her teacher and the textbook and of the rules of analytic writing. She wants her teacher to know that she is following the rules—that she has put in the required time and that she has learned the material. However, she also indicates that she is beginning to care about showing abstract thinking—she is proud of the visuals and commentary, which show not only her learning of the facts but also her understanding of the French Revolution, and her ability to express her own evaluation of the success of the Revolution. She implies that she has evaluated various pieces of evidence and points of view to come to her own conclusion, suggesting Gopnik et al's (2019) adolescent cognitive flexibility.

Max, a 10th grader with ADHD, expressed similar concerns but at a more complex level. He wrote that he was concerned with corralling multiple complex and deep ideas into an expression that was simple and understandable for his reader while also tying his own understanding to specific quotations from *Twelfth Night*. These concerns align with the descriptions of cognitive control offered by Sanders (2013) and Crone & Steinbeis (2017, 2011) in that Max is working to bring order and focus to his thoughts and impressions and that he is controlling attention to bring all the pieces of his vision of the paper together. Max also expressed a desire to connect, and to find and forge his place in the world of academia and society at large. His dialogue journal is peppered with comments about the balance of personal and academic content in his essay, as well as concerns about conventions and norms of academic writing. He mentions that he is proud of his command of conventions of academic writing like the use of textual evidence, and also that he wants his writing to show a deep understanding of a canonical text (Shakespeare's *Twelfth Night*). Max's comments indicate that he is fully aware of the need to juggle both the facts and the concrete rules and conventions of writing with abstract thought and personal opinion and style. He wanted to make a coherent argument about Shakespeare's understanding of love, tethered to the specifics of *Twelfth Night,* and to integrate quotations (facts) within his writing. At the same time, he expresses pride in his unique style, mentioning that he likes the structure of his essay. Max appears to have grappled with a variety of interpretations of *Twelfth Night* and with many definitions of love within the play and has come to his own conclusions both about what the play really says about love, and what he thinks about love, thus reflecting an advanced stage of cognitive flexibility as discussed by Gopnik et al (2019).

These three students' (two students with disabilities and one typically developing student) dialogue journal responses indicate that the intervention aligns with the psychological and neurological developmental tasks of adolescence as described in the literature review. While Taylor's entries are brief, they indicate cognitive processes concerned with the pre-established rules of writing and suggest an early stage of cognitive control. Izzy's responses are mainly concerned with facts and rules but also reflect a burgeoning interest in the clear expression of more abstract, complex ideas. Max’s responses are mainly concerned with wrangling complex ideas into language that is rendered simple and comprehensible by the rules and conventions of the English language and academic writing.

Social Cognition. The responses of all three students also align with the developments in social cognition described in the literature review. In her review of the literature, Sanders (2013) noted that cognitive development in the adolescent years is characterized by an expansion of orientation from the personal and concrete to the general and abstract. Max and Izzy both reflect on this movement from personal to abstract in their dialogue journal comments. Max wanted to express complex, abstract ideas simply and clearly and also worried about the balance between textual analysis and revealing personal opinions and experiences in his dialogue journal. Similarly, while Izzy indicated wanting the essay to reflect her personality, most of her comments on essay content focused on showing an understanding of the abstract concepts surrounding the French Revolution.

Sanders (2013) also mentions metacognition as an important area of development for cognitive development during adolescence. The students’ dialogue journal comments indicate that they are developing metacognitive skills as each of the three students selected for dialogue journal analysis mentions thinking about their writing process and about what they might do differently in the future. Max commented that he realized that he tended to procrastinate, that he had put off writing this essay, and he understood that the essay would have been better if he had started sooner and given himself more time. This understanding shows the ability to think both about how this particular writing went and also about his writing habits in general. Izzy noted, that while she had used her time well in the sense that she had started early and worked consistently, she realized that she could have directed her energies more toward writing and less toward research. Like Max, Izzy was able to think about her thinking and writing process and to find ways that she might control her thinking and working habits next time to get a better result. While brief, Taylor's comments also indicated the ability to step outside her own thinking and writing processes and see ways that she might change her process the next time. She mentioned that one thing she learned from this writing that she would carry over to other projects was to start with an uninhibited expression of ideas and then to go back and engage in a series of edits to corral her ideas into a clear, conventional essay structure.

These students' journal entries indicate that their concerns in terms of cognitive control and social cognition align with the trajectory described by Sanders (2013). The journals seem to be a developmentally appropriate activity for these adolescents and also allow them to express themselves and reflect on their own academic progress in ways that research by Blakemore (2012) and Del Boca et al. (2020) suggest are important. Blakemore described adolescence as a sensitive period for social development, in other words, a time of life when social cognition is developing rapidly and when an individual is particularly likely to be influenced by experiences and other people. The journals of these students seem to indicate that engaging in the dialogue journals allowed them to reflect on their own engagement in academic work and to determine how they might want to continue or change that engagement to craft their own academic identities. The work of Del Boca et al. (2020) indicates that the high school years (9th – 12th grade) might be the perfect time for an exercise that engages students in conversation with themselves and their teachers on the topic of academic self-identity, as the authors found that this is a time when students' own choices about how to spend their time make the difference in their academic achievement independent of their parents' influence. Finally, Foulkes and Blakemore's findings in 2019 indicate that an experience that lets students communicate with a supportive adult on the topic of the student's writing might protect against bad outcomes for students. The authors found not only that repeated social exclusion led to peer conformity and risk-taking, while acceptance helped adolescents avoid these pitfalls, but also that low socio-economic status exacerbated these effects. According to these authors, adolescence is a time when individuals are forming identities and are particularly sensitive to the influences of others. The dialogue journal entries analyzed here suggest that they gave students a chance to reflect on their academic identities in ways that align with age-appropriate developmental tasks in a supportive environment.

Student Reflections. ***Confidence/Writerly Self-Image/Self-Efficacy.*** The link between confidence and writing achievement has been well established, especially for students with disabilities. Moller et al. found that achievement all students' writing achievement is affected by their academic self-concept. Bear (2022) found that students with learning disabilities had lower estimations of their academic abilities than typically developing students even when global self-image was equivalent. Hagborg (1996) found that for students with disabilities, students' estimates of their own academic competence were positively correlated with performance and self-worth, and Pajares (2003) found a correlation between confidence and writing achievement for students with learning disabilities. Thus, it seems that an intervention that improves students' confidence is also likely to improve their academic performance and specifically their writing performance.

The participants' reflections following their participation in the dialogue journals indicate that communicating with their teachers via the journals increased confidence. This effect seems to be particularly true for the three students with learning disabilities as all three reported an increase in confidence as a result of the intervention. Sam, an 11th grader with ADHD commented that the dialogue journal, increased his confidence while Taylor wrote that her teacher's entries in the dialogue journal gave her insight into ways to improve her writing and thereby increased her confidence in her ability to write well. Max wrote that communicating with his teacher in the journals, made him feel more confident in the writing skills he already possessed. Three typically developing students mentioned confidence as a result of the intervention. Quinn described feeling not only that she felt confident that her writing had improved as a result of her interactions with her teacher but also confident that this improvement would result in good grades in the future. Izzy commented that the intervention made her feel more confident as a writer, and Rowan succinctly stated, that, in a general sense the dialogue journals build confidence in writing. While participants' reflections indicate that the dialogue journals improved confidence in both students with and without disabilities, the improvement was universal among students with disabilities. This is important because the writing of students with disabilities seems particularly affected by low academic self-concept suggesting that this intervention might be effective in improving writing outcomes for students with disabilities by giving them confidence in themselves and their writing.

Self-Reflection. The habit of self-reflection is central to learning to write well. Zimmerman (2000) describes the self-reflection stage of learning as the point at which a learner evaluates the extent to which their performance has met a standard—either external or internal. The self-reflection stage is important both in helping the student increase their learning and in motivating the student to do so. According to Zimmerman (2000), students may form adaptive or maladaptive attributions when reflecting on their work. Adaptive attributions focus on causes within the student's control, including strategies, time management, understanding and meeting expectations, etc. The participants' reflections for this study indicate that the dialogue journal intervention helped them to form adaptive attributions when considering the causes of their performance, specifically, communicating with their teachers helped the students attribute their performance to strategies they used and to understanding the standards of good writing/expectations of their teachers.

All three of the students with learning disabilities mentioned adaptive attributions in their reflection comments. Sam and Taylor seemed to feel that their teachers' comments in the dialogue journal allowed them to see specific strategies they could use or changes they could make to improve their writing—that the teachers' evaluation of the writing was based on something external to the students and that the students could change next time. Max's comments indicated that he already felt that his teacher had clear external standards. However, even Max appreciated getting a better sense of the extent to which his writing met expectations. All three of the students with learning disabilities seem to have gotten a sense that the standards by which their writing was judged were external to them, and that there were specific things they could do to improve their writing.

All of the typically developing students reported a better understanding of external standards and strategies that they could employ to reach those standards. Each of these students mentions specific areas in which the teacher provided strategies so that the student felt that they could make a bounded change to improve their writing--they learned that the mistakes they made or how their writing could be improved was localized and did not undermine all of their effort or the effect of the whole piece. Finally, all but Kai also reported learning of specific ways in which their writing was better than they thought. All of the students who completed the reflection indicated that the dialogue journals had the effect of helping them attribute their performance to strategies, and most students were pleasantly surprised to learn of the success of some of their strategies in addition to ones they could add or change.

Another aspect of self-reflection Zimmerman (2000) mentions is the learner’s decision regarding where to go next, having reached the current level of learning, whether or not to continue striving for more. Zimmerman (2000) notes that when attributions lead to self-satisfaction the learner is motivated to continue to try to improve their performance. Three of the students—two students with learning disabilities and one typically developing student--mentioned self-satisfaction with the intervention. Max and Taylor both mentioned the extent to which the dialogue journals made them think differently about their writing. Max commented that he took risks that he worried would not be positively received by his teacher, but that his teacher had specifically commended the risky parts of his writing. He went on to tell how he thought this would affect his future writing, indicating that he was looking forward to going more outside the box with his writing. These comments indicate that Max attributed some measure of success to his risky strategy and that it will inspire him to continue taking risks with his writing in the future. Taylor did not express the feeling that the dialogue journals increased her sense of satisfaction with her writing and that her feelings about writing continued to mix positive and negative affective tones. The only typically developing student to address the topic of self-satisfaction was Quinn who said that the dialogue journal improved her estimation of her own writing and made her enjoy writing more. Thus, while the dialogue journal does seem to have helped the students make adaptive attributions for their level of performance, the effect of those attributions was mixed.

Overall, then, the dialogue journal intervention had effects that aligned with Zimmerman’s (2000) description of the self-reflection that supports all learning. All of the students with learning disabilities and all of the typically developing students who responded to the reflection questions reported that their participation in the dialogue journals both clarified their teachers' expectations and the standards of good academic writing that they aspired to, and also helped them to form what Zimmerman calls "adaptive attributions" (Zimmerman, 2000, p. 23), specifically helping the students attribute performance to strategies and helping them to see that adding or changing strategies could improve their writing. Two of the students with learning disabilities and one of the typically developing students also reported that the dialogue journal led them to greater self-satisfaction with their writing which Zimmerman (2000) found is likely to motivate them to continue striving for increased writing competence.

Motivation. As Zimmerman (2000) noted, motivation is central to the learning process. Deci and Ryan (2000) established three conditions for developing extrinsic motivation; these conditions align with this study's participants' experiences with dialogue journals as reported in their reflections. Specifically, in responding to the reflection questions posed at the end of the study, students reported feeling that they were more connected to their teachers and that they were competent writers even if their writing could improve.

Deci and Ryan (2000) found that extrinsic motivation often results from prompting by someone a person feels related to or wants to feel related to. Increased feelings of relatedness were evident in all of the reflections of the students who responded to the reflection questions. Taylor's comments indicated that she realized that her teacher empathized with the increased demands that dyslexia imposed on her writing and also that her teacher saw her and her writing and spoke to her needs as a writer. Sam noted that his teacher focused more specifically on Sam's writing in the dialogue journal than in more typical assessment approaches, in other words, while the usual way of providing feedback resulted in comments that seemed somewhat general, the teacher's dialogue journal responses seemed directed specifically at Sam and his writing. Max directly expressed a feeling of connection with his teacher and the positive feeling that came with that connection. These students seemed to focus more on an emotional connection with their teacher as a result of the back-and-forth in the dialogue journal, while the typically developing students seemed to explicitly pair that emotional connection with more practical concerns. This suggests that emotional connection with the teacher is more important to students with disabilities than for students without disabilities and that the writing of students with disabilities benefits from that personal connection.

Three of the typically developing students also expressed an increased feeling of relatedness as described by Deci and Ryan (2000) as a result of the dialogue journal intervention. Many of the typically developing students expressed realizing the level of support they could count on from their teachers. Rowan commented that the dialogue journal, impressed upon her the fact that she could easily get help and support from her teacher. The typically developing students also wrote about feeling seen and appreciated by their teachers. Quinn wrote that the specificity of the feedback available in the dialogue journals was particularly important to her. While she felt that teachers don't always directly address individual student concerns in their usual feedback, the dialogue journal allowed her to feel that she was communicating with her teacher and to understand the strengths and weaknesses in her writing. Similarly, Rowan commented that the dialogue journals promoted valuable communication with the teacher and helped her to see that aspects of her writing that she was unsure of or risks that she took in her writing were perceived positively by her teacher.

Izzy pointed out a possible negative aspect of the individual, personal nature of dialogue journal communication i.e. that she had to push past her fear of others reading her work to communicate with her teacher about her writing. However, Izzy also reported that the dialogue journal made her feel more comfortable seeking help from her teacher outside of class. Thus, both students with disabilities and typically developing students reported that the dialogue journal made them feel an increased connection with their teachers. The students with disabilities seemed to focus more on an emotional connection or a feeling of being “seen” in a personal, individual way, while the typically developing students seemed more likely to combine that feeling with practical concerns like seeking out teachers outside of class for help or getting specific feedback that could help them improve performance in the future. The emotional feeling of connectedness might be more important for students with disabilities as Rothman and Cosden (2022) found that higher achievement and social support both correlated with less negative beliefs about students’ own learning disability, as well as with positive global self-confidence and more social support. In their findings, social support and self-concept were positively correlated even in the absence of higher achievement. Typically developing students might have less need for social support to boost self-concept so they might be more focused on the practical benefits of the interactions rather than the emotional aspects.

Perceived Competence. A second prong of Deci and Ryan’s (2000) model of extrinsic motivation is perceived competence. The authors posit that a person is more motivated to perform a behavior when they believe they can do it well and that a person whose efforts are respected and supported is more likely to persist in learning and improving than one who is demeaned or harshly criticized. Again, the comments from the students who completed the reflection align with these findings.

All three of the students with disabilities reported increased confidence in their writing abilities as a result of the dialogue journal, and two of the three specifically addressed the issue of increased enjoyment of writing. Sam wrote that the experience increased his confidence in his writing, but he did not mention whether or not it affected his enjoyment. Max said that the dialogue journal not only increased his confidence in his writing but also made him recognize the value of taking risks in writing. In other words, the journals made him feel like a good writer and this feeling made him happy—likely motivating further practice and learning. Taylor reported receiving insights from her teacher that made her believe she could improve her writing and that made her feel more confident about writing. However, she did not feel that the affected her overall feelings toward writing saying that she had always felt ambivalent about writing and the dialogue journal did not change that. The experience of communicating with their teachers in the dialogue journals resulted in increased feelings of confidence and competence for all three of the students with disabilities suggesting increased motivation to keep improving; however, only one of these students was able to say that the dialogue journals increased their enjoyment of writing.

The typically developing students reported an increase in confidence in their writing as a result of the intervention. Quinn wrote that she felt more confident going into the next writing assignment, more certain that she would get a good grade next time, that she had done a good job on the current assignment, and that she would continue to grow as a result of her teacher's guidance. Thus, she gained confidence not only in her writing but also in her ability to improve as a result of her teacher's instruction. Quinn also mentioned that communicating with her teacher in the dialogue journal supported her belief that she was a good writer and made her enjoy writing more. Rowan commented that communicating with her teacher through the dialogue journals was a way to increase confidence in writing in general, and Izzy wrote that the intervention increased her confidence as a writer. For all three of these students, the dialogue journals improved their self-image as writers, and, for Quinn, it also increased her belief that she would benefit from her teacher’s instruction and increased her enjoyment of writing. Following the reasoning of Deci and Ryan (2000) the dialogue journal exercise should be motivating for each of these students, and somewhat more so for Quinn.

Future Orientation. Sanders (2013) described the “ability for future orientation” (p.356) as being among the important capacities to develop during adolescence. This capacity is evident in the participants’ reflections as many of them mentioned plans for improving future assignments based on their experience with the dialogue journals. All three of the students with learning disabilities noted that they had learned about ways they could improve their performance on future writing assignments. Sam and Taylor both wrote that they had gotten information about ways to improve. Both students indicated a general orientation toward future writing assignments as a result of the dialogue journals. Max was more specific in his response. He said that in the future he would be more experimental in his writing, indicating that the dialogue journal inspired him to consider specific paths to pursue in future writing assignments.

All of the typically developing students mentioned thoughts on future writing assignments resulting from the dialogue journals. Kai wrote that the journal showed her ways she could have improved the current assignment, and encouraged her to think about how she would apply those same strategies next time. She also mentioned that the dialogue journal helped her to notice habitual mistakes she made in writing and how to use feedback to improve. Izzy’s comments focused on an expanded sense of the availability of help during the writing process, mentioning that the intervention made her feel more comfortable seeking out her teacher for help outside of class. Similarly, Rowan pointed to being able to communicate better with her teacher in the future as a major benefit of the dialogue journals. Quinn described increased confidence both in her ability to succeed in the future and to learn from her teacher in the future as she described feeling not only that she felt more confident that she would produce writing that would get a good grade in the future, but also that her teacher's guidance and instruction would help her grow as a writer. Thus, all of the students, typically developing and those with learning disabilities alike, expressed an intent to plan approaches to future writing assignments based on the feedback on their current writing assignments. These plans encompassed several dimensions of writing for school, indicating that the dialogue journal intervention inspired students not only to think about how they could have done better on this assignment but to actively look to ways of applying the knowledge they gained to future writing.

Summary. The quantitative data from this study did not show a significant positive change in students' survey responses from the pre-survey to the post-survey. However, qualitative data indicated that the dialogue journal intervention supported students in their cognitive development and that students perceived positive changes in their self-concept, self-efficacy, and self-confidence as writers; in their ability to make adaptive attributions of writing performance outcomes; in their feelings of connectedness to their teachers; in their ability to see positive aspects of their own writing; in their ability/tendency to plan the next writing assignment based on what they learned from the current assignment, and in their enjoyment of writing. The main negative aspect of the dialogue journals mentioned by the students was the extra time it took to complete the journals while other students indicated that they did not feel the journals were necessary and that the journal caused discomfort by requiring one-on-one interaction with teachers.

Implications for Research

This study suggests several possible directions for future exploration. First of all, it would be interesting to conduct a similar study with a larger, more diverse group of participants and to include a wider variety of schools. More participants and greater diversity would enhance generalizability and provide a more nuanced view of the benefits and drawbacks of the intervention. Including a wider variety of schools would, among other benefits, give a better idea of how students react to the intervention under different circumstances. Continuing the intervention for a longer period, throughout several assignments, a whole semester, or a whole school year might yield better quantitative data and would make it possible to see how a steady diet of student/teacher communication during the assessment stage of writing instruction might affect student attitudes. It would also be beneficial to examine the way teachers respond to the intervention. It would be interesting to see how teachers responded to students in dialogue journals and how those responses seemed to affect students. It would also be interesting to note the extent to which teachers felt they benefitted (or did not benefit) from insights gained or connections forged as a result of the journals and any other information teachers might share.

Implications for Practice

The results of this study indicated that students with disabilities and their non-disabled peers benefit from direct, individual communication with their teachers. In this study, students and teachers were asked to communicate with each other via dialogue journals. Students' dialogue journals indicated that the students were engaged in a host of cognitive processes while writing their papers. The students reported working to gain control of their attention and cognition, to wrangle wide-ranging thoughts and ideas into cohesive and comprehensible language, and to know their knowledge of the content of their classes and the structures and conventions of academic language. Thus, this study suggests that it is important for teachers of writing to remain cognizant of the sheer complexity of the task of writing and of learning to write. This task can be overwhelmingly complex for all students but even more so for students with disabilities, as the very cognitive processes that are impaired in students with disabilities are those that are most implicated in written expression.

The participants in this study also reported that the experience of communicating directly with their teachers was affirming and motivating for them. All students indicated that the dialogue journals added to their confidence, their self-efficacy, and their self-image in terms of writing. Confidence, self-efficacy, and self-image are positively correlated with achievement in a variety of academic disciplines, particularly in learning to write (Moller et al., 2020, Bear, 2000), so writing teachers might consider using a version of dialogue journals during the assessment stage of classroom writing assignments to increase students' sense of competence and belief that good writing is possible for them. The students in the study who had disabilities appeared to be most likely to experience this effect.

Students in the study also reported that the dialogue journals made them feel more connected to their teachers, made them feel that their teachers understood them and cared about them, and made them more likely to seek help from their teachers outside of the classroom. According to Deci and Ryan (2000), relatedness is likely to increase motivation for students, and the students themselves reported that feeling connected to their teachers motivated them to try to continue to get better at writing. Thus, teachers of writing might consider implementing a similar component in their writing assignments to increase the feeling of relatedness with students.

Students noted two drawbacks to the dialogue journals. The first was the extra time the journals required in addition to the work of writing the assignment for the class. However, most students who noted this as a drawback noted that the time spent on the dialogue journal was worthwhile. All students noted many benefits to the dialogue journals (as described above) despite the extra time. One student mentioned that she was generally reticent about having people read her work and about having people talk to her about her work. She noted this as a drawback of the dialogue journals, but she also said that the journals made her more willing to seek out help from her teacher outside of class. Thus, if teachers decide to include a dialogue journal aspect as part of a writing assignment, they might do what they can to minimize the time required of students to participate in the dialogue journal.

Perhaps the greatest implication for practice of this study is the loud, clear voice of the students saying that they value individual communication with their teachers and that such communication is motivating for them and makes them feel confident in their writing, and increases their enjoyment in writing. Thus, teachers of writing might consider finding some way to connect personally, specifically, and individually with their students even if it is not through dialogue journals.

Limitations

This study had several limitations. The small sample size limits generalizability as does the limited racial and ethnic diversity of the sample and the fact that 70% of participants did not identify as having either SLD or ADHD. In addition, this study was conducted at only one site—an 8-12 independent school where 25% of students receive tuition assistance. This means not only that the participant pool may not be economically diverse, but also that they are likely to have had similar writing experiences in middle school. Randomly selecting participants' responses for coding raises some potential problems, for instance, the possibility of selecting a non-representative sub-group of participants, or, in this study, selecting only students without disabilities or only students with disabilities. However, as it turned out, the students' entries in the dialogue journals were fairly similar to each other and settled into relatively cohesive codes, and the numbers chosen by the random number generator corresponded to a group of students containing both students with disabilities and students without disabilities. Two limitations involved quantitative results: the timing of the post-survey and the extent of statistical analysis of the quantitative data. Participants completed the post-survey immediately after they completed the intervention, and the post-survey questions asked them to respond about their attitudes towards their most recent writing assignment. Thus, their responses likely reflected their attitudes toward writing before the intervention. It would have been better to ask them about their attitudes toward their next assignment to capture any change in attitude due to the intervention. Another limitation was the limited statistical analysis of the data. While t-tests compared how the intervention affected students with disabilities differently from students without disabilities, it would have been interesting to compare different configurations of data (e.g. comparing response means by age, race/ethnicity, etc.).

Conclusions

The research question for this study was “Can introducing a response journal element in the assessment phase of classroom writing assignments positively affect attitudes toward writing of students with disabilities?” The quantitative data obtained in this study did not show a significant change in students’ attitudes toward writing. As discussed above there are several possible reasons for this outcome including the short duration of the study and the specific timing of the surveys which may have kept them from reflecting any change in students’ attitudes.

Qualitative data obtained in the course of this study indicates an affirmative answer to this question. Interestingly, the data indicate that the dialogue journal intervention was equally effective in encouraging a positive change in attitudes toward writing for the typically developing students and students with disabilities. All but one of the students indicated that this intervention increased their confidence in their writing abilities; five of the students who responded to the reflection questions wrote that the intervention allowed them to see positive aspects of their own writing that they had not noticed before, and three of the students who responded directly wrote that the intervention increased their enjoyment of writing.

In addition, the qualitative data indicate that the intervention affected students in ways that previous research has shown to improve writing outcomes and to improve attitudes toward and motivation for academic writing. All but one of the students indicated that the intervention improved their relationship with their teacher; all of the students wrote that the dialogue journals helped them form adaptive attributions as defined by Zimmerman (2000) and increased their sense that improvement in writing ability was something that they could control and something that was within their reach. Finally, the data indicate that the intervention was appropriate to and supportive of adolescent cognitive development as the participants’ comments in both the dialogue journals themselves and the reflections indicated that students were communicating with their teachers about issues central to adolescent cognitive development. Students’ journal entries and reflections indicated that they were doing all of the following. They were moving from concrete to abstract thought. They were finding their place in their school society, both academically and socially through interactions with their teachers. They were exerting increasing control over their cognitive processes in two ways: by directing attention to specific aspects of their writing in the present and by orienting their thoughts to the future to plan how to approach future assignments based on what they had learned from the current assignment.

References

Alharbi, M. (2015). Effects of Blackboard's discussion boards, blogs and wikis on effective integration and development of literacy skills in EFL students. *English Language Teaching*, *8*(6), 111-132.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 191-215. https://doi.org/10.1037/0033-295X.84.2.191

Bandura, A. (1986). *Social foundation of thought and action: A social cognitive theory*. Prentice Hall Inc.

Bazerman, C., Applebee, A. N., Berninger, V., Brandt, D., Graham, S., Matsuda, P. K., Murphy, S., Wells Rowe, D., & Schleppegrell, M. (2017). Taking the long view on writing development. *Research in the Teaching of English*, 51 (3), 352-360. https://doi.org/10.58680/rte201728980

Bear, G., Minke, K., & Manning, M. (2002). Self-concept of students with learning disabilities: A meta-analysis. *School Psychology Review*, *31*(3), 405-427. https://doi.org/10.1080/02796015.2002.12086165

Berninger, V., & O'Malley May, M. (2011). Evidence-based diagnosis and treatment for specific learning disabilities involving impairments in written and/or oral language. *Journal of Learning Disabilities*, *44*(2), 167-183. https://doi.org/10.1177/0022219410391189

Berninger, V., Richards, T., & Abbott, R. (2015). Differential diagnosis of dysgraphia, dyslexia, and OWL LD: Behavioral and neuroimaging evidence. *Reading and writing*, *28*(8), 1119-1153.

Berninger, V., Richards, T., Nielsen, K., Dunn, M., Raskind, M., & Abbott, R. (2018). Behavioral and brain evidence for language by ear, mouth, eye, and hand and motor skills in literacy learning. *International Journal of School & Educational Psychology, 7(1),*1-19.

Behizadeh, N., & Engelhard Jr, G. (2011). Historical view of the influences of measurement and writing theories on the practice of writing assessment in the United States. *Assessing writing*, *16*(3), 189-211. https://doi.org/10.1016/j.asw.2011.03.001

Blakemore, S. J. (2012). Development of the social brain in adolescence. *Journal of the Royal Society of Medicine*, *105*(3), 111-116. https://doi.org/10.1258/jrsm.2011.110221

Bramen, J. E., Hranilovich, J. A., Dahl, R. E., Forbes, E. E., Chen, J., Toga, A. W., ... & Sowell, E. R. (2011). Puberty influences medial temporal lobe and cortical gray matter maturation differently in boys than girls matched for sexual maturity. *Cerebral Cortex*, *21*(3), 636-646. https://doi.org/10.1093/cercor/bhq137

Britton, J. et al. (1975). *The Development of Writing Abilities.* Macmillan.

Chen, Y. M. (2008). Learning to self-assess oral performance in English: A longitudinal case study. *Language teaching research*, *12*(2), 235-262. https://doi.org/10.1177/1362168807086293

Chiasson, V., Vera-Estay, E., Lalonde, G., Dooley, J. J., & Beauchamp, M. H. (2017). Assessing social cognition: Age-related changes in moral reasoning in childhood and adolescence. *The Clinical Neuropsychologist*, *31*(3), 515-530. https://doi.org/10.1080/13854046.2016.1268650

Colby, A., & Damon, W. (1993). The uniting of self and morality in the development of extraordinary moral commitment. In Noam, G. and Wren, T. (Eds.) *The Moral Self* (pp.149-174). The MIT Press.

Corbett, S. J. (2017). Toward inclusive and multi-method writing assessment for college students with learning disabilities: The (universal) story of Max. *WPA: Writing Program Administration-Journal of The Council of Writing Program Administrators*, *40*(3), 23-34.

Conner, J. O. (2022). Educators' experiences with student voice: How teachers understand, solicit, and use student voice in their classrooms. *Teachers and Teaching*, *28*(1), 12-25. DOI: 10.1080/13540602.2021.2016689

Crone, E. A., & Steinbeis, N. (2017). Neural perspectives on cognitive control development during childhood and adolescence. *Trends in Cognitive Sciences*, *21*(3), 205-215. https://doi.org/10.1016/j.tics.2017.01.003

Deci, E. L., & Ryan, R. M. (2000). The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227-268. https://doi.org/10.1207/S15327965PLI1104_01

Del Boca, D., Monfardini, C., & Nicoletti, C. (2017). Parental and child time investments and the cognitive development of adolescents. *Journal of Labor Economics*, *35*(2), 565-608. DOI: 10.1086/689479

Demetriou, A., Kazi, S., Makris, N., & Spanoudis, G. (2020). Cognitive ability, cognitive self-awareness, and school performance: From childhood to adolescence. *Intelligence*, *79*, 1-10. https://doi.org/10.1016/j.intell.2020.101432

Diagnostic and statistical manual of mental disorders: DSM-5 (5th ed.). (2013). American Psychiatric Association.

Flower, L., & Hayes, J. R. (1981). A cognitive process theory of writing. *College Composition and Communication*, *32*(4), 365-387. https://doi.org/10.2307/356600

Foulkes, L., & Blakemore, S. J. (2018). Studying individual differences in human adolescent brain development. *Nature Neuroscience*, *21*(3), 315-323. https://doi.org/10.1038/s41593-018-0078-4

Gadd, M., Parr, J. M., Robertson, J., Carran, L., Ali, Z., Gendall, L., & Watson, K. (2019). Portrait of the student as a young writer: Some student survey findings about attitudes to writing and self-efficacy as writers. *Literacy*, *53*(4), 226-235. https://doi.org/10.1111/lit.12178

Gans, A. M., Kenny, M. C., & Ghany, D. L. (2003). Comparing the self-concept of students with and without learning disabilities. *Journal of learning disabilities*, *36*(3), 287-295. https://doi.org/10.1177/002221940303600307

Golombek, C., Klingsieck, K. B., & Scharlau, I. (2018). Assessing self-efficacy for self-regulation of academic writing. *European Journal of Psychological Assessment,35*(5), 751-761.Doi:https://doi.org/10.1027/1015-5759/a000452.

Gopnik, A., O'Grady, S., Lucas, C. G., Griffiths, T. L., Wente, A., Bridgers, S., ... & Dahl, R. E. (2017). Changes in cognitive flexibility and hypothesis search across human life history from childhood to adolescence to adulthood. *Proceedings of the National Academy of Sciences*, *114*(30), 7892-7899. Doi:https://doi.org/10.1027/1015-5759/a000452

Hagborg, W. J. (1996). Self-concept and middle school students with learning disabilities: A comparison of scholastic competence subgroups. *Learning Disability Quarterly, 19*(2), 117-126. https://doi.org/10.2307/1511252

Hall-Mills, S., & Apel, K. (2013). Narrative and expository writing of adolescents with language-learning disabilities: A pilot study. *Communication Disorders Quarterly*, *34*(3), 135–143. https://doi-org.libproxy.unm.edu/10.1177/1525740112465001

Hardy, S. A., & Carlo, G. (2011). Moral identity: What is it, how does it develop, and is it linked to moral action? *Child Development Perspectives*, *5*(3), 212-218. https://doi.org/10.1111/j.1750-8606.2011.00189.x

Harter, S. (2012). Self-perception profile for children: Manual and questionnaires (grades 3–8). *Denver, CO: University of Denver*.

Juraska, J. M., & Willing, J. (2017). Pubertal onset is a critical transition for neural development and cognition. *Brain Research*, *1654*, 116-122. https://doi.org/10.1016/j.brainres.2016.04.012

Keene, D (2023). Spotlight on qualitative methods: Do I need multiple coders? *Interdisciplinary Association for Population Health Science.* https://iaphs.org/demystifying-the-second-coder/

Kellogg, R. T. (2008). Training writing skills: A cognitive developmental perspective. *Journal of writing research*, *1*(1). https://doi.org/10.17239/jowr-2008.01.01.1

Knudson, R. E. (1993). Development of a writing attitude survey for grades 9 to 12: Effects of gender, grade, and ethnicity. *Psychological Reports*, *73*(2), 587-594. https://doi.org/10.2466/pr0.1993.73.2.587

Koutsoftas, A. D., & Petersen, V. (2017). Written cohesion in children with and without language learning disabilities. *International Journal of Language & Communication Disorders*, *52*(5), 612–625. https://doi-org.libproxy.unm.edu/10.1111/1460-6984.12306

Leshem, R. (2016). Brain development, impulsivity, risky decision making, and cognitive control: Integrating cognitive and socioemotional processes during adolescence—An introduction to the special issue. *Developmental Neuropsychology*, *41*(1-2). https://doi.org/10.1080/87565641.2016.1187033

Linneberg, M. S., & Korsgaard, S. (2019). Coding qualitative data: A synthesis guiding the novice. *Qualitative research journal*, *19*(3), 259-270.

Lönnqvist, J. E., Jasinskaja-Lahti, I., & Verkasalo, M. (2011). Personal values before and after migration: A longitudinal case study on value change in Ingrian–Finnish migrants. *Social Psychological and Personality Science*, *2*(6), 584-591.

McCutchen, D. (2011). From novice to expert: Implications of language skills and writing-relevant knowledge for memory during the development of writing skill. *Journal of Writing Research*, *3*(1), 51-68.

Möller, J., Zitzmann, S., Helm, F., Machts, N., & Wolff, F. (2020). A meta-analysis of relations between achievement and self-concept. *Review of Educational Research*, *90*(3), 376-419.

Morse, J. M. (1997). " Perfectly healthy, but dead": the myth of inter-rater reliability. *Qualitative Health Research*, *7*(4), 445-447.

Murphree, D. S. (2014). " Writing wasn't really stressed, accurate historical analysis was stressed": Student Perceptions of In-Class Writing in the Inverted, General Education, University History Survey Course. *The History Teacher*, *47*(2), 209-219.

Nelson, N. W., & Crumpton, T. (2015). Reading, writing, and spoken language assessment profiles for students who are deaf and hard of hearing compared with students with language learning disabilities. *Topics in Language Disorders*, *35*(2), 157–179.

Pajares, F. (2003). Self-efficacy beliefs, motivation, and achievement in writing: A review of the literature. *Reading &Writing Quarterly*, *19*(2), 139-158.

Reiff, M. J., & Bawarshi, A. (2011). Tracing discursive resources: How students use prior genre knowledge to negotiate new writing contexts in first-year composition. *Written Communication*, *28*(3), 312-337.

Rodríguez, C., Areces, D., García, T., Cueli, M., Loew, S. J., & González-Castro, P. (2015). ADHD and Writing Learning Disabilities: Overlapping Disorders and Educational Implications. *Insights into Learning Disabilities*, *12*(2), 121-146.

Rodríguez, C., Grünke, M., González-Castro, P., García, T., & Álvarez-García, D. (2015). How Do Students with Attention-Deficit/Hyperactivity Disorders and Writing Learning Disabilities Differ from Their Nonlabeled Peers in the Ability to Compose Texts? *Learning Disabilities: A Contemporary Journal*, *13*(2), 157-175.

Rohman, D. G. (1965). Pre-writing: The stage of discovery in the writing process. *College composition and communication*, *16*(2), 106-112.

Rothman, H. R., & Cosden, M. (1995). The relationship between self-perception of a learning disability and achievement, self-concept and social support. *Learning Disability Quarterly, 18*(3), 203-212. https://doi.org/10.2307/1511043

RP Group. (2019). Review of Literature: Assessment measures for English as a second language students in college. https://files.eric.ed.gov/fulltext/ED612009.pdf

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist*, *55*(1), 68.

Saldaña, J.(2021). *The coding manual for qualitative researchers.* SAGE.

Sanders, R. A. (2013). Adolescent psychosocial, social, and cognitive development. *Pediatrics in Review*, *34*(8), 354-8.

Vengadasalam, S. S. (2020). Transformative pedagogy and student voice: Using SEA principles in teaching academic writing. *Journal of Effective Teaching in Higher Education*, *3*(2), 12-27.

Whittingham, R. (2022). Developing student voice for inquiry, connection and authenticity in learning communities. *Literacy Learning: The Middle Years, 30,(*1), 45-51.

Williams, M., & Moser, T. (2019). The art of coding and thematic exploration in qualitative research. *International Management Review,* 15 (1), 45-55.

Zimmerman, B. J. (1986). Becoming a self-regulated learner: Which are the key subprocesses? *Contemporary Educational Psychology*, *11*(4), 307-313.

Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In Bokearts, M, et al. (Eds) *Handbook of self-regulation* (pp. 13-39). Academic press. https://doi.org/10.1016/B978-012109890-2/50031-7

Appendix A

Survey Questions

1) I think this assignment showed that I am a good writer.

2) When my teacher told us that we would have a writing assignment, I felt confident that I would do a good job.

3) When I turned in the writing assignment, I felt confident that my teacher would understand what I am saying.

4) When I turned in the writing assignment, I felt confident that it would show my teacher how much I know about the subject.

5) I have a clear idea of what I did well in my last writing assignment.

6) I have a clear idea of what I can improve for next time.

7) When I think ahead to the next writing assignment my teacher might assign, I have a good idea of how to approach it based on what I learned from my last writing assignment.

8) I enjoyed this writing assignment.

9) I enjoy writing for school

10) I feel confident that from now on when I write for school I will do a good job.

Appendix B

Dialogue Journal Prompts

1. I think this assignment showed that I am a good writer
2. I think I have ideas that are worth writing about
3. When my teacher told us that we would have a writing assignment I was confident that I would do a good job
4. When I turned in the writing assignment, I felt confident the teacher would understand what I was saying
5. When I turned in the writing assignment, I felt confident that it would show my teacher how much I know about the subject
6. I have a clear idea of what I did well in my last assignment
7. I have a clear idea of what I can improve for next time
8. When I think ahead to the next writing assignment my teacher might assign, I have a good idea of how to approach it based on my last writing assignment
9. I enjoyed this writing assignment.
10. I enjoy writing for school.
11. I feel confident that from now on when I write for school, I will do a good job

Appendix C

Student Reflection Questions

1. What, if any, were the benefits of communicating with your teacher during this process?
2. What, if any were the drawbacks of communicating with your teacher during this process?
3. In what ways did communicating directly with your teacher affect how you felt about yourself as a writer?
4. In what ways did it affect how you felt about writing in general?