

**DEVELOPING THE TEXT-BASED WRITING INSTRUCTIONAL CAPACITY OF
MIDDLE SCHOOL TEACHERS**

by

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DEVELOPING TEACHERS' TEXT-BASED WRITING CAPACITY

Abstract

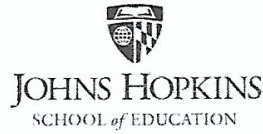
Text-based writing is a form of academic composition in which many students struggle. Moreover, research into this area reveals that many teachers may not be sufficiently prepared to teach this kind of writing to their students. The purpose of this dissertation's mixed methods study was to examine the impact of an online, job-embedded PD on middle school English language arts (ELA), mathematics, and science teachers' knowledge of text-based writing strategies, efficacy for teaching text-based writing, and instructional practices for text-based writing. Eight teachers from a public, mid-Atlantic middle school participated in the study, including three ELA, one mathematics, and four science teachers. Over a period of two and a half months, each of these teachers participated in 10 PD sessions that lasted between 60 and 90 minutes. To measure the impact of this PD on the constructs of interest, pre and post quantitative and qualitative data were gathered. Quantitative data analyses, which included the conducting of Wilcoxon signed-rank tests, suggest that that PD may have made teachers more confident in their ability to impact students' text-based writing outcomes (i.e., personal efficacy), but it did not appear to make them more confident in their ability to impact these outcomes more than external factors (i.e., general efficacy). Quantitative data analyses also indicate that the PD may have made teachers more likely to shift instructional practices for text-based writing, including their approaches used to teach strategies (i.e., writing strategy instruction) and their ways of teaching these strategies (i.e., instructional writing practices). Because of the small number of participants, however, these results should be interpreted cautiously. Qualitative data show that the PD may have developed teachers' knowledge of cognitive strategies, instructional strategies, and instructional scaffolds for text-based writing. Furthermore, the qualitative data suggest that engagement in PD activities may have facilitated teachers' efficacy for teaching

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text-based writing, and the data show that the instructional practices that teachers intend to implement come from the PD. Findings from the study demonstrate that text-based writing PDs should include cognitive strategy instruction, provide opportunities for application and collaboration, and occur over a sustained period.

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Edd Dissertation Defense Report Form

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Dedication

I dedicate this dissertation to my parents. Your love and continued support over the years made achieving this goal possible.

Acknowledgments

Earning a doctorate degree from Johns Hopkins University's School of Education could not have occurred without the support of a network of people.

To my advisors, Dr. Christine Brookbank and Dr. Karen Karp, I give the deepest of thanks. At the start of this journey, I did not understand how difficult it would be to write a dissertation. When confronted with this reality, you two not only guided me through the process, but you also pushed me to achieve goals with my research that I had not conceived. As a result, my dissertation, along with the skillset that I developed from writing it, became better than what I could have imagined. So, thank you both for your support during this process and for your foresight in knowing what was best for me.

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remember our June to August Saturday morning sessions at the local library very fondly, from the concept maps we created on the whiteboard to the universally applicable citation whose name we jokingly used. These experiences were one of the highlights of year two.

To the many people within my district who made completing this dissertation possible, I also give my thanks. I am first and foremost grateful to the principal of Granberry Middle (pseudonym). Thank you for giving me access to teachers at your school and trusting me to develop their text-based writing instructional capacity. I am also grateful to my executive sponsor. Not only were you one of the people who wrote the letter of recommendation that helped get me into my doctoral program, but you also helped me to navigate getting IRB approval from the district during the COVID-19 pandemic. Lastly, I am grateful to the eight teachers from Granberry who took part in the study. Even though you were preoccupied with learning how to teach middle school students virtually, you still took a chance on me and what I had to offer. I am not exaggerating when I say that I could not have crossed the finish line without you, so thank you for staying with me to the end.

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To my parents, I give my heartfelt thanks. Mom and Dad, the values you instilled within me and the examples you set have all been instrumental to my success on this journey and to my success as a man. I am proud to be your son. To my brother, Rico, and to my close network of friends, I also give thanks. The regular conversations that we had and the times that we spent together helped make the demands of doctoral-level academics bearable. And finally, to God, to whom I give all the glory, I am eternally grateful. I pray that I continue to bring glory to You and demonstrate to others the love that You demonstrate to me.

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Executive Summary

Text-based writing is a form of academic composition that involves students critically examining one or more source materials and using those source materials to substantiate their claims (Matsumura, Correnti, & Wang, 2015; Olson, Matuchniak, Chung, Stumpf, & Farkas, 2017; Perin, Lauterbach, Raufman, & Kalamkarian, 2017). Data from state assessments, however, reveal that many middle school students do not demonstrate proficiency in this area (Colorado State Department of Education, 2019; Maryland State Department of Education, 2020a). Moreover, literature and a needs assessment indicate that middle school teachers may not be receiving sufficient preparation that would effectively develop their capacity to teach text-based writing (Drew, Faggella-Luby, Olinghouse, & Welsh, 2017; Graham, Capizzi, Harris, Hebert, & Morphy, 2014; Myers et al., 2016). Fortunately, research also highlights the potential of job-embedded PD as an avenue through which middle school teachers' capacity for teaching this kind of writing can be developed (Howell, Hunt-Barron, Kaminski, & Sanders, 2018; Limbrick et al., 2010; Mosqueda, Bravo, Solis, Maldonado, De La Rosa, 2016; Olson et al., 2019; Parr & Timperley, 2010; Pella, 2011, 2015). It was through this method of teacher development that a text-based writing PD program was created and tested within a public middle school.

An Exploration of a Problem of Practice

This dissertation's study took place at Granberry Middle (pseudonym), a school located within a mid-Atlantic state. As of 2019, the school had a student population of 1,188, the majority of whom were Hispanic/Latino and Black (State Department of Education, 2020c). Approximately 90% of these students received free or reduced-priced meals (FARMS), and 41% of the student population ($n = 487$) was classified as limited English proficient (LEP). Data from

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the past several years indicate that a large majority of sixth, seventh, and eighth grade students neither met nor exceeded reading and writing standards as measured by the district's state assessment (State Department of Education, 2020a, 2020b), which indicate that most of these students are not demonstrating proficiency in text-based writing.

To further explore this problem, the researcher conducted a needs assessment that examined teacher preparation and beliefs, factors identified in the literature that relate to middle school students' writing performance (Graham et al., 2014; Troia, Lin, Cohen, & Monroe, 2011). Adapting items from the *High School Writing Practice Survey* (Kiuvara, Graham, & Hawken, 2009) and the *Teacher Efficacy Scale for Writing* (Graham, Harris, Fink, & MacArthur, 2001), the researcher administered a mixed-methods survey to Granberry's ELA, mathematics, science, and social studies teachers. Data from the 20 teachers who responded indicated that teachers within ELA, mathematics, science, and social studies had received preparation to teach writing, but this preparation may not have effectively developed their writing instructional capacity. Moreover, while these teachers appeared to have positive beliefs about their ability to teach writing and positive beliefs about writing, their confidence for teaching writing and attitudes towards writing could be improved. Collectively, data from the survey substantiated the need for the design of a job-embedded PD that developed the text-based writing instructional capacity of Granberry teachers.

Developing a PD for Text-Based Writing Instruction

The research on programs that develop teachers' writing instructional capacity (Grisham & Wolsey, 2011; Howell et al., 2018; Kim et al., 2011; Limbrick et al., 2010; Martin & Dismuke, 2015, 2018; Mosqueda et al., 2016; Parr & Timperley, 2010; Pella, 2011, 2015; Olson et al., 2019) and the research on effective professional development (Clarke & Hollingsworth,

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2002; Darling-Hammond et al., 2017; Guskey, 2002) provided a set of principles with which to design the PD. In particular, the research highlighted the need for PD that included content that teachers could use in their day-to-day contexts (Darling-Hammond et al., 2017). Consequently, the text-based writing PD focused heavily on developing teachers' knowledge of cognitive strategies and their capacity to teach these strategies to their students (Howell et al., 2018; Kim et al., 2011; Olson et al., 2019). The research also highlighted the need for PD that required teachers to collaborate with their colleagues (Darling-Hammond et al., 2017). Professional learning communities (PLCs, DuFour, 2004; McCarthy & Geoghegan, 2016), therefore, became central to the structure of the PD, evidenced by collaborative activities such as lesson study cycles (Pella, 2011, 2015) and the co-scoring of students' written responses (Limbrick et al., 2010) in which participating teachers engaged.

Furthermore, the research emphasized the importance of PD that provided teachers with opportunities to receive feedback and reflect on their learning and have support from guiding experts (Darling-Hammond et al., 2017). Professional development sessions, as a result, included activities that facilitated these processes, such as small and whole-group discussions (Grisham & Wolsey, 2011; Limbrick et al., 2010; Parr & Timperley, 2010; Pella, 2011, 2015) in which teachers and the researcher exchanged and challenged one another's ideas. Lastly, the research highlighted the need for PD that occurred over a sustained (rather than a short) period (Darling-Hammond et al., 2017). Although the text-based writing PD lasted approximately two and a half months, as opposed to lasting the length of an academic year (Grisham & Wolsey, 2011; Martin & Dismuke, 2015, 2018) or calendar years (Kim et al., 2011; Limbrick et al., 2010), the PD provided as close to an acceptable number of PD hours (Desimone & Garet, 2015; Desimone & Stuckey, 2014) as the constraints of the study would allow.

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In sum, the research on programs for developing teachers' writing instructional capacity (Grisham & Wolsey, 2011; Howell et al., 2018; Kim et al., 2011; Limbrick et al., 2010; Martin & Dismuke, 2015, 2018; Mosqueda et al., 2016; Parr & Timperley, 2010; Pella, 2011, 2015; Olson et al., 2019) and the research on effective PD (Clarke & Hollingsworth, 2002; Darling-Hammond et al., 2017; Guskey, 2002) led to the design of a job-embedded PD, the content and structure of which facilitated the development of teachers' knowledge of strategies for text-based writing, efficacy for teaching text-based writing, and instructional practices for text-based writing.

Implementing the PD for Text-Based Writing Instruction

The purpose of the study, therefore, was to examine the impact of the PD on Granberry Middle School teachers' knowledge of text-based writing instructional capacity. Of the core content teachers who were invited to participate, only eight consented, including three who taught ELA, one who taught mathematics, and four who taught science. The PD sessions, which because of the COVID-19 pandemic occurred virtually, began in early November 2020 and ended in the middle of January 2021. Guiding the impact of the PD on these teachers' text-based writing instructional capacity were three research questions:

- 1) In what ways has the online PD changed the knowledge of text-based writing strategies for ELA, mathematics, and science teachers?
- 2) To what extent have ELA, mathematics, and science teachers' efficacy beliefs for teaching text-based writing changed following the online PD?
- 3) To what extent has the online PD changed the implementation of instructional practices for text-based writing for ELA, mathematics, and science teachers?

Pre-and post-PD data were collected and analyzed using a mixed methods approach. Data gathering tools included surveys, the items of which were adapted from Drew et al.'s

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(2017) *Evidence-Based Instructional Writing Practices Subscale* (Drew et al., 2017) and Graham et al.'s (2001) *Teacher Efficacy Scale for Writing*, and interview questions and observations, which were developed using research from Graham and Perin (2007a, 2007b, 2007c).

Quantitative data, though limited due to the small number of participants, suggest that teachers' efficacy for teaching text-based writing and instructional practices for text-based writing may have increased and shifted respectively. Qualitative data indicate that the PD may have developed teachers' knowledge of cognitive strategies, instructional strategies, and instructional scaffolds for teaching text-based writing. In addition, the qualitative data show that the PD may have facilitated changes in teachers' efficacy, and the instructional practices that the teachers seem want to implement come primarily from PD content.

Implications for Practice

Findings from the study provide insight into PD components that can lead to developments in middle school teachers' knowledge of text-based writing strategies, efficacy for teaching text-based writing, and instructional practices for text-based writing. One component is that the PD should develop teachers' understanding of cognitive strategy instruction (Benedek-Wood et al., 2014; De La Paz et al., 2017; Kiuahara et al., 2019; Mason et al., 2013; Mason et al., 2011; Olson et al., 2017), specifically by teaching them the purpose and functionality of writing mnemonics and by teaching them evidence-based ways of teaching these mnemonics to students. Two additional components of a text-based writing PD are that it should provide teachers with opportunities to apply cognitive strategy instruction for authentic purposes and within authentic contexts and provide opportunities for teachers to collaborate with their colleagues through this process (Darling-Hammond et al., 2017; Howell et al., 2018; Limbrick et al., 2010; Parr & Timperley, 2010; Pella, 2011, 2015). Lastly, a text-based writing PD should provide teachers

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with sufficient time to develop their text-based writing instructional capacity; therefore, it should occur over a sustained period and not within a single setting (Darling-Hammond et al., 2017; Howell et al., 2018; Kim et al., 2011; Limbrick et al., 2010; Mosqueda et al., 2016; Olson et al., 2019; Parr & Timperley 2010; Pella, 2011, 2015).

Chapter 1: Synthesis of Literature

This chapter presents an examination of factors that relate to middle school students' text-based writing performances. The section begins with a discussion of the political influences that led to the utilization of text-based writing. The chapter then transitions to an introduction to the problem of practice and the theoretical framework used to examine it and then moves to an in-depth synthesis of literature that explains how several factors related to students, teachers, and families influence, either directly or indirectly, student text-based writing performance. The chapter ends with a discussion of the implications of the literature review and the need for an assessment of these factors.

Political Factors Influencing the Utilization of Text-Based Writing

In 1983, the National Commission on Excellence in Education powerfully influenced the direction of education with its landmark report: *A Nation at Risk: The Imperative for Educational Reform* (hereafter referred to as *A Nation at Risk*). The commission boldly proclaimed the disheartening message that the U.S. educational system was failing to prepare students with the skills for both college and career readiness. As evidence for its claim, the commission cited low student achievement on academic tests, particularly when compared to students of other countries, high numbers of illiterate adults, declining standardized test scores, absence of key higher-order thinking skills in adolescents, and the increasing number of remedial courses offered at the college level. Prior to the report's publication, the U.S. had "little impetus for reforming elementary and secondary education" (Taft, 2015, p. 243). However, with the very palpable concern of the U.S. losing its commercial and industrial competitiveness to other nations, and the very real threat of citizens lacking the skills needed to thrive fully in society, the report "ushered in the standards-based reform movement" that would motivate actions at the

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local, state, and federal levels for decades to come (Lavenia, Cohen-Vogel, & Lang, 2015, p. 145).

During this time, stakeholders at these levels responded to issues identified in *A Nation at Risk* (National Commission on Excellence in Education, 1983). These responses came in the form of accountability systems, which included the establishment of educational goals (National Education Goals Panel, 1991; National Education Goals Panel, 1999a; Vinovskis, 1999) and standards (Common Core State Standards Initiative, 2010; No Child Left Behind Act of 2001, 2002), and the utilization of assessments in measuring student progress towards these goals and standards (National Council on Education Standards and Testing, 1992; National Governor's Association, Council of Chief State School Officers, & Achieve, Inc, 2008; No Child Left Behind Act of 2001, 2002).

For example, in the late 1980s, President Bush Sr. and the National Governor's Association (NGA) collaborated to develop a set of national educational goals (National Education Goals Panel, 1991) for schools to help U.S. students achieve by the turn of the century (Vinovskis, 1999), the progress of which was measured by The National Assessment of Educational Progress (NAEP) (National Council on Education Standards and Testing, 1992; National Education Goals Panel, 1999b). In the mid-nineties, President Bill Clinton passed the Goals 2000: Educate America Act (1994) and the Improving America's Schools Act of 1994, the former serving as a framework with which stakeholders would reform educational systems to strive towards the vision of President Bush Sr. and the NGA and the latter serving as a plan for how the federal government would support this endeavor (Greer 2018). During the early portion of the 21st century, President Bush Jr. passed the No Child Left Behind Act of 2001, which required states desiring federal grant funding to adopt "challenging academic content standards

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and challenging student academic achievement standards” (pp. 1444-1445) and develop and implement annual assessments that measured local and state student progress towards the standards.

Decades of pairing educational standards with assessments set the foundation for the NGA, the Council of Chief State School Officers, and Achieve (2008), a non-profit, bipartisan organization, calling for the development of “a common core of internationally benchmarked standards in math and language arts for grades K-12,” assessments that are aligned to the standards, and accountability systems for monitoring student progress against the standards (p. 6). The *Common Core State Standards for English Language Arts & Literacy, History/Social Studies, Science, and Technical Subjects* (hereafter referred to as CCSS, Common Core State Standards Initiative, 2010) represents the manifested vision of the NGA, the Council of Chief State School Officers, and Achieve (2008). Furthermore, the standards also represent a fairly recent response to low rankings of U.S. students on international assessments (Kastberg, Chan, Murray, & Gonzales, 2015) and high numbers of students needing remedial courses at the postsecondary level (Chen & Simone, 2016), issues identified decades earlier in *A Nation at Risk* (National Commission on Excellence in Education, 1983).

Shifting to Different Measures of Writing

States' adoption of these newer standards correlated with the development and utilization of writing assessments that differed from dominant writing assessments (CCSS, 2010; National Assessment Governing Board, 1997, 2006, 2010; New Meridian, 2019a; PARCC, 2012; SBAC, 2015). The writing standards within the CCSS (2010), for example, place a heavy emphasis on students being able to substantiate claims and reasoning with evidence from source materials. Naturally, writing assessments that were developed to accurately measure proficiency in this

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area, such as the ELA PARCC and SBAC, included tasks that required students to support claims with “relevant text-based evidence” (New Meridian, 2019b, p. 5). Various versions of the writing NAEP, on the other hand, included tasks that allowed students to utilize personal experience to support ideas and reasoning (National Assessment Governing Board, 1997, 2006, 2010). Thus, the adoption of the CCSS (2010) led more states to utilize annual assessments that aligned to the standards (Jochim & McGuinn, 2016), which included on a much larger scale a different way of assessing writing. Moreover, because learning standards and high-stakes tests influence curricular content and teacher-pedagogy (Au, 2007), it is very probable that this way of assessing writing became utilized more frequently at the classroom level.

Text-Based Writing

The term text-based writing will be used to describe the kind of writing measure just described. Broadly speaking, the term describes composition in which students must communicate ideas that are substantiated or developed with sources (De La Paz & Levin, 2017; Matsumura et al., 2015; Monte-Sano & De La Paz, 2012; Perin et al., 2017). The ideas that students are expected to communicate include (but are not limited to) claims that respond to questions posed within the tasks, evidence that comes from source materials to support the claims, and reasoning that makes explicit the logic students use to arrive at their claims (Perin et al., 2017). In the following literature review, the problem of low student text-based writing performance will be introduced, and factors that provide insight into the problem will be explored.

Statement of the Problem of Practice

Assessment data from across the nation communicate a concern about the quality of middle school students' text-based writing performance (Colorado State Department of

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Education, 2019; Maryland State Department of Education, 2020a). In Colorado, 175,830 students in grades six through eight took the ELA PARCC in 2017. Data reveal that 57% of these students ($n = 100,809$) did not meet or exceed CCSS (2010) standards of reading and writing (Colorado State Department of Education, 2020). In the same year, 190,131 middle school students in Maryland also took the ELA PARCC. Data from this state reveal that roughly 59% of these students ($n = 113,837$) did not meet or exceed CCSS (2010) standards of reading and writing (Maryland State Department of Education, 2020a). Considering that 41% of the points earned on the ELA PARCC come from the completion of writing tasks, including those that are text-based (New Meridian, 2019a), data from Colorado and Maryland suggest that many middle school students are not on track to graduate high school with the writing skills needed to succeed in college and the workplace.

This issue with students' text-based writing performance is found within Diverse City, a large, public school district in a mid-Atlantic state. During the district's most recent administration of the ELA PARCC in 2019, 67.14% ($n = 19,957$) of 29,722 sixth, seventh, and eighth grade students failed to meet or exceed CCSS (2010) standards of reading and writing. While only data on composite score performance (i.e., combined scores on reading and writing) are reported on the district's state website, these findings suggest that many students may not possess the writing skills needed for future schooling and beyond.

Assessment data on the ELA PARCC from Granberry Middle, a school within Diverse City, provide an even greater cause for concern, specifically for the writing capacity of students at this school. Over a period of five years, between 76% and 87% of sixth, seventh, and eighth grade students neither met nor exceeded CCSS (2010) expectations for reading and writing, including in the year 2015 ($n = 811$, 84.65%), 2016 ($n = 791$, 79.89%), 2017 ($n = 866$, 87.47%),

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2018 ($n = 855$, 76.4%), and 2019 ($n = 890$, 75.87%) (State Department of Education, 2020a, 2020b). Similar to the aforementioned state and district-level data, the data from Granberry suggest that this school's students may have deficits in writing that may preclude them from entering high school, college, and the workplace with the writing skills needed to succeed.

Theoretical Framework: Ecological Systems Theory

The ecological systems theory (EST; Bronfenbrenner, 1994) will be used to examine the factors that influence, either directly or indirectly, the performance of middle school students on text-based writing tasks. Developed by Bronfenbrenner (1994), the theory serves as a framework with which researchers examine the complexities of human development. Bronfenbrenner (1994) explains this developmental process as the result of a consistent and reciprocal relationship between humans and elements (i.e., people, objects, and symbols) within various systems, including microsystems, mesosystems, exosystems, macrosystems, and chronosystems.

Microsystems describe the settings in which social interactions include the person of focus, while mesosystems describe environments that involve the interaction between members of different microsystems, both of which involve the person of focus. Exosystems are broader than microsystems and mesosystems and entail the social interactions between participants of “two or more settings, at least one of which does not contain the developing person, but in which events occur that indirectly influence processes within the immediate setting in which the developing person lives” (Bronfenbrenner, 1994, p. 1645). Macrosystems and chronosystems represent structures that shape the development of microsystems, mesosystems, and exosystems, with the former through the evolution of social conventions, and the latter through changes that occur over periods of time. Later models of the EST (Bronfenbrenner & Morris, 2006) include

biosystems. This term is used to describe the developing person that experiences “stability and change in the biopsychological characteristics...over the life course and across generations” (p. 796).

In sum, through the EST, researchers describe a complex network of systems (i.e., micro-, meso-, exo-, macro-, and chrono-) that facilitate the lifelong development of humans (i.e., biosystems). Using this framework as a theoretical lens, factors related to the problem of practice will be explored.

Factors Influencing Middle School Students' Text-Based Writing Performance

A complex system of factors (see Figure 1) can help to explain middle school students' poor text-based writing performance. At the biosystem level, these factors include students' reading proficiency (Fang & Park, 2019; Perin et al., 2017), students' writing self-efficacy (Bruning, Dempsey, Kauffman, & McKim, 2013; De Smedt et al., 2018), and students' application of cognitive strategies (Mason, Kubina, & Taft, 2011; Olson et al., 2017). Within the microsystem, specifically at the classroom level, these factors include teachers' use of evidence-based writing practices (Benedek-Wood, Mason, Wood, Hoffman, & McGuire, 2014; Correnti, Matsumura, Hamilton, & Wang, 2012; Drew et al., 2017; Graham et al., 2014; Kiuahara et al., 2019; Mason et al., 2011; Matsumura et al., 2015; Monte-Sano & De La Paz, 2012) and teachers' beliefs about writing and writing instruction (Brindle, Graham, Harris, & Hebert, 2016; Troia & Graham, 2016; Troia et al., 2011). Within the mesosystem, these factors include family support (Camacho & Alves, 2017), and within the exosystem level, these factors include teachers' preservice (Graham et al., 2014; Hodges, Wright, & McTigue, 2019; Myers et al., 2016; Troia & Graham, 2016) and inservice (Graham et al., 2014; Troia & Graham, 2016) preparation.

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When considering these factors collectively, reasons for students' poor performance on text-based writing tasks becomes clear. Teachers influence student writing performance (Mason et al., 2013; Mason et al., 2011; Olson et al., 2017); however, if teachers are not receiving sufficient preparation to teach text-based writing tasks through teacher preparation programs and professional development opportunities (Drew et al., 2017; Graham et al., 2014), then student performance may indirectly suffer. For example, the lack of sufficient preparation may lead teachers to assign writing tasks of low cognitive demand, which in turn may prevent students from developing the skills needed to respond successfully to text-based writing tasks (Matsumura et al., 2015). Furthermore, without sufficient pre-service and in-service preparation, teachers may not frequently apply evidenced-based writing instructional practices (Drew et al., 2017; Graham et al., 2014) that have proved effective in improving student writing capacity (Graham & Perin, 2007a; Graham & Perin, 2007b; Graham & Perin, 2007c). In addition, when students do not possess strong reading abilities (Fang & Park, 2019) or receive help from families in developing writing skills (Camacho & Alves, 2017), then their writing performance may suffer. Each of the aforementioned factors and the accompanying research will be discussed in greater detail below.

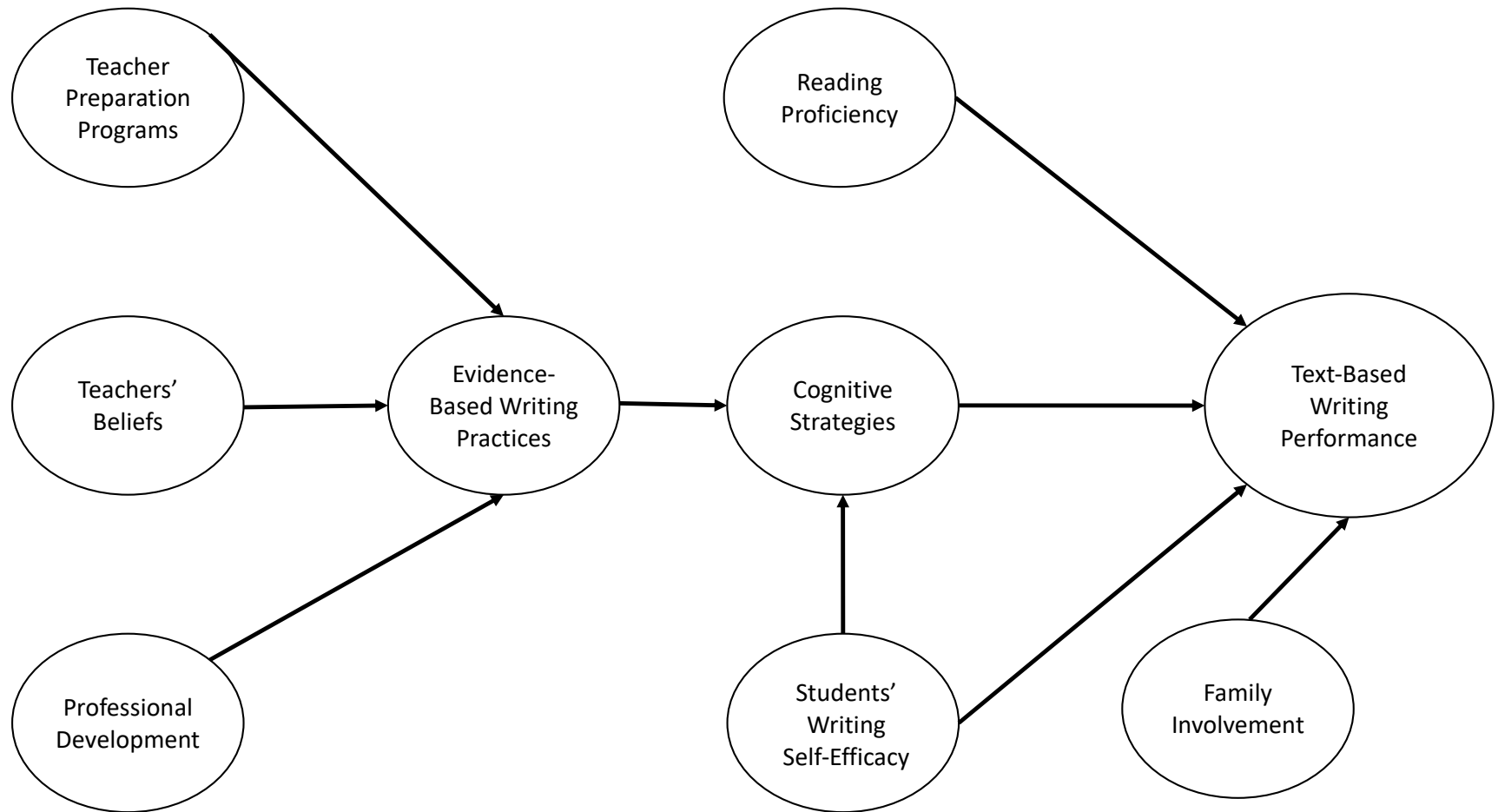


Figure 1. *Conceptual Framework of Factors Related to Student Performance on Text-Based Writing Task*

Biosystem: The Student

Reading Proficiency. Research has shown that students' proficiency in reading can influence their writing performance in different ways (Fang & Park, 2019; Perin et al., 2017). Perin et al. (2017), for example, show that reading proficiency may influence students' comprehension of text-based writing source texts and students' incorporation of features unique to certain types of expository writing. To examine the relationship between these phenomena, the researchers gathered reading and writing data from 211 "low-skilled adult students enrolled in postsecondary developmental education" (Perin et al., 2017, p. 888). This process specifically involved the researchers administering a section of the *Nelson-Denny Reading Test* (Brown, Fishco, & Hanna, 1993) and administering both a summary writing task and a persuasive essay writing task. Data analyses using Pearson's correlation revealed a statistically significant relationship between reading proficiency and the proportion of main ideas from the article that students included in their summaries ($r = .29, p < .01$) and the proportion of persuasive features that students included in their essays, including "propositions, reasons, elaborations of propositions...counterarguments [and] rebuttals" ($r = .14, p < .05$) (Perin et al., 2017, p. 895). Considering that the students only included in their summaries roughly 25% of the source text's main ideas and that slightly less than 50% of the persuasive essays' content contributed to the actual development of students' persuasive arguments, Perin et al.'s (2017) data analyses indicate that low reading proficiency strongly limits both students' comprehension of text-based writing source texts and students' ability to incorporate features of persuasive writing.

Fang and Park (2019), on the other hand, show that reading proficiency can influence the specific language that students use in their writing. In their study, the researchers analyzed data from 93 (seventh, $n = 48$; ninth, $n = 45$) student expository writing samples, which allowed them

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to examine the relationship between these students' reading proficiency (in what the researchers' described as low, average, high) and academic language use. One phase of the data collection process allowed Fang and Park (2019) to determine how frequently students used certain kinds of academic language, the specific steps of which involved two researchers coding student responses for 11 academic language features (e.g., specialized terminology, general academic vocabulary, and appositives). Using Pearson's Correlation, Fang and Park (2019) discovered a statistically significant, positive relationship between the students' academic language use and reading ability ($r = 0.46, p < 0.001$), the implications of which suggest that when students have low reading proficiency, academic language use occurs infrequently in students' expository writing.

Takeaways from the Literature. When applying the research on reading proficiency (Fang & Park, 2019; Perin et al., 2017) to the problem of practice, one can conclude that low reading proficiency may contribute to low student performance in the area of text-based writing. Two constructs on which middle school students are scored when responding to text-based writing tasks are reading comprehension and written expression, the latter of which encompasses the features unique to text-based expository writing that students must incorporate (e.g., claims, evidence, reasoning) and the language that students choose to use to communicate their ideas (New Meridian, 2019c). Perin et al. (2017) suggest through their study that when students have low reading proficiency, they may struggle with demonstrating through writing their comprehension of source materials that are associated with specific text-based writing tasks. Consequently, these students' scored text-based writing responses may suffer because the students may not communicate a sufficient number of main ideas to demonstrate "full comprehension of ideas stated explicitly and inferentially" (New Meridian, 2019b, p. 5). In

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addition, Perin et al. (2017) suggest that when students have low reading proficiency, they may struggle to comprehensively develop their responses to text-based writing tasks. This issue is particularly problematic because scorers who utilize text-based writing rubrics (Maryland State Department of Education, 2020c, 2020d; New Meridian, 2019b) assess students' ability to thoroughly develop their perspectives using, for instance, strong claims, relevant evidence, and sound reasoning.

Fang and Park (2019) imply through their findings that when students have low reading proficiency, they may not incorporate the kinds of academic language that could help enhance their text-based writing scores. This conclusion seems plausible when looking at an additional finding of the researchers, who discovered a statistically significant, positive relationship between students' ($N = 93$) academic language use and writing quality ($r = 0.61, p < 0.01$), indicating that academic language served some kind of function in students' overall scores on the persuasive essay used to measure students' writing. This finding is noteworthy because it may provide insight into why the students with low reading proficiency ($n = 21, M = 281.90, SD = 19.88$), when compared to their average ($n = 29, M = 319.72, SD = 11.63$) and high ($n = 43, M = 380.00, SD = 27.19$) reading level peers, had less frequent academic language use ($M = 9.81, SD = 5.86; M = 10.17, SD = 5.49; M = 16.19, SD = 6.66$) and, correlatively, lower holistic scores on their persuasive essays ($M = 21.36, SD = 3.91, M = 23.59, SD = 5.26, M = 27.48, SD = 5.01$). In other words, a possible reason why students of low reading proficiency in Fang and Park's (2019) study did not earn comparable scores to their average and high proficiency counterparts is because they may not have incorporated enough academic language in their writing that could have garnered them higher scores.

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In sum, low reading proficiency may adversely affect the reading comprehension and written expression that students need for text-based writing. Thus, when middle school students demonstrate poor performance in this area, they may have reading proficiency challenges that prevent them from communicating their understanding of text-based writing source materials, developing comprehensive responses to text-based writing tasks, and utilizing effective language to enhance their text-based writing responses.

Limitations of the Literature. The research that provides this insight (Fang & Park, 2019; Perin et al., 2017), however, should be applied with some caution. It is important to note that Perin et al. (2017) only used in their study students of low reading proficiency. Hence, their findings on the influence of reading proficiency on writing performance have limitations in application to students with higher reading proficiencies. Moreover, it is quite possible that had these researchers included in their study students of higher reading proficiencies, then the researchers' additional findings that appear to contradict the message that reading proficiency influences writing performance could have been different. In particular, Perin et al. (2017) also measured the relationship between reading proficiency and academic language use, and although the researchers did find a statistically significant relationship between these two constructs within students' summaries ($r = .15, p < .05$), they did not find a statistically significant relationship between these two constructs within the persuasive essay ($r = .13, p < .05$). Had Perin et al. (2017) included students with higher reading proficiencies, then they may have found, like Fang and Park (2019), that academic language use increases with students' reading proficiency, and that students of low reading proficiency are less likely to use academic language in their writing.

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Remaining on the topic of academic language use, it is also important to discuss a finding in Fang and Park's (2019) study that appears to contradict the message that reading proficiency influences writing performance. Although the researchers found a statistically significant relationship between the reading proficiency and the academic language use in expository writing of the total student sample ($N = 93$, $r = 0.46$, $p < 0.001$) and the seventh grade students within the sample ($n = 48$, $r = 0.50$, $p < 0.001$), the researchers did not find a statistically significant relationship between the reading proficiency of the ninth students ($n = 45$, $r = 0.39$, $p < 0.001$) and the 11 measured academic language features, the findings of which suggest that reading proficiency did not influence this group's academic language use within the persuasive essay. It is unclear why reading ability did not appear to influence the academic language use of ninth grade students, as the researchers did not explore why statistical significance did not exist between the ninth-grade students' reading abilities and the 11 academic language features. Thus, Fang and Park's (2019) research is limited in communicating that reading proficiency influences writing performance by way of academic language.

Overall, a major takeaway from the discussed research (Fang & Park, 2019; Perin et al., 2017) in light of the problem of practice is that even though low reading proficiency may be a reason why middle school students perform poorly in the area of text-based writing performance, it does not appear to be the only biosystem factor that influences student performance in this area. Hence, an exploration of additional factors is needed.

Writing Self-Efficacy. Research has shown that students' writing self-efficacy, a term used to describe the degree of confidence that people have in their writing abilities (Pajares, 2003, 2007), may influence student writing performance (Bruning et al., 2013); however, this influence may be more indirect than direct (De Smedt et al., 2018). In one study, Bruning et al.

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(2013) did find positive relationships between 520 eleventh grade students' performance on a persuasive essay from a statewide assessment and three dimensions of writing self-efficacy, including self-efficacy for generating ideas for writing (i.e., ideation), self-efficacy for applying the rules of language to translate generated ideas into writing (i.e., conventions), and self-efficacy for managing the mental, affective, and behavioral difficulties of writing (i.e., self-regulation). This conclusion occurred after the researchers gathered data using the *Self-Efficacy for Writing Scale* and analyzed the data, the findings of which revealed positive relationships between ideation ($N = 457, r = 0.203, p < .001$), conventions ($N = 460, r = 0.378, p < .001$), and self-regulation ($N = 457, r = 0.206, p < .001$). From these data, Bruning et al. (2013) concluded that a direct relationship exists between students' confidence in their writing abilities and their writing performance.

De Smedt et al. (2018), however, discovered a finding that appears to challenge this assertion. In their study, the researchers used a subsample of 799 students in grades five ($n = 369$) and six ($n = 430$) from 44 Flemish elementary schools to examine the relationships between writing self-efficacy, cognitive strategy application, and writing performance. Interestingly, after analyses of gathered data using an adapted version of the *Self-Efficacy for Writing Scale* (Bruning et al., 2013) and both an informational and a narrative writing task, the researchers discovered no statistically significant relationship between the three dimensions of self-efficacy (i.e., ideation, conventions, self-regulation) and students' writing performance on the two writing tasks. De Smedt et al. (2013) came to this finding that contradicted their hypothesis after analyzing the data by both gender and achievement level (in what researchers described as low, average, high). The researchers did, however, discover statistically significant relationships between the three dimensions and students' application of four cognitive strategies that relate to

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writing, including thinking, planning, revising, and controlling (i.e., extent to which students review their writings' content and structure). After gathering data on these constructs using a questionnaire and analyzing the data by gender, De Smedt et al.'s (2018) found a positive relationship between self-efficacy for regulation and thinking ($r = 1.87, p < .001$), planning ($r = 1.88, p < .001$), revising ($r = 1.44, p < .001$), and controlling strategies ($r = 1.79, p < .001$), a negative relationship between self-efficacy for conventions and thinking ($r = -1.44, p < .001$), planning ($r = -1.43, p < .001$), revising ($r = -1.33, p < .001$), and controlling strategies, ($r = -1.28, p < .01$), and a negative relationship between self-efficacy for ideation and planning ($r = -0.34, p < .01$) and controlling strategies ($r = -0.16, p < .05$). The researchers' data analysis by achievement level revealed similar associations, with self-efficacy for regulation positively correlated with thinking ($r = 0.80, p < .001$), planning ($r = 0.60, p < .001$), and controlling ($r = 0.73, p < .001$) strategies and self-efficacy for conventions negatively correlated with thinking ($r = -0.30, p < .01$), planning ($r = -0.29, p < .01$), and controlling ($r = -0.25, p < .01$) strategies. Overall, the implications of De Smedt et al.'s (2018) findings are that students' confidence in their writing abilities may influence the cognitive strategies that students use to respond to writing tasks. In other words, the relationship between writing self-efficacy and writing performance appears to be, in contrast to what Bruning et al. (2013) found, more indirect than direct.

Takeaways from the Literature. When considering the problem of practice through the lens of writing self-efficacy research (Bruning et al., 2013; De Smedt et al., 2018), the reason for middle school students' low text-based writing performance becomes clearer. If writing self-efficacy is connected with writing performance (Bruning et al., 2013), then the implication of this knowledge for the problem of practice is that low text-based writing self-efficacy influences

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low text-based writing performance. This influence, however, appears to occur through a mediating variable, specifically cognitive strategy application (De Smedt et al., 2018). In other words, writing self-efficacy appears to influence the degree to which students apply the cognitive strategies needed for successful writing outcomes. Perhaps this indirect relationship that De Smedt et al. (2018) imply through their research is why Bruning et al. (2013) found a “relatively low,” albeit statistically significant, correlation between two dimensions of writing self-efficacy (i.e., ideation and self-regulation) and students’ performance on the persuasive essay writing task (p. 33). Had the relationship between these two dimensions and writing performance been more direct, then perhaps the measured correlation would have been higher. Such a conclusion (i.e., writing self-efficacy indirectly influences writing performance) is critical in light of the problem of practice. The complexity and successful completion of text-based writing requires students to strategically employ an arsenal of cognitive strategies (Olson et al., 2017). So, if middle school students have low text-based writing performance, then that may be an indication that they do not have high enough confidence to make them want to exert effort into applying the cognitive strategies needed for success (Pajares, 2003).

Limitations of the Literature. Despite the insight that these studies provide (Bruning et al., 2013; De Smedt et al., 2018), the research on the influence of students’ writing self-efficacy on writing performance must be interpreted with a degree of caution. There is a possibility that the misalignment of instruments in both Bruning et al.’s (2013) and De Smedt et al.’s (2018) studies could have tainted the data and the subsequent findings. In his seminal work, Pajares (2003) emphasizes that instrument designers seeking to develop scales that measure writing self-efficacy need to ensure precise correlation between self-efficacy scales and measured outcomes. In Bruning (2013), the measured outcome was students’ performance on a persuasive essay;

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however, the writing self-efficacy scale used to measure the three dimensions did not have items unique to persuasive writing. Questions for each of these dimensions within this study include, for example, “I can think of many ideas for my writing” (ideation), “I can spell my words correctly” (conventions), and “I can focus on my writing for at least one hour” (self-regulation). De Smedt et al. (2018), while not including in their study a copy of the self-efficacy scale, communicated that they had adapted the *Self-Efficacy for Writing Scale* from Bruning et al. (2013), so there is a possibility that De Smedt et al. (2018) also did not align the items specifically to the informational and narrative tasks that they used to measure students' outcomes.

The lack of precision between the writing self-efficacy scales and the writing task might have captured students' thoughts about their writing self-efficacy as it related to tasks different from what the researchers measured. In other words, a student in either of the studies might have, for instance, thought about notetaking while completing the surveys and not persuasive (Bruning et al. (2013), informational, or narrative (De Smedt et al., 2018) writing. Thus, some of the findings, such as the “positive but relatively low” relationship between some of the writing self-efficacy dimensions and students' writing outcomes, which hinted at indirect rather than direct relationships between the two constructs, may have been the results of less precise construct operationalization. In sum, the research (Bruning et al., 2013; De Smedt et al., 2018) is limited in communicating that writing self-efficacy influences, either directly or indirectly, students' writing performance. Consequently, exploration of another biosystem factor for providing insight into the problem of practice is needed.

Cognitive Strategies. Through their empirical studies, researchers argue that when students do not have an arsenal of cognitive strategies to utilize when responding to academic

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writing tasks, their writing performance suffers (Mason et al., 2011; Olson et al., 2017). Olson et al. (2017) demonstrate this point in their research in which they examined over a two-year period the writing outcomes of middle and high school students (year one, $N = 1,817$, year two, $N = 1,250$) within ELA classes. During their study, students within treatment groups received instruction from teachers who participated in 46 hours of PD that was designed to improve their students' "interpretive reading and text-based analytical writing" through the teaching of cognitive strategies (e.g., summarizing, making connections, drafting, revising, etc.) (Olson et al., 2017, p. 2). Students within control groups, however, received instruction from teachers who had (during both years) attended a one-day PD, the contents of which included topics such as the reviewing of "district benchmark assessments" and "text complexity" (Olson et al., 2017, p. 2). During both years of the study, quantitative data analysis revealed that when compared to treatment group students (year one, $n = 966$, $M = 1.18$, $SD = 1.91$; year two, $n = 631$, $M = 1.58$, $SD = 2.00$), control group students (year one, $n = 851$, $M = .19$, $SD = 1.91$; year two, $n = 616$, $M = .36$, $SD = 1.93$) demonstrated less writing gains as measured on a text-based analytical writing posttest. These findings suggest that students in the control groups were less equipped than their treatment group counterparts to respond to the text-based analytical writing tasks. Thus, the lack of application of cognitive strategies can lead to weaker performances on academic writing tasks.

Two studies that Mason et al. (2011) conducted further demonstrate this point. In both studies, the researchers evaluated the effects of a self-regulated strategy development (SRSD) intervention on the performance of seventh grade students with disabilities on persuasive quick write responses. In the first study, one of the researchers provided between five and six SRSD lessons to six students with specific learning disabilities, behavioral disabilities, and/or health impairments. In the second study, a year after the initial study, two special education teachers

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delivered five to six SRSD lessons to 10 students with one or more of the aforementioned disabilities. Through the lessons in both studies, participating instructors (i.e., one of the researchers and the two special education teachers) specifically taught students to improve their persuasive quick write performances through two SRSD strategies. Specifically, these strategies developed students' abilities to (broadly speaking) pick, organize, and write about ideas (i.e., POW) and include in their writing topic sentences, reasons, explanations, and endings (i.e., TREE).

Within both studies, data analysis of student writing collected before and after the SRSD intervention showed that when comparing student baseline data to student post-instruction data, student application of TREE components and the overall quality of student quick writes increased. For example, within study one, the mean range of TREE component application on the persuasive quick writes at baseline fell between 2.90 and 4.00, while the mean range for the components following the intervention components following the intervention (i.e., post-instruction) fell between 6.60 and 9.25 (Mason et al., 2011). Likewise, for the quality of student responses, the mean range at baseline fell between 2.80 and 3.88 and 4.80 and 6.50 at post-instruction (Mason et al., 2011). Study two had similar findings. Specifically, the mean range for TREE parts for students within this study fell between 3.61 and 3.97 at baseline and 6.60 and 7.50 at post-instruction, and for response quality, mean range fell between 3.22 and 3.53 and 4.84 and 5.38 at post-instruction (Mason et al., 2011). These findings indicate that the writing performance of students benefited when they applied specific cognitive writing strategies while completing the tasks.

Takeaways from the Literature. The literature on cognitive strategies (Mason et al., 2011; Olson et al., 2017) can help provide insight into the problem of practice. Students'

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performances on academic writing tasks appear to suffer when they do not have an arsenal of cognitive strategies at their disposal (Mason et al., 2011; Olson et al., 2017). Olson et al. (2017) required students in both treatment and control groups to write multi-paragraph essays, but the treatment groups may have been the only groups who received instruction that explicitly showed them how to actually write multi-paragraph essays. Similarly, Mason et al. (2011) required their participating students to write persuasive paragraphs, but these students may not have known how to write these paragraphs until after they had received instruction that showed them how to do so. A major takeaway from these findings is that the writing performance of students suffer when they do not specifically know *how* (through the application of cognitive strategies) to respond to academic writing tasks. Thus, the poor text-based writing performance of middle school students may be a sign that these students do not possess an arsenal of cognitive strategies to help them process how to address the tasks' demands.

Limitations of the Literature. While the literature on cognitive strategy use (Mason et al., 2011; Olson et al., 2017) does provide insight into the problem of practice, a few limitations do exist that are important to recognize. Olson et al. (2017), for instance, were not specific as to the kinds of writing strategies that students in control groups were taught as a means of helping them facilitate their responses to the text-based analytical essay. Therefore, it is unclear whether an absence of cognitive strategy application related to these students' particular writing scores. In addition, the design of the writing tasks used in Mason et al. (2011) differ from the design of text-based writing tasks. Specifically, the tasks that the researchers used did not require students to refer to source texts, so students were able to use their background knowledge as the primary source of evidence. Text-based writing, however, requires students to grapple with the meaning of texts prior to composing a response with them (Matsumura et al., 2015; Monte-Sano & De La

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Paz, 2012). Overall, the limitations of the research (Mason et al., 2011; Olson et al., 2017) illuminate the need for additional studies into the influence of cognitive strategy use on the text-based writing performance of middle school students.

Microsystem: The Classroom

Evidence-Based Writing Practices. Researchers have shown that when applied, evidence-based writing practices have the potential to enhance students' writing capacity (Benedek-Wood et al., 2014; Correnti et al., 2012; Kiuahara et al., 2019; Mason et al., 2011; Monte-Sano & De La Paz, 2012). Two practices in particular, namely self-regulated strategy development and text-based writing opportunities, will be discussed below within the context of the problem of practice.

Self-Regulated Strategy Development. Through the application of SRSD, researchers demonstrate that teachers can enhance the writing strategy knowledge and performance of students (Benedek-Wood et al., 2014; Kiuahara et al., 2019; Mason et al., 2011). In a recent pre-post-test cluster randomized control trial, Kiuahara et al. (2019) examined whether argument writing, taught using an SRSD approach, would enhance the fraction knowledge of fourth, fifth, and sixth grade mathematics students ($N = 59$) with or at risk for learning disabilities. To test this impact, the researchers developed two writing strategies (i.e., FACT and R^2C^2) and then trained mathematics teachers ($N = 10$, four general and six special) to teach these strategies using the six SRSD steps (i.e., develop background knowledge, discuss it, memorize it, model it, support it, and independent practice). Teachers in the treatment group ($n = 5$, two general and three special education) received two days of professional development on the implementation of the intervention, and their students ($n = 28$, 12 general and 15 special education) received instruction on the strategies through a sequence of six lessons lasting between 21 to 41 class

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sessions. Comparatively, survey and observational data gathered during parts of the study revealed that teachers in the control group ($n = 5$, two general and three special education) relied heavily on their district's mathematics curricula, and their students ($n = 31$, nine general and 22 special education) were not observed receiving instruction aligned to SRSD components (e.g., explicit instruction, self-regulation strategies, etc.).

The researchers conducted two separate multivariate analysis of variance (MANOVA) of the data, which was gathered using student responses from pre- and post-administrations of multiple-choice fractions tests and writing prompts. The first MANOVA, which compared the post-test averages between the five treatment teacher groups (i.e., 1A, 2A, 3A, 4A, 5A) and their five control teacher group counterparts (i.e., 1B, 2B, 3B, 4B, 5B), did not reveal a statistically significant difference in fraction knowledge as measured on the multiple-choice test ($z = -1.567$, $p = .117$). The analysis did, however, reveal a statistically significant difference in favor of the treatment teacher group averages in the number of rhetorical elements for argument writing ($z = -2.619$, $p = .009$), number of words written ($z = -2.611$, $p = .009$), and quality of mathematical reasoning ($z = -2.611$, $p = .009$) as measured by the written test. The second MANOVA, on the other hand, which compared the averages from pre-test to post-test between students in treatment groups and control groups, did reveal a statistically significant, albeit small, difference in favor of students in treatment groups in fraction knowledge as measured by the multiple-choice tests. In addition, the researchers discovered statistically significant differences in favor of students in treatment groups in number of rhetorical elements for argument writing, number of words written, and quality of mathematical reasoning. Collectively, these findings provide evidence that when taught using an SRSD approach, argument writing can deepen students' mathematical content knowledge.

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Despite the benefits of SRSD, an exploration of evidence-based writing practices (Drew et al., 2017; Graham et al., 2014) indicate that teachers may not frequently implement this approach to writing instruction. In Graham et al.'s (2014) study of the application of 19 evidence-based writing practices, for example, findings revealed that practices associated with SRSD (e.g., explicit instruction, strategy instruction, etc.) were taught infrequently. The researchers demonstrate this finding after they had gathered and analyzed survey data on the frequency (i.e., never, several times a year, monthly, several times a month, weekly, several times a week, daily, several times a day) of 285 middle school language arts, social studies, and science teachers' application of the practices. For instance, of the 112 language arts, science, and social studies teachers who reported on the survey their use of "direct instruction to teach basic writing skills," 15.7% ($n = 18$) said that they never used this practice, and 22.6% ($n = 25$) said that they used this practice only several times a year. In addition, of the 112 language arts, science, and social studies teachers who reported on the survey their teaching of planning strategies for writing, 6.1% ($n = 7$) said that they never used this practice, and 36.5% ($n = 40$) said that they used this practice only several times a year. Both of these writing instructional practices are associated with SRSD and improvements in student writing outcomes (Benedek-Wood et al., 2014; Kiuahara et al., 2019; Mason et al., 2011), but their infrequent application suggests that teachers nationwide may not frequently implement SRSD as an instructional approach to their students' writing.

Drew et al.'s (2017) study implies a similar message. In their study, the researchers explored the writing instructional practices of 287 middle and high school science teachers, and similar to Graham et al. (2014), Drew et al. (2017) discovered infrequent application of evidence-based writing practices, including those associated with SRSD. In particular, of the

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139 middle and 137 high school teachers who reported on the frequency of their use of explicit writing instruction, 24% ($n = 33$) and 41% ($n = 57$) said that they never used this practice, and 33% ($n = 45$) and 31% ($n = 42$) said that they used this practice only several times a year.

Moreover, of the 137 middle and 137 high school teachers who reported how frequently they taught their students to “self-regulate towards goals,” 20% ($n = 27$) and 31% ($n = 42$) said that they never used this practice, and 30% ($n = 45$) and 31% ($n = 41$) said that they used this practice only several times a year. As indicated earlier, explicit writing instruction and self-regulation skills are components of SRSD (Benedek-Wood et al., 2014; Kiuahara et al., 2019; Mason et al., 2011), so Drew et al.'s (2017) reporting of their infrequent application suggests that teachers nationwide may not be developing students' writing capacity with an SRSD approach.

Text-Based Writing Opportunities. Another evidence-based practice that has the potential to develop students' text-based writing capacity is the providing of opportunities for students to engage with writing tasks that require text-based composition (Correnti et al., 2012; Monte-Sano & De La Paz, 2012). In a study involving four history teachers, Monte-Sano and De La Paz (2012) explored the influence of task design on the historical reasoning of 101 ninth and tenth grade students. To measure this relationship, the researchers designed and randomly assigned to each student one of four writing tasks. While the tasks did constrain students to the same historical source materials (i.e., Winston Churchill's 1946 Iron Curtain Speech and President Truman's 1947 Speech to Congress), the tasks did require students to fulfill different purposes through their writing. For example, students who received a situated prompt had to visualize themselves as a person alive during the period in which the speeches were written and construct a letter to the Secretary-General arguing about the flaws of the Soviet Union and Communism. Students who received the sourcing prompt had to ascertain and communicate the

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influences undergirding Churchill and Truman's decisions to write their respective speeches. Students who received the document analysis prompt had to determine the similarities and differences behind Churchill and Truman's reasons for delivering their speeches. Lastly, students who received the causal prompt had to write an argument in which they communicated why Churchill and Truman spoke out directly against the Soviet Union and Communism.

The researchers utilized an analytic rubric to examine three aspects of historical reasoning, including substantiation, perspective recognition, and contextualization. Substantiation describes the degree to which students supported their claims with evidence and explanations. Perspective recognition describes students' ability to view the texts using the "authors' viewpoints that could be evaluated rather than...authoritative words to be accepted" (p. 285). Contextualization describes the degree to which students placed their arguments "in the appropriate time, place, and setting" in which the events occurred (p. 285). The researchers' application of univariate analyses revealed statistically significant differences between the four prompts (i.e., situated, sourcing, document analysis, causal) and students' perspective recognition ($F(3, 100) = 10.352, p = .000, \text{partial } \eta^2 = .24$). More specifically, the situated writing prompt differed significantly ($p = .000$) from the sourcing, document analysis, and causal writing prompts. Through these analyses, the authors discovered that students responding to the sourcing, document analysis, and causal prompts "demonstrated significantly stronger attention to or reconciliation of historical perspectives in their essays" than students who responded to the situated prompt (p. 289). Monte-Sano and De La Paz's (2012) findings suggest that by providing students with opportunities to engage with text-based writing tasks, teachers may help students to develop the kinds of higher order thinking needed to succeed on those tasks.

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Even though research has shown that providing opportunities for students to engage with text-based writing can benefit their text-based writing performance (Correnti et al., 2012; Monte-Sano & De La Paz, 2012), research into the kinds of writing tasks that teachers assign suggests that teachers may be exposing students more frequently to writing assignments that may not develop their text-based writing skills (Drew et al., 2017; Graham et al., 2014; Matsumura et al., 2015). Matsumura et al. (2015) provide evidence for this conclusion in their study in which they analyzed 123 ELA text-based writing tasks that 27 fifth grade teachers submitted. As a part of their scoring process, the researchers used a rubric from the *Instructional Quality Assessment* (Junker et al., 2006) to rate each writing task on a 4-point scale, with one and four representing low and high cognitive demand respectively. Scores from the collection revealed that 76.2% ($n = 94$) of the 123 text-based writing tasks rated as either a one ($n = 24$) or a two ($n = 70$), indicating that the tasks required students to, respectively, “recall isolated and fragmented facts about a text” and “construct a literal, surface-level representation of a text” (Matsumura et al., p. 421). These findings show that the tasks that teachers largely assigned elicited lower order thinking skills from students.

Other researchers (Drew et al., 2017; Graham et al., 2014) who explored the kinds of writing tasks that teachers assign found infrequent application of writing assignments of potentially high cognitive demand. Graham et al. (2014) and Drew et al. (2017), in particular, examined the frequency (i.e., never, several times a year, monthly, several times a month, weekly, several times a week, daily) of different writing tasks that middle school teachers reported assigning to their students. Of the 115 middle school language arts, science, and social studies teachers in Graham et al.'s (2014) study, 57.9% ($n = 66$) reported giving persuasive essays once or twice a year ($n = 46$) or never ($n = 20$), and 67.6% ($n = 76$) reported giving cause

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and effect essays one or twice a year ($n = 40$) or never ($n = 37$). Similarly, 55.3% ($n = 63$) reported giving five paragraph essays once or twice a year ($n = 32$) or never ($n = 31$), and 54.3% ($n = 62$) reported giving compare and contrast essays once or twice a year ($n = 42$) or never ($n = 20$). In addition, of the 139 middle school science teachers in Drew et al.'s (2017) study asked about their assigning of theory papers, 20% ($n = 28$) reported never assigning this type of writing task, and 9% ($n = 13$) reported assigning this writing task only once a year. Similarly, of the 141 middle school science teachers asked about their assigning of scientific arguments, 23% ($n = 32$) reported never assigning this type of writing task, and 12% ($n = 17$) reported assigning this writing task only once a year. The findings from the research on teachers' frequency of assigned writing tasks suggest that teachers of different content areas, including language arts, social studies, and science, may be providing students with few opportunities to engage with writing tasks that require higher-order thinking skills (Drew et al., 2017; Graham, et al., 2014).

Takeaways from the Literature. The research on evidence-based writing instructional practices (Benedek-Wood et al., 2014; Correnti et al., 2012; Drew et al., 2017; Graham et al., 2014; Kiuahara et al., 2019; Mason et al., 2011; Monte-Sano & De La Paz, 2012) may help to explain the low text-based writing performance of middle school students. Empirical research has shown that the instructional practices that teachers implement can positively develop the writing capacity of students (Kiuahara et al., 2019; Monte-Sano & De La Paz, 2012), including the capacity for students to respond effectively to tasks that require text-based writing (Matsumura et al., 2015; Olson et al., 2017). However, if teachers implement these evidence-based writing practices infrequently (Drew et al., 2017; Graham et al., 2014; Matsumura et al., 2015), then middle school students may, instead, have regular access to practices that do little to improve their text-based writing capacity (Matsumura et al., 2015). This infrequent application

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of evidence-based writing practices may be even more problematic for students in non-ELA classes. Indeed, Graham et al. (2014) also found in their study that social studies and science teachers reported implementing evidence-based writing practices less frequently than language arts teachers. In sum, the low text-based writing performance of middle school students may be an indication that teachers are infrequently implementing evidence-based writing instructional practices, such as SRSD and providing text-based writing opportunities.

Limitations of the Literature. An examination of the research on evidence-based writing practices (Drew et al., 2017; Graham et al., 2014) in relation to the problem of practice would not be complete, however, without noting important limitations. As discussed earlier, Drew et al. (2017) and Graham et al. (2014) gathered and analyzed data that came solely from surveys. This aspect of the researchers' study design is important to recognize because it indicates that the researchers relied heavily on teachers' ability to remember their application of writing practices during classroom instruction. Thus, there is the possibility, because the researchers did not verify their findings with additional forms of data (e.g., data gained through observations), that teachers reported less accurate data, which would make the researchers' findings about the infrequency of evidence-based writing practices invalid.

Additionally, while a strong point in Matsumura et al.'s (2015) study is that the researchers came to their conclusions using actual teacher generated artifacts (i.e., 123 writing tasks), and not just self-report data, a weakness of their study is that their procedures that led them to an important conclusion call into question the influence of text-based writing opportunities on students' text-based writing skills. To specify, Matsumura et al. (2015), in order to minimize measurement error that may have resulted from student issues with reading fluency and comprehension, required the participating fifth grade teachers to facilitate "students'

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literal comprehension of the text,” a process that included the teachers reading the text accompanying the response-to-text assessment aloud to students and answering students’ questions about the text (p. 423). This decision may have influenced student performance on the response-to-text assessment. Demonstrating the ability to analyze a text, for example, requires students to show “a clear understanding of the text’s purpose and to make valid and perceptive claims that constitute an insightful response to the prompt” (p. 423). This description suggests that student understanding is needed to demonstrate analysis, so if teachers facilitated student understanding, then there is a possibility that student performance on the response-to-text assessment captured some of the teachers’ literacy abilities. Thus, the conclusion that teacher provided text-based writing opportunities help to cultivate students’ text-based writing abilities lacks some degree of empirical support (Matsumura et al., 2015).

Overall, while the research into evidence-based writing practices (Benedek-Wood et al., 2014; Correnti et al., 2012; Drew et al., 2017; Graham et al., 2014; Kiuahara et al., 2019; Mason et al., 2011; Monte-Sano & De La Paz, 2012) does provide insight into problem of practice, the limitations of the research suggest that other factors should be explored when attempting to understand the low text-based writing performance of middle school students.

Teacher Beliefs. Through empirical studies, researchers communicate that the interaction of beliefs that teachers hold about writing and writing instruction influence the practices that teachers implement (Brindle et al., 2016; Troia & Graham, 2016; Troia et al., 2011).

Attitudes, Efficacy, Orientations, and Practices. Brindle et al. (2016) demonstrate this idea in their national study in which they gathered and analyzed data from 157 third and fourth grade teachers. This process specifically involved the researchers surveying teachers on four

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manifestations of writing beliefs, specifically teachers' attitudes about their own writing, attitudes about teaching writing, efficacy for teaching writing, and beliefs in the specific ways writing should be taught (i.e., theoretical orientations). This process also involved the researchers surveying teachers on their use of 19 evidence-based writing practices, each of which fell into one of four categories, including evidence-based teaching (e.g., teaching students strategies for writing), evidence-based writing (e.g., providing opportunities for students to write for different purposes), time that teachers spent delivering writing instruction, and time that students spent writing in class and at home. To examine whether the four manifestations of teacher beliefs predicted teachers' use of evidence-based writing practices, the researchers conducted a multiple regression analysis.

One finding from the analysis revealed that the four manifestations of beliefs, along with a fifth variable (i.e., teachers' writing instruction preparation), predicted teachers' use of evidence-based writing practices. This finding suggests that the collection of beliefs that teachers hold influences the writing practices that they implement. Another finding from the researchers' analysis, however, revealed that only two kinds of beliefs, namely efficacy for teaching writing and theoretical orientations, made any kind of independent and statistically significant prediction of the evidence-based writing practices that teachers reported using, though it is important to know that these beliefs only predicted evidence-based teaching and not evidence-based writing, time that teachers spent delivering writing instruction, and time that students spent writing in class and at home. This finding suggests that certain belief dimensions have a stronger influence over teachers' implementation of evidence-based writing practices than others.

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Efficacy, Orientations, and Practices. In a smaller, mixed methods study involving six elementary school writing teachers, Troia et al. (2011) also found evidence that teachers' writing instructional beliefs, specifically writing self-efficacy and theoretical orientations, influence teachers' writing instructional practices. To measure this influence, the researchers gathered at two separate times data on teachers' writing instruction efficacy, theoretical orientations (i.e., how writing should be taught), and writing instructional practices using, respectively, the *Teacher Writing Orientation Scale*, the *Teacher Efficacy Scale for Writing*, and the *Teacher Writing Practices Scale*. In addition, the researchers gathered data on teachers' writing instructional practices through multiple observations of writing workshop periods, 45-minute instructional blocks occurring several days a week dedicated to the teaching, exploration, and practice of genre-based writing. Moreover, Troia et al. (2011) gathered data on teachers' theoretical orientations (and other areas) through one of their four interviews.

The analysis of the quantitative and qualitative data followed by the blending and subsequent discussion of the findings revealed that teachers' reported efficacy for teaching writing and beliefs on how writing should be taught manifested in teachers' specific instructional practices. For instance, the quantitative data from the six-point *Teacher Efficacy Scale for Writing* revealed that over the course of the school year, teachers possessed "a strong sense" of confidence in their ability to affect student writing outcomes (i.e., personal teaching efficacy, $M = 4.72$, $SD = .99$; $M = 4.67$, $SD = 1.13$) and confidence in their ability to overcome adverse external factors that impede students success (i.e., general teaching efficacy, $M = 4.42$, $SD = 1.46$; $M = 4.03$, $SD = 1.54$) (Troia et al., 2011, p. 166). However, when considering variances in these efficacy dimensions with the observational data, the researchers discovered that teachers with higher writing instruction efficacy implemented certain practices more frequently than those

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with lower writing instruction efficacy, including those related to student engagement and instructional adaptations. These findings collectively indicate that teachers' confidence in their ability to affect student writing outcomes (i.e., personal teaching efficacy), even when external factors impede success (i.e., general self-efficacy), influence the choice and frequency of writing instructional practices that teachers use.

Troia et al.'s (2011) analysis and discussion of data on theoretical orientations revealed similar findings on the influence of this dimension of teacher beliefs on the writing instructional practices of teachers. Specifically, the quantitative data from the six-point *Teacher Writing Orientation Scale* revealed that in general, teachers maintained throughout the school year a preference for both explicit instruction ($M = 5.50, SD = .78; M = 5.58, SD = .65$) and naturalistic ($M = 4.99, SD = 1.22; M = 4.42, SD = 1.61$) orientations and a deemphasis for correct writing orientation ($M = 2.43, SD = 1.52; M = 2.80, SD = 1.67$). Consequently, teachers, as substantiated by the qualitative data, placed more of an emphasis on practices such as modeling strategies for writing (i.e., explicit orientation) and providing time for in-class writing (naturalistic orientation) but less emphasis on practices such as "revising and editing checklists" (i.e., correct writing orientation) (Troia et al., 2011) (p. 168). These findings collectively indicate that teachers, unsurprisingly, tend to implement writing instructional practices that align with the way that they believe writing should be taught.

Attitudes and Efficacy. An additional study (Troia & Graham, 2016), though not directly showing a relationship between teacher beliefs and instructional practices, includes a discussion on the interaction of attitudes and self-efficacy, both of which have been linked to teachers' implementation of writing instructional practices (Brindle et al., 2016). In Troia and Graham's (2016) study, the researchers surveyed 482 teachers from grades three to eight, discovering a

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relationship between teacher efficacy for teaching writing and teacher attitudes (i.e., perceptions) towards both *Common Core State Standards* for writing and language (CCSS-WL) and Common Core aligned assessments for writing and language (CCAA). Specifically, the authors determined through regression analysis that teacher efficacy, along with teacher preparation, “contributed a unique and statistically significant contribution to CCSS-WL attitudes and beliefs,” and that when considering teacher efficacy, teacher preparation, grade level taught (i.e., elementary or middle school), “only teaching efficacy beliefs contributed unique and significant variance in explaining CCAA-WL attitudes and beliefs” (Troia & Graham, 2016, pp. 1737-1738). In other words, teachers’ confidence in their ability to teach writing predicted the way in which teachers viewed the Common Core writing and language standards and the assessments aligned to the standards. These findings suggest that teachers’ efficacy for teaching writing may influence how teachers view the writing subject that they have to teach to students in order to help students meet the standards.

Takeaways from the Literature. The research on teacher beliefs (Brindle et al., 2016; Troia & Graham, 2016; Troia et al., 2011) can help provide insight into the problem of practice. If the beliefs that teachers hold about writing and writing instruction influence their writing instructional practices (Troia et al., 2016; Troia et al., 2011), then the state of these beliefs influence whether teachers even implement practices that do, in fact, develop students’ text-based writing capacity. For example, teachers who do not have a strong enough belief that they can influence through their efforts student writing outcomes implement evidence-based writing instructional practices infrequently (Brindle et al., 2016). By that logic, therefore, teachers who do not strongly believe that they can improve students’ text-based writing outcomes will not frequently implement the very instructional practices, such as cognitive strategy development

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(Olson et al., 2017), that can improve those outcomes. In addition, teachers who hold philosophical beliefs that align with ineffective writing practices will implement those practices over others that may be more effective (Troia et al., 2011). So, if teachers who believe that improving middle school students' text-based writing performance can occur solely through instruction on conventions, even though conventions is only one area in which text-based writing is assessed (New Meridian, 2019b), then these teachers will favor instructional practices that highlight this area while avoiding practices that emphasize other areas. In sum, low text-based writing performance of middle school students may be indirectly related to the beliefs that teachers hold about writing and writing instruction.

Limitations of the Literature. The research on the relationship on teacher beliefs (Troia & Graham, 2016), particularly as they relate to writing instructional practices (Brindle et al., 2016; Troia et al., 2011), has limitations. As with the aforementioned research on other teacher factors (e.g., evidence-based writing instructional practices), the research on teacher beliefs (Brindle et al., 2016; Troia & Graham, 2016) rely on self-reported data, which means that the researchers had to trust in teachers' memories and evaluations. In other words, Brindle et al. (2016) and Troia and Graham (2016) had no other means to verify the accuracy of teacher reports that led them to their conclusions about the influence of beliefs on instructional practices. Unlike these researchers, Troia et al. (2011) did have observational data from teacher practices in their analysis; however, by their own admission, the researchers noted that their observations only captured occurrence, not frequency. In other words, the researchers did not verify the consistency of the relationship between teachers' theoretical orientations and their writing instructional practices, which makes their conclusions about the impact of beliefs on practices less precise. Overall, while there are studies in which researchers argue that teachers' beliefs

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influence their writing instructional practices (Brindle et al., 2016; Troia & Graham, 2016; Troia et al., 2011), the methodological limitations of these studies weaken this claim. Consequently, when trying to examine why middle school students do not perform well on text-based writing tasks, one should recognize the insights that research exploring the relationship between teachers' beliefs and writing instructional practices can provide and also acknowledge that this insight is limited in its scope.

Mesosystem: Family Involvement

Research suggests that family involvement can influence the development of students' writing skills (Camacho & Alves, 2017). In a fairly recent study, Camacho and Alves (2017) explored the impact of family involvement on the writing performance (i.e., vocabulary diversity, clause extension, story elements, text length, writing fluency, and text quality) of 41 second graders. The intervention occurred over 10 weeks, during which participating teachers required their students, including those in the treatment ($n = 16$) and control groups ($n = 25$), to write four stories for homework. Within the course of the intervention, the parents of the treatment group attended four sessions at which one of the researchers trained parents to assist with the development of their children's writing abilities. Specifically, parents were taught to praise children's efforts (rather than their intelligence), provide suggestions for improvement to areas of writing, and facilitate opportunities for children to read-aloud and revise their stories. During their interactions with their children, parents followed a designed set of steps and recorded their interactions in a log. Measures for capturing changes in writing performance included pretests and posttests. Through data analyses, the researchers only discovered significant differences between treatment and control groups on the posttest in the areas of text length ($M = 64.81$, $SD = 23.13$; $M = 47.40$; $SD = 21.50$) and text quality ($M = 4.87$, $SD = 1.23$; M

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= 4.14; $SD = 1.49$), indicating that students in the intervention group, when compared to their control group counterparts, wrote longer texts and had written stories of higher holistic quality. This finding suggests that family involvement has an influence on the development of students' writing abilities.

Takeaways from the Literature. The research on family involvement and students' academic writing (Camacho & Alves, 2017) may help to explain poor text-based writing for middle school students. If families have a role in the development of their children's writing skills, then one can conclude that the absence of this support may adversely impact their children's ability to write successfully for academic purposes. In other words, if families do not consistently work with their children, for example, positively reinforce critical writing skills, make suggestions on how to improve writing, and emphasize the need for revising writing, then students may not fully develop the skills that are needed to help them succeed on text-based writing tasks. Thus, low text-based writing performance at the middle school level could be a sign that families did not provide the kinds of supports that are critical to text-based writing skill development.

Limitations of the Literature. This conclusion, however, must be applied very cautiously. While Camacho and Alves (2017) did examine the influence of family involvement on students' writing abilities, the researchers examined this relationship with a very narrow age group (i.e., second graders). Consequently, the support that families offer their children may differ between elementary and secondary students. More specifically, families may agree to facilitate opportunities for read-aloud and revisions when the texts that students write are short and easy to understand. However, as students reach higher grade levels, writing becomes increasingly difficult and generally requires greater length for completion. For example, instead of writing

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narration in which they “tell a story about a child who lost his/her pet” (Camacho & Alves, 2017, p. 261), middle school students, particularly those whose instruction includes text-based writing, have to read source materials and then respond to a writing task in which they utilize the source materials. At that age and level of difficulty, committing to facilitating read-aloud activities and revising opportunities for more advanced writing may pose a variety of challenges for families. Using Camacho and Alves’ (2017) research as a lens, therefore, it is unclear whether families’ direct support with writing skill development would enhance the skills that middle school students need for text-based writing. Thus, the findings of the research (Camacho & Alves, 2017) on the influence of family involvement on writing capacity has limited application to the problem of practice.

Exosystem: Teacher Preparation

Teacher Preparation Programs and Professional Development. Research on teachers’ writing instructional preparation reveals that middle school teachers may not be receiving sufficient preparation to teach writing to their students (Graham et al., 2014; Myers et al., 2016; Troia & Graham, 2016). In a national study, Graham et al. (2014) surveyed a random sample of 285 middle school teachers of language arts, science, and social studies about their writing instruction preparation, asking them to evaluate the sufficiency (i.e., no, minimal, adequate, or extensive) of their “formal preparation during college” and “formal preparation after college” (p. 1020). Regarding formal preservice preparation during college, the authors found that of the 114 teachers who responded to the survey, 64% ($n = 73$) of them reported receiving minimal ($n = 55$) or no ($n = 18$) writing instruction preparation in their content area. Regarding formal inservice preparation after college, Graham et al. (2014) found that 44% ($n = 50$) of teachers reported receiving minimal ($n = 45$) or no ($n = 5$) writing instruction preparation. In a

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separate study, Troia and Graham (2016) surveyed a national random sample of teachers ($N = 482$) from grades three through eight about their preparation for writing instruction through preservice and inservice experiences. Troia and Graham (2016) found that slightly more than 20% ($n = 100$) reported not taking any coursework related specifically to writing instruction during their preservice training, and almost half reported taking “one or more college courses with some content devoted to writing instruction” (p. 1727). The authors also found that over a five-year period, 37.8% ($n = 182$) of teachers reported participating in only one to two inservice trainings on writing instruction, and 14.5% ($n = 70$) of teachers reported participating in no inservice trainings on writing instruction. Collectively, reports from teachers nationwide (Graham et al., 2014; Troia & Graham, 2016) suggest that middle school teachers may not be receiving writing instruction preparation prior to and after entering their respective teaching professions.

Myers et al.'s (2016) study corroborates teacher self-reports (Graham et al., 2014; Troia & Graham, 2016), specifically providing insight as to why sufficient writing instruction may not be occurring at the preservice level. In their study, the researchers surveyed 63 higher education preservice teacher educators across 50 public and private higher education institutions in the U.S who taught literacy courses to prospective teachers. Myers et al. (2016) found that only 28% ($n = 18$) of these educators “taught a stand-alone course on writing instruction,” while the remaining 72% ($n = 45$) reported having this content “embedded in reading courses” (p. 318). In fact, Myers et al. (2016) found from their survey data that participants cited the dominance of reading instruction as a primary reason for insufficient time to teach writing within methods courses. From this study, therefore, one can conclude that a reason that middle school teachers may not be receiving sufficient writing instruction preparation through their preservice programs

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is because institutions of higher learning may not be prioritizing this method of instruction within their teacher education programs.

Takeaways from the Literature. The research on teacher preparation (Graham et al., 2014; Myers et al., 2016; Troia & Graham, 2016) for writing instruction helps to explain why middle school students may perform poorly on text-based writing tasks. If middle school teachers are not receiving sufficient preservice preparation to teach writing within their content areas (Graham et al., 2014; Myers et al., 2016; Troia & Graham, 2016), then these teachers may not be entering the teaching professions with the necessary knowledge and skillsets to instruct their students in text-based writing. Moreover, if inservice training opportunities, which are designed to continue to developing teachers' writing instructional capacity beyond teacher preparation programs, do not provide sufficient writing instruction preparation (Graham et al., 2014; Troia & Graham, 2016), then these teachers may not be engaging in ongoing, job-embedded professional learning opportunities to help develop their text-based writing instructional capacity. Overall, insights from the teacher preparation literature (Graham et al., 2014; Myers et al., 2016; Troia & Graham, 2016) indicate that the two primary ways through which middle school teachers receive training may not be sufficiently preparing these teachers to teach text-based writing to their students. Consequently, middle school students may not be receiving the kind of instruction that can effectively enhance their text-based writing capacity, which may lead to less than desirable text-based writing outcomes.

Limitations of the Literature. The research on teacher preparation, however, must be interpreted carefully. The aforementioned researchers (Graham et al., 2014; Myers et al., 2016; Troia & Graham, 2016) all acknowledge that their findings rely on self-report data, which required that "participating teachers remembered all of the writing-related professional

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development activities” within their preservice and inservice settings (Troia & Graham, 2014, p. 1740). Furthermore, Myers et al. (2016) communicated that their use of self-report data and convenience sampling prevent the generalizability of their findings. Such limitations suggest that conclusions from the research, which collectively communicate that writing instruction preparation does not frequently occur, may, in fact, be somewhat inaccurate. In addition, some of the research (Troia & Graham, 2016) is unclear as to whether findings related to preservice and inservice preparation describe the experience of elementary or middle school teachers, which makes discerning the reports on teacher preparation between these two groups difficult. Thus, there is the possibility with some of the research (Troia & Graham et al., 2016) that middle school teachers are actually receiving sufficient writing instruction preparation. Despite the reliance on self-report data (Graham et al., 2014; Myers et al., 2016; Troia & Graham, 2016) and missed opportunities for more precise data reporting (Troia & Graham 2016), the literature on teacher preparation (Brindle et al., 2016; Drew et al., 2017; Gilbert & Graham, 2010; Gillespie, Graham, Kiuahara, & Hebert, 2014; Graham et al., 2014; Kiuahara et al., 2009; Myers et al., 2016; Troia & Graham) does draw attention to whether middle school teachers have the skills needed to improve the text-based writing capacity of middle school students.

Discussion

Overall, a complex network of factors, including those related to the biosystem (i.e., reading ability, writing self-efficacy, and application of cognitive strategies), microsystem (i.e., evidence-based writing practices and teacher beliefs), mesosystem (i.e., family involvement), and exosystem (i.e., teacher preparation programs and PD), help to explain low text-based writing performance. If teachers, who interact with students regularly, do not possess sufficient training from their teacher preparation programs and job-embedded PD (Graham et al., 2014;

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Hodges et al., 2019; Myers et al., 2016; Troia & Graham, 2016), then they may not possess the knowledge and skills, manifested in the forms of evidence-based writing practices (Correnti et al., 2012; Graham & Perin, 2007a; Graham & Perin, 2007b; Graham & Perin, 2007c; Mason et al., 2013; Mason et al., 2011; Matsumura et al., 2015; Monte-Sano & De La Paz, 2012; Olson et al., 2017), and positive beliefs (Brindle et al., 2016; Troia & Graham, 2016; Troia et al., 2011) to build student writing capacity. In addition, if students have low writing self-efficacy (Bruning et al., 2013; De Smedt et al., 2018), and if families do not play an active role in their children's writing development (Camacho & Alves, 2017), then they may not attempt to apply the cognitive strategies (Benedek-Wood et al., 2014, Mason et al., 2013; Mason et al., 2011; Olson et al., 2017) and writing skills needed to help them succeed on text-based writing. In sum, multiple factors influence student performance on text-based writing tasks. In the next chapter, two of these factors, specifically teachers' writing instruction preparation and beliefs, will be explored within the context of Granberry Middle School.

Chapter 2: Needs Assessment

A review of the literature has shown that the lack of sufficient writing instruction preparation and/or the holding of non-conducive writing instruction beliefs may lead to teachers' infrequent application of writing practices that have the potential to develop students' writing capacity (Brindle et al., 2016; Drew et al., 2017; Graham et al., 2014; Hodges et al., 2019; Matsumura et al., 2015; Myers et al., 2016; Troia & Graham, 2016; Troia et al., 2011). Consequently, students' text-based writing performance may suffer (Matsumura et al., 2015; Olson et al., 2017). Guided by this research, and to explore the problem of low text-based writing performance of Granberry Middle School students, the researcher conducted a needs assessment in which the writing instructional preparation and beliefs of teachers at this school were examined. Below is a description of the needs assessments' context, methodology, and findings.

Context of the Study

Granberry Middle is a Title I school located within the Diverse City Public School system. Demographic information as of 2019 indicates that the school has enrolled 1,188 students (599 males and 589 females), with Hispanic/Latino and Black students comprising 75% and 17% of the student population respectively (State Department of Education, 2020c). Close to 90% of the school's students receive free and reduced-priced meals (FARMS), suggesting a large concentration of students come from low socioeconomic backgrounds, and 41% ($n = 487$) of the student population is limited English proficient (LEP) (State Department of Education, 2019d). In addition, 2019 demographic data shows that 26.25% of teachers at Granberry hold a bachelor's degree, 70% of teachers hold a master's degree, and 0.03% of teachers hold a doctorate degree (State Department of Education, 2019d).

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As noted in chapter one, data reveal that more than 75% of middle school students at Granberry failed to meet or exceed CCSS (2010) expectations in reading and writing on the annual ELA PARCC (State Department of Education, 2020a, 2020b). Although these results suggest issues with both reading and writing, this needs assessment study focused on the latter.

Purpose of Study and Research Questions

The purpose of the needs assessment study was to determine whether factors influencing low text-based writing performance manifested within an actual school setting. In particular, the researcher explored the writing instruction preparation and beliefs of Granberry Middle School ELA, mathematics, science, and social studies teachers. The following research questions were developed to guide exploration into these areas:

- 1) What are the differences in writing instruction preparation (i.e., preservice and inservice) between English language arts, mathematics, science, and social studies teachers?
- 2) What are the differences in the writing instruction efficacy of middle school English language arts, mathematics, science, and social studies teachers?
- 3) What are the differences in the attitudes (i.e., attitudes towards teaching writing and attitudes towards writing in general) of middle school English language arts, mathematics, science, and social studies teachers?

Constructs of Interest

Based upon the literature discussed in Chapter 1, five constructs (see Table 1) related to preparation and beliefs were selected to study for this needs assessment within the Granberry Middle School population. Teacher preparation in writing refers to preservice and/or inservice training that develops both a teacher's knowledge about the writing domain and knowledge about how to teach the intricacies of this domain to children and young adults (Graham et al.,

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2014; Kiuahara et al., 2009; Troia & Graham, 2016). Preservice training occurs during college prior to a person officially entering the teaching profession, and inservice training occurs through a person's job while that person serves as a teacher of record (Graham et al., 2014). Teacher beliefs, as noted in chapter one, encompass a variety of teacher perspectives (Brindle et al., 2016). Efficacy for teaching writing refers to judgments that teachers have of their own abilities to teach writing, and teacher attitudes describes teachers' perspectives towards teaching writing and their perspectives towards writing in general. Exploring the writing instructional preparation and beliefs of ELA, mathematics, science, and social studies teachers at Granberry Middle School helped the researcher establish a need for addressing challenges with these areas.

Methods and Procedures

The following section provides information on the specifics of the research design for the needs assessment. Specifically, participants, instruments, recruitment procedures, data collection, and data analysis are discussed.

Participants

The participants at Granberry Middle School came from four content areas, including ELA (n = 14), mathematics (n = 14), science (n = 13), and social studies (n = 11). The survey was sent to these 52 teachers during the first quarter of the 2018-2019 school year. While there are teachers of other subject areas (e.g., art, band, health, music, etc.) at Granberry Middle School, these teachers were excluded from the study because the focus of the study is on teachers of core content areas of which text-based writing is a part. Of the 52 participants who received the survey, only 20 (38%) completed all survey items. These teachers included five ELA teachers, six mathematics teachers, six science teachers, and three social studies teachers. Four teachers' responses (8%) were excluded from the analysis because the teachers had only

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completed a few items of the survey. Despite multiple email and phone recruitment attempts, 28 (54%) teachers chose not to participate.

Instrumentation

The 20 survey items (see Appendix A) used for this needs assessment came from multiple existing measures. Items one, two, four, six, seven, and eight were adapted for a middle school context from Kiuvara et al.'s (2009) *High School Writing Practice Survey*. For this study, the researchers created this survey, piloting it with six ELA, science, and social studies teachers prior to distributing it to their target population of high school teachers. Items nine through 17 were gathered from the *Teacher Efficacy Scale for Writing*, which was developed by Graham et al. (2001) in their construct validation study with elementary school teachers, used by both Gilbert and Graham (2010) in their study with elementary school teachers, and used by Troia and Graham (2016) in their study with both elementary and middle school teachers. In the original study from which the survey was developed (Graham et al., 2001), the Cronbach's alpha coefficient for the items included in this study was .84, indicating close alignment of the survey items to measure the constructs of interest. Items three, five, and 18 were developed by the researcher, and items 19 and 20 came from Graham et al. (2001) and Kiuvara et al. (2009) respectively.

Table 1

Survey Constructs, Definitions, and Sample Items

| Construct | Definition | Sample Item |
|------------------------|---|--|
| Preservice Preparation | Training that occurs during college prior to a person officially entering the teaching profession | I received effective preservice preparation (i.e., formal training received during college prior to becoming a teacher of record) in my teacher education program to teach writing in my content area. |

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| | | |
|------------------------------------|---|--|
| Inservice Preparation | Training that occurs through a person's job while he or she serves as a teacher of record | I received effective inservice preparation (i.e., formal training received through your job after becoming a teacher of record) to teach writing in my content area. |
| Efficacy for Teaching Writing | Teacher beliefs include teachers' judgements about their ability to teach writing | When a student's writing performance improves, it is usually because I found better ways of teaching that student. |
| Attitudes about Teaching Writing | Perspectives on teaching writing | I have my students write (approximately): |
| Attitudes about Writing in General | Perspectives on writing in general | Writing is an essential skill for students in high school. |

The response options vary depending on the question. Sixteen of the 20 survey items require participants to select whether they strongly disagree, moderately disagree, disagree slightly, agree slightly, moderately agree, or strongly agree with a statement. Additionally, two of the questions are open-ended and thus require participants to write a response. Question one requires participants to select among one of four content areas (i.e., ELA, mathematics, science, and social studies), and question 20 requires participants to select degrees of frequency (i.e., daily, weekly, monthly, once every other month, rarely at all in the school year).

Data Collection

To recruit participants for the needs assessment, the researcher received IRB approval from both Johns Hopkins University and the Diverse City School District. This process included the submission of an application to members of the University's human subjects review board and members of the district's review board.

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Once permissions from both bodies were granted, and a school (i.e., Granberry Middle) with principal permission was selected (different from the school where the researcher is employed), the researcher recruited participants through the use of e-mail, phone, or a combination of both. This process involved, more specifically, either the researcher sending an invitation letter to ELA, mathematics, science, and social studies teachers' work e-mail or reading a letter with the identical information over the phone. The letter explained the study's purpose, benefits, and means by which the researcher would maintain confidentiality. The letter also included consent information, which informed teachers that their participation is voluntary, and that choices to either abstain or end participation would result in no negative consequences. After agreeing to take part in the study, the participants were then able to complete the Qualtrics-based teacher survey. The researcher monitored participant responses, reaching out to teachers who were not responding through e-mail and work phone to encourage greater participation. At the end of the data gathering period, the researcher downloaded participant responses, assigned participants pseudonyms, and analyzed both quantitative and qualitative data.

Data Analysis and Findings

Data analysis was conducted using a sequential explanatory design (Creswell & Plano-Clark, 2018). Through this model, both quantitative and qualitative data are collected, but the qualitative data are used to bring additional insight into the quantitative data. Quantitative data, which constituted teachers' responses to 18 of the 20 survey items, were analyzed using descriptive methods. In particular, the average scores of teachers on each item were calculated, first collectively ($N = 20$) and then by content area, including the averages of ELA ($n = 5$), mathematics ($n = 6$), science ($n = 6$), and social studies teachers ($n = 3$). Analyzing the data overall and then by content area allowed for deeper discussion into the distinctions in writing

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preservice, inservice, self-efficacy, and attitudes of teachers from different content areas.

Qualitative data, which constituted teachers' responses to two of the 20 survey items, were analyzed using two coding methods (Miles, Huberman, & Saldana, 2014). During the first coding cycle, in vivo coding was used to capture the words that teachers used to describe their preservice and inservice preparation to teach writing, and during the second coding cycle, thematic coding was used to highlight emerging themes that collectively communicated the specific factors that influenced teachers' perspectives on their preservice and inservice preparation. As with the quantitative data, the qualitative data were analyzed overall and then by content area.

Quantitative Data Analysis

Research Question 1. Quantitative data analysis through descriptive statistics revealed several important findings about participating teachers' pre- and inservice preparation for writing instruction (see Table 2). On average, teachers ($N = 20$) disagreed slightly when asked whether they received effective preservice preparation in their respective content area teacher preparation programs ($M = 3.80$, $SD = 1.67$) and agreed slightly ($M = 4.20$, $SD = 1.36$) when asked about whether they received effective inservice preparation through their jobs to teach writing in their content areas. In addition, the data show that overall, teachers ($N = 20$) agreed slightly ($M = 4.40$, $SD = 1.46$) that they would increase writing tasks within their classrooms should they receive PD on writing instruction.

Table 2

Overall Mean Scores for Preparation Adapted from Teacher Preparation Scale ($N = 20$)

| Item | Minimum | Maximum | <i>M</i> | <i>SD</i> |
|--|---------|---------|----------|-----------|
| I received effective preservice preparation (i.e., formal training received during college prior to becoming a teacher of record) in | 1.00 | 6.00 | 3.80 | 1.67 |

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| | | | | |
|--|------|------|------|------|
| my teacher education program to teach writing in my content area. | | | | |
| I received effective inservice preparation (i.e., formal training received through your job after becoming a teacher of record) to teach writing in my content area. | 1.00 | 6.00 | 4.20 | 1.36 |
| If I was provided professional development, I would include more writing tasks in my classroom. | 1.00 | 6.00 | 4.40 | 1.46 |

Quantitative data analysis through descriptive statistics also reveal important findings on the preservice and inservice preparation of ELA, mathematics, science, and social studies teachers for writing instruction (see Table 3). When asked whether they received effective preservice preparation through their respective content area teacher preparation programs, ELA agreed slightly ($M = 4.80, SD = 1.30$), mathematics teachers disagreed slightly ($M = 3.17, SD = 1.72$), science teachers disagreed slightly ($M = 3.00, SD = 1.67$), and social studies teachers moderately agreed ($M = 5.00, SD = 1.00$). When asked whether they received effective inservice through their jobs, ELA, social studies, and mathematics teachers agreed slightly ($M = 4.60, SD = 1.14$; $M = 4.33, SD = .57$; $M = 4.17, SD = 1.83$) and science teachers disagreed slightly ($M = 3.83, SD = 1.47$) about the effectiveness of their inservice preparation. In addition, teachers within ELA ($M = 4.20, SD = 2.16$), mathematics ($M = 4.50, SD = .83$), science ($M = 4.33, SD = 1.75$), and social studies ($M = 4.67, SD = 1.15$) departments agreed slightly that they would include more writing tasks within their classes if they received PD to support that practice.

Table 3

Mean Scores by Content Area for Preparation Adapted from Teacher Preparation Scale

| Preservice Preparation | Minimum | Maximum | <i>M</i> | <i>SD</i> |
|------------------------|---------|---------|----------|-----------|
| English language arts | 3.00 | 6.00 | 4.80 | 1.30 |

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| | | | | |
|--|---------|---------|----------|-----------|
| <hr/> | | | | |
| (<i>n</i> = 5) | | | | |
| Mathematics (<i>n</i> = 6) | 1.00 | 6.00 | 3.17 | 1.72 |
| Science (<i>n</i> = 6) | 1.00 | 5.00 | 3.00 | 1.67 |
| Social Studies (<i>n</i> = 3) | 4.00 | 6.00 | 5.00 | 1.00 |
| <hr/> | | | | |
| Inservice Preparation | Minimum | Maximum | <i>M</i> | <i>SD</i> |
| English language arts (<i>n</i> = 5) | 3.00 | 6.00 | 4.60 | 1.14 |
| Mathematics (<i>n</i> = 6) | 1.00 | 6.00 | 4.17 | 1.83 |
| Science (<i>n</i> = 6) | 2.00 | 5.00 | 3.83 | 1.47 |
| Social studies (<i>n</i> = 3) | 4.00 | 5.00 | 4.33 | .57 |
| <hr/> | | | | |
| Professional Development | Minimum | Maximum | <i>M</i> | <i>SD</i> |
| English language arts (<i>n</i> = 5) | 1.00 | 6.00 | 4.20 | 2.16 |
| Mathematics (<i>n</i> = 6) | 4.00 | 6.00 | 4.50 | .83 |
| Science (<i>n</i> = 6) | 1.00 | 6.00 | 4.33 | 1.75 |
| Social studies (<i>n</i> = 3) | 4.00 | 6.00 | 4.67 | 1.15 |
| <hr/> | | | | |

Research Question 2. Descriptive statistics reveal important findings about the teachers' self-efficacy about writing instruction (see Table 4). Average scores for self-efficacy items fell in the category of agree slightly or moderately agree as indicated on the Likert scale in the survey. The item with the lowest efficacy for writing instruction, for example, had an average of

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4.40 (i.e., agree slightly), and the item with the highest efficacy for writing instruction had an average of 5.10 (i.e., moderately agree).

Table 4

Overall Mean Scores for Teacher Efficacy Adapted from Teacher Efficacy Scale for Writing (N = 20)

| Item | Minimum | Maximum | <i>M</i> | <i>SD</i> |
|---|---------|---------|----------|-----------|
| When a student's writing performance improves, it is usually because I found better ways of teaching that student. | 3.00 | 6.00 | 4.90 | .912 |
| If a student did not remember what I taught in a previous writing lesson, I would know how to increase his/her retention in the next lesson. | 2.00 | 6.00 | 4.60 | 1.04 |
| If a student masters a new writing concept or skill quickly, it is because I knew the necessary steps for teaching this concept or skill. | 2.00 | 6.00 | 4.55 | 1.14 |
| If I try really hard, I can help students with their most difficult writing problems. | 2.00 | 6.00 | 4.65 | 1.08 |
| When a student does better than usual in writing, it is because I exerted a little extra effort. | 2.00 | 6.00 | 4.40 | 1.18 |
| When a student is having difficulty with a writing assignment, I would have no trouble adjusting it to his/her level. | 3.00 | 6.00 | 4.80 | .951 |
| If one of my students could not do a writing assignment, I would be able to accurately assess why he/she was having difficulty and make accommodations. | 1.00 | 6.00 | 4.45 | 1.31 |
| If a student becomes disruptive and noisy during writing time, I feel confident that I know some techniques to redirect him/her quickly. | 1.00 | 6.00 | 5.10 | 1.21 |
| When students' writing performance improves, it is usually because I found more | 4.00 | 6.00 | 4.75 | .716 |

effective teaching approaches.

Descriptive statistics (see Table 5) on writing instruction self-efficacy items revealed important findings for ELA, mathematics, science, and social studies teachers. Out of the nine items, ELA teachers had average scores between 5.00 and 5.40 (i.e., moderate agreement). In particular, these teachers moderately agreed on their ability to manage and redirect disruptive students during writing instruction ($M = 5.40, SD = .894$), and agreed slightly in their ability to influence higher than normal writing performance ($M = 4.80, SD = .837$), modify writing assignments to match the levels of struggling students ($M = 4.80, SD = .837$), and assess with accuracy and provide solutions to the factors that prevent students from completing writing assignments ($M = 4.80, SD = .837$). Mathematics teachers had averages between 4.00 and 5.00 for self-efficacy items. These teachers had one item on which they moderately agreed (i.e., $M = 5.00, SD = .894$; If a student becomes disruptive and noisy during writing time, I feel confident that I know some techniques to redirect him/her quickly). For the remaining items, mathematics teachers agreed slightly, with averages ranging from 4.00 to 4.83. Science teachers had average self-efficacy scores between 3.33 and 5.17. For example, science teachers moderately agree ($M = 5.17, SD = .752$) that they could adjust a writing assignment to the level of a struggling student and disagreed slightly in their ability to influence higher than normal student writing outcomes through their extra effort ($M = 3.33, SD = 1.03$). Social studies teachers strongly agreed ($M = 6.00; SD = .000$) in their ability to influence student writing performance, facilitate student mastery of concepts and skills, and manage and redirect disruptive students during writing lessons. For the remaining self-efficacy items, social studies teachers had average scores ranging

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from 5.33 to 5.66, indicating moderate agreement to descriptions of writing instruction self-efficacy within those specific items.

Table 5

Mean Scores by Content Area for Teacher Efficacy Adapted from Teacher Efficacy Scale for Writing

| Item | ELA (<i>n</i> = 5) | Mathematics (<i>n</i> = 6) | Science (<i>n</i> = 6) | S. Studies (<i>n</i> = 3) |
|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| When a student's writing performance improves, it is usually because I found better ways of teaching that student. | <i>M</i> = 5.20 <i>SD</i> = .447 | <i>M</i> = 4.67 <i>SD</i> = .516 | <i>M</i> = 4.33 <i>SD</i> = 1.21 | <i>M</i> = 6.00 <i>SD</i> = .000 |
| If a student did not remember what I taught in a previous writing lesson, I would know how to increase his/her retention in the next lesson. | <i>M</i> = 5.00 <i>SD</i> = 1.00 | <i>M</i> = 4.17 <i>SD</i> = 1.32 | <i>M</i> = 4.33 <i>SD</i> = .816 | <i>M</i> = 5.33 <i>SD</i> = .577 |
| If a student masters a new writing concept or skill quickly, it is because I knew the necessary steps for teaching this concept or skill. | <i>M</i> = 5.00 <i>SD</i> = 0.00 | <i>M</i> = 4.50 <i>SD</i> = 1.22 | <i>M</i> = 3.50 <i>SD</i> = .837 | <i>M</i> = 6.00 <i>SD</i> = .000 |
| If I try really hard, I can help students with their most difficult writing problems. | <i>M</i> = 5.00 <i>SD</i> = .707 | <i>M</i> = 4.83 <i>SD</i> = .983 | <i>M</i> = 3.67 <i>SD</i> = 1.03 | <i>M</i> = 5.67 <i>SD</i> = .577 |
| When a student does better than usual in writing, it is because I exerted a little extra effort. | <i>M</i> = 4.80 <i>SD</i> = .837 | <i>M</i> = 4.50 <i>SD</i> = 1.04 | <i>M</i> = 3.33 <i>SD</i> = 1.03 | <i>M</i> = 5.67 <i>SD</i> = .577 |
| When a student is having difficulty with a writing assignment, I would have no trouble adjusting it to his/her level. | <i>M</i> = 4.80 <i>SD</i> = .837 | <i>M</i> = 4.17 <i>SD</i> = .983 | <i>M</i> = 5.17 <i>SD</i> = .753 | <i>M</i> = 5.33 <i>SD</i> = 1.15 |
| If one of my students could not do a writing assignment, I would be able to accurately assess why he/she was having difficulty and make accommodations. | <i>M</i> = 4.80 <i>SD</i> = .837 | <i>M</i> = 4.00 <i>SD</i> = 1.26 | <i>M</i> = 4.00 <i>SD</i> = 1.67 | <i>M</i> = 5.67 <i>SD</i> = .577 |
| If a student becomes disruptive and noisy during writing time, I feel confident that I know some techniques to redirect him/her quickly. | <i>M</i> = 5.40 <i>SD</i> = .894 | <i>M</i> = 5.00 <i>SD</i> = .894 | <i>M</i> = 4.50 <i>SD</i> = 1.76 | <i>M</i> = 6.00 <i>SD</i> = .000 |
| When students' writing performance | <i>M</i> = 5.00 | <i>M</i> = 4.50 | <i>M</i> = 4.33 | <i>M</i> = 5.67 |

improves, it is usually because I found more effective teaching approaches. $SD = .707$ $SD = .548$ $SD = .516$ $SD = .577$

Research Question 3. Descriptive statistics reveal (see Table 6) important findings regarding participating teachers' collective attitudes towards writing. In particular, the teachers ($N = 20$) strongly agreed ($M = 6.00$, $SD = .000$) that writing is an essential skill for success in high school. In addition, teachers agreed slightly that the writing skills taught at the middle school level are needed for success in college ($M = 4.60$, $SD = 1.14$) and for success within careers/the workplace ($M = 4.20$, $SD = 1.43$). The teachers disagreed slightly ($M = 3.90$, $SD = 1.16$), however, that students within their school have the writing skills needed to successfully complete work in their respective classes.

Table 6

Overall Mean Scores for Teacher Attitudes Adapted from the High School Writing Practice Survey Scale (N = 20)

| Item | Minimum | Maximum | <i>M</i> | <i>SD</i> |
|---|---------|---------|----------|-----------|
| Writing is an essential skill for students in high school. | 6.00 | 6.00 | 6.00 | .000 |
| Students are taught the writing skills in middle school needed to be successful in college. | 2.00 | 6.00 | 4.60 | 1.14 |
| Students are taught the writing skills in middle school needed to be successful in careers/the workplace. | 1.00 | 6.00 | 4.20 | 1.43 |
| Students at my school have the writing skills they need to do work in my class. | 1.00 | 6.00 | 3.90 | 1.16 |

Descriptive statistics also reveal important findings in teachers' attitudes towards writing by content area (see Table 7). English language arts teachers ($n = 5$) strongly agreed ($M = 6.00$,

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$SD = .000$) that writing is an essential skill for high school and agreed slightly ($M = 4.80$, $SD = 1.09$) when asked about the importance of writing skills taught at the middle school level in influencing success in college. Furthermore, ELA teachers also agreed slightly ($M = 4.40$, $SD = 1.14$) in their attitudes about the effect of writing skills taught at the middle school level on success in careers/the workplace. English language arts teachers also agreed slightly ($M = 4.20$, $SD = 2.16$) that students in their schools have the writing skills needed to do work in their classes. Mathematics teachers ($n = 6$) strongly agreed ($M = 6.00$, $SD = .000$) in the importance of writing for high school and moderately agreed ($M = 5.00$, $SD = 1.26$) that writing skills taught at the middle school influences success in college ($M = 5.00$, $SD = 1.26$). Mathematics teachers also slightly agreed when asked whether writing skills taught at the middle school level are needed for success in careers/the workplace ($M = 4.83$, $SD = 1.60$) and slightly agreed when asked whether students in their schools have sufficient writing skills to do work in their classes ($M = 4.50$, $SD = .836$).

Science teachers ($n = 6$) strongly agreed that writing is an essential skill for high school ($M = 6.00$, $SD = .000$) and agreed slightly that students within their school have the writing skills needed to do work in their classes ($M = 4.33$, $SD = 1.75$); however, these teachers disagreed slightly when asked whether writing skills taught within middle school are needed for college and career/workplace success ($M = 3.83$, $SD = 1.16$; $M = 3.00$, $SD = 1.26$). Social studies teachers ($n = 3$) strongly agreed ($M = 6.00$, $SD = .000$) when asked about the importance of writing skills for high school, moderately agreed on two items ($M = 5.00$, $SD = .000$; $M = 5.00$, $SD = .000$) when asked whether writing skills taught at the middle school level are needed for success in college and careers/workplace, and agreed slightly ($M = 4.66$, $SD = 1.15$) when asked whether students at their school have the writing skills needed to do work in their classes.

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Table 7

Mean Scores by Content Area for Teacher Attitudes Adapted from the High School Writing Practice Survey Scale

| Item | ELA (<i>n</i> = 5) | Mathematics (<i>n</i> = 6) | Science (<i>n</i> = 6) | S. Studies (<i>n</i> = 3) |
|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Writing is an essential skill for students in high school. | <i>M</i> = 6.00 <i>SD</i> = .000 | <i>M</i> = 6.00 <i>SD</i> = .000 | <i>M</i> = 6.00 <i>SD</i> = .000 | <i>M</i> = 6.00 <i>SD</i> = .000 |
| Students are taught the writing skills in middle school needed to be successful in college. | <i>M</i> = 4.80 <i>SD</i> = 1.09 | <i>M</i> = 5.00 <i>SD</i> = 1.26 | <i>M</i> = 3.83 <i>SD</i> = 1.16 | <i>M</i> = 5.00 <i>SD</i> = .000 |
| Students are taught the writing skills in middle school needed to be successful in careers/the workplace. | <i>M</i> = 4.40 <i>SD</i> = 1.14 | <i>M</i> = 4.83 <i>SD</i> = 1.60 | <i>M</i> = 3.00 <i>SD</i> = 1.26 | <i>M</i> = 5.00 <i>SD</i> = .000 |
| Students at my school have the writing skills they need to do work in my class. | <i>M</i> = 4.20 <i>SD</i> = 1.48 | <i>M</i> = 4.17 <i>SD</i> = .983 | <i>M</i> = 3.67 <i>SD</i> = .516 | <i>M</i> = 3.33 <i>SD</i> = 2.08 |

Qualitative Data Analysis

Table 8

Preservice In Vivo Codes, Inservice In Vivo Codes, and Thematic Codes

| Preservice Code | Inservice Code | Themes |
|---|--|---|
| Classes, Courses, | Professional Development (PD), Training | Methods through which teachers received writing instruction preparation |
| General Education, Writer's Workshop | Literacy Task, SIOP, AVID | Contents of teachers' writing instruction preparation |
| Didn't Receive a Lot, None | Summer Institute, Very Little | Frequency of writing instruction preparation |
| Very Thorough | Prepared Me | Evaluations of the effectiveness of writing instruction preparation |

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Research Question 1. Qualitative data analysis through in vivo coding provides insight into the kinds of classes through which preservice preparation for writing instruction came, the specific writing content of the preservice preparation, the frequency of the preservice preparation, and the effectiveness of the preservice preparation. In general, teachers reported that their preservice preparation on writing instruction came from “classes” or “courses” from college or university programs. A few teachers reported taking practicum classes. Ana, an ELA teacher, “was able to design and implement writing lessons that [the] professor reviewed and approved” through a practicum course. Teachers’ descriptions of their preservice content varied. Some teachers kept their responses general, using phrases such as “teaching of secondary and elementary education” and “general education.” Other teachers provided greater specificity to the content of their preservice training. Ava, a science teacher, described taking a course specifically designed to facilitate writing and speaking for English language learners. The content of the course “directly addressed using writing tools and sentence stems (starters) to help students with writing and speaking conventions in English.” Charlotte, an ELA teacher, reported “writer’s workshop training” and thorough trainings “in mini-lessons and writing lessons to help build student comprehension in regards to writing” as her preservice preparation for writing instruction. Several of the teachers cited reading methods courses as either the dominant or sole source of preparation for writing instruction. Again, some descriptions were general, such as when science teacher Samantha and mathematics teacher Liam, respectively described their preparation in courses such as, “reading in the content area” and “basic reading.” Mia, an ELA teacher, gives more specificity into the content of preservice content, citing courses such as “Reading in the Content Area Principles,” “Techniques of Reading Instruction,” “Teaching Reading to Multicultural Populations,” and “Evaluation in Reading Literacy for Children.”

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Teachers' descriptions of the frequency of their preservice preparation to teach writing also varied. Some teachers described having little or no preservice preparation to teach writing, such as teacher Isabella, an ELA teacher who reported not receiving "a lot of preservice preparation on teaching writing," and mathematics teachers William, Jacob, and Noah and science teacher Alonzo, who all communicated that they did not receive any formal training to teach writing through their preservice preparation programs. The effectiveness of preservice preparation for writing instruction, in specific, was also communicated. James, a social studies teacher, reported that his institution of higher education "was very thorough in teaching writing strategies for both historical research and effective opinion writing."

Qualitative data provide deeper insight into the differences between the preservice preparation of ELA, mathematics, science, and social studies teachers for writing instruction. Participating social studies teachers, Harper, James, and Michael, reported receiving preservice preparation for writing via colleges courses. English language arts teachers seemed to vary more than social studies teachers in their preservice preparation to teach writing. Isabella, for example, reported only taking "one course on writing during [her] undergraduate courses," while Elijah reported receiving "general education introductions and practicum trainings and university English writing assignments." Ana reported receiving both instruction on "writing processes for K-8," while Mia reported receiving only an instructional program primarily focused on reading compared to writing. Charlotte, another English arts teacher, reported receiving training in "writer's workshop" and extensive training "in mini-lessons and writing lessons to help build student comprehension in regards to writing." Most science teachers in the sample did not appear to receive any training in writing instruction from their preservice programs, as three of the six respondents explicitly stated so, and one reported receiving only two classes in reading in

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the content area. Benjamin, however, did report receiving preservice preparation in “POWER Writing,” and Ava did describe taking a writing course that taught her how to develop English language learners’ “writing and speaking conventions in English.” Mathematics teachers appeared to have similar preservice preparation experiences to science teachers. Three mathematics teachers, for example, reported receiving no preparation to teach writing, and two teachers reported receiving only classes in “basic reading” (Liam) and general classes in the “teaching of secondary and elementary education” (Olivia).

Similar to the qualitative data analysis on preservice preparation, qualitative data analysis on inservice professional learning provides insight into preparation for writing instruction while in the job. For example, the analysis revealed the ways through which writing instruction preparation occurred, the bulk of which was described as PD. The content of these PDs varied. Olivia, a mathematics teacher, reported receiving training in SIOP [Sheltered Instruction Observation Protocol], a teaching model used to facilitate language development with English language learners (ELLs). Science teachers Ava and Benjamin, mathematics teacher William, and social studies teacher James reported receiving PD on a county-wide initiative known as the literacy task, an assignment that requires students to “write an essay that addresses the author’s purpose for writing an article.” The literacy task PD develops teachers’ capacity to facilitate students’ progression through this assignment. The inservice preparation to teach writing also varied in its frequency. Ana, an ELA teacher, reported that their school district provides summer institutes that focus “on all aspects of reading and writing,” and that throughout the year, “the district holds PD’s (*sic*) that are either task specific or curriculum specific.” On the other hand, Isabella, an ELA teacher, reported receiving “very little inservice preparation...on teaching writing,” and mathematics teachers Jacob and Liam report receiving no PD on how to teach

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writing to students. Lastly, teacher reports reveal thoughts on the effectiveness of the inservice preparation on writing instruction. In particular, William stated that the literacy task PD “prepared me for teaching writing skills.” In sum, the qualitative data on inservice preparation show that the preparation came primarily through PD and varied both in its content and frequency. Furthermore, very little information was stated about the effectiveness of the inservice preparation.

Qualitative data showed differences between the writing instruction inservice preparation of ELA, mathematics, science, and social studies teachers. An important finding centered on the lack of inservice training that teachers of mathematics and ELA reported. Two mathematics teachers, for example, reported receiving no inservice preparation to teach writing, and one ELA teacher said that she received “very little inservice preparation” and that “most of [her] inservice preparation has come from talking to my colleagues informally” (Isabella). All of the participating science and social studies teachers, on the other hand, reported receiving some form of inservice preparation for teaching writing within their respective content areas. Another key finding of the data is that teachers’ responses to the kinds of inservice preparation for writing instruction that they received vary in specificity. The social studies teachers had very general responses. Harper, for example, simply stated, “professional development,” and James said, “literacy task,” implying a writing PD. A third social studies teacher admitted that he did not even remember “the names of the courses through the county” that he had taken that taught him how to teach writing within his content (Michael). Several of the ELA, mathematics, and science teachers, however, provided greater specificity into the content of their inservice preparation for writing instruction than social studies teachers. Elijah, an ELA teacher, stated “content writing and curriculum reading and understanding” via PDs as a way through which he

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received writing instruction preparation. Ana, another ELA teacher, detailed the content of a summer institute: “During these [break-out] sessions we are given lessons on the various ways to get our students writing. They share resources, allow teachers to practice and apply what has been taught and collaborate.” Some mathematics teachers gave generic responses, but others, such as Noah and Mason, provided detailed responses into the kinds of inservice preparation for writing instruction that they received. In particular, Noah said that his inservice preparation “focused on writing using sentence starters” and “problem-solving strategies such as the SOLVE method.” Mason said that he has “ongoing professional development about writing in math,” primarily because the mathematics curriculum requires students to write “to explain, justify, or disagree with someone’s reasoning.” Some science teachers provided generic answers, such as when one of them said “some professional development during the school day” (Samantha, 2018), but others gave greater specificity in their responses. One science teacher stated the following:

I have received formal inservice training with the Read 180 program specialist specifically on writing tools and graphic organizers to build student knowledge so that they will have strategies to use to construct a brief response to a prompt or an essay on specified topic.

Overall, the qualitative data on inservice preparation show that some teachers of ELA and mathematics may not have received any inservice preparation for writing instruction, particularly when compared to science and social studies teachers.

Discussion

Data from the needs assessment reveal important information on the writing instruction preparation (i.e., preservice and inservice) and writing instruction beliefs (i.e., efficacy and

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attitudes) of ELA, mathematics, science, and social studies teachers at Granberry Middle School. These findings are discussed below within the context of the research questions and current literature.

Writing Instruction Preparation

Two key findings emerged from the data of teachers' perceptions of their writing instruction preparation. In particular was the finding that while some preparation appears to have taken place, inservice preparation appears to have been more effective for teachers than preservice preparation. Quantitative data showed that overall, teachers slightly agreed ($M = 4.20$; $SD = 1.36$) and slightly disagreed ($M = 3.80$; $SD = 1.67$) about the effectiveness of their inservice and preservice preparation respectively. Quantitative data by content area further supports this idea, as more teachers from the various disciplines agreed than disagreed about the effectiveness of their inservice preparation when compared to their preservice preparation (see Table 3). Qualitative data provide insight into this finding. Teachers within ELA ($n = 1$), mathematics ($n = 3$), and science ($n = 3$) reported receiving no preservice preparation on writing instruction, while only ELA ($n = 1$) and mathematics teachers ($n = 2$) reported receiving no inservice preparation on writing instruction. Furthermore, several teachers who did report receiving preservice preparation cited reading rather than writing as the dominant or sole focus of the preservice preparation. Another key finding that emerged from the needs assessment data is that social studies teachers at Granberry Middle School appear to have received more effective preservice preparation on writing strategies for instruction than teachers in the other content areas, while ELA teachers appear to have received more effective inservice preparation than teachers in the other content areas. Quantitative data showed that social studies teachers self-reported the highest average scores for preservice preparation effectiveness, followed by ELA,

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mathematics, and science teachers (see Table 3). Quantitative data also showed that ELA, on the other hand, reported the highest average scores for inservice preparation effectiveness, followed by social studies, mathematics, and science teachers. Qualitative data somewhat support the quantitative findings on inservice preparation. In particular, only one ELA teacher and two mathematics teachers reported receiving no inservice preparation for writing instruction. In addition, while science teachers and social studies teachers all reported receiving preparation on how to teach writing, two of the science teachers and one of the social studies teachers gave generic responses for the preparation, such as simply stating “professional development.” In sum, the needs assessment data on writing instruction preparation for teachers at Granberry Middle School suggest three key points: 1) some form of preparation for teaching writing appears to have taken place; 2) more teachers (both in general and across content areas) report more effective inservice than preservice preparation; 3) Teachers across all content areas may need additional support in developing their writing instructional capacity.

The needs assessment findings on writing instruction preparation mostly align to the literature. Researchers, for instance, have found that middle school teachers within ELA, science, and social studies disciplines reported more effective inservice than preservice preparation (Graham et al., 2014; Troia & Graham, 2016). None of these studies, however, examined the writing instruction preparation of mathematics, so these needs assessment data add new insight into writing instruction preparation within this particular discipline. An area, however, where the needs assessment data differs slightly from the literature is in the effectiveness of preservice data for content area teachers. In particular, researchers have found ELA teachers to have the highest averages for preservice preparation effectiveness, followed by social studies teachers and then science teachers (Graham et al., 2014; Troia & Graham, 2016),

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but the findings of the needs assessment showed that social studies teachers had the highest average for reporting preservice preparation for writing instruction. The needs assessment findings, though, are consistent with research (Graham et al., 2014; Troia & Graham, 2016) on inservice preparation, as ELA teachers had the highest average when rating their inservice preparation, followed by social studies and then science teachers. Regardless of this difference, however, the needs assessment findings still align with research (Graham et al., 2014; Troia & Graham, 2016) that shows greater preservice and inservice preparation for ELA and social studies teachers when compared to science teachers.

Writing Instruction Efficacy

Key findings emerged from the data on teachers' writing instruction self-efficacy. In general, teachers appeared somewhat confident in their ability to teach writing. As noted earlier (see Table 4), eight of the self-efficacy item averages fell into the agree slightly category, while one of the self-efficacy averages fell into the moderately agree category. None of the efficacy averages, however, fell into the strongly agree category, and none of the efficacy items fell into the strongly disagree, moderately disagree, or disagree slightly categories. By discipline, social studies teachers ($n = 3$) had the highest self-efficacy averages for teaching writing, with ELA ($n = 5$), mathematics ($n = 6$), and science teachers ($n = 6$) following accordingly (see Table 3). Noteworthy was the level of confidence of science teachers, as they were the only content area teachers who disagreed with some of the self-efficacy items, including helping students with their most difficult writing challenges ($M = 3.66$, $SD = 1.03$), influencing students' mastery of new writing skills or concepts ($M = 3.50$, $SD = .836$), and influencing higher than normal student writing outcomes through extra effort ($M = 3.33$, $SD = 1.03$). Overall, a key finding on efficacy for writing from the needs assessment reveals that while teachers at Granberry have some degree

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of confidence in their ability to teach writing, they still could likely use additional development in this area.

These needs assessment findings on writing instruction efficacy aligns with the literature. The rankings of the efficacy averages of the needs assessment shared strong similarities with the rankings of the efficacy averages of Troia and Graham (2016). For example, for both the needs assessment data and Troia and Graham's (2016) data, teachers' confidence in their ability to redirect disruptive students during writing lessons had the highest mean ($M = 5.10, SD = 1.21$; $M = 3.98, SD = 0.77$), teachers' confidence in their abilities to improve writing performance through their methods had the second highest mean ($M = 4.90, SD = .912$; $M = 3.72, SD = 0.75$), and teachers' confidence in their ability to adjust writing assignment based on students' writing difficulties had the third highest mean ($M = 4.80, SD = .951$; $M = 3.66, SD = 0.84$). Furthermore, teachers' confidence in their ability to help students' with their most difficult writing problems had the fifth highest mean, ($M = 4.65, SD = 1.08$; $M = 3.52, SD = 0.81$), teachers' confidence in their ability to improve students' retention in another writing lesson if the students had forgotten what was taught in a previous writing lesson had the sixth highest mean ($M = 4.55, SD = 1.14$; $M = 3.38, SD = 0.75$), and teachers' confidence in their ability to quickly help students master new writing concepts or skills held the seventh highest mean ($M = 5.10, SD = 1.21$; $M = 3.72, SD = 0.75$). This alignment between the research on efficacy for writing and the needs assessment is unclear, however, when examining this construct by content areas, as both Graham et al. (2001) and Troia and Graham (2016) did not present disaggregated results by content area.

Writing Instruction Attitudes

Important findings emerged from the data on teachers' attitudes about both teaching writing and about writing in general. When examining teachers' attitudes about teaching

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writing, data collectively showed that the teachers ($N = 20$) disagreed slightly ($M = 3.90$, $SD = 1.16$) that students within their school possess the necessary writing skills to successfully complete work in their respective classes. By content area, however, teachers had averages that showed a slight agreement about their students' writing skills. Social studies teachers in particular had the highest average, followed by mathematics, science, and ELA teachers (see Table 7). When examining teachers' attitudes about writing in general, data collectively showed that teachers had more positive than negative attitudes about the importance of writing. All teachers ($N = 20$) agreed that writing is an essential skill for students in high school. Furthermore, the teachers slightly agreed that the writing skills taught in middle school are needed for success in college and in careers/the workplace (see Table 6). More variation in attitudes becomes clearer when examining data by content area. Social studies teachers had the highest mean average about writing in general than mathematics (second), ELA, and science teachers (see Table 7). Noteworthy were science teachers' attitudes, as the teachers in this content area were the only ones who slightly disagreed on attitude items related to writing in general.

The needs assessment findings align somewhat to the research literature. Kiuahara et al. (2009) discovered that of the 361 high school language arts, science, and social studies teachers who were surveyed about their students' writing skills, 51% ($n = 184.11$) "indicated some level of agreement" with the idea that their students have the writing skills needed to do work in their classes (p. 148). The needs assessment data show slight disagreement and agreement when data are analyzed in general and by content, suggesting "some level of agreement" (Kiuahara et al., 2009, p. 148). It is unclear, however, whether needs assessment findings on teaching writing align entirely with Kiuahara et al. (2009), as the authors did not report their data on attitude items

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by content area, even though the authors surveyed language arts, science, and social studies teachers.

Key Takeaways

Overall, the needs assessment data reveal that the problems with writing preparation (Drew et al., 2017; Graham et al., 2014; Kiuahara et al., 2009; Myers et al., 2016; Troia & Graham, 2016) and writing beliefs (Brindle et al., 2016; Troia & Graham, 2016) as identified in the literature exist at Granberry Middle School. While teachers at Granberry collectively and across disciplines have received preparation to teach writing, the preparation, both through teacher preparation programs and PD, may not have been as effective as it could have been in helping to develop teachers' writing instructional capacity. Furthermore, while teachers collectively and by discipline have some degree of confidence in their ability to teach writing, and their attitudes towards writing appear positive, the teachers' confidence for teaching writing could use some improvement along with their attitudes towards the importance of writing at the middle school level in helping students to succeed in college and the workplace.

Limitations

Some limitations of the needs assessment study exist. As noted earlier, participant response rate was lower than expected, with only 38% ($n = 20$) of the 52 teachers responding to the survey. In addition, demographic information on participants was not collected, so it is unclear how additional variables, such as years of teaching experience, dual certification, type of certification, and/or levels of education, influenced teachers' responses. In addition, the survey used to measure teachers' pre- and inservice preparation (Kiuahara et al., 2009) in this study did not account for any personal preparation in which teachers may have engaged outside of teacher preparation programs or PD, which could explain why certain findings from the needs

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assessment did not align with research. Furthermore, the ranges within the survey (Kiuvara et al., 2009) that captured the degrees of teachers' agreement on survey items were so broad (e.g., 4.0 to 4.9, slightly agree) that they did not allow for distinctions when teacher averages approached a different category. On an efficacy item, for instance, teachers at Granberry collectively averaged 4.9 (see Table 4), which, according to the researchers who developed the survey, (Kiuvara et al., 2009) is slightly agree. Lastly, although the school at which the needs assessment took place is not the researcher's current place of employment, the researcher did at one time work at Granberry and, therefore, knew some of the respondents. This relationship may have influenced participants' responses. Caution, therefore, must be taken when interpreting the findings of the study. For example, when examining the comparisons between teachers' preparation and beliefs for writing by content area, one should remember that social studies teachers had only three representatives, ELA teachers had five, mathematics teachers had six, and science teachers had six.

Conclusion

Despite the limitations, however, the findings from the needs assessment study does show a legitimate concern with teachers' writing instruction preparation and beliefs within an actual context. Thus, addressing these areas of need with an intervention may help ELA, mathematics, science, and social studies teachers at Granberry Middle School experience more effective preparation, which may improve even further their efficacy and attitudes, shift instructional practices, and ultimately improve students' writing capacity and outcomes.

Chapter 3: Intervention Literature Review

This chapter presents a comprehensive review of intervention literature that can provide insight on how to respond to the problem of practice discussed in the previous sections. By the conclusion of the chapter, an intervention is proposed, specifically one that will be used to develop the text-based writing instructional knowledge, self-efficacy, and practices of core content teachers at Granberry Middle School.

Summary of Needs Assessment Data

Data from the needs assessment revealed important information on the writing instruction beliefs and preparation of ELA, mathematics, science, and social studies teachers at Granberry Middle School. One key finding is that these teachers ($N = 20$) vary in their efficacy for teaching writing. Social studies teachers ($n = 3$) appeared to have the highest efficacy for teaching writing, followed by ELA teachers, mathematics teachers, and science teachers. Another key finding from the needs assessment is that ELA, mathematics, science, and social studies teachers at Granberry Middle School vary in their reports about the effectiveness of the teacher preparation programs and the inservice PD that they received to teach writing in their respective content areas. Social studies teachers appeared through their choices on the survey to have had the most effective preservice preparation for writing, followed by ELA, mathematics, and science teachers. In addition, in the sample under investigation, ELA teachers appeared to have had the most effective inservice preparation, followed by social studies, mathematics, and science teachers.

The needs assessment data provide the rationale for a focus on an intervention that addresses both the writing instructional preparation and writing instructional beliefs of middle school teachers in various content areas. The factors of teacher efficacy and teacher preparation

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influence teachers' implementation of evidence-based writing practices (Brindle et al., 2016; Troia & Graham, 2016). Thus, if these ELA, mathematics, science, and social studies teachers (N = 20) reported that they have low writing instruction efficacy and ineffective writing instruction preparation, then they may not be implementing instructional practices that are likely to help students develop their text-based writing skills. The following literature review and synthesis, therefore, will focus on various ways of developing teachers' writing instructional capacity.

Theoretical Framework

Two theories of adult learning guide this chapter's exploration of the literature. The first theory is Knowles' (1980) theory of andragogy. Through this framework, Knowles (1980) sought to make a distinction between the teaching of adults and the teaching of children (i.e., pedagogy). Although he eventually acknowledged that "andragogy is simply another model of assumptions about learners to be used alongside the pedagogical model of assumptions," Knowles (1980), nonetheless, articulated principles that provide insight into adult learning (p. 43). Specifically, he communicated that 1) adults view themselves as responsible for decisions that they make and are therefore self-directed with their learning; 2) adults bring a wealth of experience that can be used to enhance learning; 3) adults seek to learn information that will help them respond to practical, day-to-day situations; and 4) adults view learning as opportunities to develop competencies that help with addressing problems (i.e., problem-oriented) rather than as opportunities to simply acquire new knowledge (subject-oriented).

The second theory that guides this chapter's exploration of literature is Mezirow's (1997) transformational learning theory. Through this framework, Mezirow (1997) posited that over the course of their lives, adults accumulate "coherent...structures of assumptions" that inform how they interpret reality (p. 5). These "frames of reference" provide the foundation for recurring

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“ways of thinking, feeling, and acting” (i.e., habits of mind), which in turn shape the perspectives that people have (i.e., point of view) (p. 5). Put simply, complex, deeply embedded belief systems influence how people think, feel, and act. Mezirow (1998) further goes on to say that changing these influential systems requires a person to critically reflect on their held assumptions, which helps to facilitate changes in a person’s habits of mind and points of views.

These adult learning theories have implications for designers of programs in which teacher learning is the focus. One implication is that teachers should be treated as partners, rather than “passive” recipients, in their learning (Knowles, 1980, p. 45). This idea aligns to the concept of teacher agency, which describes “the capacity of teachers to act purposefully and constructively to direct their professional growth” (Calvert, 2016, p. 4). An additional implication for designers is that teachers should engage in learning opportunities that develop their capacity to address problems relevant to their instructional contexts (Knowles, 1980), an idea that aligns with Darling-Hammond et al.’s (2017) description of “content focused” professional learning opportunities (p. 5). A third implication is that changing teachers’ instructional beliefs and practices is possible when teachers have opportunities to critically reflect on the very theoretical foundations that guide these beliefs and practices (Mezirow, 1998; Wink, 2011). Because findings from the needs assessment revealed a need to develop more effective methods of preparing teachers to teach text-based writing, a theoretical framework on adult learning will guide the discussion of the literature explored within this chapter.

Literature Review and Synthesis

The following literature review is divided into two sections. Section one includes a discussion of writing instructional preparation at the preservice level, specifically methods courses (Grisham & Wolsey, 2011; Martin & Dismuke, 2015, 2018), and section two includes a

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discussion of writing instructional preparation at the inservice level, namely job-embedded PD (Howell et al., 2018; Limbrick et al., 2010; Mosqueda et al., 2016; Olson et al., 2019; Parr & Timperley, 2010; Pella, 2011, 2015). Greater emphasis is placed on the latter, as the proposed intervention discussed at the conclusion of this chapter is intended for practicing teachers. The literature review and synthesis conclude with a recommendation for addressing issues related to beliefs and preparation for teaching text-based writing tasks at the middle grades.

Models and Principles of Effective Professional Learning for Teachers

To facilitate the learning of teachers, researchers (Clarke & Hollingsworth, 2002; Guskey, 2002) have proposed various PD models. Guskey (2002) articulated four linear stages that teachers' experience during professional learning, which ultimately led to changes or maintenance of beliefs and attitudes. Theoretically, the sequence is as follows: 1) teachers are exposed to professional learning; 2) based on learned information from the professional learning, teachers change classroom practices; 3) changes occur in student learning outcomes; 4) seeing actual evidence that the information from the professional learning led to changes in student learning outcomes, teachers modify their beliefs and attitudes (Guskey, 2002). Similar to Guskey (2002), Clarke and Hollingsworth (2002) included four domains in their professional learning model, including "external source of information or stimulus, professional experimentation, salient outcomes, and knowledge beliefs and attitudes" (p. 951). Instead of describing changes between these domains as following a linear process, the researchers promoted the growth process as occurring in a non-linear fashion, primarily because the researchers recognized that "multiple growth pathways between the domains" exist (p. 949). Collectively, the researchers of these models suggest that change, particularly the kind that

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results in authentic and long-standing (rather than superficial and short-lived) shifts in beliefs, attitudes, and behaviors, occurs due to interactions between external and internal processes.

Several principles for developing these kinds of shifts in teachers exist. Darling-Hammond et al. (2017) emphasize seven critical components for designers of effective professional learning for teachers. Specifically, the authors communicate that effective professional learning “is content focused, incorporates active learning, supports collaboration, uses models of effective practice, provides coaching and expert support, offers feedback and reflection, and is of sustained duration” (Darling-Hammond et al., 2017, p. v-vi). These principles are important for designers of professional learning for teachers. For example, researchers have shown that the knowledge and instructional practices of teachers can improve when the teachers are provided with opportunities to collaborate with colleagues on relevant content for sustained periods of time (Limbrick et al., 2010; Pella, 2011, 2015). On the contrary, researchers have also shown that PD that is not designed to engage teachers in relevant content or content of sustained duration does not produce desired improvements in teacher quality (Resources for Learning, 2017; TNTP, 2015). Below is a discussion of literature that aligns to the principles of effective PD (Darling-Hammond et al., 2017), the goal of which is to explain how a proposed PD program for teachers has a design that aligns to the seven principles.

Teacher Preparation Program Literature on Writing Instructional Preparation

Methods courses are classes offered as part of teacher preparation programs through which instructors seek to develop the instructional capacity of teacher candidates (Grisham & Wolsey, 2011; Martin & Dismuke, 2011; 2015). These courses vary in their content. For example, through literacy courses, instructors engage preservice teachers (PSTs) in learning activities designed to develop candidates' reading and writing pedagogical content knowledge

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(Grisham & Wolsey, 2011). Through writing methods courses, on the other hand, instructors develop PST's instructional capacity in relation to a specific area of literacy (Martin & Dismuke, 2011; 2015). Both types of methods courses show potential in developing teachers' writing instructional capacity.

Literacy Methods Courses. During the fall, winter, and spring semesters of the 2006-2007 academic school year, Grisham and Wolsey (2011) conducted a qualitative case study in which they examined the influence of a sequence of literacy methods courses on the writing instructional knowledge and self-efficacy of 24 elementary PSTs (K-6) of varying disciplines (e.g., mathematics, Spanish, etc.). While instruction for the courses focused predominately on reading instruction, the researchers incorporated several writing instruction activities in which PSTs engaged. Specifically, PSTs were required during each semester to learn about and apply the six traits of writing (i.e., ideas and content, organization, voice, word choice, sentence fluency, and conventions, Spandel, 2005), the writing process, and different writing genres and types. Additionally, during the fall semester, PSTs were required to observe and reflect on the writing instruction of their assigned elementary school teachers, and during the spring semester, the PSTs were required to (with assistance from their assigned teachers) develop, teach, and reflect on a writing lesson within their contexts. To determine the influence of the courses on PSTs knowledge and self-efficacy, the researchers analyzed and synthesized data from a pre-course survey, post-course questionnaire, PSTs' notes and reflections about their cooperating teachers, and PSTs lessons plans and accompanying reflections. Using their findings, the researchers reported that PSTs developed a comprehensive understanding of the elements of writing and the processes by which writing is taught and assessed and reported that PSTs felt more confident in their writing knowledge and pedagogy.

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Writing Methods Courses. In two separate mixed-methods studies, Martin and Dismuke (2015, 2018) examined the influence of writing methods courses on participants. In the earlier study, the researchers assessed during the 2008, 2009, and 2010 academic years the impact of a semester-long writing methods course on the perceptions of 37 undergraduate PSTs enrolled in a university elementary education program. Course learning activities included book club discussions on writing or writing practices, analysis of student writing, curricular planning for writing instruction, and genre-based writing, the goal of each was “to develop knowledge, skills, and dispositions related to writing, children’s writing development, teacher practices, children’s diversity, and self as writer” (p. 106). To capture data on PSTs’ perceptions of their learning, the researchers administered a questionnaire, which included quantitative and qualitative items, after the completion of the course, and utilized responses on reflection assignments that PSTs completed during the course. Through an analysis of the data using frequency counts, coding, and theming, Martin and Dismuke (2015) reported that PSTs self-reported a deepening of writing instruction knowledge as well as an increase in their writing instruction efficacy.

In the more recent study, the same researchers (Martin & Dismuke, 2018) sought to examine the impact of their writing methods course on the instructional knowledge and practices of elementary school teachers ($N = 23$). Eleven of these teachers, who were labeled in the study as preservice teachers and who (interestingly) already had between one and eight years of teaching experience, “graduated from the same undergraduate teacher education program,” but only half of these preservice teachers participated in the 45-hour writing methods course during their program (p. 27). The remaining teachers ($n = 12$), who were labeled as inservice teachers and who had between five and 27 years of teaching experience, consisted of six teachers who

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took the writing methods course and six teachers who did not. Course learning activities were similar to those found in Martin and Dismuke's (2015) earlier study.

The researchers' (Martin & Dismuke, 2018) data-capturing tools included the *Writing Observational Framework* (Henk, Marinak, Moore, & Mallette, 2004), which they used to quantitatively measure student engagement in writing processes and the teacher practices that facilitated this engagement. The researchers' data-capturing tools also included interviews, which the researchers used to gain insight into teacher knowledge and perspectives towards writing, writing instruction, and writing practices, and observations, which the researchers used to capture both teachers' writing instructional practices and students' learning opportunities. Quantitative and qualitative data analyses revealed key differences in both the writing pedagogical content knowledge of teachers. Specifically, when compared to teachers who had not taken the course ($n = 11$), teachers who had taken the course ($n = 12$) provided more opportunities for their candidates to engage in a variety of writing genres, purposes, and audiences, taught and engaged students more regularly in the writing process, provided more instruction in skill and strategy development, allowed more opportunities for students to self-regulate their writing experiences, and provided more frequent chances for students to interact with peers for help and feedback on writing.

Takeaways from the Literature. Though the proposed intervention at the end of this chapter emphasizes job-embedded (i.e., inservice) writing instructional preparation, literature on methods courses provides insight into how to effectively develop teachers' writing instructional knowledge, efficacy, and practices (Grisham & Wolsey, 2011; Martin & Dismuke, 2015, 2018).

When developing these areas, for example, the literature shows that it is important to ensure that teachers have opportunities to learn about, apply, and reflect on writing content

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(Darling-Hammond et al., 2017; Grisham & Wolsey, 2011; Martin & Dismuke, 2015; 2018).

Through their respective methods courses, Grisham and Wolsey (2011) and Martin and Dismuke (2015, 2018) taught PSTs content unique to writing pedagogy (e.g., teaching and assessing writing), provided PSTs with opportunities to apply this content (e.g., designing writing lessons), and gave PSTs chances to reflect on their learning (e.g., examining the link between instructional decisions and student writing capacity).

When examining these engagement activities through the lenses of the learning sciences (Bandura, 1977; Brown, Roediger, & McDaniel, 2014; Mezirow, 1998), one can conclude that these course design choices may have had a pivotal role in developing the writing instructional knowledge, efficacy, and practices of the PSTs. In their discussion of how learning occurs, Brown et al. (2014) communicate that newly perceived information that the brain converts into temporary mental representations (i.e., encoding) becomes permanently stored (and thus learned) when learners strengthen these mental representations over periods of time through consolidation (i.e., thoroughly processing the new information) and retrieval (i.e., recalling and applying the new information). Repeated opportunities for application and reflection may have led PSTs to activate the mental processes (i.e., encoding, consolidation, and retrieval, Brown et al., 2014) necessary for deepening their knowledge of writing content (Grisham & Wolsey, 2011; Martin & Dismuke, 2015; 2018). In addition, Bandura (1977) explained that one of the primary ways people become more confident in their abilities to produce an outcome is through repeated experiential success (i.e., performance accomplishments). Mezirow (1998) provides insight into this phenomenon, communicating that changing the very beliefs upon which people base their assumptions requires critical self-reflection. It would appear, therefore, that the repeated opportunities for application may have led the PSTs to reflect on and reassess their perceptions

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about their abilities to understand the complexities of writing and implement this knowledge for authentic instructional purposes (Grisham & Wolsey, 2011; Martin & Dismuke, 2015, 2018). In sum, ensuring that teachers have multiple opportunities to learn about, apply, and reflect on writing content during professional learning opportunities is essential for enhancing teachers' writing instructional capacity.

Another way to develop teachers' writing instructional knowledge, efficacy, and practices that the preservice preparation literature suggests is to ensure that teachers receive support from experts (Darling-Hammond et al., 2017; Grisham & Wolsey, 2011; Martin & Dismuke, 2015, 2018). Through Grisham and Wolsey's (2011) literacy methods course, PSTs both observed mentor teachers teach lessons and co-constructed writing lessons with these teachers. Through Martin and Dismuke's (2015, 2018) writing methods course, PSTs received direct instruction from the researchers to support the learning of various writing topics (e.g., the writing process).

These design choices appear to have influenced the changes that the researchers observed in PSTs writing instructional capacity. Martin and Dismuke's (2018) examination of PSTs' qualitative data revealed that the way that the researchers scaffolded their instruction (e.g., modeling) helped increase PSTs' confidence in their own ability to write. This finding makes sense when considering research on the learning sciences. Bandura (1977), in addition to communicating that people improve their confidence through performance accomplishments, stated that "seeing others perform threatening activities without adverse consequences can generate expectations in observers that they too will improve if they intensify and persist in their efforts" (p. 197). Thus, providing expert support in the form of mentorship (Grisham & Wolsey, 2011) and direct instruction (Martin & Dismuke, 2015, 2018) may have given PSTs the confidence needed to persist in developing their own writing instructional capacity, which may

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have led them to change their perceptions about their abilities to accomplish tasks related to writing and writing instruction. This takeaway suggests that teachers seeking to improve their writing instructional knowledge, efficacy, and practices would benefit from expert support (Darling-Hammond et al., 2017).

In addition to the aforementioned ways of developing teachers' writing instructional capacity, the preservice preparation literature suggests that teachers benefit when they have opportunities to collaborate with others (Darling-Hammond et al., 2017; Grisham & Wolsey, 2011; Martin & Dismuke, 2015, 2018). In all three studies, PSTs were able to co-construct their learning with classmates, such as through discussion board conversations (Grisham & Wolsey, 2011) and small group book club discussions (Martin & Dismuke, 2015, 2018). These design choices allowed PSTs to learn frequently within PLCs (DuFour, 2004; McCarthy & Geoghegan, 2016).

The forming of PLCs during the methods courses appears to have been an important component in facilitating shifts in PSTs' writing instructional capacity. The qualitative data in Martin and Dismuke's (2015) study, for example, revealed "social interactions with peers," particularly ones within small groups, as effective ways of deepening PSTs' knowledge of writing and writing instruction (p. 110). As discussed earlier, the process of learning oftentimes requires a person to deeply and repeatedly process and recall information (Brown et al., 2014), a goal that PLCs appeared to help facilitate with PSTs (Grisham & Wolsey, 2011; Martin & Dismuke, 2015, 2018). While this facilitation is important, it is also important to note that PLCs have the potential to enhance learning in a different way. In Martin and Dismuke's (2018) more recent study, the qualitative data revealed that social interactions afforded by PLCs produced positive emotions (e.g., encouragement) within PSTs. This effect on affect is particularly

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important because a person's ability to apply the cognitive functions necessary for learning, including "attention, memory, decision making, motivation, and social functioning," rely heavily on that person's emotional state (Immordino-Yang & Damasio, 2007, p. 7). In other words, the less emotionally aroused people are, the more effective their learning experiences will be. This connection between affect and learning also extends to personal efficacy: "Because high arousal usually debilitates performance, individuals are more likely to expect success when they are not beset by aversive arousal than if they are tense and viscerally agitated" (Bandura, 1977, p. 198). Perhaps part of the reason why Grisham and Wolsey (2011) and Martin and Dismuke (2015, 2018) observed shifts in PSTs' writing instructional knowledge, efficacy, and practices is because the implementation of collaboration opportunities created emotionally rich spaces in which such shifts could thrive. Thus, PLCs (DuFour, 2004; McCarthy & Geoghegan, 2016) can function as the cognitive and affective foundation upon which groups of teachers collectively develop their writing instructional knowledge, efficacy, and practices.

Lastly, another way to develop these areas that the preservice preparation literature suggests is by providing ample time for teachers to engage in the learning process (Darling-Hammond et al., 2017; Grisham & Wolsey, 2011; Martin & Dismuke, 2015, 2018). Grisham and Wolsey (2011) engaged 24 elementary teacher candidates (K-6) of varying disciplines in a sequence of literacy methods courses spanning the fall, winter, and spring semesters of the 2006 to 2007 academic year. Martin and Dismuke (2015) engaged 34 elementary teacher candidates in a writing methods course during the 2008, 2009, and 2010 spring semesters, and in their later study (Martin & Dismuke, 2018), the researchers engaged 12 elementary school teachers in 45 hours of writing methods course content.

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Ensuring sustained duration (Darling-Hammond et al., 2017) with professional learning is important because it represents a more effective method of allowing for changes in teacher knowledge, beliefs, and practices to occur (Clarke & Hollingsworth, 2002; Guskey, 2002). Researchers have communicated that traditional, one-time PD opportunities for teachers may not produce the kinds of changes the PD designers want (TNTP, 2015), primarily because shifts in deeply embedded beliefs and practices take time (Mezirow, 1997). By providing opportunities for PSTs to engage in learning over an extended period of time, Grisham and Wolsey (2011) and Martin and Dismuke (2015, 2018) may have provided the necessary time for desirable changes in writing instructional knowledge, efficacy, and practices to occur. Thus, sustained duration of learning (Darling-Hammond et al., 2017) is another critical component to developing teachers' writing instructional capacity.

Overall, the research on methods courses demonstrates that teachers' writing instructional knowledge, efficacy, and practices can change, provided that teachers are given time within PLCs and with expert support to learn about, apply, and reflect on writing content (Bandura, 1977; Darling-Hammond et al., 2017; DuFour, 2004; Clarke & Hollingsworth, 2002; Grisham & Wolsey, 2011; Guskey, 2002; Martin & Dismuke, 2015; 2018; McCarthey & Geoghegan, 2016; Mezirow, 1998; TNTP, 2015).

Limitations of the Literature. When seeking to transfer (Guba, 1981; Lochmiller & Lester, 2017) these takeaways to new contexts, however, several limitations of the preservice preparation literature (Grisham & Wolsey, 2011; Martin & Dismuke, 2015, 2018) must be considered. Each of the studies discussed had sample populations that differed from the targeted population of this chapter's proposed text-based writing PD. Grisham and Wolsey (2011) and Martin and Dismuke (2015) worked only with PSTs, and Martin and Dismuke (2018), while

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including inservice teachers in their study, worked with teachers across seven districts. The targeted population of teachers, on the other hand, are inservice teachers who come from one school. When seeking to transfer any researchers' findings, particularly when researchers opt not to control for influencing contextual factors, "one needs to know a great deal about both the transferring and receiving contexts" to "determine the extent to which transferability is *probable*" (emphasis added, Guba, 1981, p. 81). This approach to concluding the applicability of research is especially important in studies in which depth and transferability are of greater focus than breadth and generalizability (Guba, 1981; Lochmiller & Lester, 2017). With this consideration in mind, therefore, it is possible that the target population of this dissertation's proposed PD differs so much from the samples of teachers used in the discussed research (Grisham & Wolsey, 2011; Martin & Dismuke, 2015, 2018) that the takeaways on professional learning described above may not work well in facilitating desired changes in the target population's text-based writing instructional knowledge, efficacy, and practices. Thus, a discussion of research with contexts similar to the targeted teacher population is needed to further justify this dissertation's proposed text-based writing PD.

Professional Development Literature on Writing Instructional Preparation

Whereas methods courses represent one way of developing the instructional capacity of teacher candidates (Grisham & Wolsey, 2011; Martin & Dismuke, 2015, 2018), PD represents a primary way of developing the instructional capacity of teacher practitioners (Darling-Hammond et al., 2017; Guskey, 2002). Through this approach, facilitators seek to engage teachers in learning opportunities, "both externally provided and job-embedded" (Darling-Hammond et al., 2017, p. 2), that lead to changes in knowledge, beliefs, and practices and, by extension, advancements in student learning outcomes (Clarke & Hollingsworth, 2002; Guskey, 2002).

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Writing PD is designed to achieve these same goals, with the specific focus, however, being on the development of writing instructional outcomes (Howell et al., 2018; Kim et al., 2011; Limbrick et al., 2010; Mosqueda et al., 2016; Olson et al., 2019; Parr & Timperley, 2010; Pella, 2011, 2015). The section below will explore specific activities and components of PD that researchers use to facilitate changes in teachers' writing instructional knowledge, beliefs, and practices.

Evaluating Student Essays. Student essay evaluation as part of PD is an activity that has been associated with favorable impacts on teachers' writing instructional knowledge and practices (Limbrick et al., 2010; Parr & Timperley, 2010). In a two-year study involving more than 20 New Zealand teachers of students between the ages of eight and 13, Limbrick et al. (2010) examined the impact of a PD on the writing instructional pedagogical content knowledge and writing practices of the participating teachers and the writing performance of their students. The development of teachers' writing instructional capacity occurred through repeated opportunities for teachers to utilize "75 written language exemplars" as lenses through which to evaluate their own students' writing and utilize knowledge from these evaluations to set writing instructional goals for their students (Limbrick et al., 2010, p. 906). Shifts in teachers' knowledge bases were measured qualitatively and included observations, field notes, reports from literacy experts, and specific templates that captured participating teachers' thoughts and ideas related to writing instruction.

Constant comparative analysis was used to analyze the qualitative data, the findings of which revealed that teachers' writing instructional pedagogical content knowledge did increase. Specifically, the researchers reported that participating teachers improved in their ability to assess the levels of student writing in accordance with established criteria, and the teachers also

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developed language with which to communicate with command their “understandings about writing” within the context of evaluating student responses (Limbrick et al., 2010, p. 913).

Additional research further supports benefits of student essay evaluation on teachers' writing instructional knowledge and practices (Parr & Timperley, 2010). In particular, Parr and Timperley (2010) discovered that by having teachers evaluate student writing, teachers developed their knowledge of the writing constructs needed to provide effective feedback to their students. Supporting this conclusion, Parr and Timperley (2010) descriptively presented at two separate times (i.e., beginning and end of the year) the percentages of 49 primary school teachers' feedback that fell into five dimensions. One dimension, for example, focused on whether teachers responded to students' writing with explicit (e.g., “Can you change [your recount] so you are writing about what has happened instead of what you are going to do?”) or implicit (e.g., “It sounds like your planning trip was such fun but we need more detail.”) commentary, that is, whether the commentary directly or indirectly indicated the degree to which students had met or not met specific criteria of writing (Parr & Timperley, 2010, pp. 76-77).

For this particular dimension, Parr and Timperley (2010) reported that earlier in the school year, 73% of the teachers' feedback included implicit suggestions for improvement, while 22% of the feedback included explicit suggestions for improvement. At the end of the year, however, the researchers reported that 50% of the feedback included implicit suggestions for improvement, while 47% included explicit suggestions for writing improvement. Parr and Timperley (2010) attribute these changes to improvements in teachers' content knowledge, indicating that by evaluating student work samples, teachers' writing instructional capacity, manifested in the forms of writing construct knowledge and feedback to writing, improved.

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Takeaways from the Literature. The researcher on student essay evaluation (Limbrick et al., 2010; Parr & Timperley, 2010) highlights the importance of using student work samples in helping to facilitate teachers' writing instructional knowledge and practices. One reason for this activity's importance is that it helps develop teachers' abilities to assess and respond to their students' writing. In Limbrick et al.'s (2010) study, the participating teachers had to constantly align their students' writing to the annotated exemplars, which not only sharpened the teachers' ability to determine their students' level of writing proficiency, but it also helped the teachers to develop specific plans for addressing any identified challenge areas. Parr and Timperley (2010) had similar findings, in that their participating teachers' ability to assess and respond to their students' writing also improved through student essay analysis. Specifically, the teachers who participated in the researchers' PD learned how "to interpret and apply the detailed criteria in the scoring rubrics," which deepened their understanding of the specific writing constructs of focus within the students' writing (p. 72). This development of their knowledge helped teachers become more capable of providing specific and constructive, rather than vague and unhelpful, feedback.

Another important reason for the use of student essay evaluation in writing PD is that it provides teachers with content and opportunities that are likely to facilitate learning. In their discussion of effective PD, Darling-Hammond et al. (2017) communicate that professional learning should focus "on the content that teachers teach" (p. 5) and engage "teachers directly in the practices they are learning" (p. 7). Because teachers were able to evaluate and respond to their own students' writing, Limbrick et al. (2010) and Parr and Timperley (2010) both engaged teachers in activities that aligned to their day-day work (i.e., content focused) and facilitated the development of the skills needed to complete this work (i.e., active learning). The teachers,

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therefore, were more than likely motivated to learn what the researchers were offering, because the learning was both relevant and practical.

In sum, student essay evaluation could help to facilitate developments in teachers' writing instructional knowledge and changes in teachers' practices (Limbrick et al., 2010; Parr & Timperley, 2010), indicating its potential usefulness for a job-embedded writing PD.

Limitations of the Literature. Despite these benefits, the findings from this research (Limbrick et al., 2010; Parr & Timperley, 2010) should be interpreted carefully. In the discussed research, participating teachers developed their writing instructional knowledge and practices using responses in which students drew largely from their background knowledge to respond to writing tasks. Text-based writing, however, requires students to support written responses using evidence from source materials (New Meridian, 2019b). Thus, while research has shown a positive connection between student essay evaluation and teachers' writing instructional knowledge on tasks where students can draw largely from their own experiences, the research on this activity does not show the impact of this form of PD on teachers' writing instructional knowledge on tasks where students must draw largely from the texts that they analyze. Thus, further research on this particular area is needed.

Cognitive Strategy Instruction. Research has shown that when teachers are taught through PD how to teach writing within their content, teacher knowledge and practices can develop, and student writing outcomes can improve (De La Paz et al., 2017; Howell et al., 2018; Olson et al., 2019). Howell et al. (2018) demonstrate this finding in their two-year, mixed-methods study in which they examined the impact of a PD on participating middle and high school ELA teachers' ($N = 25$) adoption of instructional strategies for argument writing and the writing outcomes of these teachers' students. The focus of the PD's first year was to deepen

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teachers' content knowledge of argument writing. Learning experiences that facilitated this shift included PD sessions, opportunities for teacher consultants to model lessons in participating teachers' classrooms, and an optional graduate-level course. The focus of the PD's second year, on the other hand, was to solidify teachers' routine implementation of PD content. Support that facilitated this process included individual coaching, additional opportunities for teacher consultants to demonstrate PD content (e.g., instructional strategies), and increased classroom visits. In total, the 25 ELA middle and high school teachers, who came from two rural districts (i.e., Graineville, $n = 6$; Yorktown, $n = 19$), received at a minimum 90 hours of PD.

When examining the data at the district level, Howell et al. (2018) concluded that the PD on argumentative writing tasks and strategy use may have led to shifts in both teacher practices and student outcomes. Survey data from the second year of the PD revealed that three Graineville teachers reported using 22 of the strategies introduced through the PD, and 10 Yorktown teachers reported using 18 of the strategies used in the PD. Furthermore, when examining year one and year two survey data from these teachers, Howell et al. (2018) noted that teachers in both districts reported an increase in the amount of time spent writing. Both findings suggest that, in general, the PD influenced the kinds of instructional strategies that the teachers used and the amount of time that these teachers devoted to writing within their classes. In addition to these findings, data from scored student writing samples revealed changes in the students' writing performance. More specifically, between the months of October and February, students in Graineville ($n = 59$; $n = 48$) and Yorktown ($n = 153$; $n = 113$) improved in their "ability to use source material, integrate this source material [in their own words], comment on the source material and discuss the credibility of the source material" (p. 175). This finding

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suggests that the PD may have contributed to improvements in students' ability to respond effectively to argumentative writing tasks.

An additional study by Olson et al. (2019) further shows the benefits of PD on both teachers' writing instructional capacity and students' writing outcomes. Their PD (i.e., the Pathway to Academic Success Project), which has been researched for more than a decade (Olson & Land, 2007; Kim et al., 2011; Olson et al., 2017; Olson et al., 2019), was designed primarily to improve the text-based analytical writing outcomes of secondary students, "particularly Latinos and mainstreamed English learners" (Olson et al., 2019, p. 1). To test the effectiveness of this PD, the researchers recruited across four districts 230 ELA teachers, each of which had been randomly assigned to a treatment ($n = 113$) or control ($n = 117$) group. Teachers in the treatment group received 46 hours of PD over the course of an academic year, during which facilitators trained the teachers in the implementation of reading and writing cognitive strategies (e.g., summarizing, making connections, planning and goal setting, etc.), engaged participants in providing instruction on revising an essay, and supported participants through coaching in their overall execution of PD training. Teachers within the control group, on the other hand, did not participate in writing PD of this depth, instead attending sessions that facilitated their understanding of the districts' instructional textbooks and assessments. To measure the impact of the PD on teachers' writing practices, Olson et al. (2019) administered a survey and conducted both one-on-one and focus group interviews. To measure the impact of the PD on students' text-based analytical writing, the researchers gathered data from baseline writing assessments, outcome writing assessments, state tests.

Olson et al.'s (2019) data analyses provide evidence that the PD had an impact on both teachers' writing instructional practices and students' text-based analytical writing. In particular,

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the researchers found that 85% of teachers in the treatment group reported implementing instructional tutorials for cognitive reading and writing strategies, and 92% of these same teachers reported implementing instructional tutorials for essay revision. In addition, Olson et al. (2019) discovered that the PD correlated with improvements in students' text-based analytical writing, as measured on the baseline and outcome writing assessments. More specifically, the "results were positive and statistically significant for not only the holistic scores ($d = .32$), but all four of the analytic scores: content ($d = .31$), structure ($d = .29$), fluency ($d = .27$), and conventions ($d = .32$)" (p. 14). In fact, when compared to students in the control group, students in the treatment group outperformed their counterparts by "nearly a third of a standard deviation" (p. 14). Moreover, while the researchers' intervention emerged out of a desire to improve the writing of ELLs (Olson & Land, 2007; Kim et al., 2011; Olson et al., 2017; Olson et al., 2019), baseline and outcome assessment data (Olson et al., 2019) revealed that the PD benefited students regardless of subgroup (i.e., ELL status, ethnicity, gender). Data from state assessments, however, did not show evidence of the PD's impact. In sum, findings from both teacher and student measures indicate that when the teachers learned how to explicitly develop their students' text-based analytical writing abilities, the teachers applied these practices within their classrooms, which led to students developing the skills necessary for responding effectively to text-based analytical writing tasks.

Takeaways from the Literature. The research on cognitive strategy instruction (Howell et al., 2018; Olson et al., 2019) highlights the importance of PD practicality in facilitating shifts in teachers' writing instructional capacity. As discussed earlier, PD that results in desired changes provides opportunities for teachers to engage in learning that has day-to-day relevance (Darling-Hammond et al., 2017). In the discussed studies (Howell et al., 2018; Olson et al., 2019), the

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researchers abided by this principle by giving teachers practical instructional strategies, specifically ones for teaching argumentative writing (Howell et al., 2018) and text-based analytical writing (Olson et al., 2019). The relevance of these strategies appears to be a primary reason for why changes in teachers' instructional practices occurred, a conclusion supported by Howell et al. (2018). These researchers, in addition to analyzing and reporting data at the district level, also analyzed and reported data from embedded cases, specifically of two high adopting teachers and two low adopting teachers. Their findings revealed a code of "conflicting practice and PD" as a reason for why the low adopting teachers did not implement the PD strategies as heavily as their high adopting teacher counterparts, indicating that shifts in teacher practices (or lack thereof) depended on teacher perceptions of the interventions' practical application. It would appear, therefore, that the reason why the majority of teachers who received the PDs in both Howell et al.'s (2018) and Olson et al.'s (2019) studies shifted their writing instructional practices is because they perceived cognitive strategy instruction, the content of their respective PDs, as having practical application to their day-to-day contexts.

In addition to practicality, the research on cognitive strategy instruction highlights the importance of PD effectiveness. Researchers on teacher professional development communicate that the impact of PD on student outcomes influences whether shifts in teacher practices occur. (Clarke & Hollingsworth, 2002; Tschannen-Moran & Chen, 2014). This conclusion is supported by empirical research (Howell et al., 2018). Another code, for example, that emerged from Howell et al.'s (2018) embedded unit data was "seeing student change," suggesting that teachers become more motivated to shift their instructional practices when they see that adopted practices produce positive changes in student learning outcomes (p. 179). The student successes, which appears to have occurred because of the teachers' implementation of cognitive strategy

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instruction, may have motivated teachers in both Howell et al.'s (2018) and Olson et al.'s (2019) studies to change their instructional practices.

Overall, cognitive strategy instruction, because it is both practical and effective (Howell et al., 2018; Olson et al., 2019), may help to facilitate teachers' writing instructional capacity. Therefore, it should be incorporated into a text-based writing PD's design.

Limitations of the Literature. The findings on cognitive strategy instruction, however, must be applied carefully. One reason for this caution is because the research has focused heavily on ELA contexts (Howell et al., 2018; Kim et al., 2011; Olson & Land, 2007; Olson et al., 2017; Olson et al., 2019), even though other content areas, including science (De La Paz & Levin, 2017) and social studies (Monte-Sano & De La Paz, 2012), incorporate text-based writing. Thus, more research is needed to see cognitive strategy instruction's application within contents outside ELA.

Professional Learning Communities. As hinted at earlier in this chapter, PLCs describe groups of teachers who actively collaborate to develop their instructional knowledge and practices, the goal of which is to examine and address academic challenges related to student learning (McCarthy & Geoghegan, 2016). DuFour (2004) highlights three essential principles by which participants in PLCs must abide: operating with the commitment that all students will learn, committing to a culture of collaboration in which participants work together to improve instructional practices, and maintaining a relentless focus on "judging their effectiveness on the basis of results" (p. 10). When incorporated into PD, PLCs have the potential to facilitate development in teachers' writing instructional knowledge, beliefs, and practices (Limbrick et al., 2010; Parr & Timperley, 2010; Pella, 2011, 2015).

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Pella (2011) provides evidence of the benefits of PLCs on teachers' writing instructional capacity. In her study, the researcher explored how four middle school teachers developed their knowledge base about learning and teaching writing, and how this development in knowledge led to shifts in their beliefs and practices. To accomplish this task, the researcher engaged the teachers (two of whom taught in affluent communities and two of whom taught in less affluent, culturally and linguistically diverse communities) in several lesson study cycles, the goal of which was lesson design that enhanced their students' response to literature and persuasive writing. The lesson study cycles, more specifically, provided opportunities for teachers to collaboratively determine writing areas of focus, design lessons that responded to these areas, implement and observe the lessons, and reflect on the effectiveness of the lesson through student work analysis.

Pella's (2011) analysis of qualitative data, which included extensive researcher field notes, interviews, email communication, and reflections, revealed two codes that helped to explain how PLCs facilitated teachers' writing instructional capacity. The first code was "theoretical equilibrium," which described the teachers' attempts "to balance their diverse approaches to writing instruction" (p. 122). This synthesis of approaches helped teachers to expand their understanding of the ways that writing could be taught, a process that led to what Pella (2011) coded as "transformations" (p. 113). This second code described changes in beliefs and practices that the teachers articulated (e.g., improved instructional confidence and implementation of different writing practices) as a result of their co-construction of knowledge. In other words, the more teachers learned from interacting with their colleagues about how to teach writing, the more their self-efficacy and instructional practices for teaching writing shifted. Pella (2011) attributed these developments in beliefs and practices to the teachers' engagement

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in multiple lesson study cycles, a process that was enhanced by a PLC that sought to collaboratively develop their writing instructional capacities.

Expanding on her previous research, Pella (2015) examined the specific processes by which PD develops teachers' pedagogical content knowledge (Shulman, 1986) for teaching writing. Once again, she engaged a group of middle school ELA teachers ($N = 5$), four of whom were from her previous study (Pella, 2011), in a series of lesson study cycles. Coding of the researcher's data, which included field notes, recorded discussions, email communication, pre- and post- interviews, and teacher reflections, revealed that the stages of the lesson study cycle facilitated the development of teacher's writing pedagogical content knowledge. More specifically, through the ongoing collaboration that the lesson study cycles offered, teachers deepened their understanding of instructional focus areas (e.g., providing instruction on text citation, point of view development in writing) and adopted and implemented new approaches to the teaching of writing, approaches that sustained even two years beyond the study.

In addition to Pella's (2011, 2015) studies, research previously discussed (Limbrick et al., 2010; Parr & Timperley, 2010) provides evidence of the benefits of PLCs. In Limbrick et al.'s (2010) study, for example, in which teachers engaged in a PD that enhanced their ability to assess and respond instructionally to student writing, the researchers highlighted the importance of conversations within PLCs. Specifically, the researchers said that "discussions with researchers and colleagues facilitated deeper understandings about the writing process and enabled teachers to make informed decisions for planning and teaching" (p. 917). Parr and Timperley (2010) also noted the importance of "collegial discussion" within PLCs, communicating that ongoing conversations between teachers sharpened their understanding of

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constructs by which their students' writing was evaluated, which helped the teachers provide more specific and, therefore more helpful, feedback to their students (p. 80).

Takeaways from the Literature. The discussed research (Limbrick et al., 2010; Parr & Timperley, 2010; Pella, 2011, 2015) reveals two important ways that PLCs can facilitate the development of teachers' writing instructional capacity. Professional learning communities, in particular, provide opportunities for groups of teachers to challenge one another's knowledge and beliefs about teaching writing (Pella, 2011, 2015), and serve as an important catalyst for changing practices (Mezirow, 1998; Wink, 2011). Throughout the lesson study cycles, the teachers in Pella's (2011, 2015) studies experienced cognitive dissonance (hence the need to seek out theoretical equilibrium) that appeared to emerge when the teachers were pressed to reflect on their own writing instructional knowledge and beliefs. In the researcher's earlier study (Pella, 2011), for example, one of the teachers "altered her expectations of her students' abilities," initially believing that "her students could [not] do collaborative writing until she witnessed students with far less English fluency performing these tasks successfully" (p. 120). This teacher, consequently, changed her practices, evidenced by her later experimentation with writing groups (Pella, 2015). Had the teacher, and others within Pella's (2011, 2015) studies, not had her knowledge and beliefs about teaching writing challenged, she might not have changed the way she taught her culturally and linguistically diverse students. The professional learning community in which the teachers operated provided the structure to allow for such cognitive dissonances to occur (Pella, 2011, 2015).

Another way that PLCs can develop teacher's writing instructional capacity is by providing opportunities for groups of teachers to collectively sharpen one another's pedagogical content knowledge for writing instruction (Limbrick et al., 2010; Parr & Timperley, 2010). As

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discussed earlier, collaboration in both Limbrick et al.'s (2010) and Parr and Timperley's (2010) studies was essential in developing participating teachers' abilities to assess and respond to their students' writing, perhaps because collaboration provided opportunities for teachers to refine their knowledge and practices. Granted, the use of writing exemplars, with which the teachers compared their own students' writing, helped to facilitate this process, but this refinement of knowledge appears to have been enhanced by collaboration. Indeed, Parr and Timperley (2010) communicated that "understanding of a construct is refined through experience and particularly processes like moderation *where collegial discussion is involved*" (emphasis added, p. 73). It would seem, therefore, that collaboration, because it involves a constant exchanging of ideas, helps to facilitate the deepening of teachers' writing instructional knowledge and practices.

In sum, PLCs, when incorporated as a component of writing PD, can help to develop teachers' writing instructional capacity (Darling-Hammond et al., 2017; DuFour, 2004; Pella, 2011, 2015; Limbrick et al., 2010; Parr & Timperley, 2010).

Limitations of the Literature. Despite the discussed benefits of PLCs, several limitations of the research should be discussed. In the studies of Limbrick et al. (2010) and Parr and Timperley (2010), participating teachers developed their writing instructional knowledge using responses in which students drew largely from their background knowledge to respond to writing tasks. Text-based writing tasks, however, require students to support written arguments using evidence from source materials (New Meridian, 2019a). Thus, while research has shown a positive connection between PLCs and teachers' writing instructional knowledge on tasks where students can draw largely from their own experiences, the research on PLCs does not show the impact of this form of PD on teachers' writing instructional knowledge on tasks where students must draw largely from the texts that they analyze. In addition, because Parr and Timperley

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(2010) excluded procedures for measuring the content knowledge from which teachers drew to provide feedback to students writing, conclusions about the impact of the researchers' PD on this aspect of writing instructional capacity (i.e., content knowledge) cannot be drawn. Therefore, it is unclear what impact the PD had on teachers' content knowledge for writing. Furthermore, in PD in which PLCs were incorporated, some teachers did not demonstrate desirable changes. In her earlier study, for example, Pella (2011) did not have "enough evidence" on one teacher "to instantiate a clear transformation," though this teacher did demonstrate changes in her latter study (Pella, 2015). Furthermore, in Howell et al.'s (2018) study, in which collaboration had an important role in the researchers' PD design, two teachers were still coded as "low-adopting." These findings indicate that participation in PLCs may not necessarily lead to changes in writing instructional practices.

Instructional Coaching. Instructional coaching describes an approach to professional learning whereby an experienced person works with teachers as a means of developing their instructional capacity (Griffith, Ruan, Stepp, & Kimmel, 2014; Howell et al., 2018; Kim et al., 2011; Mosqueda et al., 2016). Researchers who have used coaching as a part of their PDs have observed improvements in both teachers' ability to teach writing and improvements in student writing outcomes.

During the summer of 2013, Mosqueda et al. (2016) conducted a study in which they sought to use a PD model (*Adolescent Mathematics Writing System*) to enhance the instructional capacity of eight mathematics teachers and the mathematical and language proficiency of 104 incoming ninth grade ELLs. The model consisted of a cycle of five sequential steps, including assessing students, scoring and analyzing data, engaging in PD, engaging in coaching sessions, and adopting new instructional practices, which occurred three times over the course of the

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summer. During the three coaching sessions, researchers provided coaching support to the teachers. Specifically, the researchers collaborated with teachers to develop learning and language goals along with the instructional sequence of lessons. Additionally, the researchers observed the lessons, debriefed with teachers about the lessons, and worked with teachers to identify areas of strengths and needs, the latter of which would be addressed in future lessons. From an examination of pretest and posttest writing data, both in English and Spanish, the researchers' descriptive statistics revealed the following means for student reasoning ($M = 2.41$; $M = 2.59$), computation ($M = 2.27$; $M = 2.28$), conventions ($M = 2.33$; $M = 2.40$), and vocabulary ($M = 2.46$; $M = 2.42$). Through these data, the researchers show that with effective PD, which includes instructional coaching, teachers' writing instructional capacity may possibly improve in ways that help teachers incorporate instructional practices that develop students' abilities to effectively articulate ideas to others using mathematical source materials.

In another study (Kim et al., 2011), researchers incorporated instructional coaches as a part of intervention designed to develop the text-based analytical writing skills of students. In the study, Kim et al. (2011) conducted a randomized control trial that included 103 English teachers from nine middle schools and six high schools and a sample of students in grades six to 12. Throughout the entirety of the school year, teachers in the treatment group engaged in 46 hours of PD, which included both full-day and after-school sessions, while teachers in the control group participated in 26 hours of PD, which consisted of before and during the day sessions for, respectively, three days, six hours and eight days, one hour per day. Treatment group PD content included sessions that guided teachers through the analysis of student writing data from an on-demand pretest analytical essay, the development of cognitive strategy-infused lessons intended to respond to student writing needs and improve both their reading and writing of complex texts,

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and the analysis of an on-demand posttest analytical essay. Literacy coaches supported the development of the efficacy and instructional capacity of treatment group teachers, specifically by attending each PD activity, leading monthly focus groups, and guiding teachers in incorporating cognitive reading and writing strategies into instruction. Control group content, on the other hand, engaged teachers in sessions “that focused broadly on interpreting test data, using test data to improve schools’ [California Standards Test] scores, helping students improve their summarizing strategies during reading activities, forming PLCs, and understanding the core English language arts textbook” (p. 242).

To measure the effectiveness of the *Pathway Project* PD (treatment group PD) on student writing performance of mainstreamed Latino ELLs in comparison to the “business-as-usual professional development activities” (control group PD), the researchers utilized the *Assessment of Literary Analysis* (ALA), Grades 6 to 12, an on-demand writing pretest and posttest, and the *California Standards Test* (CST), *English Language Arts, Grades 6 to 11*, a summative evaluation of reading and writing skills (Kim et al., 2011, p. 242). Statistical analyses of data from 2007-2008 revealed that treatment group students performed higher than control group students on the ALA. A three-level hierarchical linear model revealed statistically significant benefits of the *Pathway Project* intervention on the ALA posttest scores and CST scores respectively for students in the treatment group. Overall, Kim et al. (2011) demonstrated that a comprehensive PD, which included literacy coaches, could facilitate teachers’ text-based writing instructional capacity and improve student performance on text-based writing tasks.

In a previously discussed study (Howell et al., 2018), researchers implemented coaching into the design of their PD. Specifically, the teacher consultants, as a means of helping the 25 middle and high school teachers implement strategies for argument writing, provided

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demonstrations of model lessons, both within PD and in-class contexts, and one-on-one coaching, the goal of which was to “foster [teachers’] implementation of the PD in classrooms routinely” (p. 173). Because of this support, particularly the in-class demonstrations (Howell et al., 2018), teachers adopted PD strategies into their instructional practices. Consequently, student scores on argumentative writing tasks appeared to benefit. This ongoing support from coaches within the context of Howell et al.’s (2018) PD indicates that coaches facilitated the development of teachers’ instructional practices and, indirectly, student performance on argumentative writing tasks.

Takeaways from the Literature. The literature in which researchers used coaches (Howell et al., 2018; Kim et al., 2011; Mosqueda et al., 2016) in their PD designs reveal the ways expert support (Darling-Hammond et al., 2017) is used to develop teachers’ writing instructional capacity and, by extension, student writing outcomes. In all three of the discussed studies (Howell et al., 2018; Kim et al., 2011; Mosqueda et al., 2016), the coaches helped teachers plan and implement instructional strategies that they had learned from their respective PDs, including strategies that were designed to improve students’ argumentative writing (Howell et al., 2018), text-based analytical writing (Kim et al., 2011), and mathematical writing (Mosqueda et al., 2016). Support for planning and implementing instruction came in a variety of forms. For example, in Howell et al.’s (2018) study, support came in the form of vicarious experience (Bandura, 1977), when teacher consultants explicitly modeled for participating teachers the very instructional strategies that teachers were supposed to implement. As a result, teachers became more confident in their ability to adopt the strategies into their practices (Howell et al., 2018). In addition, in Mosqueda et al.’s (2016) study, the coaches engaged the eight mathematics teachers in critical reflections (Mezirow, 1998; Wink, 2011) of their

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implemented lessons, which helped facilitate the teachers' understanding of the lessons' strengths and needs as well as the next steps for "subsequent instructional units" (p. 10).

When considering these findings collectively (Howell et al., 2018; Kim et al., 2011; Mosqueda et al., 2016), it would appear that the expert support (Darling-Hammond et al., 2017) that the teachers received in their respective PDs helped to develop teachers' capacity to implement instructional strategies. Consequently, student performance on argumentative (Howell et al., 2018), text-based analytical (Kim et al., 2011), and mathematical writing tasks (Mosqueda et al., 2016) benefitted. Instructional coaches, therefore, can function as an important component of writing PD.

Limitations of the Literature. The research (Howell et al., 2018; Kim et al., 2011; Mosqueda et al., 2016) on which this conclusion is based does have some limitations. While all three studies incorporated instructional coaches into their PDs' design, it is not as clear the extent to which instructional coaches independently influenced both teacher and student outcomes. In Kim et al.'s (2011) and Mosqueda et al.'s (2016) study, the researchers did not measure whether specific components of their PDs (e.g., instructional coaches) had an impact on shifts in teacher practices and improvements in student performances. At most, therefore, one can conclude that their respective PDs had an impact on outcomes, not instructional coaching specifically. Howell et al. (2018), on the other hand, did ask teachers which PD components were most helpful for their learning, to which teachers in their studies cited in-class demonstrations of lessons from teacher consultants as being particularly helpful. Thus, there is evidence to suggest that instructional coaching can help to facilitate teachers' writing instructional capacity, but, when considering other research in which coaches were incorporated (Kim et al., 2011; Mosqueda et

al., 2016), this evidence is limited. Overall, more research is needed to determine the extent to which instructional coaches independently influence both teacher and student outcomes.

Rationale for Effective Models of Professional Development

Much has been discussed in this chapter that provides a foundation on which this dissertation's text-based writing intervention is grounded. In particular, the research highlights several key principles (Darling-Hammond et al., 2017) that guide the intervention's design.

One principle is that text-based writing intervention should occur consistently over an extended period of time (Darling-Hammond et al., 2017). Researchers within the discussed literature did not engage teachers in PD that occurred in a single setting; rather, they engaged teachers in PD that required multiple sessions (Mosqueda et al., 2016) that spanned both academic (Grisham & Wolsey, 2011; Howell et al., 2018; Martin & Dismuke, 2015, 2018; Olson et al., 2019; Parr & Timperley 2010; Pella, 2011, 2015) and calendar years (Kim et al., 2011; Limbrick et al., 2010). Another principle that guides the design of the text-based writing intervention is ensuring that the learning is situated within the context of teachers' practice (Darling-Hammond et al., 2017). Researchers engaged both teacher practitioners and teacher candidates in learning opportunities that had practical applications for their respective contexts, including teaching participants how to assess and respond to their students' writing (Limbrick et al., 2010; Parr & Timperley, 2010) and implement cognitive strategies into writing instruction (Howell et al., 2018; Kim et al., 2011; Olson et al., 2019).

Two additional principles that emerged from the literature review and synthesis is that the text-based writing intervention should allow for authentic collaboration and incorporate expert support (Darling-Hammond et al., 2017). In the discussed literature, researchers facilitated the learning of teachers and teacher candidates with PLCs (Grisham & Wolsey, 2011; Limbrick et

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al., 2010; Martin & Dismuke, 2015, 2018; Parr & Timperley, 2010; Pella, 2011, 2015) and instructional coaches (Howell et al., 2018; Kim et al., 2011; Olson et al., 2019)

Lastly, text-based writing PD should provide opportunities for teachers to receive feedback and reflect on their practice (Darling-Hammond et al., 2017). In much of the discussed research, teachers and teacher candidates were supported in their professional growth by receiving ongoing feedback that enhanced their writing instructional capacity; consequently, these teachers and teacher candidates were often challenged to critically reflect (Mezirow, 1997, 1998) on their writing instructional knowledge, beliefs, and practices (Grisham & Wolsey, 2011; Howell et al., 2018; Kim et al., 2011; Limbrick et al., 2010; Martin & Dismuke, 2015, 2018; Mosqueda et al., 2016; Parr & Timperley, 2010; Pella, 2011, 2015; Olson et al., 2019).

In sum, these principles provide a theoretically and empirically sound foundation on which to design a text-based writing intervention that not only responds directly to the issue of insufficient writing instructional preparation, but it also ensures that components of adult learning (Knowles, 1980; Mezirow, 1997) remains central to the intervention's design. In the next chapter, a job-embedded text-based writing PD for Granberry Middle School teachers is detailed.

Chapter 4: Research Design

As described in the previous chapter, multiple principles guided the development of this dissertation's intervention, including principles that ensure that the PD occurs over an extended period, remains situated in teachers' contexts, provides opportunities for authentic collaboration, facilitates learning with expert support and feedback, and engages teachers in reflection of their practices (Darling-Hammond et al., 2017). The resulting product was a job-embedded online text-based writing PD in which teachers participated in professional learning opportunities designed to develop their text-based writing knowledge, efficacy, and practices (see Figure 2). Included in this chapter is a detailed description of the study's purpose, research design, and methods.

Purpose of the Study

The purpose of the study was to examine the impact of an online text-based writing PD on teachers' text-based writing instructional capacity. More specifically, the research study measured whether the online PD changed teachers' knowledge of text-based writing strategies, efficacy for teaching text-based writing, and instructional practices related to text-based writing. The following process and outcome research questions were used to evaluate both the implementation and effects of the PD.

Process Research Questions

- 1) To what extent did the researcher adhere to the essential elements of the online text-based writing PD?
- 2) To what extent are the participating teachers engaged during each of the online PD sessions?

Outcome Research Question

- 1) In what ways has the online PD changed the knowledge of text-based writing strategies for middle school ELA, mathematics, and science teachers?
- 2) To what extent have middle school ELA, mathematics, and science teachers' efficacy beliefs for teaching text-based writing changed following the online PD?
- 3) To what extent has the online PD changed the implementation of instructional practices for text-based writing for middle school ELA, mathematics, and science teachers?

Research Design

A convergent parallel design was used in the study (Creswell & Plano-Clark, 2018). As noted in chapter one, research on writing instructional preparation for teachers has relied heavily on quantitative, self-report data to determine the effectiveness of teachers' preparation (Brindle et al., 2016; Drew et al., 2017; Gilbert & Graham, 2010; Gillespie et al., 2014; Graham et al., 2014; Kiuahara et al., 2009; Myers et al., 2016; Troia & Graham, 2016). In a convergent parallel design, on the other hand, researchers rely on two forms of data collection (Creswell & Plano-Clark, 2018; Kerrigan, 2014). More specifically, researchers collect, analyze, and interpret separately both quantitative and qualitative data, merging the findings of them to provide insight into the explored phenomena in ways that monomethod approaches generally cannot (Small, 2011). For this dissertation's study, the researcher gathered, analyzed, and interpreted self-report, interview, and observational data to provide insight into shifts in teachers' knowledge of text-based writing strategies, efficacy for teaching text-based writing, and instructional practices related to text-based writing. Findings from these forms of data analyses were then merged to help the researcher draw inferences about the effectiveness of the online text-based writing PD.

Process Evaluation

Fidelity of implementation describes the extent to which a program and its accompanying activities and methods are implemented in alignment with the program's original design (Nelson, Corday, Hulleman, Darrow, & Sommer, 2012). Assessing a program's fidelity of implementation is important because the findings related to this assessment have critical implications for programs and their outcomes. Dusenbury, Brannigan, Falco, and Hansen (2003) communicate that assessing a program's fidelity of implementation can yield information about the practicality of a program's implementation within a context and illuminate reasons undergirding a program's success or failure. Furthermore, the authors imply that when researchers know whether a program is implemented as designed, they can draw more accurate conclusions about the effects of a program on its outcomes, such as whether outcomes were affected by changes in program design.

Researchers have described several ways that fidelity of implementation is assessed (Dusenbury et al., 2003; Nelson et al., 2012). Three ways are adherence, dose, and participant responsiveness (Dusenbury et al., 2003). Within the context of the proposed study, each of these areas of program fidelity are discussed.

Adherence. The term adherence describes the degree to which the actual application of a program aligns to the planned application of a program (Stufflebeam, 2003). At Granberry, adherence means that the session presentations aligned to the PD program's "critical elements" (Dusenbury et al., 2003, p. 241), specifically increasing teachers' awareness of the value of an SRSD approach to writing instruction, developing teachers' understanding of specific cognitive and self-regulation strategies, and providing opportunities for teachers to test these strategies out for authentic purposes. Adherence was used to answer process evaluation question one.

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Dose. The term dose describes the quantity of content that participants receive from a program (Dusenbury et al., 2003; Schutle, Easton, & Parker, 2009). While no universally accepted number of hours in which teachers should engage in PD exists (Darling-Hammond et al., 2017), some researchers on effective PD suggest a minimum of 20 hours (Desimone & Garet, 2015; Desimone & Stuckey, 2014). Other researchers, such as Kim et al. (2011) and Olson et al. (2017), who sought to develop teachers' instructional practices for text-based, analytical writing, engaged teachers in more than 40 hours of PD. Informed by the PD research, therefore, dose at Granberry means that teachers participated in as close to 20 hours of activities connected with and emerging from the online text-based writing PD. To account for teacher absences, the researcher met with teachers who were not able to make a PD session during regularly scheduled times to deliver the missed PD session apart from the rest of the group. Over the span of the online text-based writing PD's implementation (i.e., slightly more than two months), only three make up sessions were needed, each of which occurred prior to the subsequent PD session. Dose was used to answer process evaluation question two.

Participant Responsiveness. The term participant responsiveness describes the degree to which program participants are attentive to the information and activities of a program (Dusenbury et al., 2003; Schutle et al., 2009). At Granberry, participant responsiveness means that teachers verbally contributed to large or small group conversations and engaged in learning activities associated with each session. Participant responsiveness was used to answer process evaluation question two.

Outcome Evaluation

The study's logic model (see Figure 6 in Appendix B) illustrates the outcomes that were examined in the study, including teachers' knowledge of text-based writing strategies, efficacy

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for teaching text-based writing, and instructional practices for text-based writing, and the inputs and outputs that must occur in order for these outcomes to be examined. Critical inputs included the text-based writing Google Slides presentations, state and district writing rubrics, and student writing samples. Outputs fell into three categories, including participants, activities, and data measures. The study included eight teachers from the content areas of ELA, mathematics, and science, who engaged in activities designed to develop teachers' text-based writing instructional knowledge, efficacy, and practices. Furthermore, teachers' responses to pre- and post-PD surveys and semi-structured interview questions, and the researcher's notes from observations, served as the data sources used to answer the research questions related to both short-term (i.e., teachers' knowledge of strategies for text-based writing) and medium-term (i.e., teachers' efficacy for teaching text-based writing and implementation of strategies for text-based writing) outcomes.

Methods

Participants

Participants included eight middle school teachers from Granberry Middle School, including three ELA teachers, one mathematics teacher, and four science teachers. Within both ELA and science groups, three grade levels (i.e., sixth, seventh, and eighth) were represented. Because, however, there was only one mathematics teacher in the study, there was only one grade level represented. At the time of the study, the researcher focused specifically on recruiting teachers of core subjects (e.g., ELA, mathematics, and science), primarily because these content areas included text-based writing.

Instruments

Process Evaluation Instruments. Three measures were used to assess the online text-based writing PD's fidelity of implementation. Each data-collecting tool is discussed in detail below and summarized in Table 9.

Adherence Measurement. To determine whether the presentations aligned to the program's essential elements, the researcher used data from various measures. One of the measures, field notes, captured the researcher's descriptions of teachers' comments and responses to the PD program. The other two measures captured teachers' perspectives on whether and how PD activities facilitated their learning on aspects of the content presented (i.e., exit surveys, see Appendix C) and teachers' notes on how their colleagues implemented text-based writing strategies within their classrooms (observation templates, see Appendix I). When triangulated, data from these three measures showed whether teachers participated in learning that aligned with the program's design, the conclusion of which would demonstrate whether the researcher presented content that focused on increasing teachers' awareness of the value of an SRSD approach, developing teachers' understanding of cognitive and self-regulation strategies, and providing opportunities for teachers to test out these strategies out for authentic purposes.

Dose Measurement. The researcher used exit surveys to determine the number of PD content hours that teachers received. These surveys, which the researcher administered at 10 separate times, could only be completed once teachers received the contents of a particular session. Teachers' completion of the exit surveys, therefore, served as documentation of the amount of PD content in which teachers participated.

Participant Responsiveness Measurement. To determine whether teachers verbally contributed to large or small group conversations and engaged in learning activities associated

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with each session, the researcher used two measures. As described earlier, field notes captured the researcher's descriptions of teacher responses to the PD content, and exit surveys captured teachers' perspectives of their learning. Synthesizing data from both sources allowed the researcher to explore the depth of teachers' attentiveness to PD content.

Collectively, these measures, which were used to gather data from two sources (i.e., the researcher and teachers), helped the researcher draw the most accurate conclusions about the online text-based writing PD's fidelity of implementation.

Table 9

Process Evaluation Matrix

| Research Question | Indicator | Data Collection | | | |
|---|---|-------------------|------------|--|--|
| | | Instrumentation | Source | Frequency | Data Analysis |
| To what extent did the researcher adhere to the essential elements of the online text-based writing PD? | Descriptions of teacher comments and responses that align to essential program elements | Field Notes | Researcher | Notes taken during and after PD sessions | Descriptive Coding |
| | Ratings of slightly agree, moderately agree, or strongly agree; Descriptions of learning opportunities that align to essential program elements | Exit Survey | Teachers | Data collected at the end of each PD session | Descriptive Statistics; Descriptive Coding |
| | Teachers' descriptions | Observation Notes | Teachers | Data collected | Descriptive Coding |

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| | | | | | |
|--|--|---------------------------------------|-----------------------------------|---|--|
| | of their colleagues implementing text-based writing strategies with students | | | during sessions nine and ten | |
| To what extent are the participating ELA, mathematics, and science teachers engaged during each of the online PD sessions? | <p>Descriptions of teachers' contributions to conversations and levels of engagement in PD activities</p> <p>Ratings of slightly agree, moderately agree, or strongly agree; Teachers' descriptions of their engagement in the PD activities</p> | <p>Field Notes</p> <p>Exit Survey</p> | <p>Researcher</p> <p>Teachers</p> | <p>Data collected at the end of each PD session</p> <p>Data collected at the end of each PD session</p> | <p>Descriptive Coding</p> <p>Descriptive Coding; Thematic Coding</p> |

Outcome Evaluation Instruments. Data gathered using mixed methods measures were used to measure the impact of the online PD on teachers' knowledge of text-based writing strategies, efficacy for teaching text-based writing, and instructional practices for text-based writing. Information about these measures is discussed in detail below and summarized in Table 10.

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Semi-Structured Interviews. Teacher responses to semi-structured interview questions were used to measure shifts in the three constructs of interest. Prior to the start of the text-based writing PD, teachers were asked to explain their knowledge of text-based writing tasks, level of confidence with teaching text-based writing, and the strategies they used to help their students plan, draft, revise, and edit (Graham & Perin, 2007a, 2007b, 2007c) their responses to text-based writing (see Appendix G). After the completion of the text-based writing PD, teachers were asked to explain how their knowledge of text-based writing changed, their level of confidence for teaching text-based writing, and the strategies (moving forward) they planned to use to help their students plan, draft, revise, and edit (Graham & Perin, 2007a, 2007b, 2007c) their responses to text-based writing within their specific content areas (see Appendix H). The teachers were also asked which activities from PD sessions they found most and least helpful in their learning. Data from interview responses were used to answer outcome evaluation questions one, two, and three.

Teacher Efficacy Scale for Writing. Teacher responses to survey items were also used to measure efficacy for teaching text-based writing. The items used to measure this construct came from Graham et al.'s (2001) *Teacher Efficacy Scale for Writing*. In this scale, two forms of teacher efficacy were measured, including personal efficacy and general efficacy. Personal efficacy assesses teachers' confidence in their ability to impact student writing outcomes, and general efficacy assesses teachers' confidence in their ability to influence these outcomes in the presence of external factors that might limit teachers' impact. Reliability measures of internal consistencies for personal teaching efficacy revealed "Cronbach's alpha coefficient of .84" and ".69 for general teaching efficacy" (Graham et al., 2001, p. 190). Graham et al. (2001) noted that

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these scores were “consistent with prior research in which estimates of reliability range from .75 to .81 and .64 to .77 for these two factors, respectively” (p. 190).

Sixteen items from the scale were adapted, and a survey was generated (see Appendix F). To capture shifts in teachers' efficacy for teaching text-based writing, participating teachers completed the survey prior to the start of and after the completion of the online text-based writing PD, the results of which were used to answer outcome evaluation question two.

Evidence-Based Instructional Writing Practices Subscale. Teacher responses to survey items were used to measure shifts in instructional practices for text-based writing. The items used to measure this construct came from a subscale that Drew et al. (2017) designed. With this subscale, the researchers sought to examine how frequently science teachers at the secondary level implemented evidence-based instructional writing practices. The subscale consists of 20 items, 15 of which capture the “approaches teachers use to teach writing in science” (p. 945) and five of which capture instructional approaches for teaching “strategies for effective writing” (Drew et al., 2017, p. 947). Construct validation of the instrument occurred with the review and advice of 14 experts, including current and former science teachers and special educators ($n = 8$), university-level faculty with experience in assessment ($n = 2$), doctorate-level literacy experts ($n = 3$), and a doctoral-level candidate with experience in psychometrics and measurement ($n = 1$). In addition, the evidence-based instructional writing practices that Drew et al. (2017) used were largely established in previous research (Applebee & Langer, 2011; Gillespie et al., 2014; Graham et al., 2014; Graham & Perin, 2007a, 2007b, 2007c).

Using Drew et al.'s (2017) subscale, the researcher of this dissertation's study adapted 16 items to develop two surveys that captured data on instructional practices for text-based writing. The first survey, whose items inquired into the frequency (i.e., never, rarely, sometimes, often,

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always) with which teachers implemented specific instructional practices for text-based writing (see Appendix D), was administered prior the start of the PD program. The second survey, whose items inquired into the frequency with which teachers planned to implement specific instructional practices for text-based writing (see Appendix E), was administered after the completion of the PD program. Gathering these data at the two different points assisted the researcher in drawing conclusions about the impact of the text-based writing PD. Teachers' survey responses were used to answer outcome evaluation questions one and three.

Observations. Data from classroom observations were used to measure changes in teachers' text-based writing instructional practices. Four areas associated with process writing, including planning, drafting, revising, and editing (Graham & Perin, 2007a, 2007b, 2007c; Drew et al., 2017), served as codes under which the researcher's notes were taken on teachers' instructional practices for text-based writing. Observations of each teachers' implementation of writing instructional practices for text-based writing occurred once over the course of the study, specifically during the implementation of a collaboratively designed text-based writing lesson, and the researcher's notes from observations were recorded on a template (see Appendix I). Observation data were used to answer outcome evaluation question three.

Table 10

Outcome Evaluation Matrix

| RQ | Construct | Instrumentation | Data Collection | | Data Analysis |
|---|--|--|-----------------|---|-------------------------------------|
| | | | Source | Frequency | |
| In what ways has the online PD changed the knowledge of strategies for text-based | Knowledge of Strategies for Text-Based Writing | Semi-Structured Interviews (developed using Graham & Perin, 2007a, 2007b, 2007c) | Teachers | Conducted prior to the start of the PD sessions and after the completion of the PD sessions | Descriptive Coding; Thematic Coding |

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| | | | | | | |
|---|---|--|--|--------------------------|---|--|
| writing for middle school ELA, mathematics, and science teachers? | To what extent have ELA, mathematics, and science teachers' efficacy beliefs for teaching text-based writing changed following the online PD? | Efficacy for Teaching Text-Based Writing Instruction | Teacher Efficacy Scale for Writing (adapted from Graham et al., 2001) Semi-Structured Interviews (developed using Graham & Perin, 2007a, 2007b, 2007c) | Teachers Teachers | Administered prior to the start of the PD sessions and after the completion of the PD sessions Conducted prior to the start of the PD sessions and after the completion of the PD sessions | Descriptive Statistics; Wilcox Signed-Rank Test In Vivo Coding |
| To what extent has the online PD changed the instructional practices for text-based writing for ELA, mathematics, and science teachers? | To what extent has the online PD changed the instructional practices for text-based writing for ELA, mathematics, and science teachers? | Instructional Practices for Text-Based Writing | Evidence-Based Instructional Subscale (adapted from Drew et al., 2017) Semi-Structured Interviews (developed using Graham & Perin, 2007a, 2007b, 2007c) | Teachers Teachers | Administered prior to the start of the PD sessions and after the completion of the PD sessions Conducted prior to the start of the PD sessions and after the completion of the PD sessions | Descriptive Statistics; Wilcox Signed-Rank Test Descriptive Coding; Thematic Coding |
| | | | Observation Template for Text-Based Writing (developed using Graham & Perin, 2007a, | Teachers | Conducted once for each teacher during the study | Descriptive Coding; Thematic Coding |

2007b, 2007c)

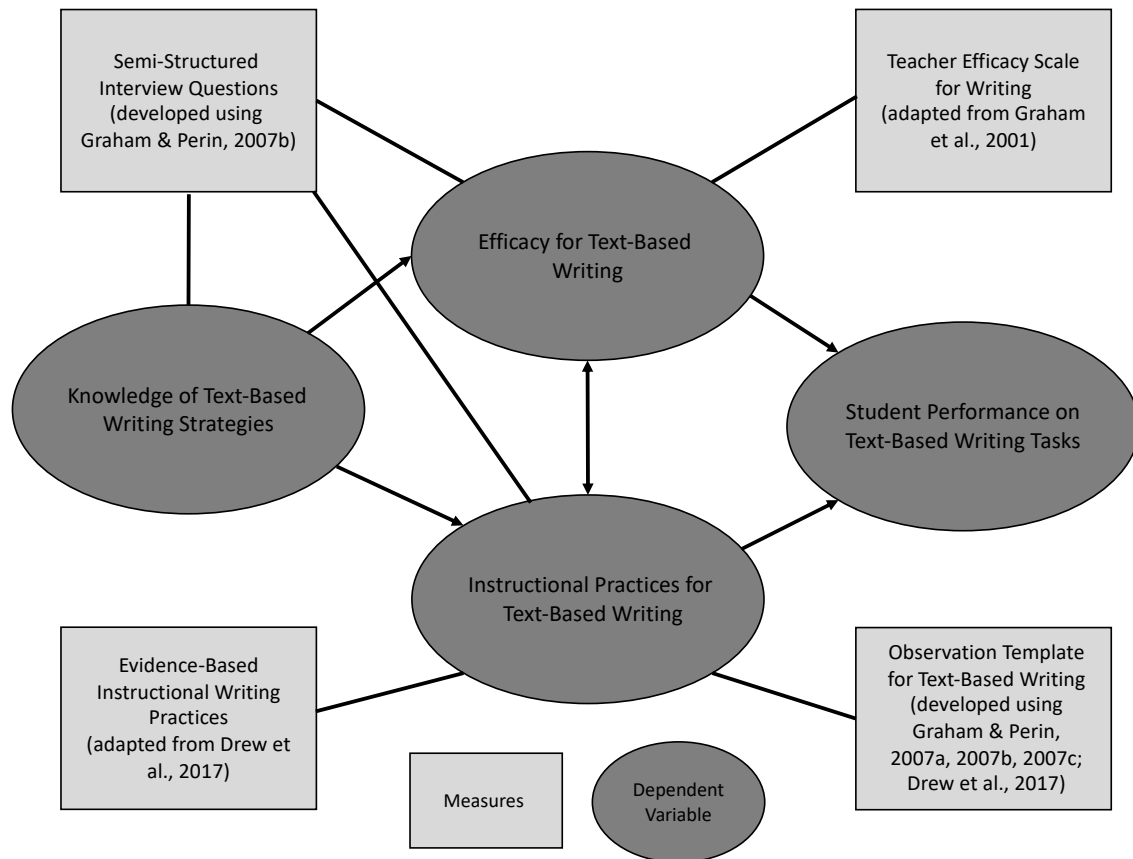


Figure 2. *Conceptual Framework Showing Constructs, Variables, and Measures*

Procedure

Intervention. The online text-based writing PD consisted of 10 60-90 minutes sessions, each of which was designed to develop participating teachers' knowledge of text-based writing strategies, efficacy for teaching text-based writing, and/or instructional practices for text-based writing (see Table 11). To facilitate these developments, the researcher designed the PD sessions with guidance from relevant learning theories (Bandura, 1977; Mezirow, 1997, 1998), empirical research (Howell et al., 2018; Pella, 2015; Olson et al., 2019), effective PD principles (Darling-

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Hammond et al., 2017), and learning frameworks (Hardiman, 2012). Below is a detailed description of each PD session.

Session 1. The purpose of the first session was to help teachers understand the value of a strategic approach to text-based writing. Fulfilling this purpose required several activities. For the first activity, the researcher immersed teachers in the experiences of their students, providing them with 10 minutes to respond to a discipline-specific text-based writing task (Pearson Education, Inc, 2018a, 2018b, 2018c). The researcher then facilitated a whole-group discussion during which the teachers explained the strategies they had used to respond to the tasks and any feelings they may have experienced during the process. For the second activity, the researcher showed a self-produced video that explained the complex and interrelated cognitive processes that students must utilize when responding to text-based writing tasks and facilitated a subsequent whole-group discussion that provided time for teachers to discuss the implications of this knowledge. Following this discussion, the researcher introduced self-regulated strategy development (SRSD Online, 2015), an instructional approach through which teachers develop students' abilities to independently respond to writing tasks. In particular, the researcher highlighted the six stages of SRSD (i.e., develop background knowledge, discuss it, memorize it, model it, support it, and independent practice) and the kinds of cognitive and self-regulation strategies students learn through this instructional approach (SRSD Online, 2015). This overview of SRSD led to the third and final activity of the session, where the researcher placed teachers in small groups and provided them with time to discuss how SRSD could help facilitate students' text-based writing capacity. The session ended with small groups sharing their responses with the rest of the group.

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Sessions 2-4. The purposes of sessions two through four were to develop teachers' knowledge of instructional strategies that help students plan (session two), draft (session three), and revise and edit (session four) their text-based writing responses. To accomplish these purposes, the researcher first introduced cognitive strategies (see Appendix J) during each of the sessions. For example, during session two, the researcher introduced and provided a model of the mnemonic PLAN (i.e., pay attention to the prompt, list the main ideas, add supporting details, number your ideas, De La Paz, 2001), a strategy for idea generation and organization prior to drafting a response to a writing task.

During session three, the researcher introduced and provided a model of the three-part mnemonic (i.e., HEY-LOOK-BYE). At the time of these sessions, the bulk of the teachers (i.e., ELA and science teachers) were engaging their students in informative/explanatory essay writing; however, much of the literature in which SRSD cognitive strategies were tested focused on quick writes (Benedek-Wood et al., 2014; Mason et al., 2013; Mason et al., 2011), persuasive writing (Kiuahara, O'Neill, Hawken, & Graham, 2012), or argumentative writing (Kiuahara et al., 2019; Leins, Cuenca-Carlino, Kiuahara, & Jacobson, 2017). In response to this gap, the researcher created and taught to ELA and science teachers the drafting strategies HEY (i.e., hook readers' attention, engage readers further, yoke readers to your essay's claim), LOOK (i.e., lead with a topic sentence, offer up evidence, offer up an explanation, knock out the rest with a conclusion), and BYE (i.e., begin with a sentence that restates your thesis/claim, yoke readers once more to your main points, end with a thought-provoking idea), each aligning to the writing of an introduction, body, and conclusion paragraph respectively. For the mathematics teacher, on the other hand, whose text-based writing tasks generally required short explanations, the researcher utilized the SOLVE method (i.e., study the problem, organize the facts, line up a plan,

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verify your plan with action, examine your result), a cognitive strategy found within the district's mathematics curricula.

During session four, the researcher introduced revising and editing checklists as tools for guiding students to enhance their text-based writing responses. The revising checklists included questions that guide writers to consider and improve their responses' development, organization, and style, while the editing checklists included questions that guide writers to consider and improve their responses' grammar, usage, and mechanics.

Following the introduction and models of the session two, three, and four cognitive strategies, the researcher placed the ELA, mathematics, and science teachers in content-specific groups, instructing them to select a grade level task within their discipline with which to practice applying the cognitive strategies. It is important to note that because the mathematics teacher did not have a content area partner with whom to collaborate, the researcher became a partner during group time. After opportunities for application and collaboration, the researcher facilitated whole-group reflections, during which teachers discussed their experiences with the strategies and whether they would make any adaptations to them.

Session 5. The purpose of session five was to provide teachers with an opportunity to apply their knowledge of the recently learned cognitive strategies. For the first activity, the researcher placed teachers in either an ELA or science group (the mathematics teacher worked with science teachers for this session), providing them with publicly released state testing items that included publicly released discipline-specific text-based writing tasks, source materials associated with the task, student responses to the tasks, and rubrics for scoring student responses (Maryland State Department of Education, 2021c; New Meridian, 2019d). Teachers then read and discussed the contents of the tasks, source materials, and rubrics, then collaboratively read

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and scored the student work samples. To facilitate further discussion, the researcher provided teachers with the scores and any accompanying annotations that the student responses had previously received from trained scorers (Maryland State Department of Education, 2021c; New Meridian, 2019d). After scoring each student response, the teachers determined an area of growth and one or more of the previously learned strategies they would use to address this area. For the final activity of the session, the researcher provided opportunities for groups to share with the rest of the teachers their feedback to the writing samples.

Session 6. The purposes of session six was to introduce the lesson study cycle (Pella, 2011, 2015) to teachers and provide them with an opportunity to determine a lesson study focus for text-based writing within their content areas. The researcher showed teachers a video that described the fundamental components and processes of a lesson study cycle (AITSL, 2015), including topic selection (stage one), research lesson development (stage two), initial research lesson implementation, observation, debrief, and revision (stages three and four), and second research lesson implementation and final debrief (stages five and six). The researcher then divided teachers into ELA and science groups (the mathematics teacher worked with science teachers during this session) and provided time for teachers to engage in the first stage of the lesson study cycle. More specifically, the teachers determined an area of writing in which their students struggle (e.g., using relevant evidence, communicating effective reasoning, etc.) and selected a text-based writing strategy with which to address the focus area. The teachers also determined which teacher within their group would initially teach the upcoming collaboratively designed lesson. The session ended with teachers sharing within a whole group setting their plan for responding to their collaboratively determined area of writing.

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Sessions 7-8. The purposes of sessions seven and eight were to provide time for teacher groups to engage in lesson design, the second stage of the lesson study cycle (Pella, 2011, 2015). During sessions seven and eight, the researcher reviewed the stages (i.e., develop background knowledge, discuss it, memorize it, model it, support it, and independent practice) and components (e.g., cognitive strategies, self-regulation strategies, etc.) of SRSD, emphasizing their importance in helping teachers to address the identified writing problem areas. It is important to note that the scope of this study did not require teachers to progress through all six stages of SRSD, as this process would require multiple lessons (Benedek-Wood et al., 2014; Kihara et al., 2012; Kihara et al., 2019; Mason et al., 2013; Mason et al., 2011), whereas the study only required teacher groups to produce and revise one lesson. As an acceptable alternative (Leins et al., 2017), the researcher guided teacher groups to think about the stages most likely to help their students meet their respective lessons' instructional outcomes. For instance, during session eight, the researcher emphasized the *model it* stage, where teachers demonstrate a think-aloud in which they use an authentic writing experience to explicitly show, rather than tell, students how to implement cognitive and self-regulation strategies (SRSD Online, 2015).

After the reviews, the researcher released teachers to work in their respective groups to design research lessons that incorporated SRSD stages and components. Teachers documented their work on a lesson planning template aligned to their school district's content area models. While the sole mathematics teacher initially began working with science teachers, since this discipline most closely related to his own, he would not be able to, because of content differences, implement the research lesson within his setting. Because of this challenge, along with the mathematics teacher's exit survey feedback, the researcher placed the mathematics

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teacher in a group by himself and served as a thought partner to him for the duration of the research lesson's design. In addition, because science teachers, who during this portion of the study had transitioned from working with extended constructed responses (i.e., essays) to brief-constructed responses, the researcher introduced RACE (i.e., restate the question, answer all parts of the question, cite evidence that supports the claim, explain how the evidence supports the claim, Casey & Strick, 2018), a strategy better aligned to the required response length of science teachers' text-based writing tasks.

Both sessions ended with a whole group discussion during which teacher groups articulated successes and challenges with designing the research lesson.

Session 9. The purpose of session nine was to engage teachers in stages three and four of the lesson study cycle (AITSL, 2015), specifically research lesson initial implementation, observation, debrief, and revision. Because the time at which initiating teachers implemented the lessons differed, session nine, which occurred both during and after school, did not happen on the same day for teacher groups.

The first part of session nine began with initiating teachers implementing the lesson within their classrooms and members of the teachers' teams observing the lesson's implementation. During this time, both the researcher and teachers took notes using the observation template (see Appendix I). This document provided a space on which observers recorded the ways that the implementing teachers used the strategy of focus to help his or her students plan, draft, revise, and/or edit (Graham & Perin, 2007a, 2007b, 2007c) their responses to a text-based writing task, and the document also provided a space on which observers recorded ways that the students responded to the teachers' instruction. While ELA and science teachers were able to observe teachers of their content teach research lessons, the mathematics teacher

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had to observe a non-mathematics teacher implement the team's research lesson. Furthermore, because of a scheduling conflict, the mathematics teacher was unable to observe the research lesson from science, the discipline closest to his own, leaving the ELA team's research lesson as the only option for observation.

The second part of session nine began after school, either on the same day as the lessons' implementation or as close to the initiating lessons' implementation date as possible. During this debrief, the researcher facilitated discussions that prompted teacher teams to reflect on the lesson's effectiveness, with specific focus being on the tested cognitive strategies and students' responses to the teachers' instruction. Following these discussions, the researcher helped teacher teams generate ideas for revising the lessons, with the understanding that the remaining teachers would implement the revised research lessons in their classrooms. The mathematics teacher, who had no other teacher to teach a revised version of the lesson, participated in this discussion with the ELA team. The session ended with teacher teams finalizing revisions.

Session 10. The purpose of session 10 was to engage teachers stages five and six of the lesson study cycle (AITSL, 2015), specifically the implementation and observation of the revised research lesson and the final debrief. As with session nine, session 10 occurred both during and after school, with teacher teams engaging in these remaining stages on separate days.

During the first part of session 10, the ELA and science teachers who initially observed taught the revised researcher lesson, and the ELA and science teachers who initially taught observed *one* of their teammates teach the revised research lesson. Once again, the observers, including the researcher and the ELA and science teachers, documented their notes on the observation template. The mathematics teacher, on the other hand, who observed the

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implementation of the ELA team's initial research lesson during session nine, taught his research lesson during this session.

During the second part of session 10, the researcher facilitated dialogue that guided teachers to reflect on the research lessons' impact on student learning. English language arts and science teachers, for example, discussed whether research lesson revisions facilitated student learning of the targeted cognitive strategies in ways that were anticipated. The mathematics teacher, on the other hand, because he taught his research lesson for the first time, reflected on the impact of the research lesson's implementation and discussed revisions he would make if given the chance to teach the lesson again. Session 10 ended with teacher groups discussing instructional implications for both planning and delivering text-based writing instruction within their contexts.

Incorporating the Brain-Targeted Teaching Model. In addition to the previously discussed theoretical (Bandura et al., 1977; Knowles, 1980; Mezirow, 1997, 1998) and empirical (Grisham & Wolsey, 2011; Howell et al., 2018; Kim et al., 2011; Kihara et al., 2019; Limbrick et al., 2010; Mason et al., 2011; Martin & Dismuke, 2011; 2015; Mosqueda et al., 2016; Olson et al., 2019; Parr & Timperley, 2010; Pella, 2011, 2015) foundations upon which these sessions were based, components of the brain-targeted teaching model (BTT, Hardiman, 2012) were incorporated into the PD's design. The six-part model, which is rooted in the field of cognitive neuroscience and describes effective ways of facilitating thinking and learning, provided the researcher with an additional framework for designing learning experiences for teachers. Brain target (BT) one of this model, for example, highlights the connection between emotions and learning (Immordino-Yang & Damasio, 2007) and, subsequently, the importance of establishing learning environments that best facilitate successful learning (Hardiman, 2012). With each

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session, therefore, the researcher implemented strategies that helped to facilitate this positive learning climates, such as appealing to teacher agency (Calvert, 2016) by offering teachers “control and choice” for their learning and making teachers feel comfortable with “humor” (Hardiman, 2012, pp. 47-48).

The third BT (i.e., designing the learning experience) emphasizes the importance of using concept maps to deliver learning more akin to how the mind categorizes information (Hardiman, 2012). With this idea in mind, the researcher incorporated concept maps into several sessions to help teachers understand abstract and complex ideas, such as the interrelated cognitive processes involved in text-based writing. Brain target four (i.e., teaching for mastery) focuses on strategies that increase the likelihood that learners actually learn the information being taught, evidenced by the new content being stored permanently in their “long-term memory to be retrieved later for use in thought or action” (Hardiman, 2012, p. 97). Using this knowledge, the researcher developed learning experiences that helped facilitate this process, including presenting teachers with mnemonics to assist with their memorization of specific writing cognitive strategies and providing opportunities for these teachers to rehearse, elaborate on, and generate (Brown et al., 2014; Hardiman, 2012; Roediger & Butler, 2011) these strategies within practical contexts.

Brain target five (i.e., teaching for extension) focuses on providing opportunities for learners to apply their acquired information to practical, real-world contexts (Hardiman, 2012). This section of the BTT model emphasized the design of problem-solving activities in which multiple solutions (i.e., divergent thinking), rather than single solutions (i.e., convergent thinking), were feasible. Incorporating this knowledge, the researcher designed and engaged teachers in divergent thinking activities, including the designing of research lessons that utilized one or more cognitive strategies to address problem areas in students' writing. Brain target six

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(i.e., evaluating learning), as the name suggests, focuses on the ways that learning is assessed. Emphasis is placed on the use of assessments as a means of “enhancing learning and memory” (Hardiman, 2012, p. 146). Applying this knowledge, provided opportunities for teachers demonstrate their learning through “performance assessments” (p. 156) such as when teachers had to compose responses to sample writing tasks and implement lessons. During these times, the researcher also provided teachers with “frequent and timely feedback” (p. 146) that helped correct teachers’ misunderstandings of important PD concepts that teachers were applying during these performance assessments. Because meetings were held virtually, BT two (i.e., creating the physical learning environment) was not used.

Table 11

Description of the Online Text-Based Writing PD

| Session Number | Duration | Session Outcome | Activities | Theoretical Foundation | Empirical Foundation | Brain-Targets (BT) |
|----------------|------------|---|---|--|---|---|
| 1 | 60 Minutes | Teachers will explain how instruction through self-regulated strategy development can facilitate students' text-based writing capacity. | <p>Respond to a discipline-specific text-based writing task</p> <p>Watch a video that explains the cognitive processes involved with text-based writing</p> <p>Discuss the implications of an SRSD approach to text-based writing</p> | Transformational Learning Theory (Mezirow, 1997, 1998) | <p>Cognitive Strategy Instruction (Howell et al., 2018; Olson et al., 2019)</p> <p>Self-Regulated Strategy Development (Kihara et al., 2019; Mason et al., 2011)</p> <p>Professional Learning Communities (Pella, 2011, 2015)</p> <p>Instructional Coaching (Kim et al., 2011; Mosqueda et al., 2016)</p> | <p>BT 1 – Establishing the Emotional Climate for Learning (Control and Choice; Humor)</p> <p>BT 3 – Designing the Learning Experience</p> <p>BT 4 – Teaching for Mastery of Content, Skills, and Concepts</p> <p>BT 5 – Teaching for Extension and Application of Knowledge</p> <p>BT 6 – Evaluating Learning</p> |
| 2-4 | 60 Minutes | Teachers will apply a planning writing strategy to a discipline-specific | Examine the researcher's model of cognitive strategies for text-based writing | Self-Efficacy Theory (Bandura, 1977) | Cognitive Strategy Instruction (Howell et al., 2018; Olson et al., 2019) | BT 1 – Establishing the Emotional Climate for Learning |

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| | | | | | | |
|---|------------|---|---|--|---|--|
| | | text-based writing task. | (i.e., <i>PLAN, HEY-LOOK-BYE</i> , Revision and Editing Checklists) | Transformational Learning Theory (Mezirow, 1997, 1998) | Self-Regulated Strategy Development (Kihara et al., 2019; Mason et al., 2011) | (Control and Choice; Humor) |
| | | Teachers will apply drafting writing strategies to a discipline-specific text-based writing task. | Practice implementing the cognitive strategies in small, discipline-specific groups | | Professional Learning Communities (Pella, 2011, 2015) | BT 3 – Designing the Learning Experience |
| | | Teachers will apply revision and editing checklists to a discipline-specific text-based written response. | Reflect on the implementation the cognitive strategies for text-based writing with the rest of the teachers | | Instructional Coaching (Kim et al., 2011; Mosqueda et al., 2016) | BT 4 – Teaching for Mastery of Content, Skills, and Concepts BT 5 – Teaching for Extension and Application of Knowledge |
| 5 | 60 Minutes | Teachers will apply instructional strategies to problem areas in writing. | Analyze and evaluate publicly released, discipline-specific text-based writing tasks from students | Self-Efficacy Theory (Bandura, 1977) | Evaluating Student Essays (Limbrick et al., 2010; Parr & Timperley, 2010) | BT 1 – Establishing the Emotional Climate for Learning (Control and Choice; Humor) |
| | | | Determine an instructional area of focus for the student | Transformational Learning Theory (Mezirow, 1997, 1998) | Professional Learning Communities (Pella, 2011, 2015) | BT 3 – Designing the Learning Experience |
| | | | Discuss and reflect on in a whole group setting the feedback | | Instructional Coaching (Kim et al., 2011; | BT 4 – Teaching for Mastery of |

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| | | | | | | |
|---|------------|---|--|--|--|--|
| | | | provided to students | | Mosqueda et al., 2016) | Content, Skills, and Concepts |
| | | | | | | BT 5 – Teaching for Extension and Application of Knowledge |
| | | | | | | BT 6 – Evaluating Learning |
| 6 | 60 Minutes | Teachers will determine an instructional focus for a research lesson. | Watch a video that provides an overview of a lesson study cycle | Self-Efficacy Theory (Bandura, 1977) | Professional Learning Communities (Pella, 2011, 2015) | BT 1 – Establishing the Emotional Climate for Learning (Control and Choice; Humor) |
| | | | Work in discipline-specific groups to complete stage one of the lesson study cycle (i.e., topic selection) | Transformational Learning Theory (Mezirow, 1997, 1998) | Instructional Coaching (Kim et al., 2011; Mosqueda et al., 2016) | BT 3 – Designing the Learning Experience |
| | | | Discuss and reflect on in a whole group setting the feedback provided to students | | | BT 4 – Teaching for Mastery of Content, Skills, and Concepts |
| | | | | | | BT 5 – Teaching for Extension and Application of Knowledge |
| | | | | | | BT 6 – Evaluating Learning |

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| | | | | | | |
|-----|---------------|--|---|--|---|--|
| 7-8 | 60 Minutes | Teachers will design research lessons that incorporate SRSD stages and components. | Review stages and components of SRSD Watch the researcher explicitly model a stage of SRSD | Self-Efficacy Theory (Bandura, 1977) Transformational Learning Theory (Mezirow, 1997, 1998) | Cognitive Strategy Instruction (Howell et al., 2018; Olson et al., 2019) Self-Regulated Strategy Development (Kiuahara et al., 2019; Mason et al., 2011) | BT 1 – Establishing the Emotional Climate for Learning (Control and Choice; Humor) BT 3 – Designing the Learning Experience |
| | | Teachers will design research lessons that incorporate SRSD stages and components. | Work in discipline-specific groups to complete stage two of the lesson study cycle (i.e., research lesson design) | | Professional Learning Communities (Pella, 2011, 2015) | BT 4 – Teaching for Mastery of Content, Skills, and Concepts |
| | | | Discuss and reflect on in a whole group setting the successes and challenges of designing the research lesson | | Instructional Coaching (Kim et al., 2011; Mosqueda et al., 2016) | BT 5 – Teaching for Extension and Application of Knowledge |
| | | | | | | BT 6 – Evaluating Learning |
| 9 | 90 Minutes | Teachers will debrief on and revise the research lesson. | Implement/Observe the research lesson team's research lesson | Self-Efficacy Theory (Bandura, 1977) Transformational Learning Theory (Mezirow, 1997, 1998) | Cognitive Strategy Instruction (Howell et al., 2018; Olson et al., 2019) Self-Regulated Strategy Development | BT 1 – Establishing the Emotional Climate for Learning (Control and Choice; Humor) BT 3 – Designing |

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| | | | | | | |
|----|------------|--|---|--|--|--|
| | | | Determine revisions to the research lesson | | (Kiuhara et al., 2019; Mason et al., 2011) | the Learning Experience |
| | | | | | Professional Learning Communities (Pella, 2011, 2015) | BT 4 – Teaching for Mastery of Content, Skills, and Concepts |
| | | | | | Instructional Coaching (Kim et al., 2011; Mosqueda et al., 2016) | BT 5 – Teaching for Extension and Application of Knowledge |
| | | | | | | BT 6 – Evaluating Learning |
| 10 | 90 Minutes | Teachers will determine implications for planning and implementing text-based writing instruction within their respective content areas. | Implement/Observe the research lesson team's revised research lesson | Self-Efficacy Theory (Bandura, 1977) | Cognitive Strategy Instruction (Howell et al., 2018; Olson et al., 2019) | BT 1 – Establishing the Emotional Climate for Learning (Control and Choice; Humor) |
| | | | Discuss and reflect on the revised research lesson's success | Transformational Learning Theory (Mezirow, 1997, 1998) | Self-Regulated Strategy Development (Kiuhara et al., 2019; Mason et al., 2011) | BT 3 – Designing the Learning Experience |
| | | | Discuss the implications for planning and implementing text-based writing instruction | | Professional Learning Communities (Pella, 2011, 2015) | BT 4 – Teaching for Mastery of Content, Skills, and Concepts |
| | | | | | | BT 5 – Teaching |

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Instructional
Coaching (Kim et
al., 2011;
Mosqueda et al.,
2016)

for Extension and
Application of
Knowledge

BT 6 – Evaluating
Learning

Study Timeline. The study took place during the 2020-2021 academic year (see Table 12). Recruitment began and ended during September 2020 and October 2020 respectively. During this time, the researcher reached out to ELA, mathematics, and science teachers at Granberry Middle School, including those who co-taught these subjects as ESOL (English for speakers of other languages) or SPED (special education) teachers. Once the content of the PD was explained to and consent was obtained from interested teachers, the researcher administered the pre-PD survey (see Appendices D and F) and conducted one-on-one, pre-PD semi-structured interviews (see Appendix G). By the end of October 2020, data had been gathered from three ELA (one of whom was an ESOL co-teacher), one mathematics, and four science teachers. The delivering of text-based writing PD sessions began shortly after. Beginning in November of 2020, the researcher met with teachers once a week for 60 minutes, primarily outside work hours. There were some exceptions to this meeting time. As described previously, sessions nine and ten differed from sessions one through eight, in that they took place both during and after school, which made the amount of time spent meeting 90 minutes instead of 60 minutes. All teachers finished participating in each of the PD sessions by mid-to-late January. After the completion of the PD sessions, the researcher began gathering post-PD data using survey (see Appendices E and F) and semi-structured interview questions (see Appendix H). By early February 2021, all post-PD data had been gathered from participating ELA, mathematics, and science teachers.

Table 12

Study Timeline

| Month(s) | Activity |
|-------------------------------|---|
| September 2020 – October 2020 | Researcher recruited teachers, who completed the informed consent process |
| | Teachers completed the pre-PD survey and |

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| | |
|------------------------------|---|
| | semi-structured interview questions |
| November 2020 – January 2021 | Researcher facilitated 10 PD sessions ranging between 60 and 90 minutes long |
| January 2021 – February 2021 | Teachers completed the post-PD survey and semi-structured interview questions |

Data Collection. Data collection for both process and outcome measures occurred over the span of the study, with the former occurring more frequently than the latter. Process evaluation data, which included the researcher' field notes and teachers' exit survey responses and observation notes, were gathered during PD sessions. Outcome evaluation data were gathered both prior to and after teachers' completion of the online text-based writing PD sessions.

Data Analysis. The analyses for both process and outcome evaluation measures are described in detail below.

Table 13

A Priori Codes for Measuring Adherence

| A Priori Codes | Examples |
|---|---|
| Increasing awareness of SRSD benefits | “A few SRSD skills can make the text-based writing process a bit easier” |
| Providing PD on strategies | “We looked at a framework that can be used to help students revise using questions.” |
| Providing opportunities for authentic application | “I was able to discuss with colleagues some implementation techniques that worked or didn't.” |

Adherence. A mixed-methods approach was utilized to measure adherence. For quantitative data analysis, teachers' responses to the closed-ended exit survey question were

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logged into SPSS, and composite scores for each of the 10 sessions were generated. For qualitative data analysis, the researcher's field notes and teachers' responses to the open-ended exit survey question were coded using deductive coding methods (Miles et al., 2014). First, a list of a priori codes that summarized the essential elements of the text-based writing PD were generated (see Table 13). Next, the qualitative data were read and described using the a priori codes.

Dose. Dose was measured quantitatively. For this process, the researcher calculated the number of PD content hours that teachers received and denoted any sessions that participants needed to make-up.

Participant Responsiveness. A mixed-methods approach was utilized to measure participant responsiveness. Quantitative data from exit surveys were analyzed descriptively. Specifically, the data were logged into SPSS, and averages for each teacher were calculated and reported. Qualitative data from the researcher's field notes and teachers' exit survey responses were analyzed deductively (Miles et al., 2014). An a priori code (i.e., descriptions of teacher engagement) was first created, then the data were read and described using this code.

Text-Based Strategy Knowledge. Qualitative data from the semi-structured interviews were analyzed for this construct. First, the pre- and post-PD data were read and transcribed. Then, the data were taken through two cycles of inductive coding, including descriptive coding and thematic coding (Miles et al., 2014). For the first cycle, phrases were assigned to sections of teachers' responses that described the kinds of strategy knowledge for text-based writing that teachers had. For the second cycle, the phrases were grouped into broader categories that specified further the kinds of strategy knowledge for text-based writing that teachers had.

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Efficacy for Teaching Text-Based Writing. Data from pre- and post-PD surveys and interviews were analyzed for this construct. Survey data from the adapted items (Appendix F) were uploaded into SPSS and aggregated and disaggregated averages by content were calculated for both personal and general efficacy. Wilcoxon signed-rank tests were then run to determine whether changes between pre and post averages were statistically significant. Data from pre- and post-PD interviews were analyzed using inductive coding methods (Miles et al., 2014). Specifically, the data were first recorded and transcribed. Then, data were read multiple times, during which in vivo coding was used to capture teachers' descriptions of their confidence and how PD activities and/or components facilitated changes within this area.

Instructional Practices for Text-Based Writing. Mixed methods data analyses were also conducted for this construct. Survey data were uploaded into SPSS, and aggregated and disaggregated averages were calculated for the "instructional writing practices" and "writing strategy instruction" constructs (Drew et al., 2017, p. 945). Wilcoxon signed-rank tests were then conducted to determine whether differences between pre and post averages were statistically significant. Pre- and post-PD interviews went through two cycles of inductive coding (Miles et al., 2014). Descriptive coding was conducted to capture teachers' descriptions of their instructional practices, then thematic coding was conducted to consolidate these descriptions into broader categories. In addition, data from observations were analyzed using inductive coding methods (Miles et al., 2014). The researcher's notes from the observations of teachers' implementation of text-based writing lessons went through cycles of descriptive and thematic coding, the goals of which were to capture the ways that teachers facilitated student responses to text-based writing tasks. Because observations took place once for each teacher during the

study, the data were merged with both survey and interview data to help the researcher ascertain shifts in teachers' text-based writing practices.

Conclusion

Ensuring valid and reliable methods for evaluating processes and outcomes allowed for the most effective conclusions to be drawn about the impact that the online text-based writing PD had on participating ELA, mathematics, and science teachers' strategy knowledge, efficacy, and practices. In the next chapter, findings from the research are discussed.

Chapter 5: Findings and Discussion

The purpose of the online text-based writing PD was to develop teachers' knowledge and efficacy for teaching text-based writing and effective instructional practices related to text-based writing. Representing the culmination of this research, this chapter presents the findings of this study's mixed methods data analyses, the discussions of which provide insight into the PD's impact on teacher outcomes. Contextualizing these findings first, however, is important to understanding this impact. Consequently, the chapter begins with a discussion of the PD's process of implementation and then transitions to a discussion of the answers to the outcome research questions. Finalizing this chapter is a discussion of the research's implications and limitations.

Process of Implementation

As discussed in chapter four, two questions were used to examine the PD's process of implementation. Through the first question, the researcher examined whether the critical elements of the PD were achieved (i.e., adherence). Data that were used to answer this question included the researcher's field notes, teachers' responses to the exit surveys, and teachers' notes from classroom observations. Through the second question, the researcher examined the extent to which participating teachers were engaged during each of the online PD sessions (i.e., participant responsiveness). Both the researcher's field notes and teachers' responses to exit surveys were used to measure this area of interest. The second question was also used to explore the quantity of PD that the teachers received (i.e., dose), with teacher exit surveys providing a means documenting attendance.

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Dose

Table 14

Participant Attendance in Online Text-Based Writing PD

| Pseudonym | Standard Virtual Session Attendance (out of 10) | One-on-One Virtual Make-Up Attendance |
|-----------|---|---------------------------------------|
| Brianna | 10 | N/A |
| Diana | 10 | N/A |
| Emma | 9 | Session 7 |
| Mia | 9 | Session 5 |
| Monica | 10 | N/A |
| Noah | 10 | N/A |
| Parker | 10 | N/A |
| Sarah | 9 | Session 8 |

The participating eight teachers attended all ten sessions (see Table 14), which provided them with 11 hours of text-based writing instruction content. It is important to note, however, that between sessions, teachers applied the content that they had learned (Field Notes, 2020, 2021). Therefore, when discussing dose, particularly the amount of time teachers engaged in PD content, it is accurate to say that teachers received a minimum of 11 hours of professional learning on text-based writing instruction.

As discussed in chapter four, the researcher provided make-up sessions for any teachers who could not attend sessions during regularly scheduled times. This process involved the researcher meeting with the teachers outside of group meeting times and delivering the PD content to the teachers. In total, only three make-up sessions were needed (see Table 14).

Table 15

Mean Scores for Teachers' Perceptions of their Achievement of Each Session's Outcome (N = 8)

| Session Number | Minimum | Maximum | <i>M</i> | <i>SD</i> |
|----------------|---------|---------|----------|-----------|
| One | 4.00 | 6.00 | 5.50 | .756 |
| Two | 3.00 | 6.00 | 5.63 | 1.06 |

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| | | | | |
|-------|------|------|------|------|
| Three | 5.00 | 6.00 | 5.88 | 0.35 |
| Four | 5.00 | 6.00 | 5.88 | 0.35 |
| Five | 5.00 | 6.00 | 5.50 | 0.53 |
| Six | 1.00 | 6.00 | 5.25 | 1.75 |
| Seven | 4.00 | 6.00 | 5.25 | 1.03 |
| Eight | 5.00 | 6.00 | 5.63 | 0.51 |
| Nine | 2.00 | 6.00 | 5.50 | 1.41 |
| Ten | 6.00 | 6.00 | 6.00 | 0.0 |

Adherence

Three a priori codes encapsulate the “critical elements” (Dusenbury et al., 2003, p. 241) of the online text-based writing PD (see Table 13). Each will be used to frame the following discussion of the PD’s adherence to the program’s intended design.

Increasing Awareness of SRSD Value. An important foundational goal of the PD was to help teachers recognize the value of an SRSD approach to the teaching of text-based writing. Data from exit surveys and field notes indicate that this element was largely adhered to in session one.

During the intervention, the researcher first made teachers aware of why an SRSD approach to text-based writing was needed, particularly by emphasizing the cognitive difficulty that this kind of writing requires from students. The four science teachers shared their insight into this difficulty, specifically after going through a simulation designed to ground them in their students’ experiences. Brianna said that she had gotten “stuck on the minutiae” of the task, and Monica noted that she had gotten “caught up on the question” (Field Notes, 2020). In addition,

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Emma and Parker communicated that they had experienced heightened states of emotional arousal while responding to the task, with Emma describing her “brain” as going “oh my gosh,” and Parker describing feeling “anxious” because the question was based on physics, a field of science on which he had not worked in a while. By metaphorically placing teachers in their students’ shoes, the researcher helped orient teachers to both processing and emotional challenges of text-based writing, an idea that he expanded upon as the session progressed.

Showing a video during this session that detailed the interrelated cognitive processes associated with text-based writing further set a foundation that would soon help teachers recognize the benefits of an SRSD approach to text-based writing. In particular, the researcher highlighted how language generating processes, memory systems, and motivational beliefs (Hayes, 1996; MacArthur & Graham, 2016) provided a cognitive base on which students relied when responding to text-based writing tasks, and that problems and limitations with each makes responding to these tasks incredibly difficult for students. Exit survey data indicate that teachers received this message. Noah communicated that he had become more aware of “what goes on inside a child’s mind when given a writing task.” Mia communicated a similar idea, articulating the cognitive components involved in text-based writing: “[students] are anxious [and] need long-term memory and confidence.” Emma echoed her colleagues in the following reflection:

[The session helped] me to realize how difficult text-based writing is for my students, even those who are native speakers, with all of the different things that go on at the same time that we expect our students to 'know' how to do (Exit Survey Data, 2020).

These responses indicate that the explanations within the video and the subsequent discussion revealed that teachers recognize that text-based writing was more cognitively demanding than they had initially thought.

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Once teachers had this refined understanding, the researcher presented how an SRSD approach to text-based writing could help mitigate those cognitive challenges for students. In particular, the researcher introduced teachers to SRSD and its components (SRSD Online, 2015) and provided teachers with time to discuss the potential benefits of this instructional framework for their students' text-based writing performance. Data from exit surveys given after the professional learning session indicate that teachers began seeing the benefits of an SRSD approach during the PD. Sarah demonstrated in her exit survey that "students need to be taught writing strategies," indicating her blossoming awareness of the value of specific cognitive and self-regulated strategy instruction for helping students to respond to text-based writing tasks. In addition, Parker communicated that the session activities reminded him of "how difficult text-based writing is for [his] students" and helped him "realize that a few SRSD skills can make the text-based writing process a bit easier," showing that he became more aware of the benefit SRSD instruction can have on building students' text-based writing capacity.

Collectively, the analysis of session one data, which included teachers' responses to exit surveys and the researcher's field notes, indicate that an alignment existed between what the researcher implemented and what the teachers received (see Table 15). Thus, it is reasonable to conclude that the researcher adhered to an essential component of the PD (i.e., increasing awareness of SRSD value).

Providing PD on Strategies. Another essential component that the researcher strived to accomplish during the study was to provide teachers with PD on strategies for teaching text-based writing. Providing PD on these strategies included both introducing writing strategies to teachers and providing time during PD sessions and class time to practice using these strategies. Evidence from the researcher's Google Slides presentations, triangulated with data from

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teachers' exit survey responses, demonstrate that the researcher adhered to this essential component largely in sessions two through four.

During each of these sessions, the researcher introduced and modeled the use of a cognitive strategy, specifically mnemonics for prewriting (i.e., PLAN, De La Paz, 2001) and drafting (HEY-LOOK-BYE, see Appendix J) for sessions two and three respectively, and checklists for revising and editing for session four. Exit survey data show that this explanation of content did, in fact, take place. For instance, Diana, when reflecting on her learning for session two, noted that she had gained “perspective on how to use the PLAN” strategy, which provided her with a concrete prewriting method with which “to start a writing assignment with [her] students.” Similarly, when reflecting on his learning for session three, Parker said:

The (science) curriculum provided by the county does not provide/include teaching strategies that help me teach writing especially drafting, and in one hour, you have given me something actionable and dare I say easy. I am more excited to teach our literacy task than I was before.

In addition, when describing the content presented to her during session four, Brianna said that the PD presented her with a framework that she could use to help her students revise their own writing. In sum, exit survey responses demonstrate that the researcher introduced teachers to strategies that they could use for text-based writing, particularly those for prewriting (i.e., session two), drafting (i.e., session three), and revising and editing (i.e., session four).

After this introduction, the researcher provided opportunities for teachers to work in small, discipline-specific groups in which they used the strategies to think through and develop their own responses to text-based writing tasks, particularly ones that they would eventually assign to their students. Quantitative teacher data provide evidence of this adherence. On a scale

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of one to six (i.e., strongly disagree to strongly agree), where teachers were asked whether they believed they had attained learning outcomes, teacher averages for sessions two ($M = 5.63$, $SD = 1.06$), three ($M = 5.88$, $SD = .35$), and four ($M = 5.88$, $SD = .35$) neared descriptions of strongly agree (see Table 15). These findings suggest that for sessions two through four, teachers indicated that they were able to practice applying, planning, drafting, and revising and editing strategies for text-based writing, goals that aligned to the researcher's design.

Qualitative data provided through exit survey data revealed additional evidence of the researcher providing opportunities for teachers to experiment with the strategies, further demonstrating adherence to the essential element of providing PD on strategies. After session two, for example, Monica detailed the usefulness of the PLAN strategy, as it helped her thinking as she and her colleagues planned their responses to a text-based writing task for science. Sarah, after session three, noted the helpfulness that the discussed drafting strategies HEY-LOOK-BYE provided when she and her group developed their essay response to an ELA prompt. Noah, after having applied the SOLVE (i.e., study the problem, organize the facts, line up a plan, verify your plan with action, examine your result) method to a word problem during session four, recognized the last letter of the strategy as a means of revising responses. These exit survey responses to sessions two through four show teachers both identifying strategies that the researcher planned for them to learn and communicating that they had opportunities to practice implementing the strategies.

Overall, both quantitative and qualitative data from exit surveys demonstrated that the researcher provided teachers with PD on strategies for text-based writing, both in the form of strategy introduction and application.

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Providing Opportunities for Authentic Practice. The final essential element of the online text-based writing PD was for teachers to implement for authentic purposes strategies that they had learned. Data from teachers' exit survey and observation notes, along data from the researcher's field notes, show evidence of this element's implementation. For session five, the researcher provided opportunities for teachers to use the strategies to suggest instructional feedback to students, and for sessions six through 10, the researcher provided opportunities for teachers to use the strategies to design, implement, observe, and reflect on research lessons.

Session five began with teachers evaluating student work samples, which (due to the limited scope of the study) came from publicly released sources (Maryland State Department of Education, 2021c, 2021d; New Meridian, 2019b, 2019d) rather than participating teachers' own students. During this time, the teachers collaborated in small, discipline-specific groups to read several writing samples, in addition to the accompanying source materials, prompts, and rubrics, then provide both scores and rationales for each student's writing. The researcher's notes provide evidence of this activity's occurrence. For example, when listening to the conversation between Sarah and Diana, the researcher captured dialogue with which the teachers co-constructed rubric-based scores that they had given to student writing samples. Likewise, when listening to the discussions of the science teachers and the mathematics teacher, who participated with a different content area group for this session, the researcher documented evidence of the teachers striving to reach consensus on rubric-based scores that they would ascribe to student writing samples. After providing these scores, the teachers then determined areas of growth for these students and the strategies from the previous three sessions that the teachers would use to address the identified areas. Quantitative exit survey data show that the researcher provided this opportunity. For example, when asked whether they applied "instructional strategies to problem

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areas in writing,” the average response, on a scale from one to six (i.e., strongly disagree to strongly agree), was 5.50 ($SD = 0.53$), indicating that on average teachers strongly agreed that during session five, they were presented with the opportunity to apply previously learned strategies.

Sessions six through eight marked the planning stages of the lesson study cycle (AITSL, 2015; Pella, 2011, 2015), which provided additional opportunities for teachers to apply SRSD strategies that they had learned. During these sessions, the researcher guided teacher groups to select strategies from previous sessions to address an agreed upon area of writing (i.e., session six) and design instructional lessons that detailed how they would teach the strategies to students (i.e., sessions seven and eight). Teacher reflections from exit surveys demonstrate that the researcher provided these specific opportunities for strategy application. After session six, Sarah and Parker noted that the session activities allowed them to determine appropriate strategies that would address the needs and challenges that their students have with writing (Exit Survey Data, 2020). In addition, on a scale of one to six (i.e., strongly disagree to strongly agree), teachers indicated for sessions seven ($M = 5.25$, $SD = 1.03$) and eight ($M = 5.63$, $SD = 0.51$) that they were given opportunities to “design research lessons that incorporate SRSD stages and components.” Emma, elaborating on this experience, wrote that “having to think through the process that I will take my students through makes me that much more intentional on how I am teaching the writing process in my classroom,” and Noah wrote that he “was able to write out [his] lesson plan and think about how the [SOLVE] strategy would be introduced to students” (Exit Survey Data, 2020). By the researcher giving teacher opportunities to apply their knowledge of strategies, particularly in the form of lesson planning and design, the researcher demonstrates adherence to an essential element of the text-based writing PD.

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Through sessions nine and ten, the researcher further extended these opportunities for authentic practice. Data from the researcher's field notes, teachers' observation notes, and teachers' exit surveys provide evidence that the researcher provided these learning opportunities for teachers.

Each session began with teachers either implementing or observing SRSD strategies within authentic contexts collecting observation notes to record their thoughts and comments. During session nine, Emma and Diana taught lessons (Field Notes, 2021), with the remaining seven teachers observing and taking notes on one of these teacher's application of SRSD strategies. Monica, for instance, captured her colleague (i.e., Emma) modeling the self-regulation strategy of self-talk, during which the teacher encouraged herself to persist through the challenges of responding to a sample text-based writing task (Teacher Observation Notes, 2021). Similarly, Mia documented her colleague (i.e., Diana) using a think-aloud to model constructing a sample introduction paragraph using the cognitive strategy HEY (see Appendix J, Teacher Observation Notes, 2021). For session 10, Parker, Brianna, and Monica taught a revised lesson (Field Notes, 2021), while Emma observed its implementation. In her notes, she captured Parker helping his students use the RACE strategy (Casey & Strick, 2018, Teacher Observation Notes, 2021). Likewise, Sarah and Mia taught another revised lesson, with Diana observing Mia teaching it. Specifically, she documented Mia helping her students use the HEY strategy to revise introduction paragraphs. Lastly, Noah also implemented a lesson, which focused on the cognitive strategy SOLVE, while the researcher observed (Field Notes, 2021).

Sessions nine and 10 continued with teachers reflecting on the implementation of their strategy-based research lessons. During the session nine debrief, the science team noted that while Emma did provide instruction on the RACE strategy (Casey & Strick, 2018) in the form of

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modeling, she did not provide time for her students to demonstrate their learning through strategy application (Field Notes, 2021). Brianna articulated this point in her post-session nine reflection: “It was difficult to gauge the lesson today because we were not fully able to observe the students utilizing the strategy” (Exit Survey Data, 2021). In response to this finding, the science team agreed that the teachers who had not yet taught the research lesson should pre-record themselves providing a demonstration of the strategy so that they can ensure students have enough time to practice the strategy, an implementation that the teachers discussed during their session 10 debrief (Field Notes, 2021). In particular, the science teachers appreciated pre-recordings as an instructional tool and expressed an intent to continue using them when demonstrating to students how to respond to science text-based writing tasks (Field Notes, 2021).

During their session nine debrief, one team concluded that because Diana modeled using the HEY strategy in a way that differed from how students were expected to use?? it, the teacher may have inadvertently confused students. Consequently, the teachers agreed that future implementations of the lesson should have greater alignment between what the teacher models and what the students complete (Field Notes, 2021). Despite this agreement, however, Sarah and Mia did not implement the revision. Specifically, instead of teaching a lesson that focused solely on writing an introduction paragraph or revising an introduction paragraph, the teachers implemented a lesson in which the teachers only modeled writing an introduction paragraph but required students to revise an introduction paragraph which was not taught (Field Notes, 2021). Reasons for not implementing the revision differed between the two teachers, with Sarah worrying that her English language learners would copy her example if she had required her students to write an introduction paragraph, and Mia citing insufficient time within the class period. Despite not implementing this revision, Diana, when observing Mia, noted that students

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appeared to have understood how to apply the HEY strategy to the assignment (Teacher Observation Notes, 2021).

The mathematics teacher, having worked with the ELA team during session nine, reflected on his own strategy-based writing lesson during session 10. Specifically, the teacher described that “it wasn’t terribly difficult to get students to start writing in mathematics and that through time it can become a more natural part of the routine” (Exit Survey Data, 2021). The teacher did say, however, that if they had to reteach the lesson, they would introduce the strategy with smaller word problems so that students could solidify their understanding of it before moving to larger word problems (Field Notes, 2021).

Collectively, data from sessions nine and 10 show that teachers were provided with opportunities to apply strategies they had learned for authentic purposes. Specifically, they were able to test out the strategies in their classrooms, observe their colleagues teach these strategies, and reflect on the effectiveness of these strategies on student learning outcomes. By facilitating these learning experiences for teachers, the researcher demonstrates that he adhered to this essential PD element.

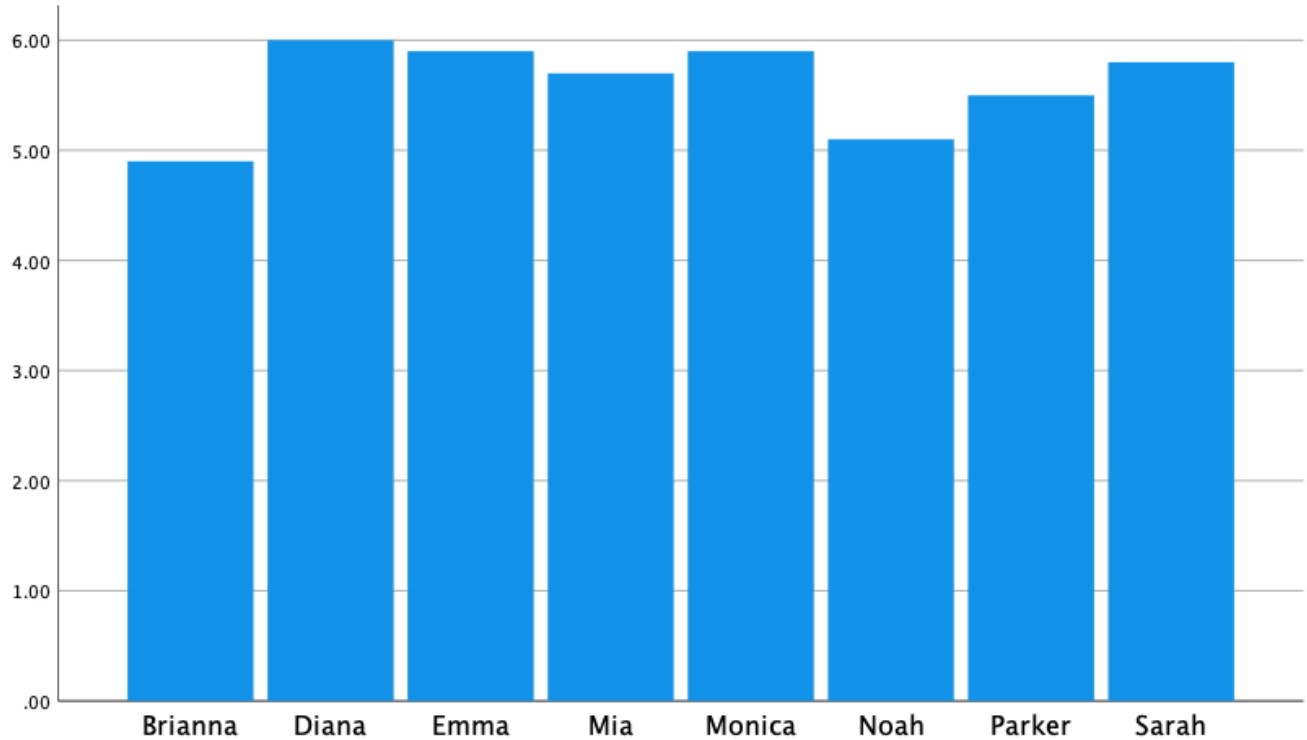
Participant Responsiveness

For this study, participant responsiveness meant that teachers verbally contributed to either small or large group conversations and engaged in each session’s learning activities. Data from the researcher’s field notes and teachers’ exit surveys indicate that teachers demonstrated responsiveness in these areas. There were, however, some instances worth noting in which teacher engagement in activities was not as high as desired by the researcher. These instances are discussed in detail below.

Figure 3

Mean Scores of Teachers’ Perceptions of their Attainment of Each Session’s Outcome (N = 8)

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Teacher data from exit surveys provide a starting point for discussing participant responsiveness. After each session, the researcher asked teachers to reflect on whether they believed they had achieved that session's learning outcome. While most teachers' combined session averages on a scale of one to six fell between 5.50 and 6.00 on a 6-point scale, Noah's averages were 5.10 ($SD = 0.99$, see Figure 3).

An examination of some of Noah's exit survey responses may provide insight into this average. After session two, Noah noted that while he appreciated "the idea of planning out the writing," he was "having difficulties figuring out how to format [the strategy PLAN] for mathematics." This challenge, which the researcher also observed (Field Notes, 2020), appears to have contributed to Noah's overall average. A similar challenge emerged for him during session seven. Because he was the only mathematics teacher, the researcher, for the purpose of facilitating collaboration on the design of a research lesson, assigned him to work with the

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science teachers. However, this opportunity for collaboration did not produce the outcome that the researcher had intended. After this session, Noah wrote:

Today was a bit frustrating because I am the only math teacher. I wasn't able to plan while listening to the science teachers and their ideas. It was useful to see their process but did not help me to be efficient. I am not exactly sure about how my role will be played in this process designing a lesson around writing, implementing it, and being observed on it (Exit Survey Data, 2020)

This experience also appears to have contributed to Noah's overall average.

While unrelated to participant responsiveness, the averages of Brianna ($M = 4.90$, $SD = 1.85$) are also worth discussing, as they were lower than Noah's average. During sessions six and nine, during which she strongly disagreed and moderately disagreed that she had achieved the learning outcomes for those respective sessions (Exit Survey Data, 2020), Brianna had actively participated in the learning activities (Field Notes, 2020). More specifically, she had collaborated with her colleagues to determine an instructional focus for their upcoming research lesson (i.e., session six) and observed her colleague implement this lesson (i.e., session nine). Thus, her averages, may have been because Brianna did not believe that the learning experiences of those two sessions lead her to attain the outcomes in the way that she had thought.

Summarizing Process Outcome Analysis

Overall, analyses of various sources of data indicate that the researcher achieved fidelity of implementation. Specifically, the researcher adhered to the intended program design, provided teachers with close to 20 hours of PD, and engaged teachers in the PD content.

Findings and Conclusions

As discussed in chapter four, three research questions guided this study's exploration of the constructs of interest:

- 1) In what ways has the online PD changed the knowledge of text-based writing strategies for middle school ELA, mathematics, and science teachers?
- 2) To what extent have ELA, mathematics, and science teachers' efficacy beliefs for teaching text-based writing changed following the online PD?
- 3) To what extent has the online PD changed the implementation of instructional practices for text-based writing for ELA, mathematics, and science teachers?

In this section of chapter five, the answers to these research questions are presented and discussed. Keeping in alignment with a convergent parallel design (Creswell & Plano-Clarke, 2018; Kerrigan, 2014; Small, 2011), the findings of the quantitative and qualitative data were analyzed and discussed separately and then integrated to provide comprehensive answers to the research questions.

Research Question 1

Qualitative Data Analysis. As discussed in chapter four, semi-structured interviews were used to gather data that would provide insight into changes in teachers' knowledge of text-based writing strategies. The pre-PD survey asked teachers to describe the strategies that they used to help their students plan, draft, revise, and edit their responses to text-based writing tasks, and the post-PD survey asked teachers to describe the strategies that they intend to use after the study to help their students plan, draft, revise, and edit their responses to these kinds of tasks (see Appendices G and H). Analyses of the data revealed several thematic codes that categorize

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middle school ELA, mathematics, and science teachers' strategy knowledge for text-based writing.

Table 16

Thematic Codes Capturing ELA Teachers' Strategy Knowledge for Text-Based Writing

| Pre-PD Themes | Descriptions | Examples |
|--------------------------|---|--|
| Cognitive Strategies | Methods that help students independently think their way through planning, drafting, revising, and/or editing responses to text-based writing tasks | Sarah – Doing a close reading...so that they get to, maybe, [underline], circle important ideas. |
| Instructional Strategies | Specific ways that teachers teach content for helping their students plan, draft, revise, and/or edit their responses to text-based writing tasks | Diana – I try to frontload [students] with the skill and the strategy in the beginning. |
| Instructional Scaffolds | Specific supports that the teachers provide that help students plan, draft, revise, and/or edit their responses to text-based writing tasks | Mia – The graphic organizer does...give [students] an opportunity to piecemeal, scaffold what they're looking for. |
| Post-PD Themes | Description | Examples |
| Cognitive Strategies | Methods that help students independently think their way through planning, drafting, revising, and/or editing responses to text-based writing tasks | Diana – I feel that [students] are going to be proud...by looking and reflecting at what they had or what they should have they could say, "Hey, you know what? This is alright. I did alright. I got most of these things in here. I got most of these things in here." |
| Instructional Strategies | Specific ways that teachers teach content for helping their students plan, draft, revise, and/or edit their responses to text-based writing tasks | Sarah – I think just doing the think-aloud and [letting] the students see how I'm going through this, how I'm struggling through it. It can also help them do the same thing, and you'll always have |

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| | | |
|-------------------------|---|--|
| | | good results. |
| Instructional Scaffolds | Specific supports that the teachers provide for helping their students plan, draft, revise, and/or edit their responses to text-based writing tasks | Mia – Give [students] a rubric that's more specific to what the standard is going to be impressing so they can see how they match. |

English Language Arts Teachers. One of the codes that emerged from an analysis of ELA teachers' pre-PD data was cognitive strategies (see Table 16). The first theme describes the methods that teachers teach students as a way of helping them think their way (ideally independently) through various stages of the writing process. Sarah, when thinking about the planning stages of writing, thought about the strategy "close reading," where students employ techniques to make sense of texts: "I think the first step [is] doing a close read...so that [students] get to, maybe, [underline], circle important ideas" (Interview Data, 2020). Diana, when thinking about strategies that she uses to help her students revise their texts, cited both the mnemonics "ARMS" and "CUPS." Mia, when reflecting on a narrative writing task that she had completed with her students, shared that she uses a mnemonic that she created to help students generate ideas for their writing (Interview Data, 2020). These responses collectively show that ELA teachers came to the PD with some knowledge of cognitive strategies.

After the PD, their knowledge in this area appears to have deepened. Sarah, for example, seems to have a better understanding of cognitive strategies' usefulness in guiding students' thinking through various stages of the writing process:

Now, I see the importance of having students remember a specific strategy that can help them at least come up with different sections of the writing process...So before, I was just assuming that maybe the students have read the text, they understand it, so now they

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can write about it. But just knowing that you can break it down to knowing the different strategies – the PLAN, the HEY, the LOOK, the BYE – all those different steps really matter (Interview Data, 2021).

Diana also had an epiphany about cognitive strategies. Specifically, she saw them as ways to help her students take “ownership” of their writing (Interview Data, 2021). When describing how she could utilize the HEY strategy to help her students revise their writing, she said:

I feel that [students] are going to be proud – I mean I would hope they would be proud of – and by looking and reflecting at what they had or what they should have they could say, “Hey, you know what? This is alright. I did alright. I got most of these things in here.”

Mia also appears to have recognized the value of cognitive strategies in helping her students compose their responses to text-based writing tasks. When discussing the HEY strategy, Mia said that in addition to the strategy being “purposeful” and “catchy,” it was also a “good guide for [students] to check off different things they can do as they’re beginning to draft” (Interview Data, 2021). This response may suggest that Mia recognizes cognitive strategies for their clear and concise focus, their easiness to remember, and their usefulness in guiding student writing. Collectively, these post-PD data indicate that ELA teachers both learned new cognitive strategies and recognized their usefulness in helping their students compose text-based writing responses.

A second code that emerged from the teachers’ pre-PD responses was instructional strategies (see Table 16). This theme describes how teachers taught their writing content to students. Sarah discussed using a “mini-lesson” to address grammar issues that within her students’ writing (Interview Data, 2020). Diana stated the following when describing an instructional strategy that she uses when teaching her students new skills or strategies for planning: “I try to frontload [students] with the skill and the strategy in the beginning” as way of

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“building the background” of her English language learners (ELLs) (Interview Data, 2020). Mia, when discussing strategies that she uses to help her students draft their responses to text-based writing tasks, spoke about modeling: “I think that modeling is really key...if you model correctly, [students] will do what you ask them to do and grasp it a lot better” (Interview Data, 2020). These interview responses indicate that ELA teachers came to the PD with knowledge of instructional strategies for teaching text-based writing.

After participating in the PD, most of the ELA teachers' knowledge of how to teach content for text-based writing appears to have developed. Both Sarah and Diana reported on the importance of the think-aloud instructional strategy, during which teachers articulate their thinking as a means of making explicit to students the application of a particular skill or strategy. Reflecting on the instructional strategy, Sarah said: “I think just doing the think-aloud and [letting] the students see how I'm going through this, how I'm struggling through [the writing process]. It can also help them do the same thing, and you'll always have good results” (Interview Data, 2021). Mia had a similar reflection: “That think aloud is really important for [students] to be able to know why you're doing what you're doing with some clarity” (Interview Data, 2021). Both responses indicate that the teachers developed a deeper understanding of how to teach writing content in ways that make the content more explicitly understood by students. None of Diana's responses allowed for a coding of a particular instructional strategy, but that was more than likely the result of the interview questions' limitations, which will be discussed later.

A third code that emerged from ELA teachers' pre-PD responses was instructional scaffolds (see Table 16). This theme described supports that the teachers provided that helped students through the stages of the writing process. Sarah, because she teaches many ELLs,

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discussed using “sentence starters” to help with language generation: “We tend to use some of those sentence starters to [help students] start their paragraphs” (Interview Data, 2020). Diana mentioned “having the kids have a checklist” as a way of guiding her students to edit their text-based writing responses, and Mia described her use of “graphic organizers,” which provides students with “an opportunity to piecemeal, scaffold” information as they begin drafting their responses (Interview Data, 2020). These data demonstrate the kinds of instructional scaffolds that teachers knew prior to their participation in the PD.

Following the PD, most of the ELA teachers seem to have acquired additional knowledge of how they can scaffold students' learning. Sarah, for example, recognized the value of a checklist in helping her students edit their written responses: “[Students] also need a checklist...to find out about their capitalization, the period. All the editing – the grammar and everything...I really notice that checklist helps” (Interview Data, 2021). In addition, Mia saw value in having her students utilize rubrics while revising their written responses: “Give [students] a rubric that's more specific to what the standard is going to be impressing so they can see how they match” (Interview Data, 2021). These responses appear to suggest that Sarah and Mia learned new ways to support students as they progress through different stages of the writing process. None of Diana's responses allowed for a coding of a particular instructional scaffold, but, as indicated earlier, this finding more than likely stemmed from the survey questions' limitations.

In sum, ELA teachers' interview responses indicate that prior to the PD, the teachers had some knowledge of cognitive strategies for text-based writing, ways of teaching these strategies for this kind of writing, and ways of scaffolding student learning as they progressed through this kind of writing. After the PD, each of the teachers had not only learned new cognitive strategies,

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but they had also recognized the value of cognitive strategies in helping students to respond to text-based writing tasks. Furthermore, while one of the teachers (i.e., Diana) did not appear to have acquired new knowledge on instructional strategies and scaffolds for teaching and supporting writing respectively, the other two teachers (i.e., Sarah and Mia) learned new ways to both teach writing explicitly and support student learning throughout the process.

Table 17

Thematic Codes Capturing Noah's Strategy Knowledge for Text-Based Writing

| Pre-PD Themes | Descriptions | Examples |
|--------------------------|---|--|
| Cognitive Strategies | Methods that help students independently think their way through planning, drafting, revising, and/or editing responses to text-based writing tasks | When we do certain problem-solving strategies, sometimes we do the SOLVE method. |
| Instructional Strategies | Specific ways that teachers teach content for helping their students plan, draft, revise, and/or edit their responses to text-based writing tasks | I mean, we just kind of model and give examples, but it's a minimalist approach, though, because I'm more focused on just the quick explanation. |
| No Strategies Considered | Instances where teachers did not consider strategies for use in helping students plan, draft, revise, and/or edit their responses to text-based writing tasks | We rarely do revise unless the information on the paper is just completely wrong. The grammar is the least of my worries. We barely have enough time do the writing, honestly. |
| Post-PD Themes | Description | Examples |
| Cognitive Strategies | Methods that help students independently think their way through planning, drafting, revising, and/or editing responses to text-based writing tasks | The big part from the SOLVE strategy that I do like is "organizing the facts" part [because] the elimination of the unnecessary facts is really important for mathematics because kids get confused with different things. |

| | | |
|---------------------------------|--|--|
| | | <p>In the “V” step, the “verify your plan with action” in the first part of [the SOLVE strategy], you’re supposed to make an estimate, and that goes back to, “Is it reasonable? Does it make sense?” If you’re estimate and your answers are completely off, then you should have to look back at it. So, for me, the revision would not be the sentence that they wrote.</p> |
| <p>No Strategies Considered</p> | <p>Instances where teachers did not consider strategies for use in helping students plan, draft, revise, and/or edit their responses to text-based writing tasks</p> | <p>I would put a very minimal focus on [editing]. It would be quick reminders.</p> |

Mathematics Teacher. Three themes emerged from Noah’s interview responses that provide insight into his knowledge of text-based writing strategies prior to the PD (see Table 17). Cognitive strategies emerged when Noah described methods that he used to help his students draft their responses to word problems. Specifically, he said that he and his students “sometimes...[use] the SOLVE method,” a mnemonic that describes and guides students through specific steps: “study the problem...[organize] the facts...line up the plan...verify your plan with action...examine the results” (Interview Data, 2020). In addition, instructional strategies, a second theme, emerged when Noah described how he helps his students plan their responses to word problems. He said, “we just kind of model and give examples,” though he says that both of these instructional strategies he applies “with a minimalist approach...because [he’s] more focused on just the quick explanation” (Interview Data, 2020). These two themes appear to

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suggest that Noah came to the PD with an understanding of a particular cognitive strategy for teaching students to respond to text-based writing tasks within his discipline and an understanding of how to teach strategies that help his students respond to these kinds of tasks.

Despite knowing this cognitive strategy, a third theme (i.e., no strategies considered) emerged that illuminate some inconsistencies with Noah's knowledge of the cognitive strategy that he described. When asked for strategies that he used to help his students revise their responses to text-based writing tasks, Noah said that he and his students "rarely do revise [their answers] unless the information on the paper is just completely wrong" (Interview Data, 2020). Noah's description of the last step in the SOLVE process (i.e., examine the results) does not suggest that revising responses occurs rarely in his class:

[With] examine the results...[students] basically go back and check [their answers]. Is it accurate? Does it make sense? Does the answer that they got, make sense? Like, if [they're] doing something with temperature...and they get something that's like, "Oh, it's 1000 degrees," well that doesn't make sense. [They] did something wrong there (Interview Data, 2020).

With a step that requires students to assess the accuracy of their answers, it does not seem likely that revising occurs "rarely," that he and his students are "not going back and really worrying about the writing in that aspect" (Interview Data, 2020). Therefore, it is possible that when thinking about the cognitive strategy SOLVE, Noah did not seem to understand that the strategy requires students to revise their responses.

After Noah participation in the PD, one theme emerged from his interview responses that indicate changes in his text-based writing strategy knowledge (see Table 17). The theme

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cognitive strategies emerged when Noah was asked to describe strategies that he intends to use to help his students plan their responses to text-based writing tasks:

The main thing is annotating the problem, and the big part from the SOLVE strategy that I do like is “organizing the facts” part [because] the elimination of the unnecessary facts is really important for mathematics because kids get confused with different things. Sometimes, they just see a whole bunch of numbers, and they would just choose an operation. And it’s like, some of those numbers don’t have anything to do with the problem (Interview Data, 2021).

From this response, it appears that Noah developed a deeper understanding of the SOLVE method’s potential for helping his students respond to word problems. In particular, he highlights the usefulness of the strategy in helping students to remove extraneous details that would prevent them from developing an accurate answer. The deepening of his knowledge was further demonstrated when reflecting on the SOLVE strategy as a way for his students to revise their written responses:

In the “V” step, the “verify your plan with action” in the first part of [the SOLVE strategy], you’re supposed to make an estimate, and that goes back to, “Is it reasonable? Does it make sense?” If you’re estimate and your answers are completely off, then you should have to look back at it. So, for me, the revision would not be the sentence that [students] wrote (Interview Data, 2021).

Prior to the PD, Noah did not appear to understand that the SOLVE method included steps for revising one’s answers. Following the PD, however, Noah seems to understand that part of the strategy guides students through an evaluation of their written responses’ accuracy.

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Overall, Noah's interview responses indicate that he came to the PD with knowledge of SOLVE, a mathematics cognitive strategy, and instructional strategies through which he helped his students learn how to compose their responses to word problems. After the PD, Noah appears to have deepened his understanding of the SOLVE method. Although a third theme (i.e., no strategies considered, see Table 17) emerged following the PD, it did not in this case indicate Noah's lack of strategy knowledge. Rather, the theme focused on his limited intent to focus on strategies for editing, a topic that is discussed further under research question three's analysis.

Table 18

Thematic Codes Capturing Science Teachers' Strategy Knowledge for Text-Based Writing

| Pre-PD Themes | Descriptions | Examples |
|--------------------------|---|--|
| Cognitive Strategies | Methods that help students independently think their way through planning, drafting, revising, and/or editing responses to text-based writing tasks | Monica – I also have them try to annotate the document...we're walking through, and we're saying, "Does this actually answer the question? Will this give you some information that will help you formulate your claim or support your claim?" |
| Instructional Strategies | Specific ways that teachers teach content for helping their students plan, draft, revise, and/or edit their responses to text-based writing tasks | Brianna – So, multiple times at the beginning of the school year, I explain what each of those terms mean. You know like, what's a claim, what's evidence, what's reasoning, and sometimes, I'll walk them through a sample where I will write or pull out what would be their claim, evidence, and reasoning. |
| Instructional Scaffolds | Specific supports that the teachers provide for helping their students plan, draft, revise, and/or edit their responses to text-based writing tasks | Parker – [The graphic organizers] start off with something like your opinion and then [students] just write down their opinion, and they can write it in as short or as |

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| | | |
|-----------------------------------|--|---|
| No Strategies Known/Considered | Instances where teachers did not know or consider a strategy that they could use to help their students plan, draft, revise, and/or edit their responses to text-based writing tasks | long as they need it to be, and then, they'll write down maybe one or two things that support their opinion...and then lastly, I'll try to get them to connect their opinion to their evidence using one of two sentences, and that is the type of graphic organizer that I would do. |
| | | Emma – That's where it starts to break down because we know how to take them through the processes...but getting them to...plan out what they're going to respond is where my knowledge is lacking |
| | | Parker – None, because I have such a high ESOL population, and my focus was to make sure they understood the content, and as long as they were able to read that material we were getting through, that was my first focus |

| Post-PD Themes | Descriptions | Examples |
|----------------------|---|---|
| Cognitive Strategies | Methods that help students independently think their way through planning, drafting, revising, and/or editing responses to text-based writing tasks | <p>Monica – I'm getting better writing pieces than I was when we were at the beginning of the year. So, now that I have a tool or resource that I can use as a teacher to help them with their writings, I think I would get better quality</p> <p>Parker – So, I definitely like the RACE strategy because it's four letters, they're pretty simple, and it's easy for them to grasp it and use it</p> |

| | | |
|--------------------------------|--|--|
| Instructional Strategies | Specific ways that teachers teach content for helping their students plan, draft, revise, and/or edit their responses to text-based writing tasks | whenever they need to. Emma – The next time we write, I’m going to have something that I’ve written out for [students] to look at first, and then I’m going to give them the HEY, and it’s like, “Does it have all of these things?”, and then if it does, it’s like, “OK, let’s use our highlighters on the Google Docs...so they can visually see where [the components] are” |
| Instructional Scaffolds | Specific supports that the teachers provide for helping their students plan, draft, revise, and/or edit their responses to text-based writing tasks | Brianna - The RACE strategy is directly aligned to what a CER [claim, evidence, reasoning writing task]...so if the kids...wrote the things out in the graphic organizer, they literally would just be cleaning up the writing because the strategy makes them basically answer the question, and then, they just would need to put it together in a cohesive paragraph. |
| No Strategies Known/Considered | Instances where teachers did not know or consider a strategy that they could use to help their students plan, draft, revise, and/or edit their responses to text-based writing tasks | Emma – Getting [students] to realize they need to do planning, especially when it's a larger CER [claim, evidence, reasoning writing task] and we're using not only our reading but anything that we've talked about in class, anything that we've done hands on, or anything we've seen. |

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Science Teachers. A code that emerged from science teachers' pre-PD responses was cognitive strategies (see Table 18). Under this category were Parker and Monica's descriptions of how they taught students to extract important information from source materials that the students would later use in their responses to a text-based writing task. Parker, for example, used the term "notetaking strategies" to describe his "guiding [students] in pulling information out of the text" as a way of helping them understand the source's "most important parts" (Interview Data, 2020). Monica used the term "annotate" to describe the strategic way that she helps students extract relevant content from source materials: "We're walking through, and we're saying, 'Does this actually answer the question? Will this give you some information that will help you formulate your claim or support your claim?'" (Interview Data, 2020). Parker and Monica's responses suggest that they came to the PD with some knowledge of cognitive strategies that facilitate students' ability to compose written response. None of Emma and Brianna's pre-intervention responses, on the other hand, were coded as cognitive strategies, which could indicate limited knowledge of cognitive strategies for text-based writing within science.

After their participation in the PD, however, Emma and Brianna, in addition to Parker and Monica, demonstrated that their knowledge of cognitive strategies had increased. Emma, for example, described her new knowledge of the HEY strategy, recognizing that it could help her students write their introduction paragraphs: "I like the HEY strategy because, especially for sixth graders, they really have a hard time with the thesis" (Interview Data, 2021). Brianna recognized the value of the cognitive strategy RACE as way of helping her students learn how to self-monitor their writing progress:

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Some of the kids I realize when they went to write, when they referenced what the guiding questions were, so, for example, with RACE...they went back and answered what the prompt is actually asking. It made them refine [their] claim to say, "Did I actually answer this?" (Interview Data, 2021).

Parker saw how teaching cognitive strategies to his students can help them to become independent writers: "So, I definitely like the RACE strategy because it's four letters, they're pretty simple, and it's easy for them to grasp it and use it whenever they need to" (Interview Data, 2021). Monica recognized the connection between her encouragement of the use of cognitive strategies and improvements in her students' writing:

I'm getting better writing pieces than I was when we were at the beginning of the year. So, now that I have a tool or resource that I can use as a teacher to help them with their writings, I think I would get better quality (Interview Data, 2021).

In summary, the pre- and post-PD interview data demonstrate that science teachers had both learned new cognitive strategies and recognized their value in helping their students to become more proficient and independent writers.

A second code that emerged from science teachers' pre-PD responses was instructional strategies (see Table 18). Under this category were Emma and Brianna's descriptions of how they taught writing content to their students. Emma, when describing how she taught her students to revise their written responses, spoke about her use of student writing samples:

I'll pull samples and type them up exactly as they are on the paper so that there's no names or identifiers or anything on it, and will take, like, one paragraph, and it's like, "Okay, how could this be better, or what are the good things that are in the paragraph?" (Interview Data, 2020).

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Brianna shared that to help her students plan their responses to text-based writing tasks, she explains to her students “multiple times at the beginning of the school year” important terms for writing: “You know like, what’s a claim, what’s evidence, what’s reasoning” (Interview Data, 2020). Brianna furthers this elaboration by guiding students “through a sample where [she] will write or pull out...[a response’s] claim, evidence, and reasoning,” which students would then place in their science journals to be able to reference at later times (Interview Data, 2020). Both Emma and Brianna’s responses demonstrate prior to the PD their knowledge of instructional strategies for teaching their students to compose text-based written responses. Neither Parker nor Monica’s pre-PD responses were coded as instructional strategies, though this outcome was more than likely a result of the interview questions’ limitations.

Following science teachers’ participation in the PD, interview data suggest that one of the teachers had improved in her knowledge of instructional strategies for teaching text-based writing. Prior to the PD, Emma had discussed using student samples as a way of helping her students learn how to revise (Interview Data, 2020). After the PD, she spoke about using the cognitive strategy HEY in a similar way:

The next time we write, I’m going to have something that I’ve written out for [students] to look at first, and then I’m going to give them the HEY, and it’s like, “Does it have all of these things?”, and then if it does, it’s like, “OK, let’s use our highlighters on the Google Docs...so they can visually see where [the components] are” (Interview Data, 2021).

With this response, Emma demonstrated using HEY for the instructional purposes of teaching her students how to recognize the different parts of an introduction paragraph. Parker, Brianna, and Monica’s post-PD responses did not provide evidence that was able to fit under the code of

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instructional strategies, though, as indicated before, this outcome was possibly due to the limitations of the interview questions.

A third code that emerged from science teachers' pre-PD responses was instructional scaffolds (see Table 18). Under this category, each of the science teachers shared how they supported students through stages of the writing process, such as with the use of graphic organizers. Emma, for example, indicated that she's used this scaffold, including those "that the county's given to [her] over the years" and those that she's "come by on [her] own," to support her students in organizing their written responses: "Just getting them to plot out [and] divide [their] paper into four, and here's your first spot...for your first paragraph, for your second paragraph" (Interview Data, 2020). Parker described using this tool for helping his students to plan and organize their writing:

[The graphic organizers] start off with something like your opinion and then [students] just write down their opinion, and they can write it in as short or as long as they need it to be, and then, they'll write down maybe one or two things that support their opinion...and then lastly, I'll try to get them to connect their opinion to their evidence using one of two sentences, and that is the type of graphic organizer that I would do (Interview Data, 2020).

Brianna shared a similar use for her graphic organizers but added how she differentiates their use depending on students' ability levels: "And depending on what the class is, so like, let's just say...I have an Honors class, I may give them less [guidance] versus, you know...[an] ESOL or Gen Ed class or SPED class" (Interview Data, 2020). Monica also described using graphic organizers to help her students "get their thoughts together" (Interview Data, 2020).

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Collectively, these responses demonstrate teachers' knowledge prior to the PD of how they scaffold student learning through stages of the writing process.

Post-PD interview data show that some of the teachers developed their knowledge of instructional scaffolds for text-based writing. While Parker and Monica's responses could not be coded under this category, Brianna and Emma's responses could. Brianna, for example, recognized that cognitive strategies that she learned during the PD could be aligned to graphic organizers:

The RACE strategy is directly aligned to what a CER [claim, evidence, reasoning writing task]...so if the kids...wrote the things out in the graphic organizer, they literally would just be cleaning up the writing because the strategy makes them basically answer the question, and then, they just would need to put it together in a cohesive paragraph...So, it's like, you can't have an incomplete paragraph if you actually utilize the strategy (Interview Data, 2020).

Emma recognized the functions of editing checklists in supporting her ELLs' language development, an area on which she has focused during the year:

Those editing checklist questions that we had because I use SIOP [Sheltered Instruction Observation Protocol] for my classes too, and my SIOP objective for the year is "students will use correct grammar, punctuation, and spelling when...writing in the science classroom (Interview Data, 2021).

These two teachers' responses suggest that two of the teachers recognized new ways to scaffold their students' understanding as they progress through the stages of responding to text-based writing tasks.

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A fourth code that emerged from science teachers' pre-PD responses was no strategies known/considered (see Table 18). This code, as the name suggests, describes instances where science teachers neither knew nor considered a particular strategy that they could use to help their students plan, draft, revise, and/or edit their responses to text-based writing tasks.

Responses from Emma, Parker, and Monica fell under this category. For example, when asked to describe strategies that she used to help her students plan their responses to text-based writing tasks, Emma said the following: "That's where it starts to break down because we know how to take them through the processes...but getting them to...plan out what they're going to respond is where my knowledge is lacking" (Interview Data, 2020). Parker, when asked for strategies that he used to help his students revise their written responses, directly replied "None," though unlike Emma, his reason did not appear to come from a lack of knowledge but because teaching revision of written work was not his primary goal given his student demographics: "Because I have such a high ESOL population, and my focus was to make sure they understood the content, and as long as they were able to read that material we were getting through, that was my first focus" (Interview Data, 2020). Monica, when asked to describe strategies for helping her students draft their responses, indicated that she did not know any: "Nothing, really. It's just a first write, and then a second write, and they do a final draft" (Interview Data, 2020).

Furthermore, when asked for strategies that she used to help her students edit their responses, Monica did not appear to consider this form of instruction as an option due to time constraints: "

Yeah, we don't do that...because generally speaking, we might have two or three days to introduce the writing to them...Let's say if we start on Monday, they're supposed to start their writing on Wednesday. [People monitoring the writing task's progress] want it complete by the following Monday (Interview Data, 2020).

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In sum, responses under the fourth emergent code (i.e., no strategies known/considered) revealed both gaps in science teachers' knowledge of strategies for developing students' text-based writing skills, but it also indicated that external factors influence whether science teachers consider strategies for certain areas of writing.

After the PD, only one teacher's responses provided evidence for coding under no strategies known/considered. Monica, who prior to the PD indicated not knowing cognitive strategies for drafting or considering the use of strategies for editing (Interview Data, 2020), learned new cognitive strategies for drafting and considered strategies for editing: "I would use a CUPS [strategy] or something like that...capitalization, usage, punctuation, spelling...I'm pretty sure [students] will remember it" (Interview Data, 2020). Parker also mentioned the editing strategy CUPS, though he did say, "that's not something that [he foresees himself] having the opportunity to use" (Interview Data, 2021). The reason for this response is explored under research question three. Emma, on the other hand, while clearly demonstrating strategy knowledge development (see narrative under cognitive strategy instruction section), gave a response that indicated that she may not have known a strategy for helping her students plan their written responses:

Getting [students] to realize they need to do planning, especially when it's a larger CER [claim, evidence, reasoning writing task] and we're using not only our reading but anything that we've talked about in class, anything that we've done hands on, or anything we've seen (Interview Data, 2021).

Within this response, Emma did not identify a specific strategy that she would use to help develop students' ability to plan their written responses. Collectively, responses under this category show that Monica and Parker's pre-PD knowledge gaps had been filled, but some of

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Emma's pre-PD gaps, specifically in the area of strategy knowledge for planning responses, remain.

Overall, post-PD interview data indicate that prior to the PD, some of the science teachers came to the PD with cognitive strategies that they had used to support their students' text-based writing skills. After the PD, each of the teachers had demonstrated that they had learned strategies they had not known previously and recognized how they could be used to help their students write proficiently and independently. In addition, while limitations of the interview questions may have prevented some teachers' responses under the codes "instructional strategies" and "instructional scaffolds," post-PD data indicated that some of the teachers had learned new ways of developing students' text-based writing skills and new ways of scaffolding students' learning through various stages of the writing process. Lastly, while one of the science teachers may have completed the study with an unfilled knowledge gap, other teachers had their gaps in knowledge filled.

Table 19

Thematic Codes Capturing Teachers' Strategy Knowledge for Text-Based Writing

| Pre-PD Themes | Post-PD Themes |
|---------------------------------|---------------------------------------|
| Close Reading (C) | PLAN (C) |
| ARMS and CUPS (C) | HEY-LOOK-BYE (C) |
| SOLVE (C) | SOLVE (C) |
| Annotating/Notetaking (C) | RACE (C) |
| | CUPS (C) |
| Mini-Lesson (I) | Think-Aloud (I) |
| Frontload (I) | Teacher Writing Exemplars (I) |
| Modeling (I) | |
| Revising w/ Student Samples (I) | |
| Explanations (I) | |
| Guiding Writing (I) | |
| Sentence Starters (S) | HEY Revising Checklist (C/S) |
| Editing Checklists (S) | RACE Revising Checklist (C/S) |
| Graphic Organizers (S) | HEY-LOOK-BYE Graphic Organizers (C/S) |

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CER Graphic Organizers (S)

RACE Graphic Organizers (C/S)
Editing Checklists (S)
Rubrics (S)

Summary of the Findings. Collectively, pre- and post-PD data for question one suggests that the intervention may have impacted teachers' text-based writing strategy knowledge (see Table 19). Prior to the PD, the teachers described knowledge of cognitive strategies (i.e., C), instructional strategies (I), and instructional scaffolds (S). Following the PD, the teachers also described knowledge within these areas, but their descriptions emphasized content that came from the intervention. This shift indicates that the PD helped teachers acquire new knowledge of cognitive strategies, instructional strategies, and instructional scaffold for teaching their students text-based writing.

Research Question 2

Quantitative Data. An adapted version of the *Teacher Efficacy Scale for Writing* (Graham et al., 2001) was used to measure teacher's confidence in their ability to impact students' text-based writing outcomes (i.e., personal efficacy), even when considering influential external factors (i.e., general efficacy). Surveys from both pre and post administrations required teachers to indicate the degree to which they agreed or disagreed (i.e., one, strongly disagree to six, strongly agree) with statements that related to these two constructs. Pre- and post-PD data are reported below.

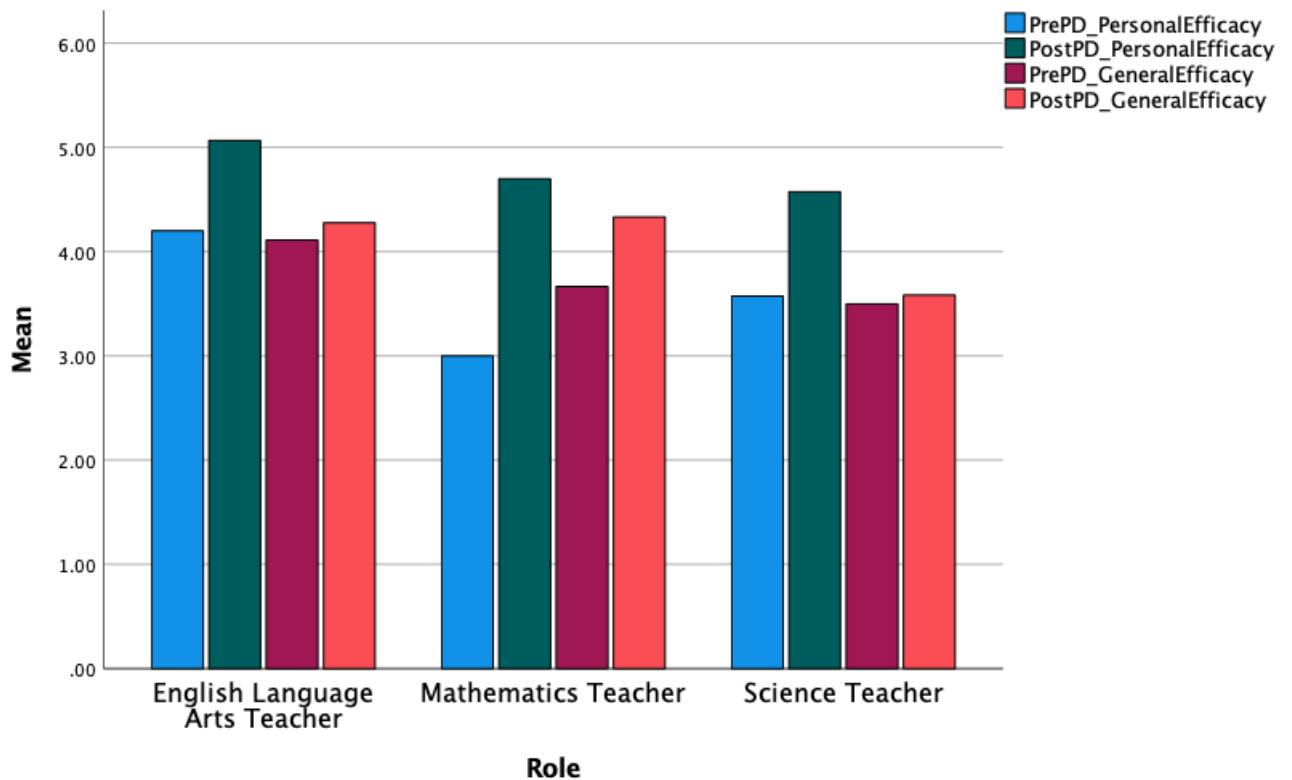
Several findings emerged when analyzing the data descriptively and inferentially. Prior to the start of the PD, teacher averages ($N = 8$) for personal and general efficacy were 3.73 ($SD = .73$) and 3.75 ($SD = .71$) respectively. After the completion of the PD, teacher averages for these same areas were 4.77 ($SD = .46$) and 3.93 ($SD = .91$). Wilcoxon signed-rank tests revealed

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statistically significant differences for personal efficacy ($Z = -2.524, p = .012$) but not general efficacy ($Z = -.917, p = .359$). These findings indicate that the PD may have impacted teachers' confidence in their ability to affect students' text-based writing outcomes, but the PD did not show improvement in teachers' confidence in their ability to overcome the influence of external factors on these outcomes. This finding could be due to the small sample size, which will be discussed later in a discussion of the limitations.

Figure 4

Mean Scores by Content Area for Teacher Efficacy Adapted from the Teacher Efficacy Scale for Writing



Disaggregating these data by content area (see Figure 4) provided additional information for answering the research question. Descriptive analysis revealed differences in personal efficacy averages between pre- and post-data for ELA ($n = 3, M = 4.20, SD = .10; M = 5.06, SD = .31$), mathematics ($n = 1, M = 3.00; M = 4.70$), and science ($n = 4, M = 3.57, SD = .90; M =$

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4.57, $SD = .53$) teachers. Descriptive analysis also revealed differences in general efficacy averages between ELA ($M = 4.11$, $SD = .84$; $M = 4.27$, $SD = .51$), mathematics ($M = 3.66$; $M = 4.33$), and science ($M = 3.50$, $SD = .71$; $M = 3.58$, $SD = 1.19$) teachers. While pre and post data do suggest that teachers became more confident in their ability to impact their students' text-based writing outcomes, even when considering influential external factors, the small number of participants prevented the researcher from determining the degree to which the PD influenced these changes.

Qualitative Data Analysis. Semi-structured interview questions were used to gather additional data on teachers' efficacy beliefs for teaching text-based writing (see Appendices G and H). The pre and post interviews asked teachers to describe these beliefs both before and after the completion of the PD respectively. Findings of these interviews are discussed in detail below.

Table 20

In Vivo Codes Capturing ELA Teachers' Efficacy for Teaching Text-Based Writing

| Teacher | Pre-PD In Vivo Codes | Post-PD In Vivo Codes |
|---------|---------------------------------|--|
| Three | I would say it's in the middle. | My confidence has maybe gone from 15 up to maybe 80 or 90. |
| Six | I'm at an 85%. | I would say I was at a 5. Now, I would say that I'm at an 8. |
| Eight | Pretty low right now | I think that I actually got [calmer]. |

English Language Arts Teachers. Prior to the PD, responses from ELA teachers revealed confidence levels that varied (see Table 20). Mia described her confidence as being “pretty low”

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and cited several reasons for this assessment, including the fact that her students, being sixth graders, were less experienced than what she was accustomed to and the fact that not all students that she taught spoke English (Interview Data, 2020). Because of these challenges, Mia struggled to know whether her instructional decisions facilitated or limited her students' opportunities to develop text-based writing skills: "Am I watering [my instruction] down because they're young? Am I watering it down because they haven't been exposed to it?" Sarah described her confidence as being somewhere "in the middle" (Interview Data, 2020). In particular, she noted that while she did feel "competent" in her ability to resolve challenges that her students have had with text-based writing, she also noted that "there's always room for improvement" (Interview Data, 2020). Diana described her confidence as an "85%," stating, "I feel like I'm not the best at [teaching text-based writing] that I could be, but I'm enough to get the kids where they would be proficient writers" (Interview Data, 2020).

After the PD, ELA teachers reported improved confidence in their ability to teach text-based writing (see Table 20). Mia, for example, described feeling more confident and, consequently, less anxious about taking risks with her text-based writing instruction:

I think that I actually got [calmer], realizing, "Hey, be like the kids. Take the risk. Do what you do." You can make a mistake and come back, and you say, "This is a mistake. This is what you can improve upon." And then correct that and not feel intimidated that, "Oh my gosh, I made a mistake, and I showed the kids something."

Mia attributed this shift in her "perfectionist" (Interview Data, 2020) orientation to having opportunities to be vulnerable amongst her ELA colleagues. When describing times during which she, Sarah, and Diana collaborated on applying strategies for the purposes of responding to a text-based writing tasks, Mia shared that those interactions "alleviated the individual

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pressure of ‘Am I right?’”, which caused her to focus less on “having it right” and more on “moving in the right direction” (Interview Data, 2021). These descriptions differ from her original assessment of her confidence, where she, perhaps out of fear of making a mistake, felt conflicted about her instructional decisions for her population of students.

Sarah stated that her “confidence has gone from 15 up to maybe 80 or 90” (Interview Data, 2021). When expanding upon this assessment, Sarah cited learning opportunities that allowed her to observe others implementing strategies. In reference to the think-aloud strategy, during which teachers verbalize their thoughts while simultaneously demonstrating a skill that they want students to practice and master, Sarah stated:

When I saw another teacher doing [a think-aloud], I was like, “Oh my God. That is something that we don't practice a lot, just doing the think aloud.” Knowing that it's possible makes me just feel very confident. Knowing that if I teach [a] strategy, one of these strategies, [the students] can do it. So, my confidence is really high now.

Prior to the PD, Sarah indicated that she based her assessment of her instructional efficacy for text-based writing on her knowledge base at the time, so when she learned both new strategies and ways of teaching those strategies, she gained the “extra information on how to improve” (Interview Data, 2020) that allowed her to have more confidence in her abilities.

Diana, when reflecting on improvements in her confidence, said the following: “From a scale of zero to 10, when I started, I would say I was at a 5. Now, I would say that I'm at an 8” (Interview Data, 2021). Diana credited the strategies she acquired during the PD as a reason for her improved efficacy for text-based writing instruction:

[At first], I just felt like I wasn't getting [my knowledge] across to [students] as well as I could, and with the strategies that you showed us, I felt like this was something tangible

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for me to get across to them in order for them to have a better product at the end of their essay.

It is interesting to note that prior to the PD, Diana initially placed her confidence at an “85%” (Interview Data, 2020). Based on the data, therefore, it seems that over the course of the PD, perhaps after learning about the challenges and complexities of text-based writing, she reevaluated her earlier assessment. Regardless of whether she engaged in this reevaluation, Diana articulated that by participating in the PD, her confidence in her ability to teach text-based writing improved.

Table 21

In Vivo Codes Capturing Noah's Efficacy for Teaching Text-Based Writing

| Teacher | Pre-PD In Vivo Codes | Post-PD In Vivo Codes |
|---------|----------------------|---------------------------|
| Seven | Extremely low | It's definitely improved. |

Mathematics Teacher. The mathematics teacher described his efficacy for teaching text-based writing prior to his participation in the PD as “extremely low” (see Table 21, Interview Data, 2020). Reasons for this assessment included a limited focus on teaching text-based writing within his classes and limited experiences as a former mathematics student expanding on his responses:

So, I've never really taught writing outside of [what] we're mandated to do. [Also], when I grew up...at the most, you had to write your answer in a sentence...writing out your explanations, that was new to me. I wasn't taught that in school (Interview Data, 2020).

After the PD, however, Noah articulated that his confidence “definitely improved” (see Table 21, Interview Data, 2021). When elaborating on the learning experiences that helped to facilitate

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this improvement, Noah cited aspects of the PDs design, including opportunities for collaboration and time to engage in and reflect on the learning over an extended period.

Table 22

In Vivo Codes Capturing Science Teachers' Efficacy for Teaching Text-Based Writing

| Teacher | Pre-PD In Vivo Codes | Post-PD In Vivo Codes |
|---------|--|---|
| One | I would say maybe a 4. | I think I'm at like a 7 just on a scale of 10 at this point. |
| Two | I still don't feel super confident. | I feel better about it. |
| Four | I feel like I'm 50%. | I feel like a champ. Not a chump, like a champ. |
| Five | It's a "C," like "meh." Like, it's not terrible. | I can be more confident that I actually have a good roadmap for how I can support the kids with the task. |

Science Teachers. Prior to participating in the PD, most of the science teachers described their efficacy for teaching text-based writing as relatively low (see Table 22). Emma, for instance, said that despite her 23 years of teaching experience, she didn't "feel super confident" in her ability to teach text-based writing, as she articulated being unsure about her instructional decisions: "I've got this war going on in my head sometimes, of, you're doing too much, you're not doing enough, you're doing just right, and depending on the day depends on who wins" (Interview Data, 2020). Parker said that on a 1-10 scale, he would place his confidence at a "four" because he is "highly critical" of both himself and his students and because he felt that his instructional skills at the time were not strongly effective in engaging students in the learning necessary for text-based writing development (Interview Data, 2020). Similarly, Monica described her confidence at a "50%," though she cited limited time to teach writing as the reason

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for her description. Unlike her colleagues, Brianna, the fourth science teacher, described her confidence as a “C” (Interview Data, 2020). While she believed that her way of teaching text-based writing facilitated growth, she also did not “necessarily feel like [her way was] probably the best way;” rather, “it’s just the way that [she knew]” (Interview Data, 2020).

After participating in the PD, science teachers articulated that their efficacy for teaching text-based writing improved (see Table 22). When asked whether her confidence had changed after engaging in the PD, Emma stated, “Definitely” (Interview Data, 2021). Though she continues to worry whether her instructional efforts are making a difference, especially with her “English language learners and special needs students,” she feels better equipped to address challenges that may arise because she has “more [instructional] tools in [her] toolbox” (Interview Data, 2021).

Parker described his shifting confidence through a pre- and post-PD comparison. Specifically, he said, “so, I think when we started this, I was definitely at a 3 or a 4; I think I’m at like a 7 just on a scale of 10 at this point” (Interview Data 2021). While he attributes his assessment partly to his habit for doubting himself, he credits improvements in his confidence to PD experiences that both taught him and allowed him to apply strategies for text-based writing instruction. Indeed, he expressed that “having those strategies pretty much be [sic] handed to [him]” and “working through those strategies as well” contributed to him feeling “extremely confident” by the end of the PD (Interview Data, 2021).

Monica, describing her improvement, jested that after participating in the PD, she felt “like a champ” (Interview Data, 2021). Reflecting on her transition from mathematics to science, from elementary to middle school, Monica described:

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You know, elementary school writing is totally different from this middle school thing. So, I came from math, so my background for middle school is math. For me to come in and...switch gears with my thinking; I'm out of my content, basically, and now I'm doing writing. You want me to actually have [students] give you a piece of product that's quality? That was a challenge to me, but you saw me through, bruh, you saw me through (Interview Data, 2021).

When asked for the activities that facilitated her improved confidence, Monica cited as essential the opportunities for collaboration and the practicing of strategies in advance of teaching them to her students.

Brianna also communicated that her participation in the PD improved her efficacy for teaching text-based writing. She credited this improvement to her acquiring strategies that provided practical ways for her to help her students better their writing: "I can be more confident that I actually have a good roadmap for how I can support the kids with the task" (Interview Data, 2021). This description differs from her pre-PD description, where she shared that her instruction for text-based writing was limited, in that it was based on what she knew as a writer and not necessarily on what was best (Interview Data, 2020). Brianna articulates her thinking:

Before, I was like, 'Well, I'm trying my best. We'll see what happens.' But now, I feel like these are actually strategies that are based in some facts, not just, 'OK, me as a teacher, I'm trying my best and let's see what works' (Interview Data, 2021).

Because her experiences through the PD had taught her evidence-based strategies that she could use with her students, Brianna now feels "more confident that [she] would be able to actually see some improvement" in her students' text-based writing outcomes (Interview Data, 2021).

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In sum, it would appear that prior to participating in the PD, teachers' efficacy for teaching text-based writing, and the reasons on which descriptions of efficacy were based, varied. Following the PD, however, ELA, mathematics, and science teachers expressed that their confidence for teaching this kind of writing improved, and they all credited their participation in various PD activities as the reason for this shift.

Integrated Data Analysis. Findings from both quantitative and qualitative data provide insight into the extent to which ELA, mathematics, and science teachers' instructional efficacy for text-based writing changed. Collectively, the data appears to suggest that teachers' confidence in their ability to teach this kind of writing improved following the PD. Prior to the start of the PD, personal and general efficacy averages were $M = 4.20$ ($SD = .100$) and $M = 4.11$ ($SD = .838$) for ELA teachers, $M = 3.00$ and $M = 3.66$ for the mathematics teacher, and $M = 3.57$ ($SD = .895$) and $M = 3.50$ ($SD = .707$) for science teachers. After the PD, averages for personal and general efficacy were $M = 5.06$ ($SD = .305$) and $M = 4.27$ ($SD = .509$) for ELA teachers, $M = 4.70$ and $M = 4.33$ for the mathematics teacher, and $M = 4.57$ ($SD = .531$) and $M = 3.58$ ($SD = 1.19$) for science teachers. Though the small number of participants prevent the researcher from determining the degree to which the PD influenced these changes, interview data suggests that participation in this intervention may have facilitated the shifts that the survey data may imply. As indicated earlier, ELA, mathematics, and science teachers' responses indicated not only improved confidence, but they also revealed that teachers attributed these improvements to their participation in the PD. Therefore, when combining the findings of both quantitative and qualitative data, it seems that the PD was to some degree responsible for improvements in teachers' efficacy for teaching text-based writing.

Research Question 3

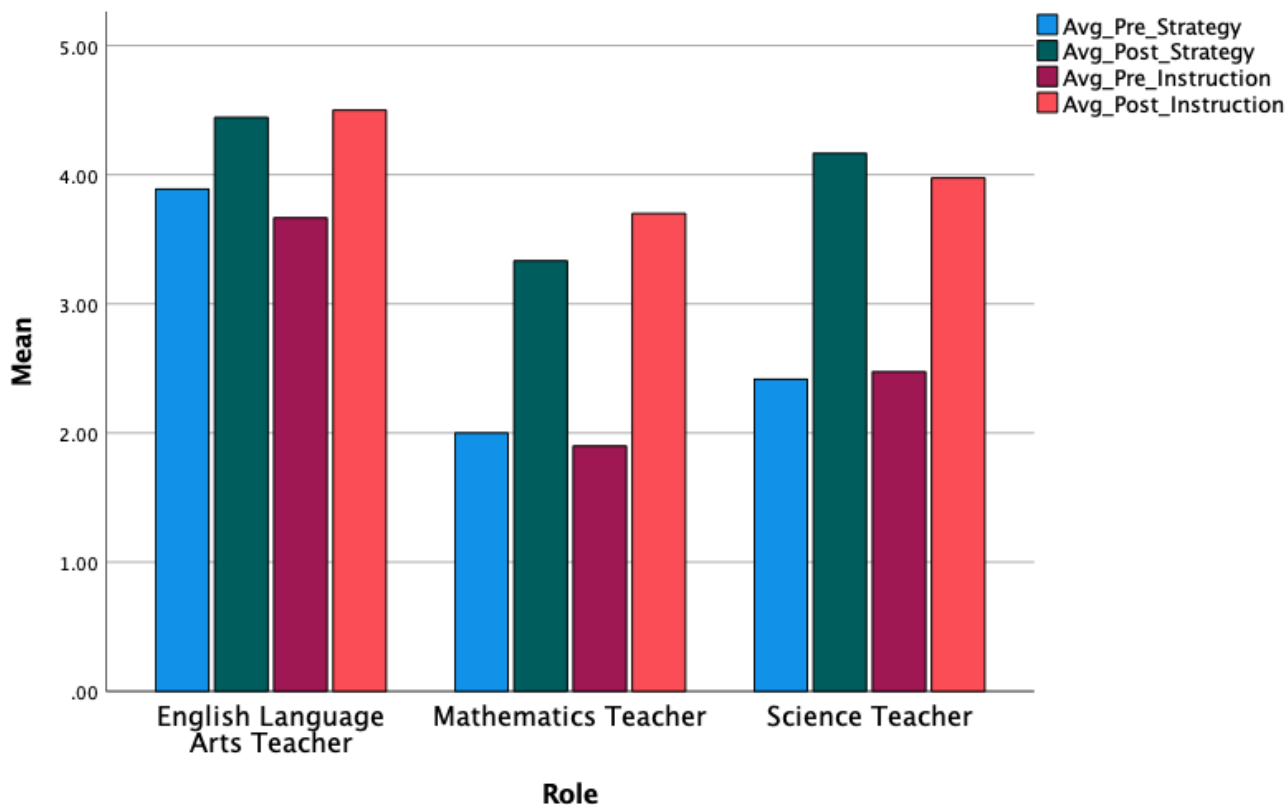
Quantitative Data Analysis. An adapted version of the *Evidence-Based Instructional Writing Practices Subscale* (Drew et al., 2017) was used to measure changes in teachers' text-based writing practices. Pre-PD surveys asked teachers to indicate on a scale from one to five (i.e., never to always) how frequently they used specific instructional practices for text-based writing, and the post-PD survey asked teachers to indicate how frequently they would plan to use specific instructional practices for text-based writing (see Appendices D and F). Data on the survey's two constructs, including writing strategy instruction (i.e., the approaches used to teach strategies for text-based writing) and instructional writing practices (i.e., how text-based writing is taught), are reported below.

Descriptive and inferential analyses reveal several findings. Before the PD, teacher averages ($N = 8$) for writing strategy instruction and instructional writing practices were 2.92 ($SD = .988$) and 2.85 ($SD = 1.17$) respectively, and after the PD, teacher averages for these areas were 4.17 ($SD = .73$) and 4.14 ($SD = .50$). Wilcoxon signed-rank tests revealed statistically significant differences between pre and post averages for writing strategy instruction ($Z = -2.201$, $p = .028$) and instructional writing practices ($Z = -2.386$, $p = .017$). These findings suggest that the PD may have influenced the way that teachers intend (see Appendix E) to teach text-based writing to their students.

Figure 5

Mean Scores by Content Area for Teachers' Instructional Practices Adapted from the Evidence-Based Instructional Writing Practices Subscale

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Disaggregated data provide insight on the potential impact of the PD on teachers by content area (see Figure 5). Pre- and post-PD data demonstrated differences in writing strategy instruction averages between ELA ($n = 3$, $M = 3.88$, $SD = 1.00$; $M = 4.44$, $SD = .51$), mathematics ($n = 1$, $M = 2.00$; $M = 3.33$), and science ($n = 4$, $M = 2.41$, $SD = .22$; $M = 4.16$, $SD = .87$) teachers. Descriptive analysis also revealed differences in instructional writing practices between ELA ($M = 3.66$, $SD = 1.06$; $M = 4.50$, $SD = .30$), mathematics ($M = 1.90$; $M = 3.70$), and science ($M = 2.47$, $SD = 1.13$; $M = 3.97$, $SD = .53$). The data suggest that the PD may have influenced the instructional practices for text-based writing that teachers intend to use. The small number of participants, however, prevented the researcher from determining the degree to which participation in the PD influenced these changes in instructional practices.

Qualitative Data Analysis (Semi-Structured Interviews). As discussed in chapter four, semi-structured interviews were used to gather data that provided insight into whether the

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PD impacted teachers' instructional practices for text-based writing. Four of the questions on each of the pre and post surveys inquired into instructional strategies that teachers use and plan to use respectively to help their students plan, draft, revise, and edit their responses to text-based writing tasks (see Appendices G and H). Analyses of the data are discussed in detail below.

Table 23

Thematic Codes Capturing Shifts in ELA Teachers' Instructional Practices for Text-Based Writing

| Pre-PD Themes | Descriptions | Examples |
|------------------------------------|--|--|
| Cognitive Strategies | Methods that help students independently think their way through planning, drafting, revising, and/or editing responses to text-based writing tasks | Sarah – Doing a close reading...so that they get to, maybe, [<u>underline</u>], circle important ideas. |
| Instructional Strategies | Specific ways that teachers teach content for helping their students plan, draft, revise, and/or edit their responses to text-based writing tasks | Diana – We do a lot of small groups too, because we do have a high ESOL population. |
| Instructional Scaffolds | Specific supports that the teachers provide for helping their students plan, draft, revise, and/or edit their responses to text-based writing tasks | Mia – We do a graphic organizer...The graphic organizer does, again, give them an opportunity to piecemeal, scaffold what they're looking for. |
| Post-PD Themes | Description | Examples |
| Instructional Practices Considered | Instances where teachers indicated their intent to use instructional practices from the PD to help their students plan, draft, revise, and/or edit their responses to text-based writing tasks | Sarah – I [will] practice how to do the think-alouds and to monitor my thinking and the self-monitoring and the goal and everything...And I think just doing the think-aloud and [letting] the students see how I'm going through this – how I'm struggling through it – that can also help them do the same thing, and you'll always have good results. |

| | | |
|-----------------------------------|--|--|
| | | <p>Diana – I definitely want [students] to use the HEY-LOOK-BYE strategy...because I felt like they were very helpful.</p> |
| | | <p>Mia – I think that it's purposeful. It had a lot of meaning for it. It was catchy. I think that it's a good guide for them to check off different things they can do as they're beginning to draft.</p> |
| <p>Other Practices Considered</p> | <p>Instances where teachers indicated their intent to use non-PD instructional practices to help their students plan, draft, revise, and/or edit their responses to text-based writing tasks</p> | <p>Mia – The grammar is something that has to be more explicitly taught.</p> |

English Language Arts Teachers. Prior to the PD, when asked to describe their strategies for helping their students plan, draft, revise, and edit their responses to text-based writing tasks, ELA teachers responded with practices that varied in their categorization (see Table 23). Some of the practices described focused on cognitive strategies. Diana, for example, described two cognitive strategies for revising and editing respectively, namely “ARMS” (i.e., add sentences and words, remove unneeded words or sentences, move a sentence or word placement, substitute words or sentences for others) and “CUPS” (i.e., capitalization, usage, punctuation, spelling) (Interview Data, 2020). Mia described a strategy that she created, which guides her students through the process of generating ideas for narrative writing tasks, and Sarah described “close reading” as a way that she helps her students learn how to determine essential information within the texts associated with writing tasks.

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Other practices that the ELA teachers described focused on instructional practices that the teachers used to help their students compose their written responses. Sarah mentioned teaching students “transitional words to make [their] sentences flow” as a means of helping her student revise their responses (Interview Data, 2020). Similarly, Mia, when thinking about a narrative writing task to which her students respond, shared that she taught her students to enhance their writing by “[picking] one point that they can elaborate on” and developing it more (Interview Data, 2020). Diana, in her class that has a high number of ELLs, said that she and her co-teacher utilize “small groups” as an instructional strategy for helping their students revise their written responses.

A third category of instructional practices that teachers described focused on instructional scaffolds. Sarah and Mia, when sharing how they help their students plan and draft their responses respectively, said that they use “graphic organizers” (Interview Data, 2020). Diana implied that she also used graphic organizers for similar purposes:

We try to make sure that we have a piece of our thought, or our processing of the text, or analysis written down. We try to have all those things written before we actually try to put it all together (Interview Data, 2020).

Collectively, these data show the kinds of instructional practices, which include cognitive strategies, instructional strategies, and instructional scaffolds, that teachers use to help their students plan, draft, revise, and edit their responses to text-based writing tasks.

After participating in the PD, ELA stated their intent to use cognitive strategies and that they had learned during the PD (see Table 23). Sarah expressed that she would like to use the strategy PLAN (De La Paz, 2001) and the collective strategies HEY-LOOK-BYE (see Appendix J) to teach her students to both compose their responses and self-monitor their progress: “Just

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having a checklist with all those strategies for them to go through, each all the way down to the BYE [strategy]" (Interview Data, 2021). Diana communicated that she plans to use PD strategies to help her students draft their responses. Specifically, she said that she "definitely [wants her students] to use the HEY-LOOK-BYE [strategies]" (Interview Data, 2021). When talking about the HEY strategy in particular, Diana stated: "I [can] have it as a graphic organizer or poster in my room, and [students] can see it. They can refer to it" (Interview Data, 2021). In addition, while not specifically citing strategies learned during the PD as a means of teaching her students to edit their responses, Diana still expressed wanting to use an editing strategy (i.e., CUPS) that aligns to the kinds of strategies examined during the PD (Interview Data, 2021). Mia also expressed her intent to incorporate PD strategies into her future writing instruction. When asked about drafting strategies she would like to use, Mia highlighted the strategy HEY: "I think that it's purposeful. It had a lot of meaning for it. It was catchy. I think that it's a good guide for them to check off different things they can do as they're beginning to draft" (Interview Data, 2021). She also expressed wanting to use this strategy, in addition to rubrics, to help her students self-monitor their progress when revising:

A combination of the mnemonic HEY that [students] can actually use as a kid-friendly type of process, but also give them a rubric [that's] more specific to what the standard is going to be impressing so they can see how [their writing matches] (Interview Data, 2021)

Despite this intent to use PD strategies, qualitative data also indicate that the PD may not have provided her with enough strategies to change her instructional practices in all the targeted areas. For example, when asked about strategies she intended to use to help her students plan their responses to text-based writing tasks, Mia talked about utilizing instructional practices not

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explored during the PD, including “annotating” texts as a means of facilitating comprehension. In addition, when asked about strategies she intended to use to help her students edit her responses, Mia described “explicitly” teaching grammar as a means of enhancing students’ expression of ideas (Interview Data, 2021). There were two sessions that provided strategies for these areas, but perhaps they were not emphasized enough.

Two of the ELA teachers also expressed their intent to implement instructional strategies that they had learned during the PD. Sarah, for example, discussed wanting to continue demonstrating think-alouds to her students as a way of modeling to them how to progress through difficult writing tasks:

I [will] practice how to do the think-alouds and to monitor my thinking and the self-monitoring and the goal and everything...And I think just doing the think-aloud and [letting] the students see how I'm going through this – how I'm struggling through it – that can also help them do the same thing, and you'll always have good results (Interview Data, 2021).

Mia expressed wanting to continue using think-alouds because she sees that the instructional strategy could help her students become less focused about being perfect and more focused on making progress:

And, like you said, make mistakes so [students] can know that you make mistakes...so they can be aware that [their writing] may not work the first time. I think that oftentimes, they try to be so perfect because if we show them perfect, they think there's has to be perfect when they're writing, and it's not going to happen. So, I think that modeling think-aloud is real important (Interview Data, 2021).

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Diana's responses to the interview questions did not indicate a specific intent to adopt new instructional strategies for text-based writing, though, as communicated before, this outcome may have been the result of the interview questions' limitations.

In sum, it appears that participation in the PD had an impact on the text-based writing instructional practices. Each of the teachers expressed their intent to cognitive strategies (e.g., HEY) that they had learned during the PD into their future writing instruction, and two of the ELA teachers communicated their intent to continue using think-alouds as an instructional strategy for teaching text-based writing.

Table 24

Thematic Codes Capturing Shifts in Noah's Instructional Practices for Text-Based Writing

| Pre-PD Themes | Descriptions | Examples |
|---------------------------------------|--|--|
| No Instructional Practices Considered | Instances where teachers did not consider PD instructional practices for use in helping their students plan, draft, revise, and/or edit their responses to text-based writing tasks | The grammar is the least of my worries. We barely have enough time to do the writing honestly. |
| Post-PD Themes | Descriptions | Examples |
| Instructional Practices Considered | Instances where teachers indicated their intent to use instructional practices from the PD to help their students plan, draft, revise, and/or edit their responses to text-based writing tasks | I like the SOLVE [method] or the 3-READ strategy, and just basically annotating the problem. |
| No Instructional Practices Considered | Instances where teachers did not consider PD instructional practices for use in helping their students plan, draft, revise, and/or edit their responses to text-based writing tasks | I would put a very minimal focus on [editing]. It would be quick reminders. |

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Mathematics Teacher. Participating in the PD also appears to have impacted the mathematics teacher's instructional practices for teaching text-based writing, though the kinds of strategies that he expressed interest in implementing depended heavily on their relevance for his content (see Table 24). For example, when asked about any specific strategies that he would use to help his students edit their responses (i.e., make corrections for English conventions), he said that he "would put a very minimal focus on it," only indicating that he would at most provide "quick reminders" (Interview Data, 2021). This response aligns somewhat to his pre-PD response on editing, when he expressed that "grammar is the least of [his] worries" (Interview Data, 2020). On the contrary, when asked about implementing strategies for teaching students to revise their responses (i.e., correcting for content accuracy and coherency), he expressed a greater intent to shift his practices. Talking about a part of the SOLVE method, one of the strategies he utilized and implemented during the study, he said the following:

In the "V" step, the "verify your plan with action" in the first part of it, you're supposed to make an estimate, and that goes back to, "Is it reasonable? Does it make sense?" If you estimate and your answer is completely off, then you should have to look back at it (Interview Data, 2021).

After making this point, Noah was then asked whether he would, therefore, use strategies like SOLVE in the way that he described to teach his students how to revise their responses, to which he responded that he would (Interview Data, 2021).

The area of text-based writing instruction that Noah appeared to have expressed the greatest interest in developing is planning. Prior to the PD, when asked how he helps his students plan their responses to word problems, Noah said that he and his co-teacher "just kind of model and give examples," though he does admit that these instructional practices are

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“minimalist” in their depth. After the PD, however, when asked about the same area of writing, Noah said that he intends to use specific strategies that facilitate students’ capacity to make sense of the problems:

I like the SOLVE [method] or the 3-READ strategy, and just basically annotating the problem. The main thing is annotating the problem, and the big part from the SOLVE strategy that I do like is “organizing the facts” part [because] the elimination of the unnecessary facts is really important for mathematics because kids get confused with different things (Interview Data, 2021).

Even when asked how he intended to help his students draft their responses to word problems moving forward, Noah once again referred to the importance of understanding “the context of the problem” (Interview Data, 2021). In addition, while not specifically explaining how he could use the SOLVE method to help his students draft their responses, he did say that moving forward, he would be “putting emphasis on [students] writing [their] answers as a sentence,” as he recognized that such composition could both demonstrate students’ numerical answers to a particular problem and provide insight into whether students understand the context of the problem (Interview Data, 2021).

Overall, with Noah, the PD appears to have contributed to the likelihood of his adopting strategies (e.g., SOLVE) that will help his students to respond to mathematics problems accurately and coherently, but the PD did not appear to influence his intent to implement strategies that focus specifically on English conventions.

Table 25

Thematic Codes Capturing Shifts in Science Teachers’ Instructional Practices for Text-Based Writing

| Pre-PD Themes | Descriptions | Examples |
|----------------------|----------------------------|-------------------------------|
| Cognitive Strategies | Methods that help students | Monica – I also have them try |

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| | | |
|---------------------------------------|--|---|
| | independently think their way through planning, drafting, revising, and/or editing responses to text-based writing tasks | to annotate the document...we're walking through, and we're saying, "Does this actually answer the question? Will this give you some information that will help you formulate your claim or support your claim?" |
| Instructional Strategies | Specific ways that teachers teach content for helping their students plan, draft, revise, and/or edit their responses to text-based writing tasks | Emma - I'll pull samples and type them up exactly as they are on the paper so that there's no names or identifiers or anything on it, and will take, like, one paragraph, and it's like, "Okay, how could this be better, or what are the good things that are in the paragraph?" |
| Instructional Scaffolds | Specific supports that the teachers provide for helping their students plan, draft, revise, and/or edit their responses to text-based writing tasks | Brianna – Sometimes I give them graphic organizers, and the graphic organizer where you just state your claim [evidence, and reasoning]. |
| No Instructional Practices Considered | Instances where teachers did not consider PD instructional practices for use in helping their students plan, draft, revise, and/or edit their responses to text-based writing tasks | Parker – I have such a high ESOL population, and my focus was to make sure they understood the content, and as long as they were able to read that material we were getting through, that was my first focus. |
| Post-PD Themes | Descriptions | Examples |
| Instructional Practices Considered | Instances where teachers indicated their intent to use instructional practices from the PD to help their students plan, draft, revise, and/or edit their responses to text-based writing tasks | Emma – I like the HEY strategy because...the 6th graders...really have a hard time with thesis [statements]. Parker – [I'm] definitely going to use the PLAN strategy...It's pretty easy on |

| | | |
|--|--|---|
| | | <p>my end when it comes to implementing it, and then I like how simple it was when it comes to actually working through this strategy.</p> <p>Brianna – So, I personally feel like moving forward, I think that I may not do a whole checklist for, perhaps, a CER, but for an essay or something like that, then yes. I can see that a checklist will definitely be better because then they can readily identify that they did something [for] each part [of the essay]</p> <p>Monica – Well, I am going to use...I'm going to try to use all of the things that you went over with us. The HEY, the LOOK, the BYE. Definitely going to do the RACE. Those strategies were laid out so perfectly.</p> |
| <p>No Instructional Practices Considered</p> | <p>Instances where teachers did not consider PD instructional practices for use in helping their students plan, draft, revise, and/or edit their responses to text-based writing tasks</p> | <p>Parker – [I] definitely find that [correct grammar is] super important, but I just don't think that in this setting right now.</p> |

Science Teachers. Science teachers' pre-PD data revealed various categories under which their reported instructional practices for text-based writing fell (see Table 25). For cognitive strategies, Parker and Monica shared that they used “notetaking” and text “annotation” respectively to help their students gather important information from a writing task’s associated

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texts (Interview Data, 2020). For instructional strategies, Emma described her practice for helping her students to learn how to revise their writing:

I'll pull samples and type them up exactly as they are on the paper so that there's no names or identifiers or anything on it, and will take, like, one paragraph, and it's like, "Okay, how could this be better, or what are the good things that are in the paragraph?" (Interview Data, 2020)

Even though she has incorporated this strategy, Emma indicates that this practice does not occur regularly: "Typically, we don't have a lot of time for [students] to be able to do revisions [in science]" (Interview Data, 2020). For instructional scaffolds, Emma, Parker, and Brianna cited "graphic organizers" as instructional scaffolds that they use to help their students develop and organize their ideas (Interview Data, 2020). Furthermore, Monica and Parker described using peer revising and peer editing respectively as instructional scaffolds to guide their students in correcting their writing, and Brianna reported using guiding questions and verbal prompting for revising and editing respectively (Interview Data, 2020). There were instances where some of the science teachers expressed not considering strategies for certain areas of writing. More specifically, Parker and Monica both indicated that they do not emphasize through their instructional practices on revising and editing respectively. When elaborating on their reasons, Parker indicated that his primary focus was on ensuring that his ELLs "understood the content," and Monica indicated that "time constraints" may prevent her from focusing too heavily on editing (Interview Data, 2020).

After the PD, science teachers expressed their intent to use cognitive strategies and instructional scaffolds that they had learned during the PD (see Table 25). When asked about strategies for planning text-based writing, Parker expressed his intent to use the PLAN strategy,

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saying that the strategy's "pretty easy on [his] end when it comes to implementing it" and that he likes "how simple it was when it comes to actually working through [the] strategy" (Interview Data, 2021). Brianna expressed her intent to use both the combination strategies HEY-LOOK-BYE and the strategy RACE to help her students through a graphic organizer to both develop and organize their response:

So, I definitely plan on using HEY-LOOK-BYE and then also RACE because with a CER [claim, evidence, reasoning], the RACE strategy is directly aligned to what a CER [task] would [require]. And so, if the kids put [their responses] in that order, and wrote [their answers] out in the graphic organizer, they literally would just be cleaning up the writing because the strategy makes them basically answer the question, and then, they just would need to put it together in a cohesive paragraph (Interview Data, 2021).

Monica, after "getting better writing pieces than...at the beginning of the year," expressed her intent to continue using the RACE strategy, with an added note that for the following school year, she would start implementing the strategy "earlier" (Interview Data, 2021). Emma said that to develop her students' abilities to draft their text-based responses, she intends to implement the HEY strategy: "I like the HEY strategy because...the 6th graders...really have a hard time with thesis [statements]" (Interview Data, 2021).

In addition to cognitive strategies, science teachers indicated that they would incorporate instructional scaffolds that they had learned during the PD. Brianna indicated that she would use a checklist, though she seems more inclined to use the checklist for extended rather than brief responses:

So, I personally feel like moving forward, I think that I may not do a whole checklist for, perhaps, a CER, but for an essay or something like that, then yes. I can see that a

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checklist will definitely be better because then they can readily identify that they did something [for] each part [of the essay] (Interview Data, 2021).

Emma communicated that “one thing [she’s] really thinking about is getting [her students] to look at different rubrics” (Interview Data, 2021). More specifically, she wants to teach her students to distinguish between the two highest scores on the state science rubric so that the students self-monitoring whether their responses meet the criteria for high-performing papers (Interview Data, 2021). Parker and Monica, who prior to the PD indicated placing little to no emphasis on revising and editing respectively, shifted in their intent to use instructional scaffolds for these areas. When asked whether he would use the RACE strategy to support students in revising their written responses, Parker communicated the following:

Definitely, because I find my students doing that already. They start writing, and they go and they get to their reasoning portion or they get to the “E” portion of the RACE strategy and they’re like, “Hmm, I don’t like this evidence anymore Mr. H.” And I’ll say, “Well, change the evidence because you have an entire piece of text. You have an entire video. So, you can definitely go and change the evidence that you’re using if you don’t like it. If you get to the ‘E’ step and you realize that your evidence and your reasoning aren’t really matching up, then you can rewrite your reasoning or, like I said, go back and change your evidence” (Interview Data, 2021).

Similarly, when discussing instructional practices that she would use for editing, Monica expressed wanting to incorporate editing “checklists” into her instructional practices as a means of prompting her students to improve their written responses’ conventions.

An area that the PD did not appear to impact for Parker are his instructional practices for editing. Parker said that while he understands the value of editing, and even mentioned possibly

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using an editing strategy in the future (i.e., CUPS), he did not “foresee [himself] having the opportunity to use” the strategy. Parker elaborated when he said within his content area, “the emphasis is not on revising and editing when it comes to teaching strategies to students” (Interview Data, 2021). Brianna provides deeper insight into this idea:

In the past, when [science teachers have] been instructed about the literacy [writing] task, we have been told that [district-level scorers] are not checking the kids' grammar and syntax. So, we've been told that we need to focus on whether the kids actually are explaining the concept...It's more based on whether they're getting their point across (Interview Data, 2021).

This explanation suggests that because personnel at the district level place little emphasis on editing during assessments, teachers adopt this same way of thinking in planning instruction and place little emphasis on editing within their classes. This reason, along with Parker's “first focus” of ensuring that his ELLs “understood the content” (Interview Data, 2020), appear to influence Parker's perspective of seeing “correct grammar” as “super important” but not thinking so “in [his] setting right now” (Interview Data, 2021).

In total, qualitative data from science teachers indicate that the PD influenced their instructional practices for text-based writing. Specifically, each of the teachers expressed their intent to incorporate cognitive strategies (e.g., RACE) and instructional scaffolds (e.g., checklists) into their future writing instruction. In addition, while the PD appears to have influenced Parker and Monica's instructional practices for revising and editing, it did not appear to influence Parker's instructional practices for editing. Lastly, it is important to note while the teachers did not mention during interviews instructional strategies (e.g., modeling) from the PD that they would like to implement, data from process evaluation instruments indicated that

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Parker, Brianna, and Monica, after testing out pre-recorded videos, wanted to continue using pre-recorded videos to model writing skills to their students (Researcher Notes, 2021).

Qualitative Data Analysis (Observations). In addition to survey responses, observation data were used to provide insight into teachers' instructional practices for text-based writing. The observation template used to gather this data allowed the researcher to document the specific ways that teachers implemented PD content into their lessons with the intent of developing their students' text-based writing capacity (Appendix I). An analysis of the data revealed three a priori themes across content areas that encapsulate how middle school ELA, mathematics, and science teachers implemented PD content to achieve this purpose (see Table 25).

Table 26

English Language Arts, Mathematics, and Science Teachers' Thematic Codes for Instructional Practices

| Themes | Description |
|----------------------------|--|
| Strategy Instruction | Teachers introduced a cognitive strategy, explained its components, and modeled its application |
| Self-Regulation | Teachers modeled self-regulating themselves through the process of responding to a text-based writing task (e.g., self-monitoring and self-talk) |
| Opportunities for Practice | Teachers provided time within their class for students to practice applying a cognitive strategy |

Strategy Instruction. Using each of their content area group's collaboratively designed lessons, ELA, mathematics, and science teachers provided their students with instruction on a specific cognitive strategy for text-based writing. This process specifically involved the teachers introducing the strategy, explaining its components, and modeling its application to a discipline-

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specific text-based writing task. During her implementation of the ELA lesson, for example, Mia displayed a poster of the mnemonic HEY, which included the three letters, their descriptions, and accompanying visuals (Field Notes, 2021). After this introduction, Mia then articulated her thinking while she used each letter of the strategy to construct an introduction paragraph that responded to a prompt on thematic development in two literary pieces (Field Notes, 2021). Noah, during his implementation of the mathematics lesson, reviewed the SOLVE mnemonic with his students and then modeled using the first three letters to respond to a word problem (Field Notes, 2021). Brianna, during her implementation of the science lesson, showed students a pre-recorded video in which she introduced the RACE strategy and applied it while she responded to a task on organelles and their functions (Field Notes, 2021).

Self-Regulation. In addition to providing instruction on specific PD strategies, teachers modeled specific ways that they self-regulated themselves through the demands of responding to their sample text-based writing tasks. Some teachers, for example, practiced self-monitoring (SRSD Online, 2015), during which they repeatedly referred to their mnemonic for guidance. Diana, for instance, after completing her response to an ELA prompt, reviewed each letter of the HEY strategy to check if her introduction paragraph had an engaging opening sentence, a brief author and text information, and a clear thesis statement (Field Notes, 2021). Similarly, Parker, after constructing his exemplar response, used the RACE strategy to see whether his paragraph “restated [the] question, answered all parts of the question, cited evidence, and explained [his] evidence” (Field Notes, 2021). Other teachers demonstrated self-talk (SRSD Online, 2015), during which they encouraged themselves to persist through responding to the task. Sarah, for instance, when using the HEY strategy to model writing an introduction paragraph, said, “this is not easy, but I think I’m doing a good job,” and Noah, when applying the SOLVE problem, said

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out loud, “this is a tedious process, but it’s really important for us to understand what the math problem is asking” (Field Notes, 2021). Emma, as a way of acknowledging the difficulty of the science text-based writing task, said, “this is tough” (Field Notes, 2021). These data provide evidence that during the observed lessons, teachers demonstrated to students how they guided themselves through the completion of the text-based writing task.

Opportunities for Practice. After providing explicit instruction on a strategy and demonstrating how they self-regulate their way through its implementation, ELA, mathematics, and science teachers (except for Emma, who ran out of class time) provided opportunities for students to practice using the strategy. During the ELA lesson, Mia both guided her students to evaluate a sample introduction paragraph using the HEY strategy and provided time for students to use the strategy to write their own introduction paragraphs. Noah asked his students probing questions that facilitated their application of the first two letters of the SOLVE strategy, which they used to isolate the problem and determine important information for answering the problem. Likewise, throughout her lesson, Monica provided time for her students to construct a paragraph using the RACE strategy, in which they (as she modeled) had to explain how an organelle of their choice functioned within cells.

Overall, observation data indicate that teachers incorporated into their instruction the teaching of specific cognitive strategies. They also demonstrated how they self-regulated their progress while writing. Lastly, most of them provided opportunities for students to practice applying the strategies they had taught.

Integrated Data Analysis. Quantitative and qualitative data provide insight that helps explain the extent to which the PD changed teachers’ instructional practices for text-based

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writing. Collectively, the data appear to indicate that teachers' instructional practices changed following the PD.

Survey data, though due to small number of respondents is limited in its ability to support conclusions, suggest that ELA, mathematics, and science teachers are likely to change their instructional practices. Before participating in the PD, writing strategy instruction and instructional writing practices averages were, respectively, $M = 3.88$ ($SD = 1.00$) and $M = 3.66$ ($SD = 1.06$) for ELA teachers, $M = 2.00$ and $M = 1.90$ for the mathematics teacher, and $M = 2.41$ ($SD = .215$) and $M = 2.47$ ($SD = 1.13$) for science teachers. Following participation in the PD, averages in these two areas were $M = 4.44$ ($SD = .509$) and $M = 4.50$ ($SD = .300$) for ELA teachers, $M = 3.33$ and $M = 3.70$ for the mathematics teacher, and $M = 4.16$ ($SD = .871$) and $M = 3.97$ ($SD = .531$) for science teachers. These data indicate that following the PD, ELA, mathematics, and science teachers expressed an intent to shift their instructional practices for text-based writing.

Interview data suggest that the kinds of instructional practices that these teachers intend to implement come from PD sessions (Interview Data, 2021). English language arts teachers, for example, reported wanting to continue utilizing cognitive strategies such as PLAN, HEY-LOOK-BYE (Interview Data, 2021). Science teachers also reported wanting to use both these strategies and the RACE strategy, and Noah expressed his intent to continue using the cognitive strategy SOLVE (Interview Data, 2021). In addition, most of the ELA teachers reported wanting to incorporate think-alouds into their instructional practices as a means of teaching their students skills for text-based writing. Furthermore, each of the science teachers communicated their intent to continue to incorporate instructional scaffolds (e.g., guiding questions and checklists) that support their students in composing their responses to text-based writing tasks.

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The reason that these changes in instructional practices may be long-term is because teachers had opportunities to implement the cognitive strategies, instructional strategies, and instructional scaffolds within authentic contexts (Field Notes, 2021). English language arts and science teachers collaboratively designed, implemented, and observed lessons in which they or their colleagues incorporated the HEY and RACE strategy respectively, and Noah, while not having the opportunity to collaborate with other mathematics teachers, had the opportunity to teach a lesson during which he implemented the SOLVE method (Field Notes, 2021). Furthermore, by implementing these instructional within their contexts, teachers had opportunities to observe their impact on student writing outcomes. Monica, for example, notes that in her science classes, she's "getting better writing pieces than [she] was when [she and her students] were at the beginning of the year" (Interview Data, 2021). In addition, Noah has recognized changes in her own students' thinking about writing: "Even one of my students the other day was asking, 'Hey [Noah], do we always have to have a plan?'" (Interview Data, 2021). Because people are likely to change practices when the content that they are learning is relevant (Darling-Hammond et al., 2017) and when they see their efforts influencing outcomes (Bandura, 1977), the ELA mathematics, and science teachers who participated in this study are likely to adopted instructional practices that that they learned from the study.

Overall, while the data collected from the study has its limitations, their combined findings suggest that the PD influenced middle school ELA, mathematics, and science teachers' instructional practices for text-based writing.

Discussion

In the final section of this dissertation, the theoretical and conceptual frameworks are revisited. The section then follows with a discussion of the research's implications, followed by

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a discussion of limitations and recommendations for future research. The section concludes with a summary of the research findings.

Revisiting the Theoretical Framework. Viewing the outcomes of this dissertation's research using the theories of andragogy (Knowles, 1980) and transformational learning (Mezirow, 1997) provide insight into the findings of the study. Specifically, the theories help to explain why the PD may have led to changes in teachers' knowledge of text-based writing strategies, efficacy for teaching text-based writing, and instructional practices for text-based writing.

Knowles' (1980) theory of andragogy highlights the importance of treating teachers as active participants in their learning and engaging them in learning opportunities that develop their capacity to respond to problems within their day-to-day contexts. During this study, teachers had opportunities to self-direct their own learning. For example, during lesson study cycles, teachers were able to determine their own problem areas of teaching writing to address and design their own instructional lessons to respond to these targeted needs. In addition, over the course of the study, teachers learned both cognitive and instructional strategies that provided them with practical ways of addressing these areas. Parker expressed this idea when describing the usefulness of cognitive strategies that he had learned during session three: "you have given me something actionable as a teacher and [something that is] approachable for students" (Exit Survey Data, 2020). Sarah made a similar remark when discussing an instructional strategy that she had observed the researcher modeling: "The modeling of the think-aloud by Mr. Kendrick improved my knowledge of text-based writing strategies as he showed how to [teach] the H.E.Y strategy" (Exit Survey Data, 2020). When PD programs are designed to allow teachers to be active agents in their learning while providing content that is relevant to teachers' contexts, shifts

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in areas such as instructional practices are more likely (Darling-Hammond et al., 2017; Calvert, 2016; Howell et al., 2018). From the perspective of andragogy (Knowles, 1980), it would seem that changes in teachers' knowledge, efficacy, and practices for text-based writing instruction may have occurred because the PD aligned to central principles of adult learning theory.

Mezirow's (1997) theory highlights the importance of critical reflection in shifting changes in adults' beliefs and actions. During the study, teachers engaged in activities that helped facilitate this process. Monica, for example, shared how working with her colleagues in small groups challenged her to reexamine her thinking:

I think just being in our small groups, us talking it through, us working it through, hearing other people's ideas, and bouncing my own ideas off, helping[ed] me think outside the box, not be so closed-minded about how certain things should go (Interview Data, 2021).

Noah demonstrated that the implementation of his mathematics lesson helped him to rethink his ideas about teaching writing in mathematics: "it wasn't terribly difficult to get students to start writing in mathematics and that through time, it can become a more natural part of the routine" (Exit Survey Data, 2021). Emma demonstrated that her participation in a lesson study cycle facilitated changes in her efficacy for teaching text-based writing: "I feel better prepared to go through the process of the writing process with my students," and "I know that I can help them through the process even better than when I started with this professional learning community" (Exit Survey Data, 2021). When considering these examples, it seems that by having opportunities to critically reflect on their beliefs (Mezirow, 1997, 1998), teachers may have adopted new ways of thinking that appear to have led to improvements in efficacy and changes in instructional practices for teaching text-based writing.

Revisiting the Conceptual Framework. Findings from the research appear to validate the study's conceptual framework. The model (see Figure 2) illustrates a sequence of learning that occurs in response to the PD's implementation. That is, as teachers gain more knowledge of strategies for teaching text-based writing (i.e., short-term outcomes), their confidence for teaching this kind of writing increases, and their instructional practices for text-based writing change (i.e., medium-term outcomes). Data from research question two suggests that as teachers learned specific strategies for teaching text-based writing, their confidence in their ability to teach this kind of writing improved (see Figure 4 and Tables 20, 21, and 22). In addition, data from research question three indicate that as teachers learned new strategies for teaching text-based writing, their instructional practices shifted (see Figure 5 and Tables 23, 24, and 25). The conceptual framework also highlights the reciprocal relationship between the two medium-term outcomes. That is, as teachers become more confident in their abilities to teach text-based writing, their instructional practices change; likewise, as teachers experience success with implementing instructional practices for text-based writing, their confidence in their abilities to teach this kind of writing increases. Data from research questions two and three provide evidence that the PD may have facilitated this relationship, which appears to have contributed to changes in teachers' confidence and instructional practices.

Contributions to and Implications for Research. This dissertation's study contributes to the literature in which text-based writing PD is a focus. One way that the study adds to the research is by confirming the findings of previous research. As discussed in chapter three, cognitive strategy instruction, because it is both practical for teachers to apply and effective in improving student writing outcomes, may make teachers more motivated to shift their instructional practices (Howell et al., 2018; Kiuahara et al., 2019; Olson et al., 2019). Findings

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from this dissertation's study provide strong support for this idea. The participating middle school teachers appeared motivated to change their instructional practices (see Figure 5) because they were given "actionable" cognitive strategies (Parker, Interview Data, 2021) that had the potential, when taught using instructional strategies such as "think alouds" (Sarah, Interview Data, 2021), to facilitate "better [student] writing pieces" (Monica, Interview Data, 2021). Also discussed in chapter three were components of PD most likely to facilitate changes in teachers' writing instructional capacity. Professional learning communities, for example, can provide structures in which teachers develop one another's thinking about writing instruction (Limbrick et al., 2010; Parr & Timperley, 2010; Pella, 2011, 2015), and instructional coaches can facilitate teachers' learning in a variety of ways (Howell et al., 2018; Kim et al., 2011; Mosqueda et al., 2016). Findings from the study indicate that teachers not only benefitted from collaboration with their colleagues, such as when they engaged in lesson study cycles, but the findings also indicate that teachers benefitted from the researcher's support in helping them to develop their text-based writing instructional capacity. Future researchers should continue to add to the body of literature in which cognitive strategy instruction (Howell et al., 2018; Kiuvara et al., 2019; Olson et al., 2019) and the components of effective PD (Darling-Hammond et al., 2017; Limbrick et al., 2010; Parr & Timperley, 2010; Pella, 2011, 2015) are utilized to develop the text-based writing instruction of middle school teachers.

Another way that the findings of the study contribute to the literature is by providing additional research on the impact of text-based writing PD on teachers not traditionally trained to teach writing. As discussed in chapter three, the research on this kind of PD for mathematics (Kiuvara et al., 2019) and science (De La Paz & Levin, 2017) teachers is limited when compared to the research for ELA teachers (Howell et al., 2018; Kim et al., 2011; Olson & Land, 2007;

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Olson et al., 2017; Olson et al., 2019). Because the PD was designed to develop the capacity of teachers of different content areas, the study provided further insight on how to facilitate mathematics and science teachers' text-based writing capacity. This focus is important because teachers within these content areas appear likely to benefit the most from PD in this area.

Disaggregated survey data for research questions two and three show that mathematics and science teachers (see Figures 4 and 5) may have come to the PD with less preparation to teach text-based writing than their ELA colleagues, a finding that aligns with both literature on writing instruction preparation (Drew et al., 2017; Graham et al., 2014; Troia & Graham, 2016) and data from the needs assessment. After the PD, teachers across content areas improved in their text-based writing instructional capacity, but data suggest that mathematics and science teachers may have demonstrated the greatest growth in their learning when compared to ELA teachers.

Because teachers not traditionally trained to teach text-based writing, but whose content areas, nonetheless, require this kind of writing, appear to have the most to gain from PD in this area, the literature would benefit from researchers exploring the impact of text-based writing PD on the writing instructional capacity of middle school teachers who do not teach ELA.

In addition to confirming conclusions and providing additional research, this dissertation's study also contributes to the literature by highlighting and addressing existing gaps. Much of the research on text-based writing PD centers on developing the instructional capacity of teachers from a single content area (De La Paz & Levin, 2017; De La Paz et al., 2017; Howell et al., 2018; Kim et al., 2011; Kiuahara et al., 2019; Monte-Sano & De La Paz 2012; Olson & Land, 2007; Olson et al., 2017; Olson et al., 2019). Although the teachers in the study largely worked with their content-area colleagues, which the data suggest benefitted their learning, some of the findings show the potential benefits of cross-curricular collaboration on

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teachers' learning. Noah, the mathematics teacher, described feeling “less anxious” after observing an ELA colleague teach her lesson: “[The experience] made me a bit more comfortable as a math teacher to witness that the time constraints are a very real challenge even for language arts teachers” (Exit Survey Data, 2021). Despite this challenge, Noah recognized that the teacher’s “modeling, I-Do, and self-talk were all excellent,” after which he expressed that he would “be working on those points in [his] own practice.” Future researchers looking to develop the text-based writing instructional capacity of teachers, therefore, may want to design PD that provides opportunities for teachers to learn from both colleagues within and outside their content areas.

This dissertation’s study also helped to highlight and respond to the gap in literature about facilitating text-based writing PDs virtually. The researchers from the previously described studies tested their interventions within face-to-face contexts, but this dissertation’s intervention, because of the impact of the COVID-19 pandemic, was delivered online. The researcher, therefore, had the opportunity to apply and examine various ideas from the literature within a novel context. Lesson studies, for example, require participants to observe their colleagues’ implementation of research lessons (Pella, 2011, 2015). During the PD, instead of physically attending their colleagues’ classes, teachers were able to log in through Zoom and observe their research lesson’s implementation. Although the virtual space made access to the lesson’s impact on student outcomes challenging, as Brianna noted “not fully [being] able to observe the students utilizing the strategy” (Exit Survey, 2021), the quantitative data for sessions nine ($M = 5.50, SD = 1.41$) and 10 ($M = 6.00, SD = 0.0$) demonstrate the potential benefits of lesson studies as a form of online professional learning. These data, in addition to those from teachers’ participation in other content and structures of the text-based writing PD, help to

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highlight online-PD as an effective way for developing the text-based writing instructional capacity of middle school teachers, a method that should be explored in future research.

Overall, this dissertation's research contributes to the literature in a variety of ways. Specifically, it highlights the benefits of incorporating cognitive strategy instruction into text-based writing PDs (Howell et al., 2018; Kiuahara et al., 2019; Olson et al., 2019) and ensuring that those PDs include structures that best facilitate teachers' learning (Howell et al., 2018; Kim et al., 2011; Limbrick et al., 2010; Mosqueda et al., 2016; Parr & Timperley, 2010; Pella, 2011, 2015). The study also both provides additional research on the impact of text-based writing PD on mathematics and science teachers, which is limited in the literature (De La Paz & Levin, 2017; Kiuahara et al., 2019), and provides evidence for the learning potential that these teachers could experience through this kind of PD. Lastly, the study illuminates and responds to gaps within the literature, particularly with regards to the design of text-based writing PD that targets teachers across disciplines and occurs within virtual settings. When considering this contribution, therefore, future researchers should continue to explore the impact of online text-based writing PDs in which cognitive strategy instruction (Howell et al., 2018; Kiuahara et al., 2019; Olson et al., 2019) and the components of effective (Limbrick et al., 2010; Parr & Timperley, 2010; Pella, 2011, 2015) have been incorporated and in which both ELA and non-ELA teachers whose contents include text-based writing are a focus.

Implications for Practice. Several implications emerge from this study and its outcomes for designing online, job-embedded PDs with which to develop middle school teachers' text-based writing instructional capacity. Each of these implications is discussed below.

Cognitive Strategy Instruction. Text-based writing PD should deepen teachers' understanding of cognitive strategy instruction. One reason for this emphasis is because

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cognitive strategy instruction provides teachers with something practical that they can give their students as a means of helping them to develop their writing capacity. Many of the cognitive strategies discussed in the literature are written as name mnemonics (Benedek-Wood et al., 2014; De La Paz et al., 2017; Kiuvara et al., 2019; Mason et al., 2013; Mason et al., 2011; Olson et al., 2017). These devices not only guide students through various stages of the writing process, but they also provide an easy way for students to remember their way through these processes so that they can eventually apply these strategies independent of teacher guidance (SRSD Online, 2015). Another reason that cognitive strategy instruction should be included in text-based writing PDs is because it provides teachers with evidence-based ways of teaching students how to apply cognitive strategies. Though not explored in its entirety within this study, self-regulated strategy development, in addition to emphasizing cognitive strategies, also emphasizes the ways that these cognitive strategies are taught to students (SRSD Online, 2015). One such instructional strategy is modeling, such as when teachers demonstrate through a think-aloud how to apply the cognitive strategies they are teaching their students (Benedek-Wood et al., 2014; De La Paz et al., 2017; Kiuvara et al., 2019; Olson et al., 2017). It is through instructional strategies such as these ones that teachers help their students to learn that cognitive strategies that will help them to become independent.

Application of Content. Text-based writing PD should also include opportunities for teachers to apply their knowledge of cognitive strategy instruction. Research on effective PD highlights the importance of designing professional learning opportunities that are “deeply embedded, highly contextualized,” which starkly contrasts PD that is “generic” (Darling-Hammond et al., 2017, p. 7). This emphasis is important because PD is more likely to transform teachers’ writing instructional capacity when the PD includes opportunities for teachers to test

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out and see the effects of what they are learning for authentic purposes and within authentic contexts (Howell et al., 2018; Limbrick et al., 2010; Pella, 2011, 2015).

Opportunities for Collaboration. Text-based writing PD should include opportunities for teachers to authentically collaborate with their colleagues as they deepen their understanding of cognitive strategy instruction. Research highlights collaboration as an important facilitator of teachers' learning (Darling-Hammond et al., 2017). In fact, in previously discussed research in which the development of teachers' writing instructional capacity was a focus, collaboration played an important role in developing teachers' knowledge and beliefs about writing instruction (Limbrick et al., 2010; Parr & Timperley, 2010; Pella, 2011, 2015), both of which influence instructional practices (Brindle et al., 2016).

Sustained Period. Text-based writing PD should occur over a sustained period. The research heavily emphasizes PD that occurs beyond a single setting (Darling-Hammond et al., 2017; Howell et al., 2018; Kim et al., 2011; Limbrick et al., 2010; Mosqueda et al., 2016; Olson et al., 2019; Parr & Timperley 2010; Pella, 2011, 2015), because transformational learning (Mezirow, 1997), particularly the kind that results in shifts in instructional practices, take time.

Limitations and Recommendations. When considering the findings of this dissertation's research, it is important to consider several limitations that have implications for future research. One of the limitations is that the study had a small sample size ($N = 8$). As a result, the findings of the research cannot be generalized. A recommendation for future research would be to replicate this study with a larger sample population. Another limitation of the study is bias. Of the eight teacher participants, four of them knew the researcher. This relationship may have biased participants' responses. A recommendation for future research would be for the study to be replicated with a randomly selected sample of teacher participants.

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A third limitation of the study lies with the interview questions. As mentioned earlier, some of the questions may not have allowed for participants to demonstrate their knowledge of strategies. The science teachers, for example, after completing their lesson study cycle, indicated in their debrief that they wanted to continue using pre-recorded videos in which they provided demonstrations of skills. However, limitations of the interview questions may have prevented science teachers from articulating their intent to use this instructional strategy. Therefore, a recommendation for future research would be for the interview questions to include questions that better distinguish the differences between cognitive strategies, instructional strategies, and instructional adaptations. A fourth limitation of the study is that no student measures were included, which prevented the researcher from drawing conclusions about the impact of the PD on the long-term outcome (see Figure 2). A recommendation, therefore, would be for the study to be replicated with student outcomes. For example, the study could include text-based writing pre and posttests, the data of which could be used to determine the impact of the PD on students' written performance. In addition, the study could include measures of student efficacy, which have been shown to influence writing performance (Bruning et al., 2013; De Smedt et al., 2018). A final limitation of the study is that it took place during the COVID-19 pandemic. Consequently, the study occurred completely within a virtual space. A recommendation for future research would be for the study to occur within a face-to-face setting.

Summary. Both qualitative and quantitative data indicate that job-embedded PD can be used to develop middle school teachers' knowledge of text-based writing strategies, efficacy for teaching text-based writing, and instructional practices for text-based writing. The quantitative data, though limited because of sample size, indicate that the teachers in the study appeared to have increased in their confidence in their ability to teach text-based writing and indicated that

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they would shift their writing instructional practices for future writing lessons. The qualitative data show that the PD provided teachers with knowledge of cognitive strategies, instructional strategies, and instructional scaffolds that they would use to develop their students' text-based writing abilities. Furthermore, the qualitative data show that changes in confidence appeared to have occurred because of the PD, and that the instructional practices that teachers appear to want to implement into their future writing instruction comes largely from the content that they had learned during the PD. Overall, this dissertation's research, though small in scale, does show promise in the potential for using job-embedded PD to develop middle school teachers' text-based writing instructional capacity.

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Appendix A

Directions: Select or write the answer that captures your experience with teaching writing.

- 1) Content area(s) I currently teach:
 - a. Language Arts/English
 - b. Mathematics
 - c. Science
 - d. Social Studies

- 2) I received effective preservice preparation (i.e., formal training received during college prior to becoming a teacher of record) in my teacher education program to teach writing in my content area.
 - a. Strongly Agree
 - b. Moderately Agree
 - c. Agree Slightly
 - d. Disagree Slightly
 - e. Moderately Disagree
 - f. Strongly Disagree

- 3) What preservice preparation did you receive (e.g., courses on teaching writing) to teach writing in your content area? Please be as specific as possible.

- 4) I received effective inservice preparation (i.e., formal training received through your job after becoming a teacher of record) to teach writing in my content area.
 - a. Strongly Agree
 - b. Moderately Agree
 - c. Agree Slightly
 - d. Disagree Slightly
 - e. Moderately Disagree
 - f. Strongly Disagree

- 5) What formal inservice preparation did you receive (e.g., professional development) to teach writing in your content area? Please be as specific as possible.

- 6) Writing is an essential skill for students in high school.
 - a. Strongly Agree
 - b. Moderately Agree
 - c. Agree Slightly
 - d. Disagree Slightly
 - e. Moderately Disagree
 - f. Strongly Disagree

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- 7) Students are taught the writing skills in middle school needed to be successful in college.
 - a. Strongly Agree
 - b. Moderately Agree
 - c. Agree Slightly
 - d. Disagree Slightly
 - e. Moderately Disagree
 - f. Strongly Disagree

- 8) Students are taught the writing skills in middle school needed to be successful in the careers/workplace.
 - a. Strongly Agree
 - b. Moderately Agree
 - c. Agree Slightly
 - d. Disagree Slightly
 - e. Moderately Disagree
 - f. Strongly Disagree

- 9) When a student's writing performance improves, it is usually because I found better ways of teaching that student.
 - a. Strongly Agree
 - b. Moderately Agree
 - c. Agree Slightly
 - d. Disagree Slightly
 - e. Moderately Disagree
 - f. Strongly Disagree

- 10) If a student did not remember what I taught in a previous writing lesson, I would know how to increase his/her retention in the next lesson.
 - a. Strongly Agree
 - b. Moderately Agree
 - c. Agree Slightly
 - d. Disagree Slightly
 - e. Moderately Disagree
 - f. Strongly Disagree

- 11) If a student masters a new writing concept or skill quickly, it is because I knew the necessary steps for teaching this concept or skill.
 - a. Strongly Agree
 - b. Moderately Agree
 - c. Agree Slightly
 - d. Disagree Slightly
 - e. Moderately Disagree
 - f. Strongly Disagree

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- 12) If I try really hard, I can help students with their most difficult writing problems.
- Strongly Agree
 - Moderately Agree
 - Agree Slightly
 - Disagree Slightly
 - Moderately Disagree
 - Strongly Disagree
- 13) When a student does better than usual in writing, it is because I exerted a little extra effort.
- Strongly Agree
 - Moderately Agree
 - Agree Slightly
 - Disagree Slightly
 - Moderately Disagree
 - Strongly Disagree
- 14) When a student is having difficulty with a writing assignment, I would have no trouble adjusting it to his/her level.
- Strongly Agree
 - Moderately Agree
 - Agree Slightly
 - Disagree Slightly
 - Moderately Disagree
 - Strongly Disagree
- 15) If one of my students could not do a writing assignment, I would be able to accurately assess why he/she was having difficulty and make accommodations.
- Strongly Agree
 - Moderately Agree
 - Agree Slightly
 - Disagree Slightly
 - Moderately Disagree
 - Strongly Disagree
- 16) If a student becomes disruptive and noisy during writing time, I feel confident that I know some techniques to redirect him/her quickly.
- Strongly Agree
 - Moderately Agree
 - Agree Slightly
 - Disagree Slightly
 - Moderately Disagree
 - Strongly Disagree

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- 17) When students' writing performance improves, it is usually because I found more effective teaching approaches.
- Strongly Agree
 - Moderately Agree
 - Agree Slightly
 - Disagree Slightly
 - Moderately Disagree
 - Strongly Disagree
- 18) If I was provided professional development, I would include more writing tasks in my classroom instruction.
- Strongly Agree
 - Moderately Agree
 - Agree Slightly
 - Disagree Slightly
 - Moderately Disagree
 - Strongly Disagree
- 19) I have my students write (approximately):
- Daily
 - Weekly
 - Monthly
 - Once every other month
 - Rarely at all in the school year
- 20) Students at my school have the writing skills they need to do work in my class.
- Strongly Agree
 - Moderately Agree
 - Agree Slightly
 - Disagree Slightly
 - Moderately Disagree
 - Strongly Disagree

Appendix B

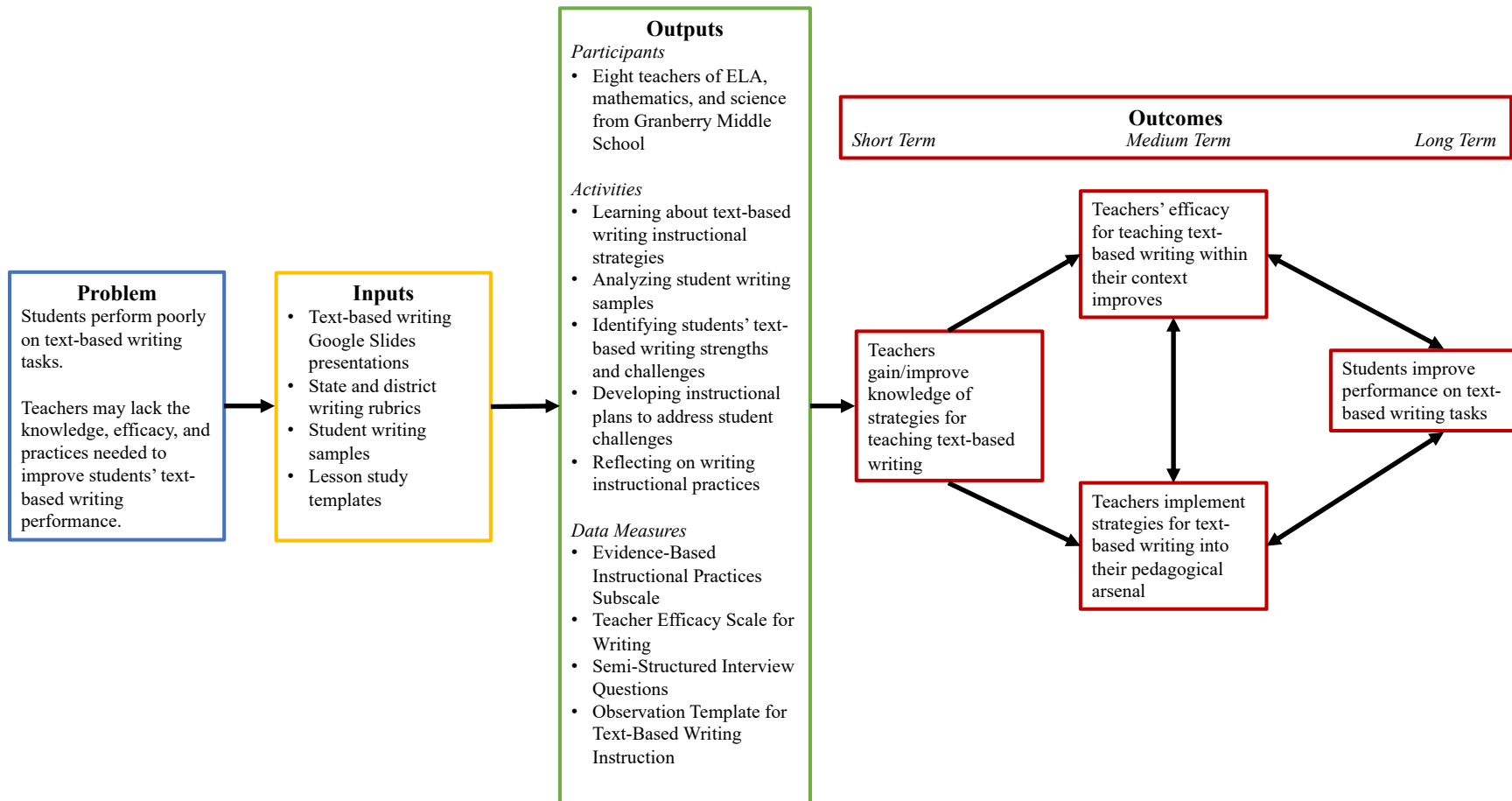


Figure 6. *Logic Model*

Appendix C

Directions: Read the session outcome below. Then, respond to the four questions that follow. The first question asks you to rate the degree to which the session's learning outcome was accomplished. The next three questions ask you to explain how the content of the PD developed your knowledge of text-based writing strategies, confidence for teaching text-based writing, and instructional practices for text-based writing.

PD Session Outcome

- 1) By the end of today's session, I achieved the outcome stated above.
 - a. Strongly Disagree
 - b. Moderately Disagree
 - c. Somewhat Disagree
 - d. Somewhat Agree
 - e. Moderately Agree
 - f. Strongly Agree

- 2) Explain how this session's activities developed your knowledge of text-based writing strategies.

- 3) Explain how this session's activities developed your confidence for teaching text-based writing.

- 4) Explain how this session's activities developed your instructional practices for teaching text-based writing.

Appendix D

Survey Items Adapted from Drew et al. (2017)

Directions: Read the statements below about writing instructional practices. Then, select the answer that best captures the frequency with which you apply the instructional practices.

- 1) Currently, I teach strategies for planning text-based writing.
 - a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always

- 2) Currently, I teach strategies for drafting text-based writing.
 - a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always

- 3) Currently, I teach strategies for revising (correcting for development, organization, and style) text-based writing.
 - a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always

- 4) Currently, I teach strategies for editing (correcting for grammar, mechanics, and usage) text-based writing.
 - a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always

- 5) Currently, I teach strategies for organizing text-based writing.
 - a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always

- 6) Currently, I teach students to establish goals for what to include in text-based writing assignments.

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- a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always
- 7) Currently, I have students collaborate when engaging in text-based writing.
- a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always
- 8) Currently, I have students use technology to produce, publish, or share text-based writing.
- a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always
- 9) Currently, I explicitly teach students the elements, structure, and style of genres of text-based writing.
- a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always
- 10) Currently, I have students engage in pre-writing activities (like a graphic organizer) to gather and organize ideas for text-based writing.
- a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always
- 11) Currently, I have students engage in research (gather, organize, and/or analyze multiple sources) to create a text-based writing product.
- a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always
- 12) Currently, I have students emulate/imitate models of good text-based writing.
- a. Never

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- b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always
- 13) Currently, I use explicit/direct instruction methods to teach text-based writing (model, guided practice, review)
- a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always
- 14) Currently, I provide teacher or peer feedback on student text-based writing.
- a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always
- 15) Currently, I provide class time for sustained student text-based writing (longer than 5 minutes).
- a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always
- 16) Currently, I teach students genre or topic-specific vocabulary to use in text-based writing.
- a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always

Appendix E

Survey Items Adapted from Drew et al. (2017)

Directions: Read the statements below about writing instructional practices. Then, select the answer that best captures the frequency with which you plan to apply the instructional practices.

- 1) Moving forward, I plan to teach strategies for planning text-based writing.
 - a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always

- 2) Moving forward, I plan to teach strategies for drafting text-based writing.
 - a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always

- 3) Moving forward, I plan to teach strategies for revising (correcting for development, organization, and style) text-based writing.
 - a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always

- 4) Moving forward, I plan to teach strategies for editing (correcting for grammar, mechanics, and usage) text-based writing.
 - a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always

- 5) Moving forward, I plan to teach strategies for organizing text-based writing.
 - a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always

- 6) Moving forward, I plan to teach students to establish goals for what to include in text-based writing assignments.

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- a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always
- 7) Moving forward, I plan to have students collaborate when engaging in text-based writing.
- a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always
- 8) Moving forward, I plan to have students use technology to produce, publish, or share text-based writing.
- a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always
- 9) Moving forward, I plan to explicitly teach students the elements, structure, and style of genres of text-based writing.
- a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always
- 10) Moving forward, I plan to have students engage in pre-writing activities (like a graphic organizer) to gather and organize ideas for text-based writing.
- a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always
- 11) Moving forward, I plan to have students engage in research (gather, organize, and/or analyze multiple sources) to create a text-based writing product.
- a. Never
 - b. Rarely
 - c. Sometimes
 - d. Often
 - e. Always

DEVELOPING TEACHERS' TEXT-BASED WRITING CAPACITY

- 12) Moving forward, I plan to have students emulate/imitate models of good text-based writing.
- Never
 - Rarely
 - Sometimes
 - Often
 - Always
- 13) Moving forward, I plan to use explicit/direct instruction methods to teach text-based writing (model, guided practice, review)
- Never
 - Rarely
 - Sometimes
 - Often
 - Always
- 14) Moving forward, I plan to provide teacher or peer feedback on student text-based writing.
- Never
 - Rarely
 - Sometimes
 - Often
 - Always
- 15) Moving forward, I plan to provide class time for sustained student text-based writing (longer than 5 minutes).
- Never
 - Rarely
 - Sometimes
 - Often
 - Always
- 16) Moving forward, I plan to teach students genre or topic-specific vocabulary to use in text-based writing.
- Never
 - Rarely
 - Sometimes
 - Often
 - Always

Appendix F

Survey Items Adapted from Graham et al. (2001)

Directions: Select the answer that best describes your rating of the statements.

- 1) When students' text-based writing performance improves, it is usually because I found better ways of teaching that student.
 - a. Strongly Disagree
 - b. Moderately Disagree
 - c. Disagree Slightly
 - d. Agree Slightly
 - e. Moderately Agree
 - f. Strongly Agree

- 2) Even a good teacher of text-based writing may not reach many students.
 - a. Strongly Disagree
 - b. Moderately Disagree
 - c. Disagree Slightly
 - d. Agree Slightly
 - e. Moderately Agree
 - f. Strongly Agree

- 3) If a student did not remember what I taught in a previous text-based writing lesson, I would know how to increase the student's retention in the next lesson.
 - a. Strongly Disagree
 - b. Moderately Disagree
 - c. Disagree Slightly
 - d. Agree Slightly
 - e. Moderately Agree
 - f. Strongly Agree

- 4) The hours in my class have little influence on students' text-based writing performance compared to the influence of their home environment.
 - a. Strongly Disagree
 - b. Moderately Disagree
 - c. Disagree Slightly
 - d. Agree Slightly
 - e. Moderately Agree
 - f. Strongly Agree

- 5) If a student masters a new text-based writing concept quickly, it is because I knew the necessary steps in teaching this concept.
 - a. Strongly Disagree
 - b. Moderately Disagree
 - c. Disagree Slightly

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- d. Agree Slightly
 - e. Moderately Agree
 - f. Strongly Agree
- 6) If I try really hard, I can help students with the most difficult problems related to text-based writing.
- a. Strongly Disagree
 - b. Moderately Disagree
 - c. Disagree Slightly
 - d. Agree Slightly
 - e. Moderately Agree
 - f. Strongly Agree
- 7) When a student does better than usual on text-based writing tasks, it is because I exerted a little extra effort.
- a. Strongly Disagree
 - b. Moderately Disagree
 - c. Disagree Slightly
 - d. Agree Slightly
 - e. Moderately Agree
 - f. Strongly Agree
- 8) If students are not disciplined at home, they are not likely to accept any discipline during the class times of text-based writing.
- a. Strongly Disagree
 - b. Moderately Disagree
 - c. Disagree Slightly
 - d. Agree Slightly
 - e. Moderately Agree
 - f. Strongly Agree
- 9) When a student is having difficulty with a text-based writing assignment, I would have no trouble adjusting it to the student's level.
- a. Strongly Disagree
 - b. Moderately Disagree
 - c. Disagree Slightly
 - d. Agree Slightly
 - e. Moderately Agree
 - f. Strongly Agree
- 10) The influence of a student's home experience on text-based writing can be overcome by good teaching.
- a. Strongly Disagree
 - b. Moderately Disagree
 - c. Disagree Slightly
 - d. Agree Slightly

DEVELOPING TEACHERS' TEXT-BASED WRITING CAPACITY

- e. Moderately Agree
 - f. Strongly Agree
- 11) Teachers are very limited in what they can achieve because students' home environments are a large influence on their text-based writing achievement.
- a. Strongly Disagree
 - b. Moderately Disagree
 - c. Disagree Slightly
 - d. Agree Slightly
 - e. Moderately Agree
 - f. Strongly Agree
- 12) If one of my students could not do a text-based writing assignment, I would be able to accurately assess whether the assignment was at the correct level of difficulty.
- a. Strongly Disagree
 - b. Moderately Disagree
 - c. Disagree Slightly
 - d. Agree Slightly
 - e. Moderately Agree
 - f. Strongly Agree
- 13) The amount a student can learn for text-based writing is primarily related to family background.
- a. Strongly Disagree
 - b. Moderately Disagree
 - c. Disagree Slightly
 - d. Agree Slightly
 - e. Moderately Agree
 - f. Strongly Agree
- 14) If a student becomes disruptive and noisy during times of text-based writing, I feel assured that I know some techniques to redirect the student quickly.
- a. Strongly Disagree
 - b. Moderately Disagree
 - c. Disagree Slightly
 - d. Agree Slightly
 - e. Moderately Agree
 - f. Strongly Agree
- 15) When students' text-based writing performance improves, it is usually because I found more effective teaching approaches.
- a. Strongly Disagree
 - b. Moderately Disagree
 - c. Disagree Slightly
 - d. Agree Slightly
 - e. Moderately Agree

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- f. Strongly Agree
- 16) If parents would do more in text-based writing with their children, I could do more.
- a. Strongly Disagree
 - b. Moderately Disagree
 - c. Disagree Slightly
 - d. Agree Slightly
 - e. Moderately Agree
 - f. Strongly Agree

Appendix G

Semi-Structured Interview Questions developed using Graham and Perin (2007b)

Prior to the Start of the Text-Based Writing PD

Knowledge of Text-Based Writing Tasks

- 1) What do you currently know about text-based writing tasks?

Strategies for Developing Students' Text-Based Writing Skills

- 2) What strategies do you currently use to help students plan for their responses to text-based writing tasks?
- 3) What strategies do you currently use to help students draft their responses to text-based writing tasks?
- 4) What strategies do you currently use to help students revise their responses to text-based writing tasks?
- 5) What strategies do you currently use to help students edit their responses to text-based writing tasks?
- 6) What other writing practices and/or activities do you currently use to help students develop their skills for text-based writing?

Efficacy for Teaching Text-Based Writing

- 7) How would you describe your current level of confidence in your ability to teach within your discipline text-based writing to students?

Appendix H

Semi-Structured Interview Questions developed using Graham and Perin (2007b)

After the Completion of the Text-Based Writing PD

Knowledge of Text-Based Writing Tasks

- 1) How has your knowledge of text-based writing tasks changed?

Strategies for Developing Students' Text-Based Writing Skills

- 2) Moving forward, what strategies do you plan to use to help students plan for their responses to text-based writing tasks?
- 3) Moving forward, what strategies do you plan to use to help students draft their responses to text-based writing tasks?
- 4) Moving forward, what strategies do you plan to use to help students revise their responses to text-based writing tasks?
- 5) Moving forward, what strategies do you plan to use to help students edit their responses to text-based writing tasks?
- 6) Moving forward, what other writing practices and/or activities do you plan to use to help students develop their skills for text-based writing?

Efficacy for Teaching Text-Based Writing

- 7) Now that you have finished participating in the online PD, how would you describe your confidence in your ability to teach within your discipline text-based writing to students?

Components of Professional Development

- 8) What activities from the online PD sessions did you find most meaningful in helping you teach within your discipline text-based writing to students?
- 9) What activities from the online PD sessions did you find least meaningful in helping you teach within your discipline text-based writing to students?

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Appendix I

Observation Template for Text-Based Writing Instruction developed using Drew et al. (2017) and Graham and Perin (2007a, 2007b, 2007c)

| | | |
|--|---|---|
| <u>Team:</u> | <u>Teacher:</u> | <u>Date/Mod/Time:</u> |
| <u>Standard:</u> | | |
| <u>Learning Objective:</u> | | |
| <u>Tested Strategy:</u> | | |
| Notes | | |
| Writing Focus | Record ways that the teacher helps students plan, draft, revise, and/or edit their responses to a text-based writing task. Put “did not observe” if during the course of the lesson you did not observe the teacher implementing a strategy for one or more of the areas. | |
| <i>Planning</i> – How did the teacher help students plan their responses to a text-based writing task? | Teacher Moves <i>What does the teacher say/do?</i> | Student Response <i>What do students say/do in response to the teacher?</i> |
| | | |
| <i>Drafting</i> – How did the teacher help students draft their responses to a text-based writing task? | Teacher Moves <i>What does the teacher say/do?</i> | Student Response <i>What do students say/do in response to the teacher?</i> |
| | | |
| <i>Revising</i> – How did the teacher help students revise their responses to a text-based writing task? | Teacher Moves <i>What does the teacher say/do?</i> | Student Response <i>What do students say/do in response to the teacher?</i> |
| | | |

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| | | |
|---|--|---|
| <i>Editing</i> – How did the teacher help students edit their responses to a text-based writing task? | Teacher Moves <i>What does the teacher say/do?</i> | Student Response <i>What do students say/do in response to the teacher?</i> |
| | | |

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Appendix J

| Cognitive Strategy | Description | Meanings | Source |
|--------------------|--|--|--|
| PLAN | A writing strategy that is designed to help students plan their responses expository writing tasks | <ol style="list-style-type: none"> 1. Pay attention to the prompt. 2. List the main ideas. 3. Add supporting details. 4. Number your ideas | De La Paz, S. (2001) |
| HEY | A writing strategy that is designed to help students compose the introduction paragraph of their expository essays (meant to accompany the strategies <i>LOOK</i> and <i>BYE</i>) | <ol style="list-style-type: none"> 1. Hook your reader's attention. 2. Engage your readers with author and text information. 3. Yoke your readers to your essay's focus with a thesis/claim. | Developed using research from Benedek-Wood et al., 2014; Kihara et al., 2019; Mason et al., 2013; Mason et al., 2011 |
| LOOK | A writing strategy that is designed to help students compose the body paragraphs of their expository essays (meant to accompany the strategies <i>HEY</i> and <i>BYE</i>) | <ol style="list-style-type: none"> 1. Lead with a topic sentence. 2. Offer up evidence. 3. Offer up an explanation of the evidence. 4. Knock out the rest with a conclusion. | |
| BYE | A writing that is designed to help students compose the conclusion paragraph of their expository essays (meant to accompany the strategies <i>HEY</i> and <i>LOOK</i>) | <ol style="list-style-type: none"> 1. Begin with a sentence that restates your thesis/claim. 2. Yoke readers once more to your main points. 3. End with a thought-provoking idea. | |
| RACE | A writing strategy that is designed to help students compose brief (e.g., a paragraph) responses to writing tasks | <ol style="list-style-type: none"> 1. Reword the question. 2. Answer the question. 3. Cite all of your evidence 4. Explain your evidence. | Casey & Strick (2018) |
| SOLVE | A mathematics strategy that is designed to guide students through the completion of word problems | <ol style="list-style-type: none"> 1. Study the problem. 2. Organize the facts. 3. Line up a plan. 4. Verify your plan with action. 5. Examine your results. | Retrieved from the district mathematics curriculum |

DEVELOPING TEACHERS' TEXT-BASED WRITING CAPACITY

Kevin M. Kendrick
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EDUCATION

July 2021 – Johns Hopkins University

Doctor of Education – Mind, Brain, and Teaching

Dissertation Title: *Developing the Text-Based Writing Instructional Capacity of Middle School Teachers*

July 2016 – McDaniel College

Certification – Administration I

December 2010 – The George Washington University

Master of Arts – Bilingual and Special Education

December 2006 – Bowie State University

Bachelor of Science – English: Secondary Education

PROFESSIONAL EXPERIENCE

School Names Redacted

- 2019 – Present – Instructional Lead Teacher
 - 2019 – 2020 – English Language Arts Department Chair
 - 2017 – 2019 – Data Coach
 - 2017 – 2019 – School Testing Coordinator
 - 2016 – 2017, 2021 – Curriculum Writer for English Language Arts
 - 2016 – 2017 – Professional Development Lead Teacher
 - 2011 – 2015 – Adjunct English 100 Professor (Summer Only)
 - 2007 – 2017 – English Language Arts Teacher, Grades 7-8
-

SCHOLARSHIP

Invited Demonstrations/Presentations/Panel Discussions

- Balogun, S., Borkoski, C., Bryant, C., Flores-Shaw, L., Golubchick, J., **Kendrick, K.**, Latin, C., Timmer, J., Williams, K., Wilsman, R. (2021). *EdD Orientation/Residency Alumni Panel*. Student Panel Participant for Doctoral Students and Candidates at Johns Hopkins University, Baltimore, MD.
- Barbour, K., Clark, P., Folk, J., Karp, K., **Kendrick, K.**, Reder-Schopp, M., Turner, E., & Vander-Kolk, B. (2019). *Family and Friends*. Presented at Johns Hopkins University School of Education Residency, Baltimore, MD.
- Davis, M., Hampel, J., **Kendrick, K.**, Nehrusingh, G., Tevault, D., & Trujillo, E. (2021). *Graduation Discussion*. Student Panel Participant for Year Three Students at Johns Hopkins University, Baltimore, MD.

DEVELOPING TEACHERS' TEXT-BASED WRITING CAPACITY

- Karp, K. & **Kendrick, K.** (2021). *COMPS Practice for Advisers*. Demonstrated Virtually for Johns Hopkins University School of Education Advisors, Baltimore, MD.

CERTIFICATIONS

English, 7 – 12 (2007 – Present)

National Board Certification – English: Early Adolescence (2013 – Present)

English for Speakers of Other Languages, Pre-K – 12

Generic Special Education, Infant to Adult