WRITING TO LEARN: A MIXED METHODS CASE STUDY OF REFLECTION/EXIT WRITING IN FOURTH GRADE

A Dissertation Presented to the
Faculty of the College of Education
University of Houston

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

by

Stacey M. Templeton

May 2013

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Approved by the Dissertation Committee:

_____
Dr. H. Jerome Freiberg, Chairperson

_____
Dr. W. Robert Houston, Committee Member

_____
Dr. Catherine Horn, Committee Member

_____
Dr. Lee Mountain, Committee Member

_____
Dr. Robert H. McPherson, Dean
College of Education

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Abstract

Development in writing, motivation to write, and student self-perceived writing ability all play pivotal roles what students are able to produce. The National Commission on Writing in America’s Schools and Colleges (2003) placed writing at the center of educational reform, calling upon the educational system of the nation to participate in a “writing revolution.” Data support this call to arms: the National Assessment of Educational Progress reported that only 23% of fourth graders wrote at the “proficient” or "advanced" levels; the majority of children—61% of fourth-grade students—wrote at the “basic” level; 16% of fourth graders produced “below basic” writing (U.S. Department of Education, 1999).

To address these concerns about the state of writing in America, this study investigates a content-area writing intervention, Reflection/Exit writing, and its effect on three student writing outcomes: (1) student self-perceptions; (2) writing development as measured in quantity; and (3) writing development as measured in quality. Freiberg (1993) developed Reflection/Exit writing to help teachers establish a calm, productive end to class, bring closure to their lessons, and enable purposeful reflection on the learning for the day the learning of the day during the last five to six minutes of class, by asking students to reflect on what was learned that day.

This mixed-methods case study included a sample of 56 fourth grade students, in both bilingual and traditional (ESL) classrooms, in a predominately Hispanic, low SES

elementary school. Two intervention classrooms taught by fourth grade Math/Science teachers and two comparison classrooms taught by fourth grade Language Arts/Social Studies teachers were the units of analysis and multiple points of data were examined for each classroom. A concurrent, parallel mixed-methods design was employed, utilizing qualitative and quantitative methodologies, which were analyzed through three different strands of research. In Research Strand 1, samples were analyzed for compositional fluency, or length, by calculating the number of words and syllables to determine if students were able to produce a greater quantity of writing over time. Research Strand 2 was used to determine if the intervention affected the quality of student writing over the study period through the use of the state's holistic writing rubric (used from 2003-2011; The Texas Education Agency, n.d.) and through content analysis procedures. The holistic rubric considered writers' focus and coherence, organization, and development of ideas. Content analysis procedures assessed writers' cognitive development in writing, through the themes of: (1) planning; (2) knowledge telling; and (3) knowledge transforming (Flower and Hayes, 1981; Bereiter & Scardamalia, 1987). In Research Strand 3, students' writing self-perceptions were measured through the Writer Self-Perception Scale (Bottomley, Henk, & Melnick, 1997/1998).

Results indicate that when implemented with fidelity, Reflection/Exit writing improved the quality of student writing, as measured through content analysis and scale scores on the state's holistic writing rubric. In the case of the high-fidelity intervention, improvements in writing quality from pre-post intervention, as measured on the holistic rubric, were significant ($p = .002$), with a large effect size ($\eta^2 = + .54$; see Cohen, 1998). Comparison group classrooms and the low-fidelity intervention classroom did not have

significant gains in the quality of writing from pre-post intervention. Between groups (intervention vs. comparison), there was a significant difference between students' change in writing quality, as measured on the holistic writing rubric ($p = .005$; $\eta^2 = +$ .17). Students in the high-fidelity intervention group also demonstrated improved writing quality through content analysis measures, with higher levels of cognitive development in writing at post-intervention. Comparison classrooms and the low-fidelity intervention classroom made little growth in cognitive development in writing. Comparison classes observed statistically significant gains in the length of the writing samples from pre-post intervention, as did the high-fidelity intervention classroom. Between groups, however, there were no statistically significant differences in the change in writing length. There were also no statistically significant differences in students' writing self-perceptions in either comparison or intervention classrooms.

This study demonstrates that when Reflection/Exit writing is implemented with fidelity, students in the intervention classroom outperformed comparison group students in writing quality on the holistic rubric and in their levels of cognitive development in writing. When the intervention was implemented without consistency or fidelity, there were no notable changes in student writing quantity, quality, or self-perceptions. This study sets an important precedent—student growth in writing should be analyzed through multiple lenses and from various ways of knowing.

Implications for this study include the expanded use of Reflection/Exit types of writing to improve the quality of student writing. Preparing for a post-secondary-ready environment builds at the early grades; writing skills are a necessary building block for future success (National Commission on Writing in America's Schools and Colleges,

2003). Most students can write adequately, but few can write at a high degree of proficiency (Institute of Education Sciences, 2008). This study implies there is a need for content-area teachers (e.g. Math/Science teachers) to dedicate a few minutes each day writing about what students learn across the curriculum in order to improve writing quality. Future research should examine the use of Reflection/Exit writing with bilingual-only populations, as an intervention for LEP students, as well as its expanded use with different ages of learners.

Keywords: exit writing, content area writing, writing to learn, writing self-perceptions, writing quality, writing quantity

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Chapter I

Introduction

Writing is the great communicator—it allows us to express our personal thoughts, deliver information, and can even assist with students' cognitive development (Klein, 1981). Writing helps students develop their thinking by demanding that they become actively engaged in their learning through composing original thoughts and refining their ideas. It serves as a record of student thinking. Writing demands that students become more perceptive about the world around them—considering ideas, reacting to situations, or creating something new, based lived experiences. Writing equips students with skills needed to deliver information to others and receive feedback—people often are judged by the quality of their writing. Teachers ask students to write for a variety of purposes to an array of audiences, but all with one goal in mind: enhancing students' writing development and their ability to communicate. Teachers understand that writing is a vital skill. All students must possess fundamental writing proficiency to be successful in life beyond the classroom walls. Despite teachers' best intentions, students consistently struggle with writing as it is a complex, and sometimes arduous, task that requires great effort.

Student motivation to write varies greatly from classroom to classroom and even from child to child within the same classroom—some students demonstrate writing avoidance at all costs, while others eagerly choose creatively to write in their free time. Teachers dream of a room filled with engaged, enthusiastic writers, while reality can deliver classrooms filled with disengaged writers who produce just enough to get by.

While professional educators are trained to recognize the qualities of good writing and well equipped with the instructional skills needed to deliver this knowledge to students, something remains amiss. Student work is often rushed and inadequate—chicken scratch while teachers crave beautiful prose. Why do well-trained teachers struggle to help their students reach writing proficiency?

Research suggests that these students may lack an inner desire to write. Graham, Berninger and Fan (2007) found a direct, statistically significant path linking student attitude about writing to student performance in writing. If students enjoyed writing, then they did well in it; students who did not like writing did very poorly. Student confidence and motivation also play key roles in how well students perceive they can write: "A strong sense of confidence, for example, may serve students well when writing an essay because it engenders greater interest in and attention to writing, stronger effort, and greater perseverance and resiliency in the face of adversity" (Pajares, 2003, p. 140).There are also affective factors which effect students' ability to write, with their attitudes and beliefs about their ability playing a key role (Pajares & Valiante, 1997). Student self-perceptions, or how they view themselves as writers, must be positive in order for students to produce quality work. Beyond just writing, Pollington, Wilcox and Morrison (2001) suggest that who have higher writing self-perceptions have greater overall academic success. Writing success leads to success in all other disciplines.

As the research suggests, motivation and confidence are key to student success in writing. The age-old question then looms - *how do we motivate our children? How do we build positive self-perceptions and help them gain confidence as writers*? Teachers who hope to improve students' writing self-perceptions must examine their writing

instruction and its effect on student engagement and willingness to write. As Lambirth and Goouch (2006) explain, "It is possible to coerce students to write, but impossible to compel them to be interested in the writing process. More subtle teaching styles are required" (p. 148). Teachers should not force students to write through coercion, mandates and directives. Instead, teachers must use a more delicate approach: one that encourages, provides guided practice, and builds confidence.

External demands on student writing performance further complicate this issue. Teachers must measure what students can actually write at the beginning of the year, fill in the gaps and help them surpass the ever-increasing writing standards each state requires and tests administered at the end of the year. State and national writing tests have caused many educators to turn to using formulaic writing as a solution, teaching "tricks" to help pass tests. While these scripted formulas may help student pass tests and move on to the next grade level, they will not help students develop as writers. In 2006, The National Commission on Writing in America's Schools and Colleges warned, "Standardization and scripting of instruction threaten to undermine (this) writing instruction. A climate to encourage writing must be created" (p. 9). Encouraging and making kids care is not an easy task, nor is making them slow down to produce their best work. Teachers of this new testing era must break this broken cycle of formulaic test-driven teaching, and stretch students beyond minimal writing requirements by enacting writing instruction that is motivating and grows real writers.

This study presents an alternative to traditional writing instruction with a content-area writing to learn intervention: Reflection/Exit writing (Freiberg, 1992). Reflection/Exit writing is a purposeful, reflective content-area writing intervention used

in schools throughout the country, as a component of the Consistency Management & Cooperative Discipline project. This study examined the effect Reflection/Exit writing had on 56 fourth grade elementary school students in a high-poverty, low SES elementary school. Mixed methods were used to help determine the role of intervention on three student outcomes: (1) student self-perceptions about their writing; (2) student writing development, as measured in quantity; and (3) student writing development, as measured in quality. The research questions for this study are as follows:

(1) *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quantity (word and syllable length)?;*

(2) *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quality (TAKS Writing Rubric and content analysis)?; and*

(3) *Does the use of Reflection/Exit writing affect fourth grade elementary students' self-perceptions of their ability to write as measured by the Writer Self-Perception Scale?*

Table 1 outlines the design of the study addressing the research questions through including variable indicators, data sources and participants.

Table 1.

Study Research Design

RESEARCH QUESTIONS	VARIABLE INDICATORS	INSTRUMENTS/ DATA SOURCES	PARTICIPANTS
Research Strand 1: Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing *quantity*?	Student development in writing, as measured by quantity (words and syllables)	Quantity- Word and syllable count per sample will be used to evaluate length	For all variables: Two intervention classes totaling 25 students (2 teachers delivering the intervention to their classes): one fourth grade mainstream (ESL) teacher and one fourth grade bilingual (OWDL) teacher. Two comparison classes are selected randomly with the two classes (2 teachers) totaling 30 students one fourth grade mainstream (ESL) teacher and one fourth grade bilingual (OWDL) teacher will be selected from the same grade level and school.
Research Strand 2: Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing quality?	Student development in writing, as measured by quality (writing rubric and content analysis)	**Rubric-** Holistic (TAKS) Writing Rubric will be used to evaluate quality **Content Analysis-** inductive analysis to arrive at themes (framework); deductive analysis will be conducted on all samples	
Research Strand 3: Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' self-perceptions of their ability to write?	Students' writing self-perceptions, regarding their ability and efficacy in writing	*Writer Self-Perception Scale* (WSPS; Bottomley, Henk, & Melnick, 1997/1998) to measure students' perceived ability and self-efficacy in writing	

This dissertation is organized into five chapters. Chapter One provides the statement of the problem, the need for the study, the purpose of the study, and definitions and terms. Chapter Two presents a review of the literature, presenting a background on the development of the students the development of the children in writing through the elementary years, looking specifically at content area writing, examining writing instruction, discussing student motivation theories as they pertain to writing and self-perceptions reviewing the effect of music on learning and presenting the intervention. Chapter Three outlines the methodology employed during this study, including the setting, the participants, the intervention, data collection procedures and data analysis procedures. Chapter Four presents the findings of the study through four points of data and through each research strand. Finally, Chapter Five discusses the overall interpretations related to each research question, with the researcher drawing all four points of data into an integrated understanding of the impact the intervention had on fourth grade students. The implications and limitations of this study are discussed along with future research.

Statement of the Problem

The National Commission on Writing in America's Schools and Colleges has called upon the education system in the United States to participate in a "writing revolution" (National Commission on Writing in America's Schools and Colleges, 2003). Their report states that leaders must reassess the pivotal role of writing instruction, placing it at the center of educational reform. As they explain:

> American education will never realize its potential as an engine of opportunity and economic growth until a writing revolution puts language and communication in their proper place in the classroom. Writing is how students connect the dots in their knowledge. Although many models of effective ways to teach writing exist… (the) teaching and practice of writing are increasingly shortchanged throughout the school and college years. (p. 3)

Writing instruction has been a neglected component of students' and teachers' daily routines. There is a need to expand its practice and the time spent on this critical subject in the classroom setting.

Interventions, such as Reflection/Exit writing, are most effective early in the education of a student, where the foundation for writing motivation and development are established. Specifically, in Houston-area schools there is a need to focus efforts on student writing development to help students advance toward greater writing proficiency to improve national and international competiveness.

The Need for the Study

In a national study, forty-nine states' Human Resource Directors agreed: writing is a basic consideration for hiring and promotion—more than 75% of respondents reported taking writing into consideration for the hiring and promoting of professional employees (National Commission on Writing in America's Schools and Colleges, 2006). Fifty percent of state agencies require writing sample from clerical and support personnel; poorly written applications are likely to "doom the candidate's chances of employment" (National Commission on Writing in America's Schools and Colleges,

2006). Similarly, in a survey of the private sector, 120 major American corporations Human Resource Directors indicated that people who could not communicate clearly in writing would not be hired (The National Commission on Writing in America's Schools and Colleges, 2006). Clearly, writing is an essential skill that is required for hiring, sustained employment, and promotion—one that all students in the American school system must leave prepared to demonstrate with proficiency.

However, in the United States, formal instruction on writing leaves a lot to be desired (National Commission on Writing in America's Schools and Colleges, 2003). The Commission explains that a new focus on writing instruction is needed across all levels (K-16) of education. National studies show that students can write—what they cannot do is write well (Institute of Education Sciences, 2008). In 1998, the National Assessment of Educational Progress (NAEP) study reported that only 23% of fourth graders were found to be at the "proficient" or "advanced" levels in written expression—demonstrating competent academic performance for the grade level, while 61% fell in the "basic" category—demonstrating partial mastery of fundamental grade level skills, and 16% of students tested "below basic"—demonstrating a lack of mastery of fundamental grade level skills. The same tests were conducted in eighth and twelfth grade, with similar results (27% "proficient" and 22% "proficient," respectively; U.S. Department of Education, 1999). With the majority of students reaching only the "basic" writing level, will that be enough to guarantee that students will be successful, employable citizens? The Commission believes it is not, calling for a "revolution" in writing instruction that would provide more time for writing instruction in the classroom, with sufficient

resources for teachers. Furthermore, they suggest students are being provided with a great injustice in their future by being taught only the basic writing skills.

In 2002, when their initial trial study ended, the National Center for Education Statistics (NCES) began a new assessment in writing called *The Nation's Report Card: Trial Urban District Assessment, Writing 2002* (IES, 2003). In this study, writing data were gathered for fourth and eighth grade students in six major urban cities (Atlanta, New York City, Houston, Los Angeles, Chicago and the District of Columbia). Results across all grades show there remains a racial divide in terms of student writing achievement: white students in five of the six districts (the only five districts to provide complete demographic data) had higher average ratings on the assessment than their minority counterparts. Specifically, Black and Hispanic students earned the lowest achievement scores in most cities. In addition, this study reported that inner city students struggle with writing more than most students across the nation with significantly lower average scores in four of the six inner cities, excluding Houston (which placed below average, but not at a significant level) and New York city (on average with the nation). In Houston, Hispanic students scored far behind their White peers—with 44 points difference in scale scores; these results were significantly different than national averages for the Hispanic/White score gap—at 22 points (IES, 2003).

Five years later, a new study was published by the NCES called *The Nation's Report Card, Writing 2007* (IES, 2008). Overall, the five-year progress in writing was fairly encouraging: in both of the assessed grade levels, this time the eighth and 12th grades, average writing scores had increased three and five points, respectively, from 2002. This assessment was conducted on a much larger scale, including state and

multiple city comparisons. Not all parts of the nation increased their student writing achievement. In nineteen states, including Texas, there were no significant gains in writing from 2002. In Texas' eighth grade achievement, scores slightly dropped from 152 (out of 300) in 2002 to 151 in 2007.

Scores in Houston were significantly below those of the nation. Houston eighth graders scored an average of 143 out of 300 compared to the mean score of 154 and also remained two points below the average of other major U.S. urban cities (IES, 2008). Additionally, 82% of Houston eighth grade scores fell below the "proficient" level in writing while 63% performed at the "basic" level and 19% performing at the "below basic" level. The racial divide in Houston scores also is apparent. Houston Caucasian students score significantly above the national average for their race, while African-America, Hispanic and Asian students do not.

Research explains that the state of writing instruction in the United States is in trouble. The majority of our students are failing to reach even proficient levels in writing. Inner city schools are in more trouble than suburban or rural schools, producing children who are less prepared to enter the work force, or even secure a job, due to their poor writing ability. Data also tells us that our minority children suffer the greatest writing deficiencies. However, the question remains - *how can we close this achievement gap and bring all American students up to proficiency in writing?* Creative solutions are in order.

The National Council of Teachers of English (2004) explains that people learn to write by writing — and that the more time students spend writing the more proficient they become. Nevertheless, how do we carve out more instructional time for writing,

when other core academic subjects receive more emphasis? Most Texas teachers will tell you that there just is not enough time in the day to get it all in, so tested subjects are taught, often leaving writing tested in Texas only at fourth, seventh, and 10th grades out of students' daily practice. This study suggests a solution through the cross-curricular integration of disciplines, using a daily, content-area writing intervention or Reflection/Exit writing.

The Purpose of the Study

To address the need for increased student development and motivation in writing, the purpose of this study is to explore the impact one content area writing intervention, Reflection/Exit writing, has on fourth grade students at Hillview Elementary. Specifically, this study will investigate the following research questions:

(1) *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quantity (word and syllable length)?;*

(2) *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quality (TAKS Writing Rubric and content analysis)?;* and

(3) *Does the use of Reflection/Exit writing affect fourth grade elementary students' self-perceptions of their ability to write as measured by the Writer Self-Perception Scale?*

Definition of Terms

Self-Perceptions. Students' self-perceptions are defined as the beliefs a student holds related to his or her ability to succeed (Schunk, 1992). Self-perceptions can be varied by content-area and even by the topic within a specific content, having been formed over time and through the lived experiences of the child (Schunk, 1992). Learning is influenced by the self-perceptions of students in several ways. Dependent on their self-perceptions, students may choose to participate in or avoid a learning activity, give little or much effort to the task and stay tenacious toward their learning goals—or give up (Pollington, Wilcox, & Morrison, 2001). The study of student perceptions involves studying students' classroom behaviors to determine the influence their thoughts, beliefs, feelings about themselves, feelings about others, and feelings about events have on their behavior (Schunk & Meece, 1992). Student perceptions have strong links to motivation, which influences how students ultimately feel and perform in a classroom environment.

Content Area Writing. Content area writing refers to any type of writing that is cross-curricular, or discipline based (e.g. writing in math, Science, Social Studies). It differs from traditional writing instruction in that teachers specifically are not teaching writing genres or the craft of writing, but rather teaching through content areas. Writing teachers ask students to write about a specific piece of content that has been learned and/or taught. Also referred to as writing across the content, or cross-curricular writing, content area writing asks students to spend more of their energy focused on the content of what they are composing, versus the form it takes.

Writing to Learn. Writing to learn is a specific type of content area writing. It refers to the informal writing that an individual does to remember things, make connections or evaluate their thinking. Writing to learn differs from traditional writing instruction in several, specific ways. Writing to learn is: (1) short, (2) one draft, (3) unedited, (4) ungraded, (5) informal, (6) personal, (7) spontaneous, and (8) exploratory (Daniels, Zemelman & Steineke, 2007). Teachers who use writing to learn are not interested in students producing a structured, organized, perfect piece of writing—rather, teachers use writing to learn as a reflective component of the learning that occurs in the classroom. Writing to learn provides an opportunity for students to "figure stuff out," giving teachers critical information about what students understand (Daniels, Zemelman & Steineke, 2007). In writing to learn, the content is informal and the audience (teacher) remains uncritical.

Conclusion

The state of national writing instruction and paints an abysmal picture of writing education. In an attempt to address this need, the researcher has proposed a potential study using Reflection/Exit writing as an intervention with fourth grade students. The next chapter examines the literature, presenting a background on the development of the children in writing through the elementary years, looking specifically at content area writing, examining writing instruction, discussing student motivation theories as they pertain to writing and self-perceptions, reviewing the effect of music on learning, and presenting the intervention that will be used in this study.

Chapter II

Review of Related Literature

The purpose of this study is to explore the impact one content area writing intervention, Reflection/Exit writing, has on fourth grade students writing self-perceptions and development in writing. Specifically, this study will investigate the following research questions:

(1) *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quantity (word and syllable length)?;*

(2) *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quality (TAKS Writing Rubric and content analysis)?;* and

(3) *Does the use of Reflection/Exit writing affect fourth grade elementary students' self-perceptions of their ability to write as measured by the Writer Self-Perception Scale?*

Prior to initiating this study, it is necessary to review the literature related to students' writing development and self-perceptions to identify themes in the research and find areas where further study is needed. This chapter presents a background on the development of children the development of the children in writing through the elementary years, looking specifically at content area writing, discusses student motivation theories as they pertains to writing, and reviews the literature related to student self-perceptions.

Development in Writing through the Elementary Years

Stages of Writing. Research on written composition most frequently cites the work of Flower and Hayes (1981) whose cognitive processes model of composition outlines and details the stages students go through as they engage in writing. The authors identify three major processes writers engage in recursively: planning, translating and reviewing.

During the planning stage, writers make lists and decide on content and ideas to include in a piece of writing. Planning writers have not yet begun to translate knowledge into their own words. This stage is a list-making stage, preparing to translate their thinking into a written composition with their own thoughts and ideas woven throughout (Hayes & Flower, 1980). Planning can consist of idea generating, organizing and goal setting (Whitaker, Berninger, Johnston, & Swanson, 1994).

In the translating stage, writers begin to transform these ideas into a composition by adding in their own thoughts and ideas. For novice writers, translating is merely a process of reciting their ideas through content association. In this stage, students are retrieving information and restating/explaining it in their own words. Writers who simply translate their thinking are called novice writers. Most writers leave novice stages behind as they move from knowledge telling to knowledge transforming, a more sophisticated form of translating knowledge (Bereiter & Scardamalia, 1987). Knowledge transforming emerges when writers are able to synthesize, reprocess or repackage knowledge in an increasingly complex way, expanding on their thoughts and moving toward a more comprehensive picture (Bereiter & Scardamalia, 1987, p. 18). It is in this stage that students become *experts.* Bereiter and Scardamalia (1987) suggest that

knowledge transforming writers become *expert* writers, using a more sophisticated translation process that is usually reserved for social interactions—when people talk about what they know freely. In *expert* reprocessing, the writer must become metacognitive: planning as they go, making associations between ideas, and considering their audience. To do so requires higher order thinking skills that extend beyond simple novice recitation.

In the third stage, reviewing and revising, writers evaluate and revise their written work to evaluate what has been written. At this stage, writers make modifications to the work to improve it (revise) or correct errors (proofread). These three stages are congruent to each other rather than dependent upon the other. Hayes and Flower (1980) suggest they happen disjointedly as writers plan for their next piece as they are translating the first and revise as they reread their work, throughout the process. In essence, the authors suggest that writing is complex problem solving—information is processed through these three steps simultaneously and recursively (Flower & Hayes, 1981).

Novice writers that are merely "planners" usually become expert writers in time. Sitko (1998) asserts, "Inexperienced writers fail to search their memories or their environments for help in generating content; they organize what they write primarily into lists… They appear to lack awareness that memory search, organization guided by purpose, and attention to the readers are required for effective writing." Some students never progress toward sophisticated translation, becoming stuck in recitation and list making. Researchers suggest that a student's transition from novice to expert often has to do with the amount of time they spend engaged in writing, which varies greatly from school to school and even from one classroom to the next. The NAEP reported that 97%

of students spend less than three hours a week for writing instruction—15% of the time that they spend watching television each week (National Commission on Writing in America's Schools and Colleges, 2003).

Time to Write

Learning how to write requires that students spend much time dedicated to writing. The National Commission on Writing in America's Schools and Colleges (2003) explains: "Time is writing's greatest ally" (p. 28). The Commission explains that more attention should be paid to writing instruction—more time needs to be found in the day for it (2003). In a similar perspective, Mazzie (1987) states that skilled and unskilled writers at the same grade level differ depending on the amount of writing that has been required of them— in academic settings, better writers have been asked to write more often. Likewise, the National Council of Teachers of English (NCTE, 2004) concludes that people learn to write by writing — and that the more time students spend writing the more proficient they become. NCTE reports that students who write more say they find writing more fulfilling and motivating. Put simply, NCTE asserts, "...getting better at writing requires doing it - a lot" (NCTE, 2004).

Particularly in second language learners, programs that are designed to build writing fluency (over the typical introduction to second language grammar and mechanics) by requiring students to write more frequently have shown increased test scores in writing (MacGowan-Gilhooly, 1991). Learning to write in a second language is a developmental act, where students move from fluency to clarity to correctness (Green, 1998); teachers of second language learners should focus on building writing fluency as a

natural first step toward literacy in a second language. Providing students more time to write, by allowing them to practice their craft, helps to build fluency.

Writing Instruction

Still other writing experts disagree, arguing that simply investing more time in writing will not be enough to create the confident, skillful writers we desire. Instead, writing paradigms need to change by first examining instructional methods and structure writing in the classroom. Sperling (1996) explains that it has been "commonplace" to see writing instruction that focuses on the formal features of written grammar, which does not (alone) improve writing (see meta-analysis by Hillocks, 1987). Miller and Meece (1997) examined the effect of more authentic writing tasks, which involved complex assignments, student choice, and collaboration (versus isolated writing skill instruction) on third grade students' motivation, finding that: "reducing the number of piecemeal assignments had a positive effect on student motivation" (p. 295). Students who received instruction that is more authentic demonstrated less work avoidance behavior and stated that their learning goals were less focused on competition or proving their ability in assessments—their learning support came from encouraging teachers, not from the validation of external tests. Hull and Bartholomae (1986) explain the complexity of the writing process and argue that the mechanics of writing are overemphasized. Through this, students are given a "dehabilitating concern for correctness" where they can no longer focus on what they have to say focusing instead on making their writing look perfect. Students in these classes often remain novice writers who may be aware of the rules and procedures of writing, but the writing they produce lacks depth. Their writing

instruction, Sperling explains: “focuses on linguistic trees, rather than the forest” (1994, p. 58). As evidence, Sperling (1996) cites the 1994 NAEP Writing Report Card, which found that grammar, spelling and punctuation were given more emphasis by bottom-performing schools than by top performing schools. The National Commission on Writing in America’s Schools and Colleges (2006): “Standardization and scripting of instruction threaten to undermine writing instruction” (p. 9).

Also a concern of writing experts, many teachers of writing “teach” writing by assigning and scoring prompts, but provide students with little modeling or coaching on how to actually do the work - how to write. Wolff and Kalna (2010) explain, “We cannot just assign writing without also providing instruction of how to achieve success” (p. 124). Donald Graves (Wolff & Kalna, p. 26) expresses this dichotomy best:

> Students can go a lifetime and never see another person write, much less show them how to write. Yet it would be unheard of for an artist not to show her students how to use oils by painting on her own canvas, or for a ceramist not to demonstrate how to throw clay on a wheel and shape the material himself. Writing is a craft.

Teachers of writing must begin by demonstrating their craft, sharing their own writing, and showing students the struggle and work that is involved in this arduous task. Modeling writing while explicitly teaching strategies to achieve writing success and using “think alouds” to demonstrate this process for children can be an effective way to help transfer self-regulated writing to students (Santangelo, Harris & Graham, 2008). In an analysis of the use of self-regulated writing strategy development (which utilizes direct instruction of planning, drafting, revising, as well as strategies such as goal setting

and self-monitoring) with at-risk children, Baker et al. (2009) found that directly teaching writing in this way had strong evidence of effectiveness for instruction of at-risk or learning disabled populations. Schunk, Pintrich and Meece (2008) explain: "Students who observe teachers explain and demonstrate concepts and skills are apt to believe that they are capable of learning" (p. 306). Without teacher modeling, students are left to warily to navigate the assignments on their own, often with marginal success.

As early as the 1970s, a process-approach to writing demonstrated positive effects on the quality of student writing (Pritchard & Honeycutt, 2006; Bruning & Horn, 2000). Process writing encourages students to engage in several instructional strategies that help to scaffold students writing development. Using a process approach, teachers plan instruction based on how "professional writers" write, including strategies to pre-write (get their initial thinking down on paper), draft their thinking, revise their thoughts, edit copy for grammatical or punctuation mistakes, and publish pieces into a final draft version for the audience to read. Goldstein and Carr (Pritchard & Honeycutt, 2006) conducted a survey of 29,500 students. Their findings explain, "When students have teachers that implement the writing process "almost every day" consistently obtain the highest average scores on the NAEP writing assessment" (Pritchard & Honeycutt, 2006, p. 278). In an experimental study of 654 third, fourth, and fifth graders, Bruno (Pritchard & Honeycutt, 2006) found that those students using the writing process method (versus the traditional, textbook or workbook method) had superior writing, especially in terms of organizing and formatting. Students who received the writing process method of instruction also had more sophisticated organization—information was "chunked" into blocks, where related content was grouped together. Additionally, these students

demonstrated a greater ability to structure their writing pieces into a standard writing format.

One process approach that researchers agree to be a critical step in the writing process is planning. Inexperienced writers must be encouraged to begin writing the process by construct a plan for writing (Flower, 1994). It is this plan that helps to improve students' skill levels. Students that were considered "extensive planners" in a study by Carey and Flower (see Flower, 1994) did significantly better on assignments than "minimal" planners. Planning allows each author a chance to form their thoughts and organize their work before they begin to draft. This critical step can provide students with direction and focus as they begin work. It can also give them a concrete foundation to record their thoughts. Students can then use these planning pages as a scaffold (a support system for learning increasingly complex material) as they to begin to compose their ideas into the written form.

Bringing In Audience and Purpose

Excellent student writing, the sort expected from proficient students must go far beyond just a listing of ideas or thoughts. Writing is a complex, metacognitive process that cannot be learned quickly. Instead, writing requires deep processing (Knipper & Duggan, 2006). Students who considered not only content (as most novice "list makers" tend to do), but also consider audience, purpose, and organization of their writing are more successful (Carey & Flower, 1989). Bereiter and Scardamalia (1985) explain that those students who are novice writers' focus on "knowledge telling" model of writing - explaining content with little consideration of audience or purpose. Contrarily, writers

that are more expert are able to transform their knowledge in an interactive way, considering the end goals for their composition - who will read it and what purpose it will serve. Teachers tend to focus on organization as a teachable component of the writing process, but often neglect audience and purpose (Routman, 2005).

Writing without audience and purpose can have a negative impact on motivation, engagement, achievement and writing quality as well. In a longitudinal study, Fu and Townsend (1999) followed seven children through two years of writing instruction in elementary school: Kindergarten and first grade. In Kindergarten, the children were free to write on any topic and were provided a supportive feedback from their teachers - giving them a true audience for their work as well as an innate sense of purpose. In first grade, the same children faced a different fate, where purpose and audience were taken off the table. Fu and Townsend (1999) report: "From what we observed of the children in our study, we found that 'serious' work in the first grade meant worksheets with fill-in-the-blank exercises, and writing and Reading with little personal purpose or meaning" (p. 410). The authors saw firsthand the transformation of these children across the two instructional modalities—children that began the study in Kindergarten excited about writing quickly had that excitement crushed by meaningless, purposeless practices (Fu & Townsend, 1999). The effect on these children was much less joy and motivation for writing in the first grade.

Several researchers agree that student writing should be done for real purposes and real audiences. Regie Routman (2005) states that, "We are over-focused on procedures, processes, genres, and testing and under-focused on thinking, communicating, inquiring and exploring language" (p. 5). Routman indicates that writing

should be a purposeful, authentic activity, designed to communicate ideas to a specific audience. Students who put forth more effort when they know their writing will be read by a real audience (Routman, 2005). In the literature, the term *authentic* often is used to describe student writing for a predetermined purpose. When writing is authentic it is done for a real audience, while isolated instruction on writing skills and artificial writing assignments are minimized (Cunningham, Moore, Cunningham & Moore, 2004, p. 260). When students have a real, specific audience they compose more, write better, and produce better quality work (Sperling, 1996). The creation of purpose is a malleable factor that teachers can control in their classrooms.

When students have a purpose to write and an audience to consider, they pay closer attention to the words they put on paper (Routman, 2005). By designing writing to be authentic in this way, a culture of caring writers is created in classrooms. Writing comes alive through authentic purposes in a classroom, as students listen more carefully to instruction, have a feeling of excitement and work harder on what they have written (Cunningham, Moore, Cunningham & Moore, 2004, p. 232). Purpose and audience are fundamental to the writing process, as they answer the questions that drive us all to put pens to paper or type away on laptops: *why am I writing this at all, and who will read what I have to say?* Using authentic tasks in the classroom has motivational consequences as well. Shunk, Pintrich and Meece (2008) explain, "…tasks and problems that are more authentic will be more meaningful to students and will increase their interest, and will lead to better learning… " When students feel like their writing will be read by a supportive audience, they are more motivated to learn to write (Cunningham, Moore, Cunningham, & Moore, 2004, p. 230).

Content Area Writing and Writing to Learn

One avenue toward creating authentic writing in the classroom is by allowing students time to reflect on what has been learned in a specific subject, through composing a piece of writing to their teacher as an audience, based on what they learned. Educators have linked writing with thinking, reasoning that through engaging in writing, students also become engaged in learning content: using self-monitored planning, concept building and reviewing what is known (Bangert-Drowns, et al., 2004). This is often referred to in the literature as "writing to learn" or "writing across the curriculum" and can be used in any subject area (Barone & Taylor, 2006). Writing to learn is often informal or "low-stakes" writing, where students are allowed to express their ideas or current knowledge about a given topic, without fear of negative feedback that could include bad grades or grammar marks.

Barone and Taylor (2006) explain that writing to learn has two primary goals: (1) to clarify and extend students' thinking about a topic/content areas, and (2) to enhance student/teacher understanding of any misconceptions or incomplete knowledge about the topic that may guide instruction. When asked students to communicate their ideas, they become motivated in an exploration of how best to get their message across (Lambirth & Goouch, 2006). In a meta-analysis of writing to learn's effect on student achievement, Bangert-Drowns, Hurley, and Wilkinson (2004) found that 36 of 48, or 75% of studies that they reviewed, had positive outcomes, suggesting that writing-to learn interventions have a fairly consistent, positive outcome on student achievement. Specifically, those interventions requiring students to engage in writing to learn activities 3-4 times a week and using a metacognitive prompt require students to reflect on current understandings,

confusions and the learning processes. Those strategies giving students less than 10 minutes to write, as opposed to more time, which was less effective, were most successful at raising academic achievement (Bangert-Drowns, Hurley & Wilkinson, 2004).

Writing to learn is a communicative tool between a teacher and his students. Using writing to learn as a formative assessment tool, a teacher can readily see the daily progress each student is making. Through student writing, teachers are able to determine if their lessons have been effective, and to what degree they have been successful at teaching the content to each student. To teachers like Marcia Blake (Blake, 1990), writing to learn is a foundational part of the learning process:

> It is a simple technique that helps me to evaluate my teaching and my students' learning. Their (learning) logs tell me when to adjust strategies and when totally to change a lesson. Logs help me to figure out if a lesson has been successful, or if it has bombed. (p. 68)

With this heightened awareness, teachers can become much more effective at meeting the needs of each individual learner.

Writing to learn requires students to think deeply about what they know, by recalling what was learned, clarifying points that were confusing, and questioning their content area knowledge in written form (Knipper & Duggan, 2006). Additionally, writing to learn also can provide students with an opportunity to identify and explore those lingering questions. Knipper and Duggan (2006) suggest that writing to learn has an invaluable place in elementary and middle school content-area classrooms. Integrating writing into the disciplines helps to foster student engagement with authentic

contexts (Bruning & Horn, 2000). Through writing to learn, passive students are encouraged to become active participants and thinkers in their learning. The authors suggest that when students write to learn, they must, "… grapple with putting their thinking and knowledge on paper" (p. 469). Writing to learn requires much deeper thinking from students than simply Reading about a topic, watching a video, or listening to a lecture. Writing about content prompts students to use several cognitive learning strategies: rehearsal, elaboration, organization and comprehension monitoring (Bangert-Drowns, et. al., 2004). They must reprocess, translate and synthesize the knowledge they acquire in a new way. An elementary math teacher, Thompson (1990) explains of her experiences with writing to learn in the classroom:

> We have just begun using math journals and already I can see how they help my students to formulate questions…extend so-called critical thinking skills in context as they analyze, synthesize and describe their reasoning…I know what is on their minds because they make their thinking explicit in the pages of their logs. (p. 93)

NCTE (2008) states that when young writers can develop their own ideas, make sense out of their experiences and present new understandings without the pressure of formal grades, learners see the value of writing that helps them learn.

However, many teachers ask students to write about a topic—often for assessment purposes—but fail to teach students how to be successful at the writing task. Writing to learn is a skill that must be taught. Rothstein, Rothstein and Lauber (2007) encourage teachers to make a distinction between assigning students to write about content and actually *teaching students how* to write successfully about what they have learned:, "…it

is incumbent on teachers of all content to prepare students for the expectation that they will need to demonstrate their knowledge in written form" (p. 2).

According to Armbruster, McCarthey and Cummins (2005), writing to learn is a growing trend in elementary schools, but research addressing writing to learn is thin. Their study examined three elementary teachers who used the writing to learn strategy in differing content areas across grade levels. Teachers in the Armbruster, McCarthey and Cummins study reported that the benefits they saw in this process included: "enhancing content learning, facilitating learning to write and helping teachers access learning" (p. 91). Teachers further explained that when students were asked to summarize and reflect on their learning, their knowledge of content was enhanced. Further, this method allowed students to express their opinions, make connections to past learning, represent their knowledge in a new way and facilitate their memory. Finally, writing to learn in this way had an affective component—it served as a "record of learning" that children could refer back to for the rest of the year and for years to come.

Teachers report many obstacles exist in writing to learn activities (Armbruster, McCarthey & Cummins, 2005). Lack of time was a major concern. School districts have placed many demands on teachers, and writing to learn often does not fit into their tightening schedules. State tests have placed additional stress on teachers, as one teacher reports, "We as educators don't have enough time to really grasp what the state wants us to do all at once" (p. 93). Beyond just content area writing, the amount of time teachers devote to writing instruction in general has been called into question (National Commission on Writing in America's Schools and Colleges, 2003).

The National Commission on Writing in America's Schools and Colleges (2003) explains that recent focus on No Child Left Behind legislation has led writing instruction and the subject of writing to become the "Neglected 'R' of education." Their report states, "Learning how to express one's thoughts on paper requires time… These skills cannot be picked up from a few minutes here, and a few minutes there, all are stolen from more 'important' subjects" (p. 20). The National Commission on Writing in America's Schools and Colleges (2003) suggests that one way teachers can improve student writing progress is to double the time students' spend writing. However, many teachers will contest that there is not enough writing time in one day to make this possible. Writing across the curriculum can be used to bridge the gap between the amount of time allotted to writing instruction and the amount of time needed for writing instruction (The National Commission on Writing in America's Schools and Colleges, 2003). The time teachers devote to writing may make a great impact on students' writing performance.

Fulwiler (1997) takes this idea a step further describing an instructional strategy where teachers and students to exchange informal letters, based on what is learned in class. Providing this low-stakes (ungraded) opportunity for students to express their ideas through written composition encourages them to think freely, without fear of criticism or failure (Fulwiler, 1997). Through writing informally, learners grow to understand the value that writing about their thinking can play to support what they learn (NCTE, n.d., b.). One caveat of such an approach would be to remain focused on student's ideas over the form. The NCTE explains when teachers put too much emphasis on correctness over content, student writing development can be inhibited (2004). Conversely, when students write to learn in a low-stakes environment, where their

success is assured and they have an opportunity to build upon and deepen their expertise in content areas, motivation to write increases (Bruning & Horn, 2000).

When implemented effectively, writing to learn provides teachers with a window into what students are thinking about content—into their metacognitive processes.

Metacognition's Role in Content Area Writing

Time to reflect on what was learned requires that students become metacognitive. Metacognition can be defined as "thinking about knowing" (Rothstein, Rothstein & Lauber, 2007). When students think about their thinking—learning deepens. Routman (2005) explains, "Writing enhances thinking and helps develop it" (p. 42). Applebee (1984) likens writing to a process of reasoning where writers invent and that invention is determined with the writer understands the topic, providing a reader with a thorough exploration of what is known (p. 581). Writing involves the process of figuring out what you know and what you do not know, organizing your thoughts, and working through ideas that are confusing. When writers are asked to reflect on learning, they are given "intellectual control" over their knowledge, discovering what they want to say and how they want to say it (Hull & Bartholomae, 1986). Put simply, writing is an excellent way to "mess around" with your thinking (Routman, 2005).

In writing, students become metacognitive as they actively draw upon and engage their thinking processes. Writing about one's thinking in this way can also promote deeper mental processing; when writers compose, they come across new ideas they did not have before they began writing (NCTE, n.d., a.). Fulwiler (1997) explains, "When people write about anything, they learn more about it. Often, they learn more than they

intend—about what they know, what they don't, and where they need to go next" (p. 15). Barone and Taylor (2006) suggest that writing is a problem-solving process—when students write they are able to get their thoughts/ideas down on paper, evaluate and analyze their thinking, and construct this new thinking into sentences and paragraphs.

Writers have a unique opportunity to discover what they know through the process of writing itself (Pritchard & Honeycutt, 2006). Writing asks students to extend their thinking and acquire multiple perspectives on a topic (Jewell & Tichenor, 1994). The 1973 study by Peter Elbow (as cited in Pritchard & Honeycutt, 2006) explained this process in a new way, "The writer is thereby freed from having to know all of his or her meaning before writing any of it." Metacognitive thinking is exploratory, or as NCTE (2004) explains, using metacognitive writing provides students with a "medium for thought." Writing in this way generates ideas and thoughts that students may not have had "in mind" before they began writing. Thomas and Oldfather (1997) explain that allowing student's time to reflect on their thinking and goals supports their autonomy and growing metacognitive awareness. As an additional benefit, students who are learners that are more autonomous tend to have more intrinsic motivation (Thomas & Oldfather, 1997).

The metacognitive benefits of content-area writing are impressive. Using such a format in classrooms provides an authentic purposeful way for students to tell us what they know in a safe, non-threatening environment. Using the content-areas to provide additional time to write could take help students make the transition from novice writers to expert writers. Additionally, teacher feedback can address student confusion with content area learning, providing an opportunity for clarification and re-teaching in the

classroom. The question then becomes *what impact, if any, will this new intervention have on student motivation?*

Student Motivation Theories and their Link to Writing Self-Perception

Students' self-perceptions, or the beliefs a student holds related to his or her ability to succeed, are often linked their motivation. Pajares and Valiante (1997) explain:

> Believing that they are capable writers… will serve students well when they attempt to write an essay, not because the belief itself increases writing competence, but because it helps create greater interest in writing, or sustained effort, and a greater perseverance and resiliency when obstacles get in the way of the task. (p. 353)

Shunk and Meece (1992) explain self-perceptions' influence on achievement with, "Research conducted in the past few years supports the idea that student perceptions help to explain achievement-related outcomes, beyond the effects of student abilities and environmental factors" (p. xi). Many times, these self-perceptions have been influenced by students' interpretations of situations and are often influenced greatly by outside forces, such as reinforcements or evaluations (Schunk, 1992). These external factors can be manipulated easily by teachers, but this practice is often frowned upon by teachers. They are unwilling to manipulate grades for motivational benefits, when they ultimately want their students to work and learn for the joy of the task, and not for the reinforcements or grades.

Ideally, teachers would like all students to be intrinsically motivated. Reality presents a different picture—every student brings a unique history and set of personal

qualities to the classroom, and motivation varies greatly from student to student. Even within one student, motivation can vary greatly from subject to subject. The learning context also greatly influences motivation. Brophy (2004) explains that while teachers cannot control students' intrinsic motivation (by definition, an affective experience), they can help to provide students with motivation to learn (a cognitive experience). Teachers can stimulate students' motivation to learn or "cognitive engagement" in an instructional activity in a variety of ways, including making learning meaningful for students. Teachers must also consider a multitude of other factors that can have an impact on students' motivation.

Many motivational factors affect a student's willingness to engage in and complete instructional tasks (Shunk, Pintrich & Meece, 2008). Existing research points to the following key factors that affect student motivation:

Confidence. Decreased motivation can be symptomatic of a lack of confidence (Pierangelo & Guiliani, 2002; Oldfather, 1993). Students that lack confidence in writing are often resistant, unmotivated and unwilling to participate in writing activities. Students' self-efficacy beliefs about writing can also influence performance—students with lower self-efficacy perform worse than those with higher self-efficacy (Pajares & Valiante, 1997). However, when students feel confident they can succeed, they are more likely to put forth effort in writing. Pierangelo and Guiliani (2002) recommend that teachers empower students to have autonomy in the activities in the classroom giving them confidence. Without this sense of empowerment, students will wait for teacher direction, often hesitant and unable to act. Pajares and Valiante (1997) suggest that teachers should pay as much attention to students' perceptions of confidence in writing as

to their actual competence—it is the perceptions that predict actual performance. This is especially critical in the mentally demanding subject area of writing, which requires students to draw upon their ideas, compose their thoughts into written form and put pen to paper.

Choice and Autonomy. Choice can be a powerful motivational tool in the writing classroom. Students are motivated by taking "control" over their learning, such as self-selecting what to write about during writer's workshop. Motivational researchers believe the behaviors of students lead toward an effect that is directed toward accomplishing a goal of self-regulation. Shunk, Pintrich and Meece (2008) explain that allowing students to have choice in the classroom promotes self-regulation in the learning process, which in turn promotes learning and allows for the perception of greater competence. Allowing choice within a learning environment not only promotes self-regulated learning and motivation, but also works to foster self-assertive social relationship goals (as identified in Ford and Nichols's Taxonomy of Human Goals; Ford & Nichols, 1987). Students who are unmotivated for a learning task often do so because of a lack of autonomy (Oldfather, 1993). Students have a need for self-directedness and self-selection. When assignments are forced upon them without considering these factors, then motivation suffers.

Deci and Ryan's Self-determination Theory (1985, 2000) further supports Choice Theory. Self-determination Theory has been applied to educational contexts for decades and helps better to understand the motives behind students' self-regulated learning behaviors. This theory provides researchers with an insightful perspective on how students' can be (internally) motivated to exercise control over their environment, and act

in self-determined ways. Essentially, self-determination theory argues that people have a need to be autonomous and they engage in activities because they choose to do so (Schunk, Pintrich & Meece, 2008). In terms of teaching, this theory is a critical piece to consider—students have a need to act in self-determined ways, thus teachers need to provide them with choices. Research has shown that student choice affects intrinsic motivation (Swann & Pittman, 1977; Zuckerman, Porac, Lathin, Smith & Deci, 1978; Shunk, Pintrich, & Meece, 2008). When a student makes a choice about what s/he is learning, s/he exercises that self-determination and satisfies that need for autonomy. Choice begets internal motivation in children (Shunk, Pintrich & Meece, 2008). However, when teachers prevent choice and externally control the environment of children a diminishing effect of internal motivation occurs limiting their sense of autonomy (Thomas & Oldfather, 1997). Deci and Ryan (1985, 2000) summarized research on features of a classroom that could support or inhibit self-determination and intrinsic motivation. Supporting teacher behaviors included: choice and positive feedback; inhibiting teacher behaviors included: threats, deadlines, rewards, evaluation, and surveillance (Deci & Ryan, 1985).

Allowing students to have choice in learning promotes student interest in the classroom. High levels of interest and engagement can make learning feel "effortless" to students, as they become absorbed in the task. To get students to that effortless engagement (through interest), Shunk, Pintrich and Meece (2008) suggest that the long term development of interest is served better by the use of meaningful tasks. Writing to learn can be that meaningful task, building student confidence and interest as they reflect on what they have learned.

Choice and autonomy build student confidence in writing, causing an increase in their motivation to write. Likewise, using music to stimulate the writing experience can motivate and inspire young writers.

The Effect of Music on Writing: The "Mozart Effect"

Music can have powerful effects on learning. Dubbed the "Mozart effect," researchers argue that when children are exposed to music, their performance on learning tasks is enhanced (Hetland, 2000; Cassidy, Henley, & Markley, 2007). Hetland (2000) explains: "...music and spatial abilities are not wholly distinct nodules and that transfer from one to the other may occur readily" (p. 106). The original study by Rauscher, Shaw and Ky in 1995 demonstrated that students' scores increased 8-9 IQ points on the Stanford-Binet IQ battery for visual-spatial reasoning after listening to 10 minutes of Mozart. The authors explained that Mozart had primed the neurons that would be needed for these tasks. Many studies have replicated the Raushcer, Shaw and Ky study, with varying results (see, e.g. Steele, Bass, & Crook, 1999; Ashby, Isen, & Turken, 1999; Steele, 2000; Thompson, Schellenberg & Husain, 2001). Raucher and Ribar (as cited in Hetland, 2000) found that Mozart affected a positive mood, but that it did not increase spatial performance. Some suggest that performance differences may occur due to changes in mood. Cassidy, Henley and Markley (2007) found improved performance when students listened to music they like; these findings are consistent with the arousal mood hypothesis. Menon and Levitin (2005) found that music activates the connective tissues between several brain systems and chemical pathways that determine our feelings of pleasure. Humans find music pleasurable, and while its effect on learning is mixed in

the literature, its use in this particular Reflection/Exit Ticket intervention has shown promising instructional effectiveness and positive responses by students.

The Intervention: Reflection/Exit Writing ™

The end of the classroom day is often chaotic, frustrating to teachers, and characteristic of time spent wasted by students. In the early 1990s, H. Jerome Freiberg, founder and director of Consistency Management & Cooperative Discipline® (CMCD®) (Freiberg, 1992), a classroom management program used worldwide, proposed a solution to these moments before dismissal. Identified at first as the Exit/Reflection Ticket and then the Reflection/Exit ticket, Freiberg (1993) suggested that students spend those last five minutes reflecting and writing about what they had learned throughout the day. These reflections would be handed to their teachers in a notebook as their "ticket" to go home (see Appendix A). The teacher would not correct their writing at this time, but see both what had been the key learning objectives for the day as well as common writing errors that would be addressed during other instructional times. The teacher would also give students some feedback about what they learned.

This classroom management strategy has provided calm, orderly, and academic close to the school day for thousands of students. A video of an inner city fourth grade class made by Freiberg in 1993 shows students immediately before the winter break, totally engaged in the Reflection/Exit process at 2:45 in the afternoon with students continuing to write after their teacher has asked them to stop and prepare to leave. Teachers who use the strategy report that their students show academic growth because of Reflection/Exit tickets (Freiberg, 1992). This proposed study will be the first formal

test of its impact on the quality and quantity of writing over time. The proposed study is designed to measure these components to determine if this intervention has additional positive effects on students, beyond improvements in classroom management.

Reflection/ Exit tickets provide a quiet, reflective space at the end of the classroom day where students write for five to six minutes about what they learned while listening to classical music composed of mostly strings and piano. Through Reflection/Exit tickets, teachers prompt their students to reflect on the content that had been learned asking them to explore what they remember from the lessons of the day. In addition, students are encouraged to discuss new understandings, connections to prior knowledge, further questions they may have, and are asked to identify any pieces of the learning that are still unclear. They may use textbooks or other written sources. Students are asked to pack up and be ready for dismissal before they begin their writing. The time for Reflection/Exit writing is serene, with classical music playing (often started by a student as part of the CMCD program) in the background while students write for five to six minutes, without interruption from the teacher. Reflection/Exit tickets also provide a sense of closure to the lesson, as students recall what they learned and cement their new understandings through writing. To teachers, these metacognitive writings can be used as a formative assessment of their teaching and students' learning—they can quickly see what misconceptions students have about content, address questions that arise because of learning, and extend learning. These activities are not graded but used for the teachers to identify areas that could be taught at other times during the day.

Conclusion

This chapter presented a review of the literature, including a background on the development of the children in writing through the elementary years, looking specifically at content area writing, examining writing instruction, discussing student motivation theories as they pertain to writing and self-perceptions, reviewing the effect of music on learning, and presenting the intervention. The Chapter Three outlines the methodology of the study including the setting, the participants, the intervention, data collection procedures and data analysis procedures.

Chapter III

Study Methods

Based on the need for the study and a review of the literature, this study was designed to examine the role a reflective, daily writing intervention plays on student self-perceptions and writing development. Freiberg (1993) developed the Reflection/Exit Ticket to help teachers establish a calm, productive end to a lesson, bring closure to their learning period and enable purposeful student reflection on the learning of the day. The Reflection/Exit Ticket is a component of the Consistency Management & Cooperative Discipline program (Freiberg, 1992). Used during what is usually the most chaotic moment of the instructional block, Reflection/Exit tickets ask students to write for five to six minutes what they have learned and translate the learning of the day into their own language. While classical music is played, students quietly respond to the prompt *Today, I learned…*" The students' Reflection/Exit writing also provides feedback to the teacher, relating to what the students find important from the instruction of the day. The teachers do not grade or correct the Reflection/Exit writing, but read them for understanding and look for trends that could be part of future instruction of writing. Teachers often provide students with brief feedback. Used for over two decades, Reflection/Exit tickets are designed to give students a purposeful space and time to reflect on learning.

This study will examine the role Reflection/Exit writing has on three student outcomes: (1) writing self-perceptions; (2) writing development, as measured in quantity; and (3) writing development, as measured in quality. Specifically, the study will address the following three research questions:

(1) *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quantity (word and syllable length)?;*

(2) *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quality (TAKS Writing Rubric and content analysis)?;* and

(3) *Does the use of Reflection/Exit writing affect fourth grade elementary students' self-perceptions of their ability to write as measured by the Writer Self-Perception Scale?*

The following section describes the methodology used to conduct this study including: (1) the research site; (2) participants; (3) rationale for a case study with mixed methods design; (4) instrumentation; (5) data collection procedures; and (5) data analysis procedures.

The Research Site

The study was conducted at Hillview Elementary School (a pseudonym), a mid-size elementary school with approximately 600 children enrolled in grades Pre-Kindergarten through fifth grade. Hillview is located in a mid-size school district size school district, with more than 30,000 students served in the district within its 26 elementary schools, nine middle schools and four high schools, located just outside a large, urban metropolis in Texas. Hillview is a bilingual campus, serving both native speaking English and Spanish students. The district's bilingual One Way Dual Language (OWDL) Program accounts for 16 of 29 classrooms at Hillview (55% of classrooms),

serving students who begin Kindergarten or Prekindergarten as native Spanish speakers. The OWDL Program begins with 100% of Language Arts instruction in Spanish in the Pre-K through first grades, with only math being taught in English. In grade 2, teachers begin introducing English with 30 minutes daily of English immersion instruction in language arts. By grades three and four, students receive half of their Language Arts instruction in English and half in Spanish. By fifth grade, the primary language of instruction for all content areas is English, with support for vocabulary and challenging content in Spanish, as needed. The only subject taught in English throughout grades K-5 is math. Science and Social Studies are taught predominantly in Spanish (with limited English instruction), until fifth grade.

At the time of this study, all students at Hillview received thirty minutes to one hour of writing instruction per day. Fourth grade students received at least one hour of writing instruction per day, as fourth grade writing is a tested subject in the state's testing program (in elementary schools in Texas, writing is only assessed in fourth grade, thus receives the most emphasis at this grade level). The fourth grade writing curriculum at Hillview followed a pre-determined set of lessons and district requirements. Hillview teachers attended a mandatory beginning of the year training on delivering the fourth-grade writing curriculum and met with a district specialist several times throughout the year to compare student writing samples, analyze writing performance by class and to share ideas. During these district-facilitated meetings, Hillview teachers discussed curriculum implementation, asked questions of one another (and of the district writing specialist), and set common writing goals for Hillview (for upcoming district assessments). Monthly (starting in September and continuing through the study's

timeline), Hillview teachers gave students a common writing "checkpoint" assessment, and had data analysis meetings regarding student progress and evaluating class strengths/weaknesses.

Participants

Teacher Participants. Four teacher participants were included in this study. Initially, these four teachers were selected because they made up entire team of fourth grade teachers at Hillview. At the beginning of the school year (Fall 2011), Hillview had four fourth grade classrooms—two bilingual classes (using the Bilingual/OWDL program) and two mainstream, English-only classes (with English as a Second Language, ESL, support). Due to unexpectedly large numbers in the mainstream, English-only classes (28 children in each), a third mainstream, ESL classroom was added to Hillview in mid-September (prior to the start of this study). This classroom was created by moving nine children from each mainstream ESL classroom into the new teacher's section. District officials decided to add this classroom due to overcrowding, and in an effort to maintain the 1:22 (teacher: student) ratio that is mandated in Texas elementary classrooms (PK-4). The fifth Hillview teacher was a self-contained teacher (she kept her students all day long, teaching them all of the subjects herself). Neither the fifth teacher nor her students were included for the purposes of this study.

The four Hillview teachers used in the study departmentalized their instruction in a two-way split: students received Language Arts and Social Studies instruction from one teacher and Math and Science instruction from a second teacher. For the purposes of this study, Math and Science content area writing was used to have students create

Reflection/Exit writing. Two intervention teachers (Ms. D., the English/ESL and Mr. M., the one Bilingual/OWDL teacher) administered the intervention to their morning classes, but not their afternoon classes. The comparison group was comprised of the Language Arts/Social Studies teachers' (Ms. T. and Ms. Y.) morning classrooms. Thus, all students were asked to write their Reflection/Exit samples (pre-intervention and post-intervention) in the morning, prior to lunch. Intervention and comparison group classrooms had an identical curriculum and shared the same teachers (switching classes in the afternoon). Table 2 provides an outline of the teaching schedule.

Table 2.

Fourth Grade Schedule of Instructional Blocks

Time	Ms. D. (ESL) & Mr. M. (OWDL)	Ms. T. (ESL) &Ms. Y. (OWDL)
7:30 - 10:00	Math and Science Block* Math: 90 minutes Science: 1 hour	Language Arts and Social Studies Block* Reading: 1 hour Writing: 1 hour Social Studies: 30 minutes
10:00-10:45	Specials – Teacher planning period for all of fourth grade	
10:50-11:25	Recess/Lunch for all of fourth grade	
11:25-11:35	Restrooms/Switch Classes – Move to partner teacher's classroom	
11:40-2:10	Math and Science Block* Math: 90 minutes Science: 1 hour	Language Arts and Social Studies Block* Reading: 1 hour Writing: 1 hour Social Studies: 30 minutes
2:10-2:25	Return to homeroom for dismissal/Pack up—End of day	

*taught to homeroom class
**taught to partner's homeroom class (ESL or OWDL partner teacher)

The intervention group was comprised of two classrooms: the classroom of Mr. M.'s classroom with 13 intervention students and Ms. D.'s classroom with 12 intervention students. The comparison group was comprised of two classrooms: Ms. T.'s classroom with 15 students and Ms. Y.'s classroom with 16 comparison students.

Mr. M. – Intervention Group, Bilingual Math/Science. Mr. M. has taught in elementary schools for eight years. An immigrant to America, Mr. M. learned to speak English at the age of 18 when he moved with his family from El Salvador. He graduated with a degree in Computer Information Systems before he realized that his true calling was teaching bilingual education. In 2004, Mr. M. completed the alternative certification program (ACP) to earn his EC-4 certification. He has received numerous accolades for his dedicated work with bilingual learners, including being named Teacher of the Year for Hillview in 2008. Mr. M. has taught in two school districts, but the majority of his years (seven of eight) have been spent as a fourth grade teacher. In addition to his teaching responsibilities, Mr. M. volunteers for the after school program, working with kids on soccer skills and providing after school tutoring.

Ms. D. – Intervention Group, ESL Math/Science. Ms. D. has been teaching for seven years with four years as a fourth grade teacher and three years in other elementary grades. Ms. D. holds an EC-4 certification obtained through an ACP program in 2004. Ms. D. holds a Bachelor Degree in Psychology. Throughout the course of the study, Ms. D. was enrolled in a Master program and completed it earning a M.Ed. in School Counseling. Ms. D. had unexpected personal matters come up during the course of the study, which required her to be out of the classroom for over two weeks during the study. Her substitute did not follow plans to keep up with the intervention. This may

have had an impact on study findings for her group and is discussed in further detail in the limitations section (Chapter 5).

Ms. T. – Comparison Group, ESL Language Arts/Social Studies. Ms. T. has been teaching elementary for six years, with all of them at Hillview and in fourth grade. Ms. T. holds a Bachelor's degree in Elementary Education and an EC-4 certification. Ms. T. was also named Teacher of the Year at Hillview in 2009. She has undergone extensive writing training within the district and has attended many external conferences on improving literacy, specifically in writing. Ms. T. is a master writing teacher, and mentor to many new or struggling teachers at Hillview. Ms. T. has also mentored student teachers along their path toward degree and certification.

Ms. Y. – Comparison Group, Bilingual Language Arts/Social Studies. Ms. Y. was a new teacher to Hillview in the 2011-2012 school year. She had recently moved to the area from Dallas after teaching four years in Dallas-area schools. Ms. Y. has taught first, fourth and second grades during her 15 years in education. Ms. Y. is a Puerto Rican native who taught in Puerto Rico for nine years before coming to America. Ms. Y. has Bachelor and Master degrees in Education from Puerto Rico. In addition to her teaching responsibilities, Ms. Y. has worked as a PTA liaison, coordinator for various after school activities, and received a Teacher of the Year nomination for the 2012-2013 school year.

Student Participants. All fourth grade students enrolled at Hillview Elementary who selected to participate and received parent permission were included in the study. This study's convenience sample consists of 56 student participants assigned to either the intervention or the comparison group depending upon their homeroom teacher's designation. The intervention group consisted of the homeroom (morning) classrooms of

two intervention teachers (Ms. D., Math/Science English/ESL, and Mr. M., Math/Science Bilingual/OWDL) and two comparison teachers (Ms. T., Language Arts/Social Studies English/ESL, and Ms. Y., Language Arts/Social Studies Bilingual/OWDL). In the intervention classrooms, Mr. M. had 13 student participants and Ms. D. had 12 student participants. In the comparison classrooms, Ms. T. had 14 student participants and Ms. Y. had 16 student participants. Intervention and comparison groups teachers received different training and information throughout the course of the study as discussed below.

Demographics. According to district data sources (Study District, 2013), in the 2011-2012 school year, 87% of the fourth grade students at Hillview were considered economically disadvantaged (including study participants and non-participants). Within the student sample (N=56), the demographic information is as follows: 91.1% Hispanic (n = 51), 1.8% White (non-Hispanic; n = 1), 5.4% African American (n = 3), 0% American Indian/Alaskan Native, and 1.8% Asian/Pacific Islander (n = 1). In terms of gender, the student population includes 50% male and 50% female students. There are 45% of student participants identified as Limited English Proficient (LEP). In the bilingual classes (Mr. M. [intervention] and Ms. Y. [comparison]), LEP numbers were much higher: 85% and 88%, (respectively), and both classrooms consisted of a 100% Hispanic student population. Within the study sample, 14% were special education students, divided between Ms. D. (25%), Mr. M. (23%) and Ms. T. (14%) classrooms. Ms. Y. had no special education students. Table 3 outlines the demographic information for the student sample (below).

Table 3.

Demographic and Enrollment Information for Study Participants

	Study Population (N=56)				
Variable	Ms. D.	Mr. M.	Ms. T.	Ms. Y.	Overall
Number	n = 12	n = 13	n = 15	n = 16	N = 56
	(n) %	(n) %	(n) %	(n) %	(N) %
SPED	(3) 25%	(3) 23.1%	(2) 13.3%	(0) 0%	(8) 14.2%
LEP	(2) 16.7%	(10) 84.6%	(3) 20%	(14) 87.5%	(29) 51.7%
Male	(6) 50%	(7) 53.8%	(8) 53.3%	(7) 43.8%	(28) 50%
Female	(6) 50%	(6) 46.2%	(6) 40%	(9) 56%	(28) 50%
Hispanic	(9) 75%	(13) 100%	(12) 80%	(16) 100%	(50) 91.1%
Black/African American	(3) 25%	(0) 0%	(0) 0%	(0) 0%	(3) 5.4%
White	(0) 0%	(0) 0%	(1) 6.7%	(0) 0%	(1) 1.8%
Asian/Pacific Islander	(0) 0%	(0) 0%	(1) 6.7%	(0) 0%	(1) 1.8%

Response Rate. A total of 77 students comprised the four classrooms used for this study and received parental consent and student assent forms. Of those, 56 students (73%) received parent permission to participate and had a complete set of data. Seven students (9%) had parents deny permission for their child to participate in this study. Eight students (10%) moved during the duration of the study, therefore they did not have a complete set of data and were subsequently eliminated from the study's participants. Three students (4%) did not return parent permissions. One student's (1.3%) Reflection/Exit folder was misplaced, so he was eliminated from the study. (These

folders were kept in the classroom in a cabinet when students were not using them to write, but his was missing at the time of collection.) Another student (1.3%) moved from an intervention classroom to a comparison classroom in the middle of the study, due to behavior issues—he was eliminated from the study. Finally, one student (1.3%) became home-bound throughout the course of the study, due to medical issues—he was also eliminated as a participant. The percentage of students who participated in this study varied by classroom:

Ms. D. (intervention) had 60% of her class participate in the study (12 students)

Mr. M. (intervention) had 72% of his class participate in the study (13 students)

Ms. T. (comparison) had 79% of her class participate in the study (14 students)

Ms. Y. (comparison) had 80% of her class participate in the study (16 students).

Case Study with Mixed Methods Research Design

Case studies are used in qualitative research to provide detailed, contextual descriptions and analysis about a particular individual, group or event (Yin, 1984). In this study, the four classrooms were treated as independent case studies, due to the small population of students in each class and the rich, multidimensional data provided for each case. Case study data can include careful observation, interviews, psychological tests or archival records (Yin, 1984). For the purposes of this study, case study data includes a student survey (scale) and archival data (writing samples). Case study research provides rich sources of data that allow the researcher to make additional hypotheses or ask further questions to be used in future research (Yin, 1984).

Mixed methods (or mixed model) research borrows from both the quantitative and qualitative paradigms of research—combining the two in purposeful designs to come up with a more comprehensive understanding of the issue studied (Tashakkori, 1998). Mixed methods research operates on the assumption that there are multiple ways of seeing a problem and making sense of the world (Greene, 2007). Within educational research, mixed methods allow the researcher to gain a richer, deeper and better understanding of important facets of a complex problem (Greene, 2007).

A parallel, concurrent mixed method research design was employed for this study. This type of multi-strand research design mixes qualitative and quantitative methodology, with two or more distinct strands of research that address different questions (some questions addressed through quantitative means and others through qualitative investigations). In a concurrent mixed model design, the researcher draws all sets of data together at the conclusion of the study, combining these data (Tashakkori, 1998).

Three distinct strands of data were measured, concerning the three research questions posed by the researcher (found in Table 1). To address these three strands, four data points (one for research question 1; two for research question 2; and one for research question 3) were used to determine what change, if any, Reflection/Exit writing had on the intervention groups' writing self-perceptions, writing quality, and writing quantity. The following four points of data were analyzed through this mixed methods design: word and syllable length, holistic (TAKS) writing rubric, qualitative content analysis and the Writer's Self-Perception Scale.

Research Strand 1: Quantitative - Syllable and Word Count. This first strand is quantitative addressing the research question: *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quantity (word and syllable count)?* To address this first research question, word and syllable lengths were calculated for each writing sample collected at pre-intervention and post-intervention. To measure the impact of Reflection/Exit Writing on students' writing length, these two writing samples (pre-intervention and post-intervention) were collected from all intervention and comparison groups and analyzed for the number of words and syllables. In addition, a measure of writing complexity (syllables per word) was analyzed in this strand.

Statistical analysis (paired-sample *t*-tests) helped to determine if the changes were experienced in each case study classroom from pre- to post-intervention were significant. Independent-samples *t*-tests were then used in a second analysis to determine if there were significant differences between the intervention and comparison groups' writing length. For the purposes of this study, significance was determined by *p*-value, where $p < 0.05$.

Research Strand 2: Qualitative - Writing Quality Analyses. This second strand of the study is qualitative addressing the question: *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quality (TAKS Writing Rubric and content analysis)?*

***Content Analysis*.** To address this research question, the researcher conducted an inductive content analysis to examine student writing samples pre-intervention and post-intervention. Using these analyses, the researcher identified emergent themes in

students' writing samples to determine what change, if any, the intervention had on the quality of student writing.

***Holistic (TAKS) Writing Rubric*.** In addition to content analysis, each student's writing samples were assessed by two trained raters with the use of the Holistic (TAKS) Writing Rubric for fourth grade and given a score of 1-4 to determine if there were differences in student quality of writing as determined by a standard rubric used by the state to score student writing samples annually. Results from students' holistic rubric scores were then analyzed (through the use of paired-sample *t*-tests) to determine if changes that occurred in student writing quality in each case study classroom from pre- to post-intervention were significant. Independent-samples *t*-tests were used to assess if there were significant differences between the intervention and comparison groups changes.

Research Strand 3: Quantitative - Survey: *Writer Self- Perception Scale*. The third strand was analyzed through quantitative data, using survey methodology to examine student responses to the Writer's Self Perception Scale, to address the research question: *Does the use of Reflection/Exit writing affect fourth grade elementary students' self-perceptions of their ability to write as measured by the Writer Self-Perception Scale?* To measure the impact of Reflection/Exit writing on students' self-perceptions, the *Writer Self-Perception Scale* (Bottomley, Henk & Melnick, 1997/1998) was administered to all intervention and comparison groups at pre and post intervention. Results from *WSPS* responses were then analyzed by paired-sample *t*-tests to determine what changes each classroom experienced in the quality of student writing from pre- to post-intervention. An independent-samples *t*-test was then used to assess if there were

significant differences between the intervention and comparison groups' changes in WSPS responses.

The analysis of these three distinct strands is presented separately in the data analysis and presentation of findings in a parallel, concurrent mixed model design. At the conclusion of this study, the researcher combined methods in Chapter 5 to present a complete picture of the overall impact of the writing intervention.

Instrumentation: Four Points of Data

Quantitative Instrumentation

***Research Strand 1: Analysis of Writing Length*.** Initially, readability analysis was planned to help the researcher determine approximate student grade level for each student sample. However, upon examination of the first sample, using readability formulas produced several invalid approximate grade levels (e.g. assigning a 14.9 grade level readability for a fourth-grade sample). Upon further investigation, the researcher found that due to some students' poor grasp of written conventions and end punctuation, the readability formulas were skewing students' approximate grade levels too high. When a student used a run-on sentence (or had her entire sample as one, long sentence), their approximate grade level was greatly inflated, even though this mechanical error is typical of lower quality writing. As a result, the researcher searched for a readability formula that did not use sentence length as part of its calculation. The researcher found no alternative readability formulas that exclude sentence length. Readability is a measure of text difficulty (Jones & Shoemaker, 1994), so an alternative measure of text difficulty was needed.

Word and Syllable Length. Measures of writing length have demonstrated moderate to high correlations with writing quality in the elementary grades (Gansle, Noell, VanDerHeyden, Naquin, & Slider, 2002; Malecki & Jewell, 2003). In addition, many studies have found a significant relationship between writing length and writing quality (Gansle, Noell, VanDerHeyden, Naquin, & Slider, 2002; Graham, Berninger, Abbott, Abbott, & Whitaker, 1997; Malecki & Jewell, 2003). This study will use a measure of word and syllable length to measure student growth in writing across the 14-week study timeline.

Many researchers argue that a writer's use of multisyllabic words indicate a measure of writing quality (Olinghouse & Leaird, 2009). In addition, syllable length overall or syllable length per word is a key component used to compute most readability formulas (Flesh-Kinkaid, FOG readability formulas), that measure of the approximate grade level of writing, which is another indication of quality. Olinghouse and Leaird (2009) explain that a calculation of syllable-length is commonly is used as a measure of text difficulty at the elementary level.

Berninger (2009) defines compositional fluency as the number of words students can write within a time limit. This analysis will be a measure of compositional fluency, with the addition of syllable count as a data point that researchers have demonstrated to be a key criterion in measures of readability in text difficulty (Jones & Shoemaker, 1994). Wolfe-Quintero, Inagaki, & Kim (1998) suggest that researchers can calculate writing fluency, which they define as the length of a composition in timed writing, through measuring the average number of words, or rate of production, per sample. Word and syllable length will be calculated to determine what change, if any, can be attributed to

the use of the writing intervention in the intervention classrooms. While these data procedures are supported but other researchers, reliability and validity data were not provided in their work.

Research cautions us that simply calculating words and syllables (or other surface features of text, including readability formulas) does not provide educators with an indication of the cohesion or coherence of a text (Kintsch, Welsch, Schmalhofer & Zimny, 1990). To ensure texts are cohesive, other measures of writing quality must be used. In this study, writing quality is addressed using two qualitative methods (content analysis and scoring using a writing rubric) through research question 2. Student writing length, or the amount of writing a student can produce in a set amount of time, should progress over time in a normal classroom, so careful analyses was used when comparing the students' progress.

Research Strand 3: Survey Methodology. Survey methodology provides researchers with a means to quantify and analyze phenomena, which cannot directly be observed. These include beliefs, motivational states and emotions (DeVellis, 2003). In order to measure these variables, researchers develop scales designed to measure theoretical variables that cannot be assessed directly (Fowler, 2002). Multiple items are used in a scale to capture the essence of a variable with a "degree of precision" that one item would not accurately reflect (DeVellis, 2003, p. 16). Through the use of scales, researchers are able to assess the level of an underlying theoretical variable (or variables) within set a population.

The WSPS Survey. The *Writer Self-Perception Scale* (*WSPS*) is a scale that was created by Bottomley, Henk and Melnick (1997/1998). The *WSPS* is a 38 item

instrument designed to measure writing self-perceptions, and grounded in Bandura's (1982) theory of self-efficacy, related to how positive self-perceptions affect writing growth in upper elementary students (grades 4-6). Survey items ask students to reflect on how they feel about their writing and evaluate their overall writing performance. The *WSPS* items use a five-level Likert scale to measure student perceptions (1=Strongly Disagree, 2=Disagree, 3=Undecided, 4=Agree, 5=Strongly Agree). Example items include statements such as, "People in my family think I am a good writer. I write better now than I could before. I like how writing makes me feel inside."

Reliability and Validity in Prior Research. Across several studies, the WSPS has been found to be both reliable and valid in assessing student self-perceived writing ability (Bottomley, Henk, & Melnick, 1998; Pollington, Wilcox, & Morrison, 2001). In the Bottomley, Henk, and Melnick study (1998), reliability coefficients were high. For each of the sub-scales, reliability coefficients were General Progress (.90), Specific Progress (.89), Observational Comparison (.90), Social Feedback (.87), and Physiological states (.91). Using factor analysis, each of the items within the five factors had factor loadings greater than .40. Correlations among the scales ranged from .51 to .76, which show significant relationships among the factors (Bottomley, Henk, & Melnick, 1998).

For the purposes of this study, a 12-item subset of the WSPS was employed. While many versions exist and are in use in the literature, the researcher chose this abbreviated version of the scale due to the limited English proficiency of the population in this study. The *WSPS* was originally designed for use in typical, English-speaking 4-6 grade classrooms for students reading on grade level. In the present study, many students in the bilingual classes were well beneath this benchmark for their reading ability in

English. District guidelines call for Hillview bilingual students to be reading on grade level in Spanish and on grade level in English by the end of fifth grade. In fourth grade, many bilingual students read two or more years below grade level in English (while on grade level in Spanish), and this year presents a transition where students practice applying the reading skills learned in Spanish to English texts.

For this reason, an exploratory factor analysis was used to determine what common underlying latent variables (factors) explain this subset of 12 items. This process, along with reliability and validity information for the scale, are discussed in detail in the data analysis section of this chapter (see Appendix K for detailed factor analysis procedures).

Qualitative Instrumentation

Research Strand 2: Content Analysis and Writing Rubric. Educators have been seeking the most reliable and valid methodologies to measure the quality of student writing for centuries. At the state level, writing is usually measured through a series of multiple-choice grammar and composition questions, with the addition of a written composition to a standardized writing prompt. In terms of written composition, the focus of this study, measuring the quality of student writing is often assessing the nature of a student's ideas and discerning how effectively their message is communicated to a reader. To this end, two qualitative methodologies were employed measuring (1) students' development in writing (e.g. content analysis) and (2) how effectively they communicate through their composition (e.g. holistic rubric). Student writing samples, called archival data, were analyzed through different processes to gain a more in depth

view of writing quality and the degree to which students writing improved as a result of the intervention. Content analysis was used to analyze themes in the data and to determine what phenomenon exists in student writing, related to quality. In addition, a standard, holistic writing rubric was used to score each student sample to provide an additional data point related to writing quality.

Content Analysis. Content analysis is a systematic and objective means to describe and quantify phenomena and analyze documents (Krippedorff, 2004; Elo & Kyngas, 2007). It also allows the researcher to test theoretical issues and to enhance their understanding of data, through a process of "distilling words into fewer content-related categories" (Elo & Kyngas, 2007). Researchers use thematic analysis is to extract and analyze themes inherent within the writing, including trends, attitudes, or content categories (Jones & Shoemaker, 1994). Content analysis is a research tool used to: "make replicable and valid inferences from texts to the contexts of their use" (Krippendorff, 2004, p. 18).

By organizing, coding and analyzing the recurrent themes in a text, researchers are able to make inferences and ascertain a more complete understanding of the content and critical processes in a text (Elo & Kyngas, 2007). Researchers use content analytic techniques to extract information from writing for a multiple purposes, including to compare levels of communication, and to reflect the attitudes, values, and interests of a group (Krippendorff, 2004). Two approaches exist in content analysis: inductive and deductive analyses. Researchers use content analysis in an *inductive* way to develop categories (or themes) that emerge from the data, which describe the content and context of written text. Inductive analysis is often used when there is not enough former

knowledge about the phenomenon being studied (Elo & Kyngas, 2007). Inductive analysis helps researchers examine written text by analyzing words and/or phrases that are present without any pre-determined schema it moves from the specific to the general. Deductive content analysis is used when a researcher has previous knowledge about the phenomena being studied, and would like to examine data based on an earlier theory or model. Therefore, deductive analysis moves from the general to the specific. Content analysis will be used in an inductive way in this study, identifying defining features that appear in Reflection/Exit writing. The themes that emerge from these features will be analyzed.

Reliability and Validity in Content Analysis. In content analysis, reliability can be a concern because the same set of texts might yield different findings when read by different audiences. Content analysis research often is challenged due to nature of the conclusions reached by its inferential procedures, such as the themes that emerge from the data and the rate they occur. In qualitative content analysis, the researcher is the instrument (Patton, 2002). Thus, the reliability for the content analysis procedures used in this study is dependent on the researcher's ability to thoroughly explain and describe the phenomena found in student writing and the changes that occur in students' samples over time. The generalized content analysis conclusions drawn by the researcher are dependent on how accurately themes are defined as well as on how reliable those themes are. The themes emerging in this study were derived from a theoretical framework used to analyze the cognitive writing processes for more than three decades (Hayes & Flower, 1980; Flower & Hayes, 1981).

In qualitative research, the credibility (internal validity) often relies on the researcher's ability to apply proper methods and document the process systematically. Results are credible or believable. In this study, the researcher systematically implemented content analysis methodology, following an inductive analysis to determine defining features and overarching themes that explained the phenomena found in student samples. A systematic description of this process and the study's findings are found in Chapter 4.

Holistic (TAKS) Writing Rubric. Researchers have identified skills that contribute to good student writing, but have not been able to produce a thorough model of how these sub-skills affects overall writing quality (Olinghouse & Leaird, 2009). Practitioners and field-based evaluators of writing often use scales (or rubrics) that outline a specific set of criteria needed to meet a certain score. Rubrics are created in four models: checklists, advanced checklists, simple model and full model (Bresciani, Zelna & Anderson, 2004). A full model rubric is an assessment tool that is more thorough, enabling researchers or practitioners to gather detailed information about student performance. Bresciana, Zelna and Anderson (2004) explain: "The full model contains the fullest descriptions of the list criteria and more complete descriptions of the levels of mastery. Here, the intent is to get as detailed as possible…" Full model rubrics have a set of criteria based on standards (in this case, based on the standards for the state).

With the use of rubrics, writing can be assessed either analytically, using a set of criteria to determine student strengths and weaknesses across multiple aspects of writing, or it can be assessed holistically. A holistic writing scale provides one single, overall

writing score that examines many aspects of writing simultaneously (Isaacson, 1999). To inform instruction, many teachers use analytic writing rubrics, ferreting out the specific skills that students have been working on, and determining student success at mastering those objectives. Holistic scales or rubrics are often used on one-time assessments of writing, to gather a larger picture of overall student performance (e.g., the state–wide writing assessments in Arizona, Ohio, New Jersey, and Texas—to name a few).

For the purposes of this study, in order to determine if students' writing quality improved throughout the intervention, a standardized rubric designed to assess student writing was needed. In Texas, the study location state, between the 2002-2003 and 2010-2011 school years all fourth-grade students' writing was evaluated by a standardized holistic writing rubric, designed by the Texas Education Agency (TEA) to assesses student samples on the state's annual test known as the Texas Assessment of Knowledge and Skills (TAKS). In the 2011-2012 school year, the Texas assessment became the State of Texas Assessment of Academic Readiness (STAAR). The holistic STAAR writing rubric was in the research and development phase at the time of this study and thus it was not used for student evaluation. The holistic (1-4 point) TAKS writing rubric (2011-2012) is attached as Appendix B. This rubric was used at all grade levels in Texas where writing is formally assessed - fourth, seventh, 10^{th}, and 11^{th} grades (the Holistic TAKS Writing Rubric can found online at: www.tea.state.tx.us/index3.aspx?id=4118&menu_id=793; The Texas Education Agency, n.d.).

Reliability and Validity of the Holistic (TAKS) Writing Rubric. Inter-rater reliability refers to "the level of agreement between a particular set of judges on a

particular instrument at a particular time" (Stemler, 2004). Rubrics allow student writing to not be scored as either *correct* or *incorrect*, but rather asks raters to judge the degree of success in meeting certain criteria. Reliability is the likelihood that the same score be assigned to student work, regardless of who assesses it or when it is assessed. In terms of rubric assessment, reliability is established in rubric assessments through agreement between raters, or inter-rater reliability. Rubrics account for the subjectivity of raters by establishing a formal set of outcomes to help guide raters when scoring a product (Moskal & Leydens, 2000). Stemler (2004) asserts:

> If two judges cannot be shown to reliably rate individuals based on observed behaviors, then any subsequent analyses of the ratings given by those judges will yield spurious results. Furthermore, inter-rater reliability must be demonstrated anew for each new study, even if the study is using a scoring rubric or instrument that has been shown to have high inter-rater reliability in the past (Introduction).

To establish reliability for use with the holistic (TAKS) writing rubric in this study, two independent raters scored 154 student samples. Consensus is defined as the exact agreement of two raters in applying rubric-dependent levels of scores for the observed behaviors (Stemler, 2004). This study's two raters achieved consensus on 93% of student samples and further discussed in Chapter 4. A typical guideline for evaluating the quality of inter-rater reliability (based upon consensus estimates) is that they inter-rater agreement should be at 70% or greater (Stemler, 2004).

Moskal and Leydens (2000) explain that in a rubric assessment, validity refers to the degree to which the evidence supports that these interpretations are correct and that

the manner in which the interpretations are used is appropriate. Three types of validity are considered for these assessments: content, construct and criterion.

Content-related validity is the extent to which a students' knowledge reflects the content that is being measured (Moskal & Leydens, 2000). As this rubric was designed and developed by the state to reflect the required standard for of fourth grade writing, and was used as a measure to assess state-wide students' performance in writing, content validity is high for the use of this assessment with this population.

Construct-related validity refers to the evidence that the assessment only measuring the desired construct (Moskal & Leydens, 2000). For example, when using a rubric to examine mathematical thinking, spelling errors should not be considered in the evaluation, as they would be an invalid assessment of that construct. The holistic (TAKS) writing rubric assesses written performance through these components: (1) focus and coherence, (2) development of ideas, and (3) organization, (4) conventions, and (5) voice. For the purposes of this study, two of the rubric components were removed. The components of voice (i.e., personality/style) and conventions (i.e., spelling, punctuation, and grammar) did not seem to be integral factors in communicating what students have learned. The component of conventions was removed because these pieces were not expected to be polished pieces of writing, but rather first drafts of writing. Voice was removed because the researcher was not interested in measuring students' personality/writing style. This study concerns their cognitive level of thinking and how well they communicate what is learned. The removal of these two components helped to ensure construct-validity to this particular assessment.

Criterion-related validity is the extent to which the results of this assessment correlate with a current or future event (Moskal & Leydens, 2000). Content-related validity asks, "Are these results generalizable?" Because these writing assessments were integrated as a part of the regular classroom routines of these four fourth-grade classrooms and not out of students' normal practices students write in their classrooms every day, these results would be generalizable and a reflection of their everyday work.

Reliability and Validity Information from the Texas Education Agency. The researcher requested reliability and validity information for this rubric from the Texas Education Agency. The correspondence along with the information provided can be found in Appendix C. In terms of reliability, over the course of the 2010 fourth grade TAKS administration, scorers reached agreement through multiple Readings of writing samples in 97.7% of English papers and 98.3% of Spanish papers (inter-rater reliability). The validity information provided shows that raters reached a 76% agreement rate in English and an 81% agreement rate in Spanish.

Data Collection

Two intervention teachers administered the intervention to two classrooms of children (2 teachers with 13 and 12 student participants = 25 total in the student intervention group). Two comparison group teachers administered no intervention to their classrooms (two teachers with 15 and 16 student participants = 31 total in the student comparison group). Intervention and comparison data collection is described in detail below.

Writing Sample Data Collection.

The Intervention Group. Intervention teachers (Mr. M. and Ms. D.) received training on the effective implementation of the Reflection/Exit writing intervention. Students in intervention classrooms wrote three times per week, for five to six minutes, using the prompt, *"Today I learned…"* for 36 writing samples. Intervention group teachers received the intervention training in addition to the district's trainings on writing curriculum. As a Hillview policy, all fourth grade teachers attend writing trainings, regardless of the content they teach. This is to help students better prepare for writing test in fourth grade—the first year writing is assessed formally in the elementary years. For the intervention group, both the district writing curriculum (which students received from their Language Arts/Social Studies teacher) and the Reflection/Exit intervention (which students received from their Math/Science teachers) were in place throughout the 14 week study. The intervention group received an additional five to six minutes of writing, three times a week (15-18 additional minutes of writing per week), during the Math/Science content-area block. The Math and Science teachers infrequently asked their students to explain their thinking in writing—this intervention was outside the normal functioning in these classrooms.

Intervention student writing samples were analyzed to determine if student writing quantity and/or quality had changed as a result of the intervention, which was an addition to the common writing curriculum that was used at the school. Data from both teachers' classrooms were independently examined to determine if the levels of implementation and fidelity had an impact on study outcomes.

The Comparison Group. Comparison group teachers (Ms. Y. and Ms. T.) did not administer the intervention and received no additional training beyond those offered by the district. Both comparison group teachers implemented the standard district writing curriculum throughout the 14-week study. This implementation occurred with two groups of students, the comparison group in the morning and the intervention group in the afternoon. To avoid contamination, the researcher met with all study teachers throughout the 14 weeks, ensuring that only the intervention group classrooms were receiving this intervention.

Comparison group teachers continued to implement regular district curriculum, without contamination, throughout the study. Comparison teachers collected two, five to six minutes writing samples from the comparison group only (their morning group), using the prompt, *"Today I learned…"* The dates (pre- and post-intervention) and times (just before lunch) of these samples corresponded to the intervention groups' sample collection. Comparison student writing samples were analyzed to determine if student writing quantity and/or quality had changed as a result of the district writing curriculum alone without the use of the intervention. Data from the comparison group were used to determine if changes were occurring in both groups as a result of a common writing curriculum that is used at the school and/or if the Reflection/Exit writing intervention had an impact on intervention classrooms, specifically.

Survey Data Collection. In addition to writing samples, all students (in both intervention and comparison groups) completed a survey based on their perceived level of ability and self-perceptions in writing, the *Writer Self-Perception Scale* (Bottomley, Henk, & Melnick, 1997/1998; see Appendix D). A subset of items from this survey (see

discussion below) was administered pre-intervention and post-intervention to determine what changes to writing self-perceptions, if any, could be attributed to the intervention in addition to the standard district writing curriculum. The intervention and comparison teachers previewed the *Writer Self-Perception Scale* and received the script to read to students prior to administering this survey.

Study Timeline

Summer 2011. Prior to beginning this study, the researcher applied for and received approval on a full review from the Division of Research: Committee for the Protection of Human Subjects at the University of Houston (Protocol Number 11025-0; attached as Appendix E). This approval gave the researcher permission from the University of Houston to conduct the study. In addition, the researcher applied for and received approval to conduct this study from the school district's Research and Accountability department. Permission to conduct the study was also received from the administration of the school.

August 2011. The researcher met with Hillview's fourth grade team in August 2011 for the first time. The researcher read the Teacher Recruitment Script, attached as Appendix F, explained the study to teachers, providing information that outlined the study's timeline, level of teacher involvement, district/school permissions, and the commitment of classroom time necessary. At this time, the researcher secured teacher consent and willingness to participate in the study. Four teachers consented to participate in the study: two bilingual teachers and two ESL teachers. Teacher permission forms, attached as Appendix G, were provided for review and collected at this time.

September 2011. In mid-September, the district made a decision that the two mainstream ESL classrooms (non-bilingual classrooms) were too large for the Texas elementary class size cap of 24, so they created a new fourth grade classroom at Hillview making five total fourth grade classrooms. The fifth classroom was self-contained (one teacher taught all subjects), so these students were excluded for the purposes of this study.

October 2011. In October 2011, the researcher met with each teacher briefly to explain the study's next steps and deliver a script that each teacher would read aloud to explain the study to students. This script is attached as Appendix H. Within the script, teachers ask students to consent to participate in the study by completing and signing the Student Assent form, attached as Appendix I. Teachers were asked to read the Student Assent form aloud, and then collected these signed forms from students.

At this meeting, the researcher provided each teacher with student and parent consent forms, with the caveat that the researcher must have all students' and parents' permissions before the study could commence. That afternoon, all four teachers sent students home with the Informed Consent for Parents forms (attached as Appendix J) in their weekly Tuesday Folder, with directions to have them returned by the following week. When parent consent forms were brought in by students, teachers returned them to the researcher.

November and December 2011. Parent response was slow, and throughout November and December teachers returned forms to the researcher as they received them. The researcher followed up on students' missing forms with each teacher, sending home multiple copies with students who had still not returned their consent forms. By

winter break, the majority of parent consent forms were returned. Several additional consent forms were secured in early January. A total of 96% of parents returned forms indicating their child could/could not participate in the study before it began.

January 2012. In early January 2012, the two intervention teachers received an hour-long training on how to set up the classroom environment for Reflection/Exit writing (Freiberg, 1993) and how effectively to implement the intervention into a content-area classroom. The training was provided by a Consistency Management & Cooperative Discipline National Trainer (CMCD®). The Reflection/Exit processes were described in detail. Teachers were instructed to provide students with an age-appropriate model of what a Reflection/Exit writing piece should look like by composing one in front of their students on the second day of the intervention after the preliminary pre-intervention sample had been collected by all students. Teachers were also provided with written samples of Reflection/Exit writing and watched videos of classrooms where the intervention was being used effectively. Teachers also received instructions on the use of the intervention with classical music as discussed previously, and were provided with MP3s of the music necessary for use in the study. At the training's end, teachers were permitted time to ask questions of the trainer.

At this January 2012 meeting, the researcher provided intervention teachers with Reflection/Exit writing notebooks for all intervention students. Teachers were asked to facilitate the intervention three times a week (at the end of their morning teaching block – just before lunch), for a total of five to six minutes. A week-by-week timeline, or implementation schedule, for the intervention was provided so that teachers were clear about what days their students should complete writing samples. Intervention teachers

were reminded by the researcher to continue instructing their afternoon classes (that were designated as comparison classrooms) as usual, without using Reflection/Exit writing.

The researcher met with comparison group teachers separately to discuss their role in the study. Comparison group teachers were asked to have students write three content-area samples, during their regular classroom routine, on specified days that were provided to them. Additionally, the researcher followed up with comparison teachers the day before each sample was to be taken, reminding them to collect each sample during the appropriate period, giving them the prompt and reminding them to allow students five to six minutes of writing time for this prompt. These five to six minutes were in addition to their regular 1 hour of writing instruction in these classrooms.

January 17, 2012. All intervention and comparison group teachers received the *WSPS* student survey during a team meeting on January 17, along with instructions from the researcher outlining the two set dates and times to administer the pre-intervention and post-intervention surveys. Teachers also received instructions on how to administer the survey to students. Teachers were instructed to read the top portion aloud to students including the example and description of scale and allowed students to read and answer the questions on their own. Teachers were provided with directions on what help they were permitted to provide reading assistance, clarification of vocabulary, etc. when necessary.

January 23, 2012. Intervention and comparison group teachers administered the *Writer Self Perception Scale* on January 23 and turned materials over to the researcher. Absent students took the survey the next day, prior to the intervention.

January 24, 2012. Intervention and comparison group teachers were instructed to collect the first Reflection/Exit writing pre-intervention sample on January 23, 2012, prior to instruction in the intervention group classrooms, so that a student baseline in writing quality was obtained. Comparison group teachers returned this sample to the researcher the following day, whereas intervention group samples on this day and forward throughout the study's duration were stored in each student's Reflection/Exit notebook.

January 23 – May 23, 2012. From January 23 to May 23, the intervention group continued with the study's implementation schedule. The students wrote three times per week at five to six minutes per day for the duration of the study. A total of 36 samples per student were collected, with exceptions made when students were absent. The study was extended past the initial intervention schedule of 12 weeks to 14 weeks to allow for all 36 samples to be collected from each student participant. The researcher followed up with intervention teachers (Mr. M. and Ms. D.) every two weeks to determine how sample collection was going. Mr. M.'s class always was on schedule and he implemented the intervention just as the implementation schedule called for with students writing three times per week for five to six minutes at the end of his instructional block. However, Ms. D. often reported that she was behind on Reflection/Exit sample collection, due to scheduling issues, running out of time, or forgetting to administer the intervention on a regular basis. Her class always was a few samples behind, and would have to do several samples in a row to catch up. In addition, Ms. D. had personal needs arise that kept her out of the classroom for an extended time leaving a two-week gap in her intervention classroom with no sample collection. Two additional weeks were lost

due to standardized testing and spring break. All writing samples were recorded in students' individual Reflection/Exit notebooks, which were collected by the researcher at the duration of the study (May 23).

March 2, 2012. Comparison group teachers collected a mid-point sample on March 2. This date marked the initial halfway point in the study and corresponded with the intervention group's mid-point. Comparison group samples were collected by the researcher. However, data collection was flawed. Ms. T. had 27% of her students' samples missing from this collection stage. In addition, Ms. T. asked her students to write their Reflection/Exit writing on an index card, limiting the quantity and quality of their work. For these reasons, the researcher decided to exclude the mid-point data from further analysis.

May 23, 2012. Comparison group teachers collected the final sample of students' content area writing via post-intervention on May 23. This date marked the end of the study. Comparison writing samples were collected from comparison group teachers and used by the researcher for analysis. Intervention writing samples (notebooks) were collected from intervention teachers for analysis on this day, also.

Intervention and comparison group teachers administered the *WSPS* at the conclusion of the study, per the researcher's request. Teachers were reminded of the directions for administering the *WSPS* in order to provide the most reliable data for assessment. These instruments were returned to the researcher for analysis on May 23.

Data Collection Challenges

Throughout the course of the study, there were some fidelity concerns that emerged. These are discussed in the section that follows.

High Fidelity Implementation vs. Low Fidelity Implementation. Of the two intervention teachers, Ms. D.'s classroom did not consistently follow the implementation schedule. At several checkpoints throughout the 14-week study, Ms. D. expressed that her students were behind on their writing and she was behind on her collection. For example, during Week Two her students should have been completing Sample 6, yet they only were on Sample 4. The researcher encouraged Ms. D. to follow the intervention schedule and make up any missing samples, which she did. However, at later check-ins with Ms. D., this pattern of falling behind kept emerging. Several reasons were cited for her students' missing samples: field trips, test preparation, scheduling issues, running out of time, and/or forgetting to have students complete the intervention altogether.

Ms. D.'s unsystematic implementation caused her case study classroom to lose the structured nature of the implementation and its potential benefits. From what the researcher could tell through these conversations, Ms. D. never consistently got her students into the structured routine completing three Reflection/Exit samples per week, with regularity. In addition, Ms. D.'s absence from the classroom for more than two weeks (due to personal reasons) left a gap in the timeline of her students completing the intervention samples. For two weeks during her absence, in the middle of the intervention, the Ms. D.'s students did not write Reflection/Exit samples. When she returned from her leave, Ms. D. had to get students back into the class and subsequently the intervention's routine. Ms. D.'s lack of consistency and fidelity to the program may

have affected the outcomes in her classroom. Her students did finally complete all 36 samples, but without the structure it required and without following the intervention timeline. Therefore, in the chapters that follow the case study of Ms. D.is presented and discussed as the "low fidelity/low implementation" intervention classroom. In addition, her results were not used in the analysis of group membership (intervention versus comparison), as her lack of consistency and fidelity did not allow this group of students to experience Reflection/Exit writing in the way it was designed and structured.

In contrast, Mr. M.'s students completed the intervention in a very structured and precise manner. Mr. M. reported following the implementation timeline exactly as requested at the researchers' check-ins every two weeks. He expressed the progress seen in student writing over the course of the intervention and seemed impressed with his students' ability to express their thinking in writing. Mr. M. also reported that reading these Reflection/Exit samples provided him with a window into what his students perceived was important learning and reported the samples helped him to realize if there was any confusion or misinformation he needed to clarify. In the chapters that follow, Mr. M.'s case is presented and discussed as the "high fidelity/high implementation" intervention classroom. His students completed all 36 samples administered three times per week at five to six minutes for each during the entire 14 weeks of the study with the exception of spring break and the week of state standardized testing administration. Mr. M. administered the intervention as requested and in the way this study was designed - through the use of the implementation schedule he was provided.

For the reasons presented above in the case study findings and discussion that follows, the case studies of Mr. M. and Ms. D. are presented with a level of

implementation descriptor, either high-fidelity/high implementation or a low fidelity/low implementation. Due to the difference in fidelity and the implementation issues that arose as a result, the researcher thought it was important to differentiate between the two distinct levels of implementation success and consistency provided in each classroom. Mr. M.'s class was used as the intervention group in the group membership variable for all statistical analyses presented below.

Two Additional Weeks. Another deviation from the design was addition of two weeks due to standardized testing and spring break. This deviation affected all four groups: the two intervention cases (Ms. D. and Mr. M.) and the two comparison cases (Ms. T. and Ms. Y.). During these two weeks, students were unable to continue with the intervention due to scheduling issues. For spring break, students were not in school, so they could not write. For the week of standardized testing, fourth graders took state tests and were unable to complete the intervention schedule, as designed. The researcher contacted all teachers and provided them with these changes in schedule and a revised implementation timeline. This may have affected the momentum and overall progress of the intervention and comparison groups.

The concerns of the writing sample collection may have affected the study's overall results. They will be addressed further in limitations.

Data Analysis

Once the researcher had collected all student forms (e.g. student assent and parent consent), *WSPS* pre-intervention and post-intervention surveys and writing samples, they were organized by teacher and by student. Students were then assigned an alias,

including the teacher name and student number, in order to protect their identities. In Ms. D.'s class, the students were classified as D1 through D12. The same pattern was followed for all the other classrooms as outlined below:

Mr. M.'s students = M1 through M13;

Ms. T.'s students = T1 through T15; and

Ms. Y.'s students = Y1 through Y16.

All students with a complete set of data (N=56) were used in these analyses. A complete set of data consisted of: parent permission, student assent, *WSPS* pre-intervention survey, pre-intervention writing sample, post-intervention writing sample, and *WSPS* post-intervention survey.

Quantitative Data Analysis.

Syllable and Word Count. *S*tudent writing samples were evaluated through calculating compositional fluency, or the number of words students can write in a set amount of time (Berninger, 2009). To measure writing length, each student sample was input into website that calculated words and syllables and was designed for university professors, students and teachers to measure writing length. This website can be found at www.wordcalc.com. Three student samples (2 from Ms. Y. and 1 from Ms. T.) were excluded from these analyses due to illegible writing, writing in Spanish and/or the researcher inability to differentiate between meaning units (words) in the writing. These data were then compared across the two benchmark collections: pre-intervention and post-intervention.

Inferential statistics in the form of *t*-tests were used for two sets of statistical analyses. First, paired-sample *t*-tests were used for each case study classroom to compare

pre- to post-intervention means in the length of student writing. The paired-sample *t*-tests helped to determine if writing length changes within a classroom were significant. For a second statistical analysis, independent sample *t*-tests were used to compare the two groups: intervention and comparison. The intervention group's changes in writing length from pre- to post-intervention were compared to the comparison the change in the group changes in writing length from pre- to post-intervention. This second analysis helped to determine if Reflection/Exit writing had a significant effect on the writing length of the intervention group, when compared to the comparison group.

Survey. For the *WSPS* data analysis, each of the 14 Likert-scale responses were coded from one to five (1 = strongly disagree; 2 = disagree; 3 = undecided; 4 = agree; and 5 = strongly agree) and entered onto an Excel spreadsheet. Each participant was identified by their alias (N=56) and was assigned a separate line for data. The variance in respondents' group membership was controlled for through the use of two dummy-coded variables in the analysis. The teacher was coded as follows:

Ms. D. = 1;

Mr. M. = 2;

Ms. T. = 3; and

Ms. Y. = 4.

In addition, group membership was coded as follows:

Intervention = Mr. M. and Ms. D. classes = 1;

Comparison = Ms. T. and Ms. Y. classes = 0.

Both pre- and post-intervention survey responses were entered for each survey respondent. Pre-intervention survey responses were named with the letters WS and the

item number (WS1 - WS14). Post-intervention samples were named with the letter P and the item number, i.e. P1 through P14. All entries were double checked for accuracy before moving on to enter the next respondent's data. Excel data was exported into an SPSS file and checked against original data sources prior to further analysis.

Missing data, or those students who chose two responses to an item or skipped the item entirely, were coded as a *"9"* to help identify these values. Eight of the 56 students had one or more missing values. Missing datum was distributed randomly across the items. Linear interpolation was used to replace the missing values due to the small sample size. A pairwise deletion may have excluded more cases and further reduced the sample size. One participant had 17% missing data (5 missing items of the 28 entered—pre and post), so this case was eliminated (D1) per SPSS recommendations. If a subject is missing 15% or more data, then it is recommended to drop the subject from the analysis entirely (George & Mallery, 2008). A second case would not allow the two missing values to be replaced even after several attempts and methods were tried, so this case (D5) was eliminated also. This left 54 cases for analysis.

The researcher then conducted an exploratory factor analysis to determine what relationships exist among this subset of items. Appendix K shows a detailed description of factor analysis methods. An analysis of the Component Matrix revealed that 12 of the 14 items loaded strongly on one factor and, after analyzing the nature of each item, that the researcher was able to infer this one factor represented students' writing self-perceptions. The eigenvalue for this factor was 5.264, and it explained a total of 43.2 % of the variance. These 12 items were used for statistical analyses.

Two sets of statistical analyses were used on students *WSPS* results. Since the study included four different case study classrooms, a "teacher" variable was used to determine if class membership influenced students' change in self-perceptions from their pre-intervention means to their post-intervention means. A series of paired-sample *t*-tests were used to analyze the change in students' self-perceptions for each case study teacher group, from pre- to post-intervention. Paired-sample *t*-tests were employed to determine if there were statistically significant changes in each classroom's writing self-perceptions from pre- to post-intervention.

Second, a variable that identified students' group membership to the intervention or comparison group was used to examine if changes in writing self-perception. This analysis used independent samples *t*-test to compare the groups: intervention versus comparison. A series of independent sample *t*-tests were used to determine if the changes in writing self-perceptions were significantly different from pre- to post-intervention when compared to the comparison the change in the group from pre- to post-intervention.

Qualitative Data Analysis.

Content Analysis. Content analysis was used in this study to describe and quantify the phenomena in student writing samples. An inductive content analysis was used to discover the defining features Reflection/Exit writing using open coding (Krippendorff, 2004). From this original list of features, the researcher created three themes building a framework for further content analysis. Using this framework, all writing samples were analyzed at two benchmark points during the intervention - the pre-intervention and post-intervention cycles. The researcher analyzed the presence of these themes, known as the percentage of student writing where each theme appeared, at each

collection and across the intervention. These analyses were conducted for two variables: case study classroom (teacher group) and group (intervention/comparison groups).

Holistic (TAKS) Writing Rubric. The holistic (TAKS) writing rubric was used to assess students' written performance through these components: (1) focus and coherence; (2) development of ideas; and (3) organization. For the purposes of this study, the rubric's additional components of voice and conventions were not considered in the holistic score of a student as the intervention was focused on content area writing and these components are not integral factors in communicating what students have learned within this genre.

Two raters independently scored each student sample to ensure inter-rater reliability. Each entry received one holistic rating based on an agreement by the two raters and used these three components as a frame of reference, which is customary on TAKS writing scoring. These holistic scores were based on a four-point rubric, with a set of specific criteria necessary to earn each point, with one being the lowest score and four being the highest. In Texas, a score of two is considered a passing score while scores of three and four are considered exemplary samples of writing.

Results from students' holistic rubric scores were analyzed statistically through the use of *t*-tests in several ways. The first series of analyses used paired-sample *t*-tests to determine if changes in the quality of student writing from pre- to post-intervention were statistically were significant by case study classroom. Each classroom was analyzed independently to determine if there were significant changes within the classroom group related to writing quality. A second statistical analysis used independent sample *t*-tests to compare the groups: intervention versus comparison.

Independent sample *t*-tests were employed to determine if the intervention the change in the group from pre- to post-intervention was significant when compared to the comparison the change in the group from pre- to post-intervention.

Inferences: The Study's Impact

As stated above, three distinct strands of data were used to address the three research questions in this concurrent, mixed model design. Triangulation can be defined as a researchers' use of more than one approach to the investigation of research questions in order to improve the confidence in the findings and is a common rationale provided in mixed methods research (Bryman, 2003). Researchers use triangulation in the social sciences is to corroborate one set of findings with another with the hope that two or more sets of findings will converge (in this study, the research strands described above). Webb, Campbell, Schwartz and Sechrest (1966) explain that once a proposition is confirmed by two or more independent measurement processes, then the uncertainty of its interpretation is greatly reduced. Webb and colleagues (1981) suggested that in qualitative studies if a proposition can survive a series of imperfect measures, confidence should be placed in it (p. 35).

At the conclusion of the study, four data points were analyzed holistically evaluate the overall impact of the writing intervention in all four case study classrooms. Qualitative data and quantitative findings were used to ensure the trustworthiness of the findings. All sources of data helped to create a complete picture of the intervention's effectiveness. The qualitative data helped to lend a richer interpretation of study findings, specifically with regard to student improvement in writing quality. The

quantitative findings provided further understanding of students' writing development, as measured in quantity and quality, and writing self-perceptions.

Chapter IV

Results

This study was designed to identify the role (if any) a purposeful, daily writing intervention played on two student outcomes: (1) student self-perceptions of their ability to write; and (2) student writing development, as measured by the quantity and quality of writing. The study examined the impact a content-area writing intervention, Reflection/Exit writing, had on fourth grade students attending a high-poverty, low SES elementary school, as compared to their peers. Specifically, the study addressed the following questions:

(1) *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quantity (word and syllable length)?;*

(2) *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quality (TAKS Writing Rubric and content analysis)?;* and

(3) *Does the use of Reflection/Exit writing affect fourth grade elementary students' self-perceptions of their ability to write as measured by the Writer Self-Perception Scale?*

A mixed model, known as a parallel, concurrent design, was used to analyze the data in this study. This type of mixed methods design employs a multi-strand research design, mixing qualitative and quantitative methods, with two or more distinct strands of research that address different research questions (Tashakkori, 1998). In this study, three strands were used: qualitative data (one strand) and quantitative data (two strands)

addressed different questions. Qualitatively, students' writing samples were analyzed to determine what change, if any, the intervention had on students' writing development, as measured in quality through content analysis and a holistic writing rubric (used state-wide from 2003-2011 to assess student writing). Quantitatively, student writing length was measured in words and syllables, and students' pre-intervention and post-intervention responses on the *Writer Self-Perception Scale* (*WSPS*; Bottomley, Henk, & Melnick, 1997/1998) were analyzed to determine what change, if any, has occurred on students' self-perceptions as a result of the Reflection/Exit writing intervention.

Chapter Four presents an analysis of the quantitative and qualitative data collected over the course of the study, addressing each of the three research questions. Next, data for each research question are presented. Research Strand 1 was analyzed using quantitative data—word and syllable counts for each student sample—to determine if student writing length changed over the collections, as a result of the intervention. Statistical analyses, or *t*-tests, were conducted to determine if changes in writing length were significant and to what degree. Research Strand 2 was analyzed using predominately qualitative methodology. The researcher analyzed the quality of student writing samples through content analysis identifying defining features and themes that emerged from the samples, addressing the quality of student writing and through students' rating on a standardized assessment rubric, used on state-wide fourth-grade writing accountability tests After the qualitative methods were performed, statistical analyses (paired-sample and independent-sample *t*-tests) were used to determine if changes in writing quality, as measured by the holistic rubric, were significant in each group. Research strand 3 was analyzed quantitatively through inferential statistics, using

the statistical techniques of *t*-tests to determine if student-self-perceptions had changed as a result of the writing intervention. In Chapter Five, the researcher draws all sets of data together to present findings on the on the overall impact of the intervention by case and the research strand (Tashakkori, 1998).

Overall results for each data point (including all groups of students, N=56) are presented in Appendix L. They offer an important point of reference for students' overall change over the course of a school year (intervention and comparison groups), but remain outside the study's intent (to measure the impact of the intervention) and research questions.

Findings Related to Research Strand 1

Research question one asks: *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quantity (word/syllable analysis)?* Berninger (2009) defines compositional fluency as the number of words students can write within a time limit. This analysis examined students' compositional fluency over the course of the intervention. A word was defined as a group of letters with a space on either side. Word usage and appropriate grammar did not influence this measure. In addition, this compositional fluency analysis, an additional unit of measurement is provided: syllables. Syllables in the overall composition and syllables per word were analyzed to determine what change, if any, to writing syllable length (or the complexity of writing) could be attributed to the intervention.

Student writing samples were analyzed for writing length through a website designed to calculate word and syllable length: www.wordcalc.com. The website offers this explanation of its use and purpose:

> English Teachers and Professors, University students, and other Academics, we hope you find this resource useful in your teaching or study. Whether you need to count the paragraphs and syllables in your essay or thesis, or create a lesson plan for your classroom of students - think WordCalc. (WordCalc website, 2013)

Using this site, the researcher input all student samples into the word calculator, selecting the options "calculate word length" and "calculate syllable length." Due to inconsistencies in student grammar and mechanics (discussed in chapter 3), the advanced options that the website offers "analyze sentences" and "analyze paragraphs" were not selected or used by the researcher.

Student samples were calculated for word and syllable length to determine what change, if any, the intervention had on the amount of writing (length) students produced in the set five to six minute period of the intervention. Three students produced samples that were illegible to the researcher and/or were written in both English and Spanish - two students in Ms. Y.'s class and one in Ms. T.'s class). For the purpose of this study, those students' samples were not included, as the fourth-grade measure in math at the state level was given to all students in English only; in addition, students in Language Arts classrooms were in the routine of switching from English to Spanish, and all students were asked to compose their Reflection/Exit writing in English. A total of 106 samples were analyzed (53 students x two sample collections = 106 total samples used for

analysis). Table 4 provides the means and standard deviations of word and syllable length in each case study classroom, per sample (pre-intervention and post-intervention).

Words per Sample from Pre-Post Intervention by Case Study Classroom.

The first analysis performed examined whether or not students' writing samples grew longer over the course of the study, in terms of overall words. Findings are presented in Table 4 and Figure 1. Paired-sample *t*-tests are used when data is collected from one group of students, over multiple collections (in this study: pre-post intervention). Paired-sample *t*-tests were conducted for each case study classroom to determine if the differences in student writing length within that classroom were significant over the course of the study.

Table 4.

Means and Standard Deviations for Writing Length (Words and Syllables) by Case Study Classroom from Pre-Post Intervention

Study Population (N=53) [a]			
Intervention Teachers		**Comparison Teachers**	
Ms. D.	**Mr. M.**	**Ms. T.**	**Ms. Y.**
Number			
n = 12	n = 13	n = 14[a]	n = 14[a]
Mean (*SD*)	Mean (*SD*)	Mean (*SD*)	Mean (*SD*)
Pre-intervention			
Words			
48.00 (9.97)	41.85 (23.28)	51.14 (27.55)	32.21 (24.22)
Syllables			
64.25 (12.26)	55.61 (25.98)	60.79 (33.12)	42.21 (27.43)
Post-intervention			
Words			
50.42 (16.21)	76.31 (42.91)**	81.92 (43.82)**	71.00 (42.17)**
Syllables			
64.58 (19.08)	94.92 (42.66)**	109.71 (57.54)**	84.71 (49.17)**

Note: [a]Three students were excluded from this analysis (one from Ms. T and two from Ms. Y), due to illegible writing or writing in two languages.
Indicates statistically significant change from pre-intervention means to post-intervention means: ($p < .05$) ($p < .01$) ** ($p < .001$)***

Ms. D.'s Intervention Classroom (Low Fidelity/Low Implementation). A paired-sample *t*-test was conducted to evaluate the impact of the intervention on the number of words students in Ms. D.'s classroom wrote from pre-post intervention. Ms. D.'s students (low-fidelity/low-implementation) improved from pre-intervention ($M = 48.00$,

SD = 9.97) to post-intervention (*M* = 50.42, *SD* = 16.21), but differences between the means were not statistically significant *t* (11) = .595, p = .564. The mean increase in students' number of words was 2.42 words, with a 95% confidence interval ranging from -11.36 to 6.53. The number of words per sample in Ms. D.'s class improved over the intervention, but not significantly.

Mr. M.'s Intervention Classroom (High Fidelity/High Implementation). A paired-sample *t*-test was conducted to evaluate the impact of the intervention on the number of words students Mr. M.'s class wrote from pre-post intervention. The number of words per sample in Mr. M.'s intervention classroom (high fidelity/high implementation) improved from pre-intervention (*M* = 41.85, *SD* = 23.28) to a post-intervention (*M* = 76.31, *SD* = 42.91). The difference between the means was statistically significant *t* (13) = 3.38, *p* = .005. The mean increase in students' number of words was 34.46 words, with a 95% confidence interval ranging from 12.23 to 56.68.

The eta squared statistic is common in educational research; it uses *t*-test values to compute effect sizes. Eta squared is calculated using *t* value and degrees of freedom (*df*). Out of the total variation in means, the eta squared value is the proportion of variance that can be attributed to the intervention. In Mr. M.'s case study classroom, the eta squared statistic (η^2 = +.49) indicated a large effect size (based on Cohen's 1998 guidelines: +.01 = small effect; +.06 = moderate effect; and +.14 = large effect). In Mr. M.'s class, the number of words written by students increased significantly over the course of the study, with a large effect size.

Ms. T.'s Comparison Classroom. A paired-sample *t*-test was employed to evaluate the improvement in the number of words students in Ms. T.'s class wrote from

pre-post intervention. These students were provided with no intervention, so results demonstrate the student writing growth when using the typical writing curriculum alone. The number of words in the comparison classroom of Ms. T. improved from pre-intervention (M = 51.14, SD = 27.55) to a post-intervention (M = 81.92, SD = 43.82). Differences between the means were statistically significant t (13) = 4.08, p = .001. The mean increase in students' number of words was 30.78 words, with a 95% confidence interval ranging from 14.48 to 47.08. For Ms. T.'s class, the eta squared statistic (η^2 = +.56) indicated a large effect size (based on Cohen's 1998 guidelines: +.01 = small effect; +.06 = moderate effect; +.14 = large effect). In Ms. T.'s class, students' number of words increased significantly over the course of the study, with a large effect size.

Ms. Y.'s Comparison Classroom. A fourth paired-sample *t*-test was employed to evaluate the improvement in the number of words students in the classroom of Ms. Y. wrote from pre-post intervention. These students were provided with no intervention, so results demonstrate the growth of student writers, given just the traditional writing curriculum. The number of words in Ms. Y.'s comparison classroom improved from pre-intervention (M = 32.21, SD = 24.22) to a post-intervention (M = 71.00, SD = 42.17). The differences between the means were statistically significant t (13) = 3.53, p = .004. The mean increase in students' number of words was 36.78 words, with a 95% confidence interval ranging from 14.30 to 59.26. The eta squared statistic (η^2 = +.49) indicated a large effect size (based on Cohen's 1998 guidelines: +.01 = small effect; +.06 = moderate effect; and +.14 = large effect). In Ms. Y.'s class, there was a significant increase in the number of words from pre- to post-intervention, with a large effect size.

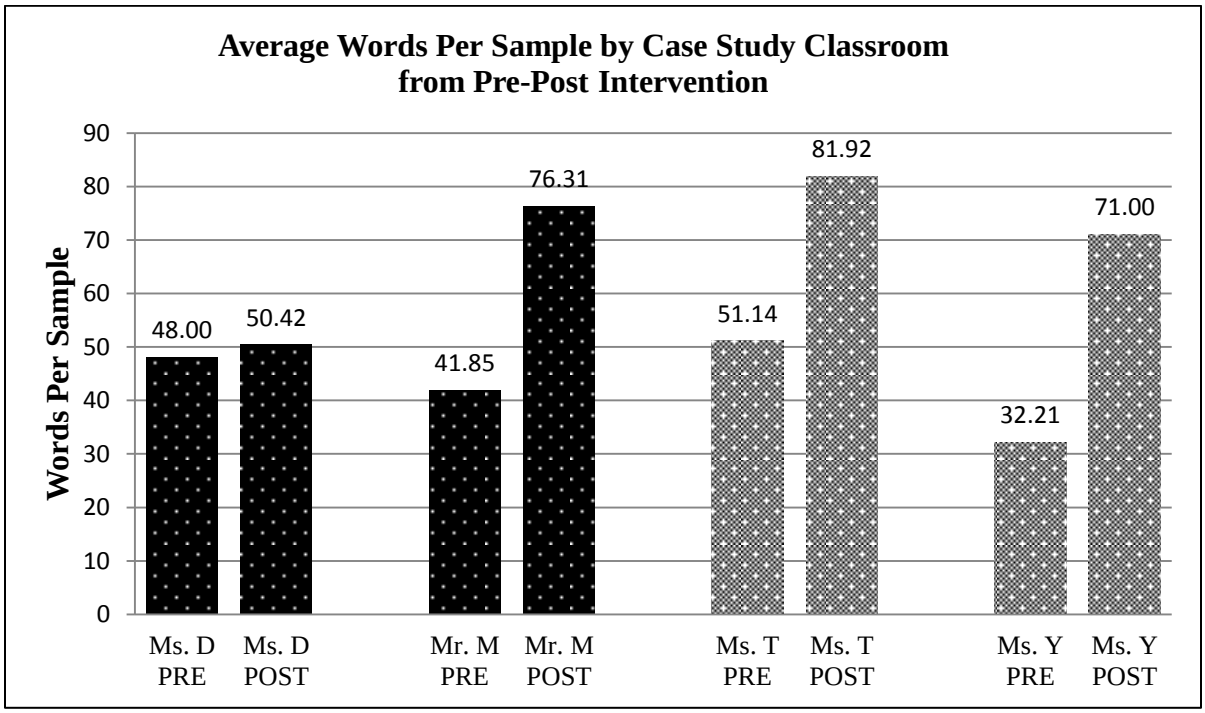

Figure 1. Average Words per Sample by Case Study Classroom from Pre-Post Intervention.

Words per Sample Change Between Groups: Intervention vs. Comparison.

Independent samples *t*-tests are used when researchers compare two groups of participants using one variable. In this analysis, an independent sample *t*-test was employed to determine if there is a significant difference between the intervention and comparison groups in the growth of student writing length across the intervention, as measured in number of words (calculated by subtracting post-intervention means minus pre-intervention means). For group membership analysis in this study, the intervention group consisted of Mr. M.'s classroom (as Ms. D.'s low-fidelity/low-implementation intervention group did not receive the intervention as it was designed or intended; discussed in Chapter 3). The comparison group was comprised of Ms. T. and Ms. Y.'s classrooms. There was no significant difference between students growth in terms of

number of words for the intervention group (*M* = 34.46, *SD* = 36.78) and comparison group (*M* = 33.78, *SD* = 33.50; *t* (39) = 0.058, p = .954). The differences in the means (mean difference = .68, 95% CI: -22.77 to 24.12) was very small. Table 5 presents the means and standard deviations for students' change in writing length (post-intervention means minus pre-intervention means) for the intervention and comparison groups.

Table 5.

Means and Standard Deviations for Writing Length (Words and Syllables) Between Groups.

	Study Population (N=56)[a]	
Variable	Intervention	Comparison
Number	n = 13	n = 28
	Mean (*SD*)	Mean (*SD*)
Length Change		
Post-Pre Words	34.46 (36.78)	33.78 (33.50)
Post-Pre Syllables	39.31 (35.39)	45.71 (46.84)

Note: [a]42 students were used for this analysis

Syllables per Sample from Pre-Post Intervention by Case Study Classroom.

Student writing samples were then analyzed to determine if the overall number of syllables per sample increased over the course of the study, per case study classroom. Findings are presented in Table 4 and Figure 2. Paired-sample *t*-tests were conducted to determine if the differences in student writing length were significant from students' pre-intervention means to post-intervention means.

Ms. D.'s Intervention Classroom (Low Fidelity/Low Implementation). A paired-sample *t*-test was conducted to evaluate the impact of the intervention on the number of syllables Ms. D.'s students wrote from pre-post intervention. The number of syllables in Ms. D.'s intervention classroom (low-fidelity/low-implementation) improved from pre-intervention (*M* = 64.25, *SD* = 12.26) to a post-intervention (*M* = 64.58, *SD* = 19.08), but the difference between the means was not statistically significant *t* (11) = .067, p = .948. The mean increase in students' number of syllables was 2.42 syllables, with a 95% confidence interval ranging from -11.36 to 6.53. Ms. D.'s students increased the number of syllables they wrote slightly from pre-post intervention, but not significantly.

Mr. M.'s Intervention Classroom (High Fidelity/High Implementation). A paired-sample *t*-test was conducted to evaluate the impact of the intervention on the number of syllables Mr. M.'s students wrote at pre- and at post- intervention. The number of syllables in Mr. M.'s intervention classroom (high fidelity/high implementation) improved from pre-intervention (*M* = 55.61, *SD* = 25.98) to a post-intervention (*M* =94.92, *SD* = 42.66). The differences between the means were statistically significant *t* (12) = 4.02, *p* = .002. The mean increase in students' number of syllables was 39.31 syllables, with a 95% confidence interval ranging from 17.98 to 39.30. The eta squared statistic (η^2 = +.57) indicated a very large effect size (based on Cohen's 1998 guidelines: +.01 = small effect; +.06 = moderate effect; +.14 = large effect). In Mr. M.'s class, the number of syllables used by students increased significantly from pre-post intervention with a large effect size.

Ms. T.'s Comparison Classroom. A paired-sample *t*-test was used to evaluate the improvement in the number of syllables Ms. T.'s students wrote from pre-post

intervention. These students were provided with no intervention, so results demonstrate the student writing growth when given just the traditional writing curriculum. The number of syllables in Ms. T.'s comparison classroom improved from pre-intervention (M = 60.79, SD = 33.12) to a post-intervention (M =109.71, SD = 57.54). The differences between the means were statistically significant t (13) = 3.78, p = .002. The mean increase in students' number of syllables was 48.92 syllables, with a 95% confidence interval ranging from 20.93 to 76.92. In Ms. T.'s class, the eta squared statistic (η^2 = +.52) indicated a large effect size (based on Cohen's 1998 guidelines: +.01 = small effect; +.06 = moderate effect; +.14 = large effect). The students' number of syllables increased significantly over the course of the study, with a large effect size.

Ms. Y.'s Comparison Classroom. A paired-sample *t*-test was conducted to determine the improvement in the number of words students in Ms. Y.'s class wrote from pre-post intervention. These students were provided with no intervention, so results demonstrate the student writing growth, given just the traditional writing curriculum. The number of syllables in Ms. Y.'s comparison classroom improved from pre-intervention (M = 42.21, SD = 27.43) to a post-intervention (M = 84.71, SD = 49.17). The differences between the means were statistically significant t (13) = 3.78, p = .005. The mean increase in students' number of syllables was 42.50 syllables, with a 95% confidence interval ranging from 15.52 to 69.49. The eta squared statistic (η^2 = +.47) indicated a large effect size (based on Cohen's 1998 guidelines: +.01 = small effect; +.06 = moderate effect; and +.14 = large effect. In Ms. Y.'s class, the number of syllables used by students increased significantly from pre- to post-intervention, with a large effect size.

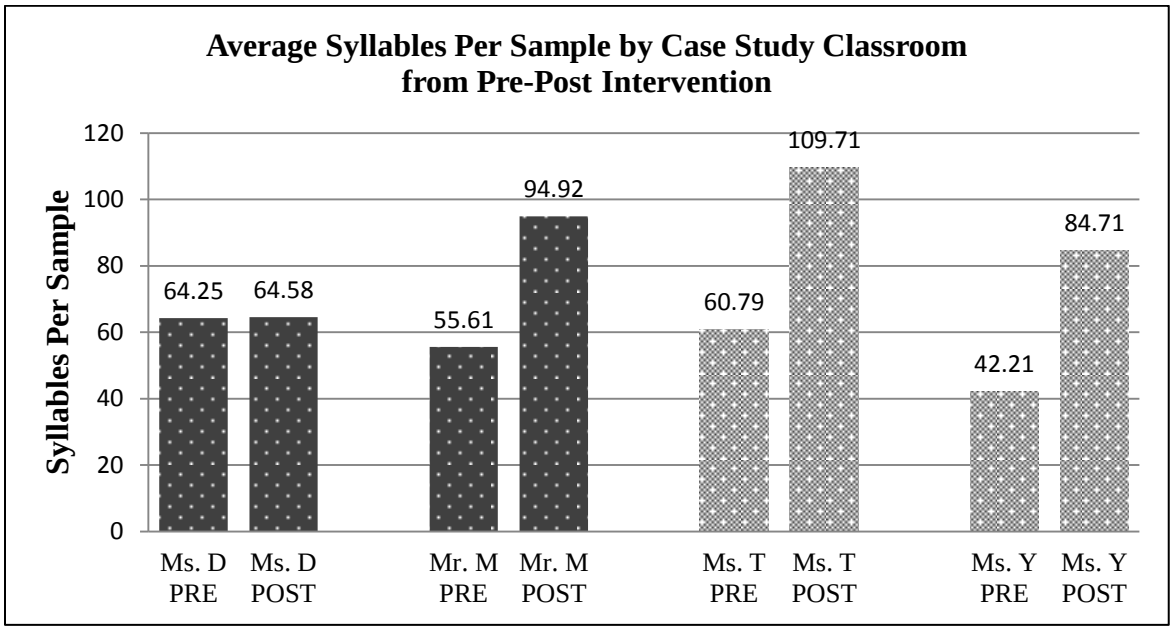

Figure 2. Average Syllables per Sample Case Study Classroom from Pre-Post Intervention.

Syllables per Sample Change Between Groups: Intervention vs. Comparison. An independent samples *t*-test was conducted to compare student writing growth, in terms of syllables per sample, for the intervention and comparison groups (calculated by subtracting post-intervention means minus pre-intervention means). Table 5 presents the means and standard deviations for students' writing length for the intervention and comparison groups.

There was no significant difference between students growth in terms of number of syllables for the intervention group (M = 39.31, SD = 35.39) and comparison group (M = 45.71, SD = 46.84; t (39) = -.44, p = .660). The differences in the means (mean difference = 6.41, 95% CI: -33.10 to 20.29) was small.

Syllables per Word from Pre-Post Intervention by Case Study Classroom.

Finally, student writing samples were analyzed to determine if the in the number of syllables per word showing an increase in complexity over the course of the 14-week study. Paired-sample *t*-tests were conducted to determine if the differences in student writing length were significant from pre- to post-intervention. Table 6 provides the means and standard deviations of syllables per word in each classroom, per sample (pre-intervention and post-intervention).

Table 6.

Average Syllables per Word by Case Study Classroom from Pre-Post Intervention.

	Study Population (N=56) [a]			
	Intervention Teachers		**Comparison Teachers**	
Variable	**Ms. D.**	**Mr. M.**	**Ms. T.**	**Ms. Y.**
Number	n = 12	n = 13	n = 14[a]	n = 14[a]
	Mean (*SD*)	Mean (*SD*)	Mean (*SD*)	Mean (*SD*)
Pre-intervention	1.35 (0.15)	1.40 (0.24)	1.17 (0.13)	1.26 (0.23)
Post-intervention	1.31 (0.23)	1.31 (0.17)	1.24 (0.11)	1.15 (0.10)

[a]42 students were used for this analysis

Ms. D.'s Intervention Classroom (Low Fidelity/Low Implementation). A paired-sample *t*-tests was conducted to evaluate the impact of the intervention on the number of syllables per word (a measure of writing complexity) Ms. D.'s students wrote from pre-post intervention. The number of syllables per word in Ms. D.'s intervention classroom

(low fidelity/low implementation) declined from pre-intervention (M = 1.35, SD = .15) to a post-intervention (M = 1.31, SD = .23). The difference between the means was not statistically significant t (11) = .067, p = .657. The mean decrease in students' number of syllables per word was 0.04 syllables per word, with a 95% confidence interval ranging from -.17 to .25. The complexity of Ms. D.'s students, as measured in the number of syllables per word, decreased slightly from pre-post intervention, but not at significant levels.

Mr. M.'s Intervention Classroom (High Fidelity/High Implementation). A paired-sample *t*-test was employed to evaluate the impact of the intervention on the number of syllables per word (a measure of writing complexity) Mr. M.'s students wrote from pre-post intervention. The number of syllables per word in Mr. M.'s intervention classroom (high-fidelity/high-implementation) declined from pre-intervention (M = 1.40, SD = .24) to a post-intervention (M = 1.31, SD = .17). The difference between the means was not statistically significant t (12) = 1.29, p = .222. The mean decrease in students' number of syllables per word was 0.09 syllables per word, with a 95% confidence interval ranging from -.06 to .24. The complexity of student writing, as measured in syllables per word, decreased in Mr. M.'s class from pre-post intervention, but not at significant levels.

Ms. T.'s Comparison Classroom. A paired-sample *t*-test was used to evaluate the improvement in the number of syllables per word students in Ms. T.'s class from pre-post intervention. These students were provided with no intervention, so results demonstrate the growth of student writers when given just the traditional writing curriculum. The number of syllables per word in Ms. T.'s comparison classroom increased from pre-

intervention (*M* = 1.17, *SD* = .13) to a post-intervention (*M* = 1.24, *SD* = .11). The difference between the means was not statistically significant *t* (13) = 1.70, p = .114. The mean increase in students' number of syllables per word was .06 syllables per word, with a 95% confidence interval ranging from -.14 to .02. The complexity of student writing, as measured in syllables per word, increased in Ms. T.'s classroom over the 14 week study, but not significantly.

Ms. Y.'s Comparison Classroom. A paired-sample *t*-test was used to measure the improvement in terms of number of syllables per word students in Ms. Y.'s class wrote from pre-post intervention. These students were provided with no intervention, so results demonstrate the growth that student writers made given just the traditional writing curriculum. The number of syllables per word in Ms. Y.'s comparison classroom decreased from pre-intervention (*M* = 1.26, *SD* = .23) to a post-intervention (*M* = 1.15, *SD* = .10). The difference between the means was not statistically significant *t* (13) = 1.51, p = .154. The mean decrease in students' number of syllables per word was .11 syllables per word, with a 95% confidence interval ranging from -.05 to .27. The complexity of student writing, as measured in syllables per word, decreased in Ms. Y.'s classroom, but differences were not statistically significant.

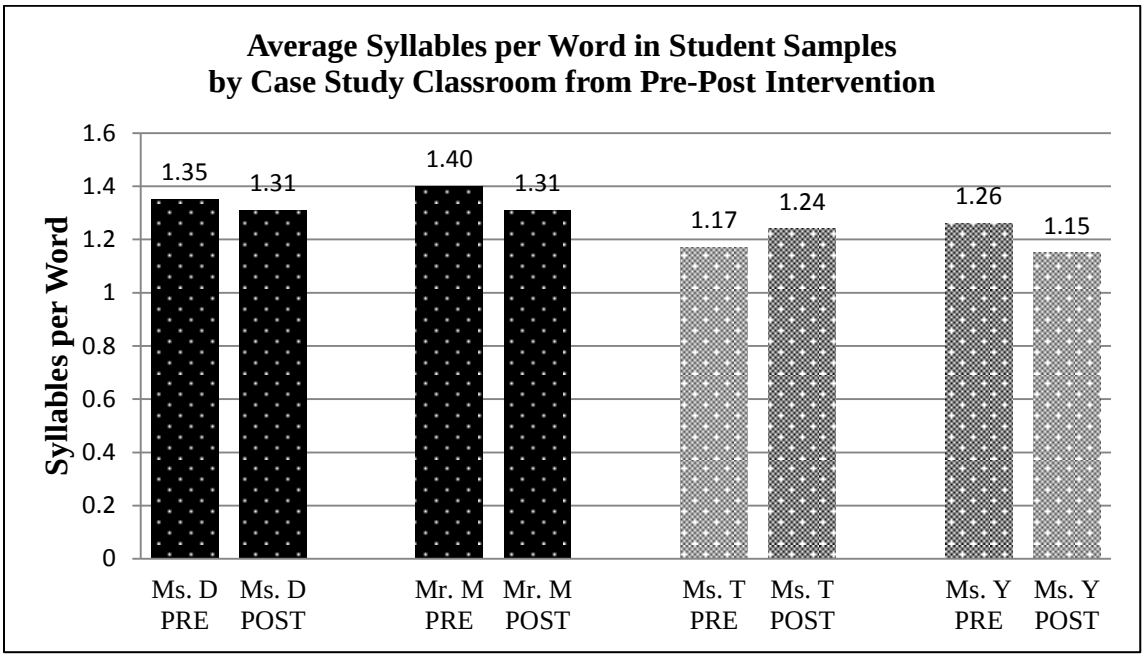

Figure 3. Average Syllables per Word in Student Samples by Case Study Classroom from Pre-Post Intervention.

Syllables per Word Change Between Groups: Intervention vs. Comparison.

An independent samples *t*-test was employed to compare student writing growth, in terms of syllables per word (writing complexity), for the intervention and comparison groups (calculated by subtracting post-intervention means minus pre-intervention means). There was no significant difference between students' growth in terms of number of syllables per word for the intervention group (M = -.09, SD = .25) and comparison group (M = -.02, SD = .23; t (39) = -.85, p = .399). The differences in the means (mean difference = .07, 95% CI: -.23 to .09) was very small. Table 7 presents the means and standard deviations for students' change in writing complexity, or the number of syllables per word (post-intervention means minus pre-intervention means), for the intervention and comparison groups.

Table 7.

Average Syllables per Word Between Groups.

Study Population (N=56)[a]		
Variable	Intervention	Comparison
Number	n = 13	n = 28[a]
Complexity Change	Mean (SD)	Mean (SD)
Post-Pre	-.09 (.25)	-.02 (.23)

Note: [a]42 students were used for this analysis

Findings Related to Research Strand 2

Research question two asks the following: *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quality?*

To determine whether or not writing quality improved as a result of the intervention, or due to the use of a common curriculum presented in fourth grade across all four classrooms, two qualitative analyses were used: content analysis and holistic scoring on a state-created assessment scale (the TAKS writing rubric). The identity of each student was protected by providing him or her with an individual student code, consisting of teacher letter and student number. Two samples for each child were collected: pre-intervention and post-intervention. Berninger (2009) suggests correcting writing samples for handwriting legibility and spelling accuracy to avoid bias in compositional quality ratings. To this end, all samples were typed into Microsoft Word by the researcher and samples were corrected for spelling errors prior to analysis.

Holistic (TAKS) Writing Rubric. The Holistic (TAKS) Writing Rubric was used for an analysis of student writing quality. Specifically, students' performance for each sample was assessed by scoring for these writing components: (1) focus and coherence; (2) development of ideas; and (3) organization. Each entry received one holistic rating using the rubric criteria for each of these components. The rubric components related to of writing conventions (spelling, grammar, punctuation, usage) and in voice (personality/style) were beyond the scope of this study's research questions, so these components were not used in this analysis.

The samples were scored using a four-point rubric, attached as Appendix B, with a set of specific criteria necessary to earn each level (1 being the lowest score and 4 being the highest). Scores assigned to student samples were holistic. For example, if a student's piece earned a 2 in focus and coherence, a 3 in development of ideas, and a 2 in organization, then the holistic score would be a 2 for the piece.

Steps in Writing Quality Scoring Analysis. In order to ensure accurate writing scoring, two highly-skilled writing scorers were needed. The researcher was the first writing scorer, or Rater 1. Rater 1 has over 10 years in elementary public schools serving as a teacher and a literacy coach. Rater 1 served as a district-level writing scorer for multiple years with the use of this holistic (TAKS) writing rubric rating district-wide fourth grade samples. Rater 1 has taught college level courses including Reading and Writing in the Elementary Classroom. Additionally, Rater 1 has presented at local and national conferences in education and been published in Tier 1 journals. Rater 1 has Bachelor and Master degrees in Education and is currently pursuing a Doctorate in Education.

Through inquiries in the researcher's professional network, a second rater, unaffiliated with the study, agreed to assist with scoring student samples. Rater 2 is a 27-year educator in the elementary grades with 11 of those serving as an elementary-level literacy and instructional coach. Rater 2 also has served on district scoring committees for fourth grade writing using this writing rubric, over multiple years. Rater 2 has presented at state and local conferences and has published in a statewide journal. Rater 2 is on the executive board of the local Council of Teachers of English. She holds Bachelor of Education and Master of Education degrees. Rater 2 was also on the initial state committee to develop the new State of Texas Assessment of Academic Readiness (STAAR) writing test (which replaced TAKS in 2012).

This researcher trained Rater 2 on the correct use of the holistic (TAKS) writing rubric. The two raters then calibrated their scoring, using the rubric to ensure that their scoring aligned and discussing any inconsistencies that existed between scores. To ensure inter-rater reliability, Rater 1 and Rater 2 scored each piece separately, comparing scores after each sample. Rater 1 and Rater 2 had a 93% agreement on writing scoring across 154 student samples. Raters originally scored mid-point data for this study, which was removed from these analyses due to one class missing 27% of its data for the mid-point collection. When raters disagreed on their assessment, both returned to the language of the rubric (in 7% of the samples) to find consensus on what score that sample should receive, to achieve 100% final agreement across all samples.

Holistic Rubric Scores from Pre-Post Intervention by Case Study Classroom. Students' holistic rubric scores were compared across the two benchmark Reflection/Exit collections to determine what change in writing quality, if any, occurred from pre-post intervention within each case study classroom. Paired-sample *t*-tests were employed to determine if changes in students' writing quality were significant from pre- to post-intervention, for each case study classroom. Table 8 shows students' holistic writing score results by case study classroom.

Table 8.

Student Scores on Holistic (TAKS) Writing Rubric by Case Study Classroom from Pre-Post Intervention.

Study Population (N=56)

	Intervention Teachers		**Comparison Teachers**	
	Ms. D.	**Mr. M.**	**Ms. T.**	**Ms. Y.**
	n = 12	n = 13	n = 15	n = 16
Rubric Score	Mean *(SD)*	Mean *(SD)*	Mean *(SD)*	Mean *(SD)*
Pre-intervention	1.42 (.52)	1.15 (.38)	1.20 (.41)	1.06 (.25)
Post-intervention	1.17 (.39)	1.92 (.86)**	1.40 (.51)	1.19 (.54)
	(% of class)	(% of class)	(% of class)	(% of class)
Pre-intervention Below-Standard (Score of 1)	58%	85%	80%	94%
Post-intervention Below-Standard (Score of 1)	83%	38%	60%	88%
Pre-intervention Met Standard (Score of 2)	41%	15%	20%	6%
Post-intervention Met Standard (Score of 2)	17%	31%	40%	6%
Pre-intervention Above Standard (Score of 3 or 4)	0%	0%	0%	0%
Post-intervention Above Standard (Score of 3 or 4)	0%	31%	0%	6%

Note: *Indicates statistically significant change from pre-intervention means to post-intervention means: ($p < .05$)* ($p < .01$) ** ($p < .001$)***

Ms. D.'s Intervention Classroom (Low Fidelity/Low Implementation). A paired-sample *t*-test was conducted to evaluate the impact of the intervention on the writing quality as measured by the holistic rubric scores of Ms. D.'s students from pre-post intervention. There was no significant difference between the scores for Ms. D.'s students from pre-intervention (M = 1.42; SD = .52) to post-intervention (M = 1.17, SD = .39; t (11) = 1.92, p = .08). The mean decrease was -.25, with a 95% confidence interval ranging from -.04 to .54. In Ms. D.'s class, writing quality decreased over the course of the study, but not significantly. (Note: Ms. D. was absent for two weeks during the intervention).

Mr. M.'s Intervention Classroom (High Fidelity/High Implementation). A paired-sample *t*-test was employed to evaluate the impact of the intervention on the writing quality (as measured by the holistic rubric) of Mr. M.'s from pre-post intervention. There was a significant difference between Mr. M.'s students' scores from pre-intervention (M = 1.15; SD = .38) to post-intervention (M = 1.92; SD = .86; t (12) = 3.83, p = .002). The mean increase in students' scores was .77, with a 95% confidence interval ranging from -.33 to 1.21. The eta squared statistic (η^2 = +.54) indicated a large effect size based on Cohen's 1998 guidelines: +.01 = small effect; +.06 = moderate effect; and +.14 = large effect). In Mr. M.'s class, writing quality increased significantly over the course of the study, with a large effect size.

Ms. T.'s Comparison Classroom. A paired-sample *t*-test was used to evaluate the improvement in students' writing quality as measured through the holistic rubric from pre-post intervention. Ms. T.'s students were provided with no intervention, so results demonstrate the growth of student writers when given just the traditional writing

curriculum. The rubric scores between students' pre-intervention means (M = 1.20; SD = .41) and post-intervention means (M = 1.40; SD = .51) were not statistically significant t (14) = 1.15, p = .27. The mean increase in students' scores was .20, with a 95% confidence interval ranging from -.17 to .57. In Ms. T.'s class, writing quality increased over the course of the study, but not significantly.

Ms. Y.'s Comparison Classroom. A paired-sample t-test was used to evaluate Ms. Y.'s improvement in students' writing quality as measured through the holistic rubric from pre-post intervention. Ms. Y.'s students were provided with no intervention, so results demonstrate the growth of student writers when given just the traditional writing curriculum. The increase in rubric scores from pre-intervention means (M = 1.06; SD = .25) to post-intervention means (M = 1.19; SD = .54) was not statistically significant t (15) = 1.00, p = .33. The mean increase in students' scores was .13 with a 95% confidence interval ranging from -.14 to .39. In Ms. Y.'s class, writing quality increased over the course of the study, but not significantly.

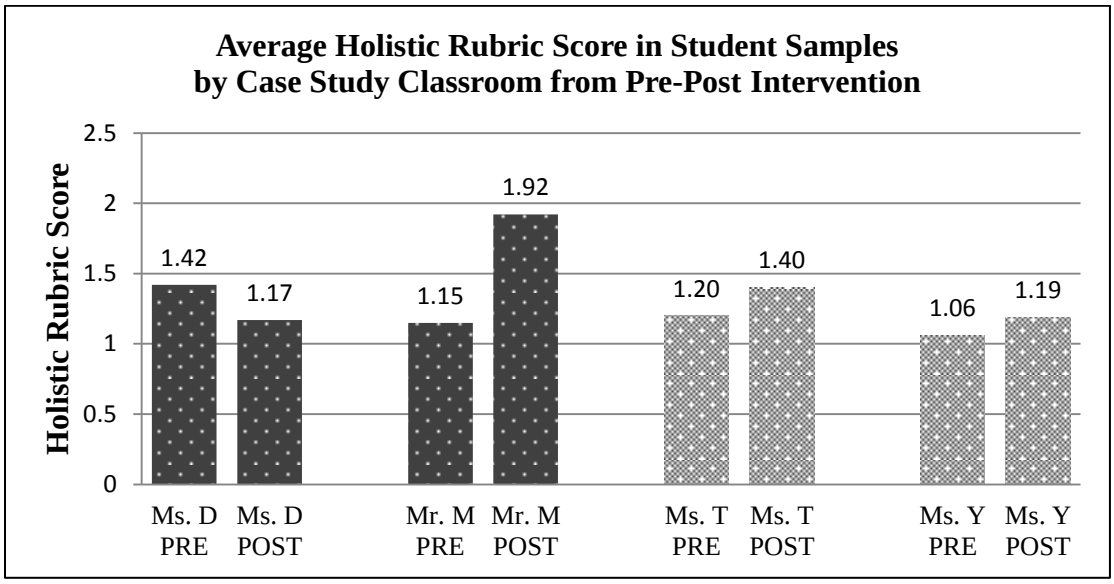

Figure 4. Average Holistic Rubric Score in Student Samples by Case Study Classroom from Pre-Post Intervention.

Holistic Rubric Change Between Groups: Intervention vs. Comparison. An independent samples *t*-test was employed to compare student writing quality, as measured by the holistic writing rubric, for the intervention and comparison groups (calculated by subtracting post-intervention means minus pre-intervention means). There was a significant difference between students' writing quality scores for the intervention group (M = .77, SD = .73) and comparison group (M = .16, SD = .58; t (39) = 2.94, p = .005). The difference in the means (mean difference = 0.61, 95% CI: 0.18 to 1.03) was large, and the eta squared statistic (η^2 = +.17) indicated a large effect size based on Cohen's 1998 guidelines: +.01 = small effect; +.06 = moderate effect; and +.14 = large effect. Table 9 presents the means and standard deviations for students' change in writing score (post-intervention means minus pre-intervention means) for the intervention and comparison groups.

Table 9.

Student Scores on Holistic (TAKS) Writing Rubric Between Groups.

	Study Population (N=56)[a]	
	Intervention	Comparison
	n = 13	n = 28
Change Score	Mean (SD)	Mean (SD)
Post-Pre	0.77 (0.73)**	0.16 (0.58)
	(% of class)	(% of class)
Pre-intervention Below-Standard (Score of 1)	85%	87%
Post-intervention Below-Standard (Score of 1)	38%	74%
Pre-intervention Met Standard (Score of 2)	15%	13%
Post-intervention Met Standard (Score of 2)	31%	23%
Pre-intervention Above Standard (Score of 3 or 4)	0%	0%
Post-intervention Above Standard (Score of 3 or 4)	31%	3%

[a]42 students were used for this analysis

**Indicates statistically significant change ($p < .05$) from pre-intervention means to post-intervention means.

Holistic Rubric Standard from Pre-Post Intervention by Case Study Classroom.

A final rubric analysis presents students' scores on the holistic (TAKS) writing scale when viewed in the context of: met standard, below standard, or above standard. The rubric used in this study and used in Texas state-wide assessments from 2003-2010 is a criterion-referenced scale. On the state assessment, students needed to meet a set standard for their writing, or earn a holistic score of 2 on this rubric in order earn a passing score. Students who earn a score of 1 are considered below standard and earn a failing grade on the writing assessment. Students who receive a holistic score of 3 or 4 are considered above standard and could have potentially received a commended performance rating on the Writing TAKS. Using this set of standards, results for students' performance are presented below by case study classroom, based on what percentage of students would be considered "below standard" (score of 1), "met-standard" (score of 2), or "above standard" (score of 3 or 4). Student scores by standard are then presented for the intervention and comparison groups. Table 8 and Figures 5, 6, and 7 present these results.

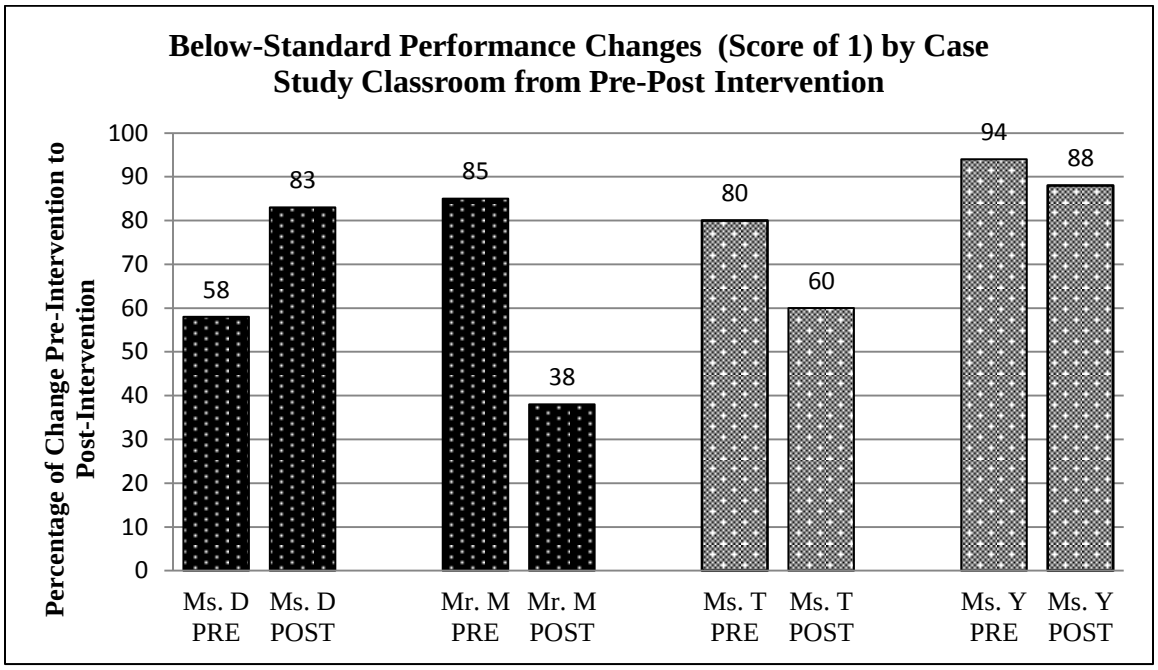

Figure 5. Below-Standard Performance Changes (Score of 1) on the Holistic (TAKS) Rubric by Case Study Classroom from Pre-Post Intervention.

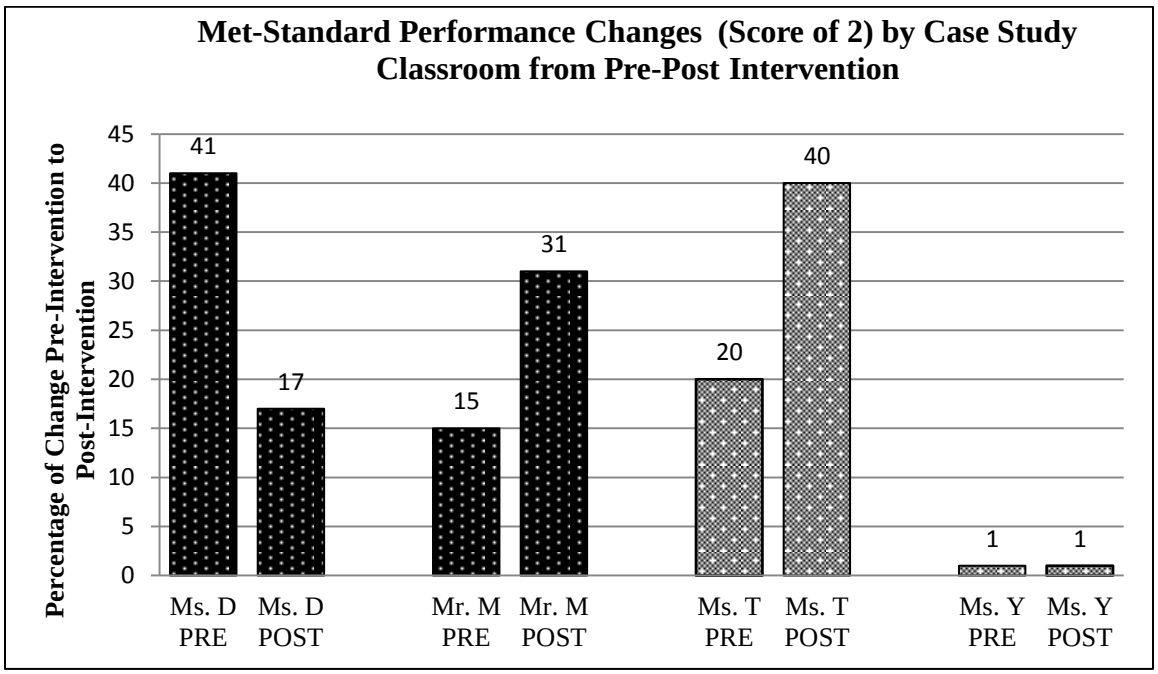

Figure 6. Met-Standard Performance Changes (Score of 2) on the Holistic (TAKS) Rubric by Case Study Classroom from Pre-Post Intervention.

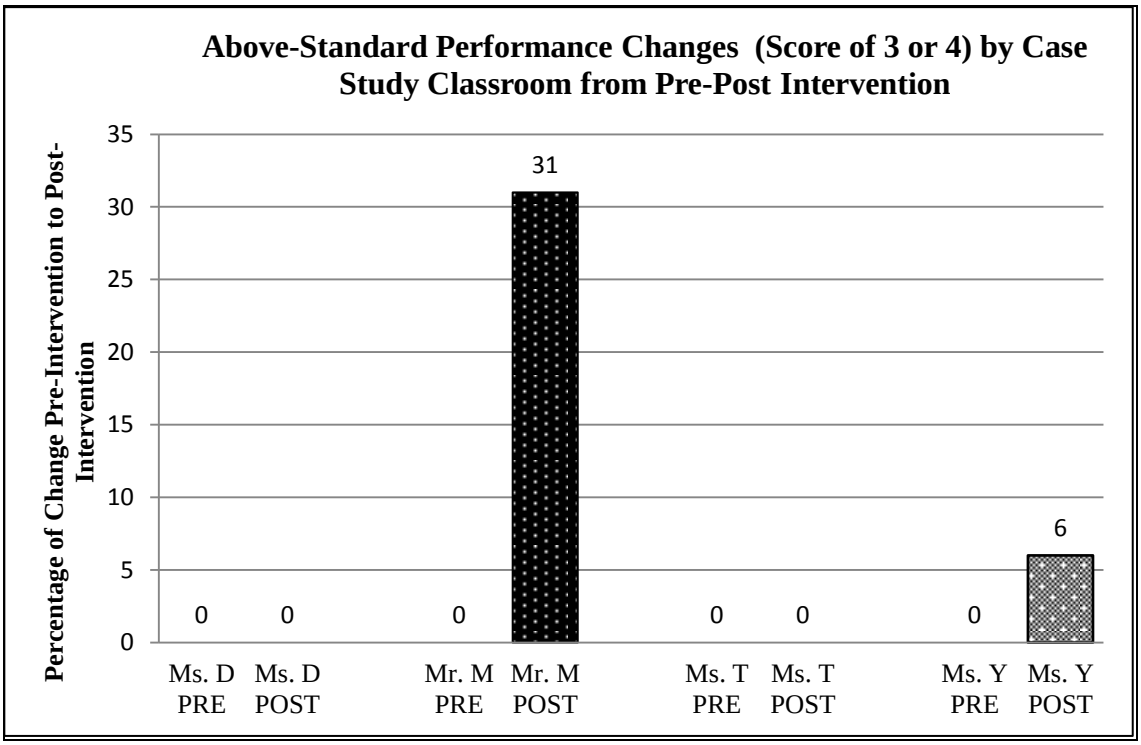

Figure 7. Above-Standard Performance Changes (Score of 3 or 4) on the Holistic (TAKS) Rubric by Case Study Classroom from Pre-Post Intervention.

Ms. D.'s Intervention Classroom (Low Fidelity/Low Implementation). Ms. D.'s scores were analyzed for how many of her students would be considered below standard (earn a score of 1), met standard (earn a score of 2), or above standard (earn a score of 3 or 4) at pre-intervention and at post-intervention. It was found that 58% of Ms. D.'s students (n = 7) had a below-standard score at pre-intervention (a score of 1), and that number increased to 83% (n = 10) at post-intervention. In Ms. D.'s class, more students failed to meet the passing standard after the intervention was complete. At pre-intervention, 41% of students (n = 5) received passing score of 2, meeting the state standard; at post-intervention only 17% of Ms. D.'s students (n = 2) met standard. There were no students in Ms. D.'s class that scored above standard (a score of 3 or 4) at pre-

intervention or at post-intervention. In Ms. D.'s class overall, students performed at a lower level on the post-intervention sample than on the pre-intervention sample.

Mr. M.'s Intervention Classroom (High Fidelity/High Implementation). Mr. M.'s scores were analyzed for how many of his students would be considered below standard (earn a score of 1), met standard (earn a score of 2), or above standard (earn a score of 3 or 4) at pre-intervention and at post-intervention. In Mr. M.'s class, it was found that 85% of students (n = 11) had a below-standard score at pre-intervention (a score of 1), and the number of failing students was reduced to 38% (n = 5) at post-intervention. At pre-intervention, 15% of Mr. M.'s students (n = 2) received passing score of 2 meeting the state standard; at post-intervention that number increased to 31% of students (n = 4) meeting standard. Additionally, although Mr. M. had no students above standard (with a score of 3 or 4) at pre-intervention, 31% of his students (n = 4) earned scores above standard at post-intervention.

Ms. T.'s Comparison Classroom. The scores for the students in Ms. T. classroom were analyzed for how many of her students would be considered below standard (earn a score of 1), met standard (earn a score of 2), or above standard (earn a score of 3 or 4) at pre-intervention and at post-intervention. It was found that 80% of Ms. T.'s students (n = 12) had a below-standard score at pre-intervention (a score of 1), and the number of failing students decreased to 60% (n = 9) at post-intervention. At pre-intervention, 20% of Ms. T.'s students (n = 3) received passing score of 2, just meeting the state standard; at post-intervention that number increased to 40% of Ms. T.'s students (n = 6) meeting standard. There were no students in Ms. T.'s class that scored above standard (a score of 3 or 4) at pre-intervention or at post-intervention.

Ms. Y.'s Comparison Classroom. Ms. Y.'s scores were analyzed for how many of her students would be considered below standard (earn a score of 1), met standard (earn a score of 3), or above standard (earn a score of 3 or 4) at pre-intervention and at post-intervention. In the Ms. Y.'s classroom, it was found that 94% of students (n = 15) had a below-standard score at pre-intervention (a score of 1), and the number of failing students declined to 88% (n = 14) at post-intervention. At pre-intervention, one student from Ms. Y.'s classroom (6%) received passing score of 2, just meeting the state standard; at post-intervention that number remained at 6% of Ms. Y.'s students (n = 1) meeting standard. None of the students in Ms. Y.'s class scored above standard (a score of 3 or 4) at pre-intervention; at post-intervention, one student scored above standard (n = 1; 6% of students).

Holistic Rubric Standard from Pre-Post Intervention: Intervention vs. Comparison. Mr. M.'s classroom comprised the intervention group. In \the intervention group: 85% of students (n = 11) had a below-standard score at pre-intervention (a score of 1); this was reduced to 38% (n = 5) at post-intervention. Fifteen percent of students (n = 2) received passing score of 2 at pre-intervention; this increased to 31% meeting standard at post-intervention (n = 4). None of the intervention students scored above standard scores of 3 or 4 at pre-intervention. Of these students, 31% (n = 4) earned scores above standard at post-intervention.

For the comparison group, Ms. T. and Ms. Y.'s classrooms were combined to represent the comparison condition. It was found that 87% of the comparison group (n = 27) had a below-standard score at pre-intervention (a score of 1); the number of failing students decreased to 74% (n = 23) at post-intervention. At pre-intervention, 13% of the

comparison group (n = 4) received passing score of 2, just meeting the state standard. While at post-intervention, 23% of the comparison group (n = 7) meeting standard. There were no students in the comparison that scored above standard (a score of 3 or 4) at pre-intervention and only 3% of students (n = 1) scored above standard or at post-intervention. Figure 8 shows the differences between intervention and comparison groups for students below standard (score of 1), students who met standard (score of 2), and students above standard (score of 3 or 4) by intervention and comparison group.

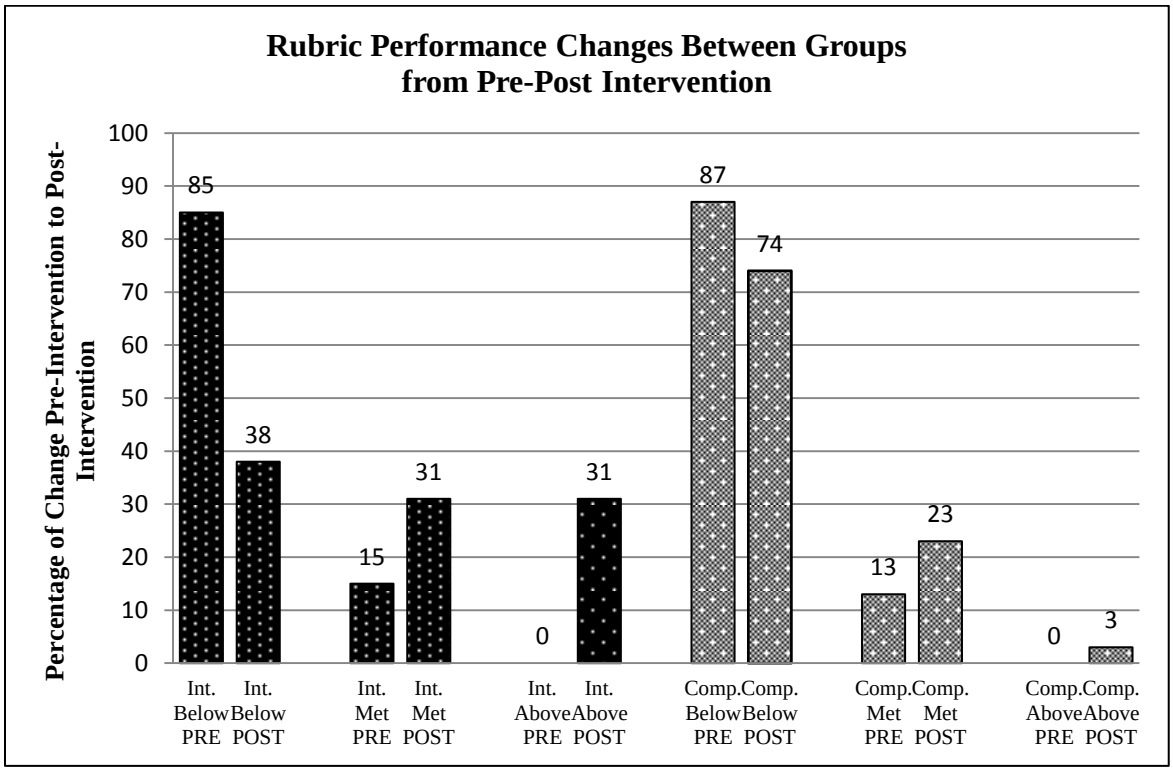

Figure 8. Rubric Performance Changes from Pre-Post Intervention Between Groups: Below Standard, Met Standard and Above Standard

Qualitative Content Analysis.

Defining Features Found in the Data. Content analysis first asks a researcher has to identify defining features of a set of archival data, in this case writing samples. The first question a researcher must answer is this: *What are the phenomena exist in these set of data?* After reading through the writing sample several times, the researcher came up with a list of Reflection/Exit writing defining features (what did the students' writing consist of?). The researcher worked systematically to classify every component of student writing—regardless of how infrequent, and capture its essence in the defining features, ensuring a total picture of what student samples actually contained.

The following is a list of defining features that the researcher identified through this systematic process. Excerpts from student samples are provided to illustrate the nature of each defining feature. [Student writing is shown below in Annie BTN font].

***Defining Feature One*:** Naming content vocabulary (e.g., Today I learned about photosynthesis.);

***Defining Feature Two*:** Explaining what was learned in their own words (e.g., I learned that Texas was going to fight Santa Anna's men, so they could no longer be part of Mexico. This made Santa Anna really mad. That's when a cannon ball blasted, telling the Texans that this means war and there will be no mercy. People ran to the Alamo…);

***Defining Feature Three*:** Discussing classroom instructional activities (e.g. Today we had a review because yesterday we had a test practice STAAR test);

Defining Feature Four: Describing relationships among ideas/pieces of content (e.g. An attribute is a feature that descries something. A synonym is a characteristic. Some attributes of angles are: vertices, sides, angles.);

Defining Feature Five: Discussing difficulty/ease of a given task (e.g., I learned in fourth grade that doing division is easy…);

Defining Feature Six: Reflecting on performance (e.g., …I also learned how to write better. My teacher has been teaching me strategies and skills how to write better, so I am really happy I have (this) teacher . . .);

Defining Feature Seven: Discussing issues outside of the classroom (e.g. Today I learned how to make a bottle of milk for my baby sister and how to feed it to her and burp her, so she can get excess gas out of her system.);

Defining Feature Eight: Personal reaction to learning (e.g. We all honor them because of the hard work they did was for all of us, to give our homes and rights.); and,

Defining Feature Nine: Describing how learning helps me (e.g. [Writing] helps your memories flow. It also helps you think about the day you have had sadness or happiness in your life.).

These defining features comprised the large majority of what students discussed throughout the samples (the phenomena found in the data).

Theme Development. The researcher's next task was to identify themes that emerged from the student sample data, and used these themes as a framework for further analysis. The researcher initially began trying to make sense of the defining features (presented above) by realizing that several of them represented levels of thinking, or of knowing content. This made sense and seemed appropriate due to the nature of the task. Writers were asked to respond to the open-ended prompt *"Today, I learned…"* Some samples appeared to be producing basic levels of content and thinking (e.g. `Today I learned about magnetism.),` while other samples appeared more developed in terms of content knowledge, word usage and thinking about learning (e.g. `Ancient Greeks were the first ones to figure out that there was a material called lodestone which is made of up magnetite…. the magnets we used today are man-made and TVs have magnets in them, and so do computers and doorbells`).

Based on the prior work of the researcher as a teacher and literacy coach and the extensive application and analysis of the levels in of Bloom's Taxonomy of Learning Objectives (1956) in the school setting, this was the initial framework considered for application in this content analysis. On the surface level, naming vocabulary (defining feature 1) appeared to be a knowledge level skill, while explaining content in their own words (defining feature 2) seemed to demonstrate a more sophisticated level of thinking, perhaps at the comprehension level. The researcher considered using Bloom's Taxonomy as a framework for making sense of the defining features, but after careful consideration returned to the research question at hand: *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as*

measured in quality? While Bloom's Taxonomy is an adequate framework for understanding levels of thinking, it seemed inappropriate for measuring or describing levels of cognition in writing.

After further consideration, the researcher returned to the research on cognitive writing processes as discussed earlier in this dissertation. Research on written composition most frequently cites the work of Flower and Hayes (1981), whose model outlines and details the processes students go through as they engage in writing: (1) planning; (2) translating; and (3) reviewing and revising. Upon first consideration, these three cognitive writing stages seemed appropriate when analyzing the processes students went through to create their Reflection/Exit writing. These three distinct stages are discussed below.

In the *planning* stage, writers make lists and recite their ideas based on their planning or on stream of consciousness. In the *translating* stage, writers begin to transform these ideas into their own words. During the translating stage, writers move from *knowledge telling* to *knowledge transforming*. In *knowledge telling,* students are retrieving information and restating it in their own words. Writers who stay in knowledge telling are considered novice writers. When writers can synthesize, reprocess or repackage knowledge in an increasingly complex way, expanding on their thoughts and moving toward a more comprehensive picture, they move into knowledge transforming (Bereiter & Scardamalia, 1987, p. 18). *Knowledge transforming* requires higher order thinking skills that extend beyond simple novice recitation—writers must become metacognitive: planning as they go, making associations between ideas, and considering their audience. In the third stage, *reviewing and revising*, writers evaluate

and revise their written work, making modifications to the work to improve it (revise) or correct errors (proofread).

The writing development framework provided initially by Flower and Hayes (1981) and supported by Bereiter and Scaramalia (1987) seemed an appropriate way to categorize the defining features in student writing samples, and address the research question—has the intervention affected student writing quality? The quality of writing, then could be determined by the writing that was a brief listing of ideas (*planning* stage) that showed students explaining content in their own words (*translating* stage) or that showed students revising their writing to produce a higher-level of thinking (*revising* stage). Students writing would show improvement in quality as they moved away from the list-making found in planning, to placing ideas in their own words through translating, and revising their thinking in reviewing.

The researcher initially attempted to analyze student writing based on the themes: *planning*, *translating* and *reviewing*. However, it was quickly realized that because these data were archival writing samples and observations of in process writing were not possible, the researcher could not determine if student thinking had improved as a result of their reviewing or revising their work, or alternatively, if their first-draft product demonstrated high-levels of thinking. The writing intervention itself asks for a first-draft product, and students are not expected to engage in the entire writing process. In such a short time period time (5-6 minutes), producing several drafts from beginning (*planning*) to end (reviewing/revising/publishing for an audience) is not necessarily expected. It seemed inappropriate to include the revision stage in these analyses.

The researcher focused, however, on two categories of cognitive writing development that could be measured: (1) *planning* (initial); and (2) *translating* (advanced). *Planning* was the baseline theme that the researcher utilized: writing that appeared to be recitation of knowledge (e.g. a word and its definition) or where writers seemed to be making lists without any explanation or description was coded as planning. Returning to the work of Flower and Hayes (1981), the researcher found that the stage of *translating* presents a wide range of cognitive development in writing. To classify it under one theme would not provide a true picture of the depth of this cognitive process. Bereiter and Scardamalia (1987) presented the following categories within the *translating* stage to help us understand what writers are doing cognitively as they are translating information: *knowledge telling* and *knowledge transforming*.

Due to the breadth of development that was seen in these data, the researcher applied Bereiter and Scardamalia's (1987) descriptions to define the last two themes - *knowledge telling* and *knowledge transforming*. While translating, writers may simply put knowledge in their own words—this was coded as *knowledge telling*. In more developed writing, writers may synthesize, reprocess or repackage knowledge, becoming metacognitive, or making associations between ideas—this was coded as *knowledge transforming*. To help the researcher make further sense of the initial defining features and how they fit into each theme, they were categorized within this new framework and expanded on for a greater understanding of what each theme represented.

Theme 1: Planning. Student samples that read like list-making and/or provided knowledge level information fit into this category. Many students listed what they

learned by providing a name and/or making a list. Examples of student writing at the planning level included:

- Today I learned about photosynthesis and today I also learned about area.
- Today what I learned is about lines. There are 3 kinds of lines. There are perpendicular lines, intersecting lines, and parallel lines.
- Today what I learned about volume and length, width, and height.

Student writing that was identified as planning lacked development. There were no descriptions or explanations of what was learned. The defining feature included in this theme was listed as *Defining Feature One:* Naming Content Vocabulary.

Theme 2: Knowledge Telling. Student samples that demonstrated an ability to restate knowledge into their own words, providing an explanation or description of what was learned, was identified as knowledge telling. Examples of student writing at the knowledge telling level included:

- Santa Anna wanted Texans to pay taxes but Texans said, "NO!" So they started a war. So, to get back at Santa Anna, Texans had an attack on Mexico.
- I learned that the same planets repel from each other. Jupiter has a 10 times stronger magnetic field than Earth and we cannot see magnetism but

> we can feel it and opposite poles attract and magnets have a north and a south pole.
>
> - Volume is like adding the cubes. You add all of the cubes and you see how many cubes fill the object.

Student writing that was identified as knowledge telling showed some development. Student writing did not simply restate knowledge, but also provided descriptions or explanations for what was learned. The defining feature included in this theme was titled *Defining Feature Two:* Explaining What Was Learned, i.e. vocabulary meaning, mathematical thinking, etc.

***Theme 3: Knowledge Transforming*.** Student samples that demonstrated a capacity to transform their knowledge of content into a deeper level of understanding, or writing that demonstrated an analysis of what was learned, connections between ideas or an application of their learning, or to my life or the world around me, was categorized as knowledge transforming. In addition, writing that was metacognitive fit into this category. Examples of student writing at the knowledge telling level included:

> - Today I learned that summary helps me when I write because it tells me what happened in the whole story. Step by step, and it helps me (understand) how the characters work together, to get the solution. And it makes it easier for me to understand the story.

- Magnetism is what magnets do. It's just like a magnet attracting things made with iron or dust, plain iron. There are different kinds of magnets. There is the horseshoe, the block, and our Earth. Our Earth acts like a giant magnet.
- Writing for me is like having a second voice box. Instead of saying "Lee fell from the tree" say "Lee fell from the tree like a pebble falling from a mountain."

Student writing that was identified as knowledge transforming showed a more sophisticated level of development. Student writing did not simply restate knowledge or tell what was learned in their words, but also provided analysis, made connections, or showed students metacognitive thinking. The defining features included in this theme were titled as: *Defining Feature Four*: Describing Relationships Among Ideas/Pieces of Content; *Defining Feature Eight*: Personal Responses to Learning; *and Defining Feature Nine:* Describing How Learning Helps Me.

Other defining features initially discovered, although present in these data and of interest to the researcher, were not addressed as they were beyond the scope of this study. The defining features that were present, but not coded in the data included: *Defining Feature Three*: Discussing classroom instructional activities; *Defining Feature Five*: Discussing difficulty/ease of the task; *Defining Feature Six*: Reflecting on Performance; and *Defining Feature Seven:* Discussing Issues Outside of the Classroom. These

defining features could be used in a further analysis, were the researcher interested in determining how the writing intervention reflected student affect over time.

Using the three themes described above as a framework for content analysis, student writing samples were analyzed and coded by theme. The majority of student writing samples contained more than one theme. For example, a sample might begin by reciting/naming what was learned (*planning*) then go on to explain the concept in the student's own words (*knowledge telling*) and finally discuss how it connects to a larger issue in the world (*knowledge transforming*). However, there were some student samples that were comprised completely of one theme. A highlighter was used by the researcher to identify the pieces of a students' sample that reflected each theme. Yellow highlighter was used to code for *planning*. Blue was used to code for *knowledge telling*. Pink was used to code for *knowledge transforming*. The following example demonstrates a student who moved through all three themes within one sample (with theme descriptors showing how the writer progressed through themes):

> Today I learned about the battle of the Alamo. [PLANNING] I learned that the battle of the Alamo was one of the bloodiest battles in history. The causes of this battle were that Santa Anna was furious about the Mexican soldiers surrendering against the Texan soldiers. [KNOWLEDGE TELLING] Every Texan soldier died in the battle, but with their bravery, the Texan soldiers made other people want to join other battles. [KNOWLEDGE TRANSFORMING]

The researcher read each student sample several times, coding it for these three themes of cognitive writing development.

Data were then quantified, counting the frequencies of the emerging themes. Tashakkori and Teddlie (2003) explain that converting qualitative data into numerical codes that can be measured in terms of frequency prevents researchers from "overweighting" or "underweighting" the themes (p. 355). In order to demonstrate the amount of *planning*, *knowledge telling* and *knowledge transforming* per class, all categories were quantified to obtain the percentage of writing samples that represented each category, by class and sample collection. For the purposes of this study, if a theme was present in a student writing sample, it was given a code of 1. If the theme was not present, it was given a code of 0. For each sample collection, the researcher computed a class percentage of writing development for samples that contained planning, knowledge telling and knowledge transforming. For a second analysis, the researcher looked at the percentage of themes occurring in each group: intervention versus comparison. Table 10 depicts results from content analysis, by teacher and for the overall sample. Figure 9 shows the change in student samples, related to the planning theme. Figure 10 shows the changes in student samples, related to the theme of knowledge telling. Finally, Figure 11 shows the changes in student writing related to knowledge transforming.

Table 10.

Presence of Themes for Content Analysis by Case Study Classroom from Pre-Post Intervention.

Study Population (N=56)[a]				
	Intervention Teachers		**Comparison Teachers**	
Theme	**Ms. D.**	**Mr. M.**	**Ms. T.**	**Ms. Y.**
	n = 12	n = 13	n = 15	n = 16
	(% of class)	(% of class)	(% of class)	(% of class)
Planning				
Pre-intervention	92%	100%	80%	88%
Post-intervention	100%	100%	47%	94%
Knowledge Telling				
Pre-intervention	75%	15%	27%	25%
Post-intervention	25%	69%	47%	31%
Knowledge Transforming				
Pre-intervention	0%	0%	20%	0%
Post-intervention	8%	31%	40%	0%

[a]106 student samples were analyzed

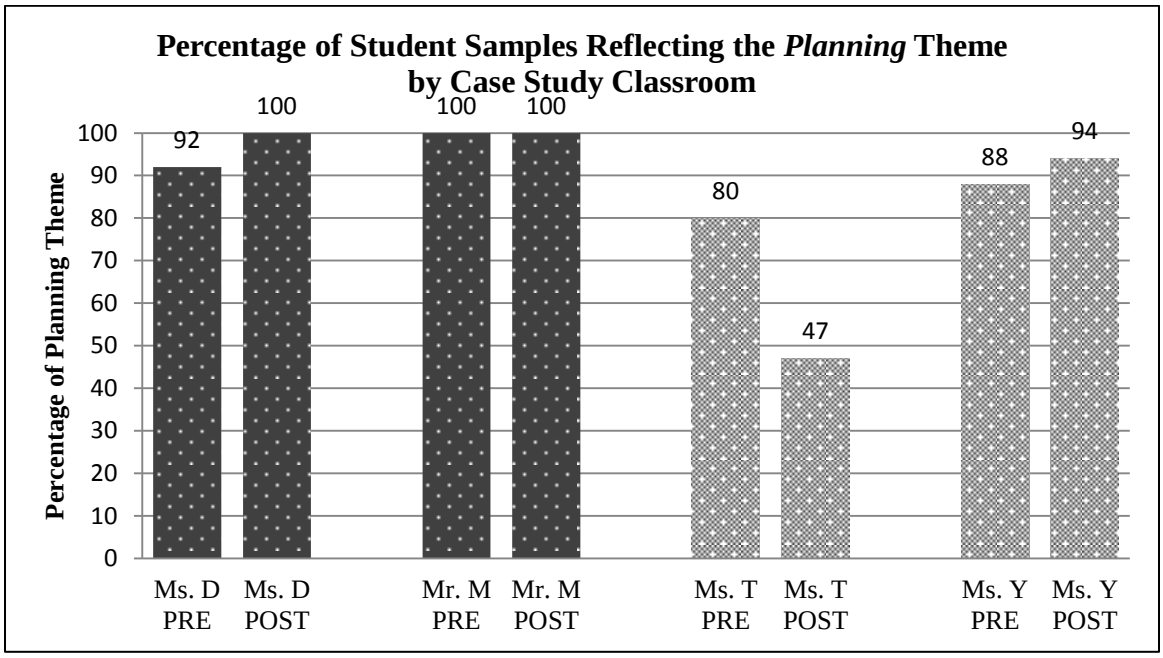

Figure 9. Percentage of Student Samples Reflecting the Planning Theme by Case Study Classroom.

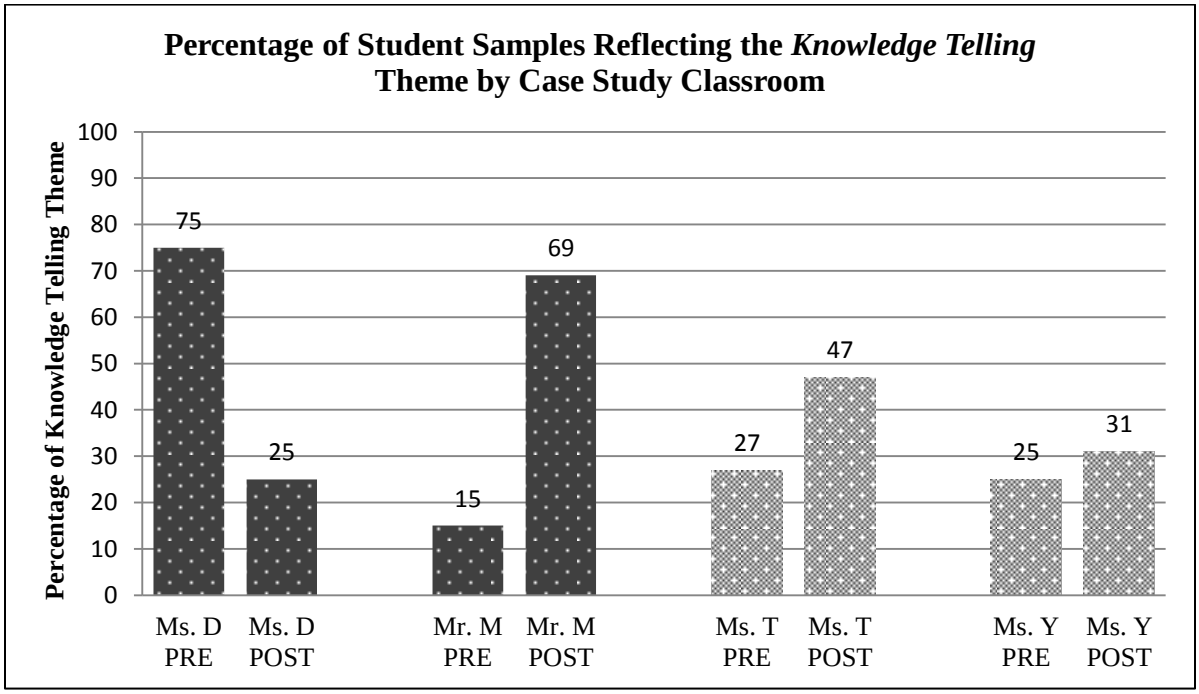

Figure 10. Percentage of Student Samples Reflecting the Knowledge Telling Theme by Case Study Classroom.

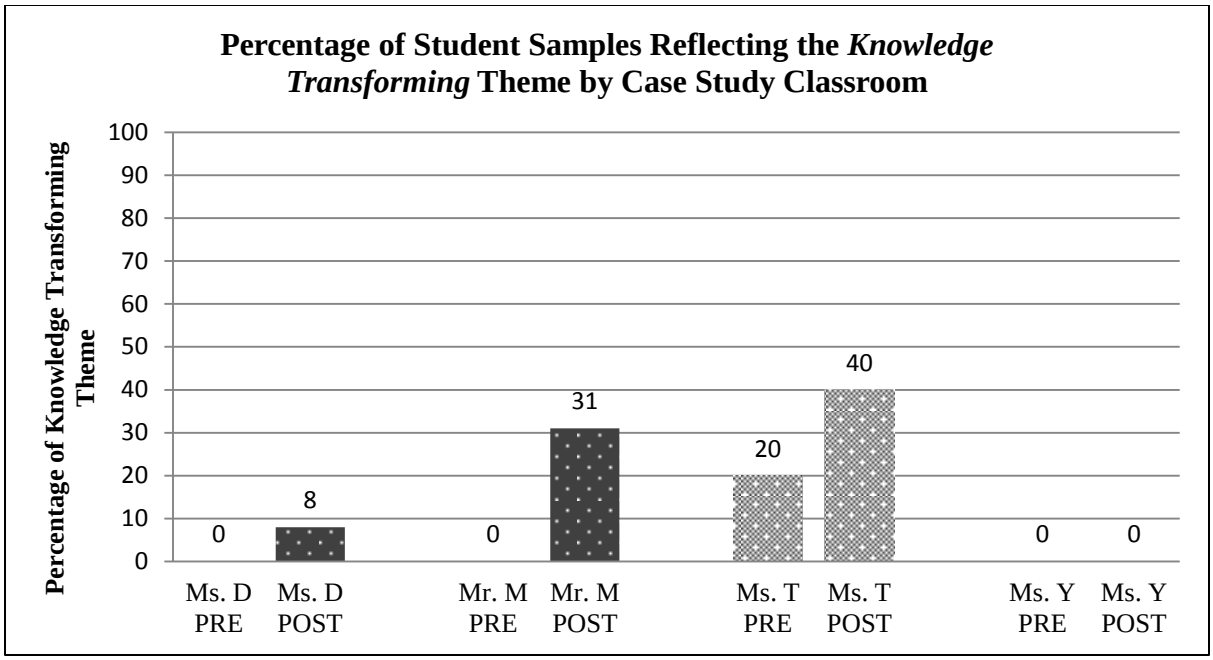

Figure 11. Percentage of Student Samples Reflecting the Knowledge Transforming Theme by Case Study Classroom.

Content Analysis from Pre-Post Intervention by Case Study Classroom.

Ms. D.'s Intervention Classroom (Low Fidelity/Low Implementation). Ms. D.'s students showed a strong and consistent presence of *planning* (the most basic level) across the intervention. from pre-intervention (92%) to post-intervention (100%). However, they demonstrated a decline in the amount of *knowledge telling* across the intervention, from pre-intervention (75%) to post-intervention (25%). Ms. D.'s students demonstrated an increase in the amount of *knowledge transforming* across the intervention, from pre-intervention (0 %) to post-intervention (8%). Her students demonstrated an ability to make lists or provide a simple recitation of knowledge by the end of the study, but her class experience a decline in their ability to put knowledge in their own words or explain content by the end of the 14 week study. However, a slight improvement of 8% or more was seen in ability to transform knowledge.

Mr. M.'s Intervention Classroom (High Fidelity/High Implementation). Mr. M.'s students also showed a strong and consistent presence of *planning* (the most basic level) across the intervention, from pre-intervention (100%) to post-intervention (100%). However, Mr. M.'s students experienced a marked increase in the amount of *knowledge telling* across the intervention from pre-intervention (15%) to post-intervention (69%). Mr. M.'s students demonstrated another increase amount of *knowledge transforming* across the intervention, from pre-intervention (0%) to post-intervention (31%). All of Mr. M.'s students (100%) demonstrated an ability to make lists or provide a simple recitation of knowledge by the end of the study; most of his students (69%) were able to translate that knowledge into *knowledge telling* by the end of the intervention; and, almost one-third (31%) exhibited *knowledge transforming* at the study's conclusion.

Ms. T.'s Comparison Classroom. The percentage of students in Ms. T.'s class who demonstrated *planning* (the most basic level) declined throughout the course of the study, from pre-intervention = 80% to post-intervention (47%). Ms. T.'s students experienced a marked increase for *knowledge telling* across the intervention, from pre-intervention (27%) to post-intervention (47%). They also demonstrated another increase amount of *knowledge transforming* across the intervention, from pre-intervention (20%) to post-intervention (40%). Additionally, Ms. T.'s students' writing samples became increasingly complex over the course of the study, with rates for *planning* declining and rates for *knowledge telling* and *knowledge transforming* improving (but not at the rates of Mr. M.'s intervention classroom).

Ms. Y.'s Comparison Classroom. The percentage of Ms. Y.'s students who demonstrated *planning* (the most basic level) slightly increased across course of the

study, from pre-intervention (88%) to post-intervention (94%). They also experienced some increase in the amount of *knowledge telling* across the intervention, from pre-intervention (25%) to post-intervention (31%). Additionally, Ms. Y.'s students' demonstrated no increase in the amount of *knowledge transforming* across the intervention, from pre-intervention (0%) to post-intervention (0%). The three themes from Ms. Y.'s student writing samples remained fairly consistent over the course of the study.

Content Analysis from Pre-Post Intervention Between Groups: Intervention vs. Comparison. In the intervention group, *planning* (the most basic level) remained consistent across the intervention: from pre-intervention (100%) to post-intervention (100%). *Knowledge telling* increased across the intervention from pre-intervention (15%) to post-intervention (69%). The highest level - *knowledge transforming* - improved across the intervention, from pre-intervention (0%) to post-intervention (31%). The intervention groups' student writing samples became increasingly complex over the course of the study, with rates for *planning* remaining consistent and rates for *knowledge telling* and *knowledge transforming* improving.

In the comparison group, *planning* (the most basic level) declined throughout the course of the study, from pre-intervention (84%) to post-intervention (71%). The comparison group's presence of *knowledge telling* increased across the intervention, from pre-intervention (26%) to post-intervention (39%). Finally, another increase amount of *knowledge transforming* was found from pre-intervention (10%) to post-intervention (19%). The comparison groups' student writing samples became increasingly complex over the course of the study, with rates for planning declining and rates for knowledge

telling and knowledge transforming improving. Figure 12 shows the differences in content analysis themes (*planning, knowledge telling* and *knowledge transforming*) between intervention and comparison groups.

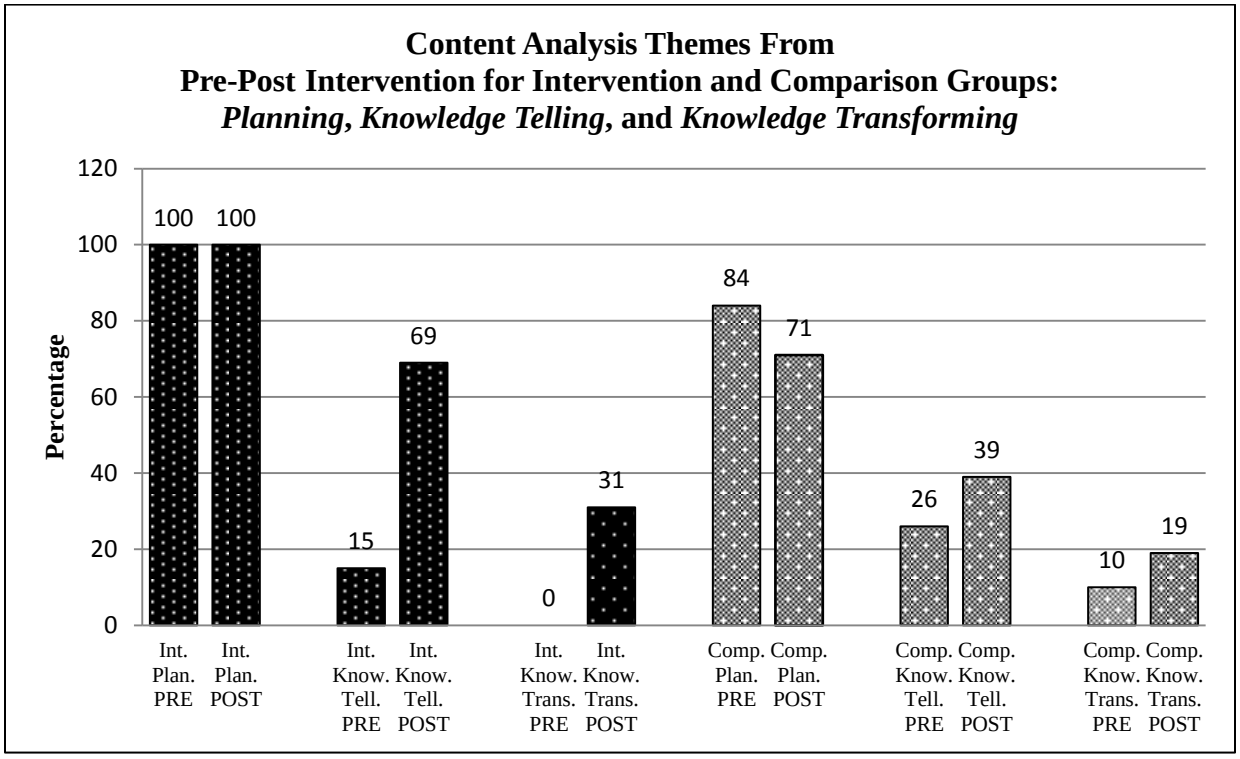

Figure 12. Percentage of Student Samples Reflecting the Content Analysis Themes - Intervention and Comparison Groups: Planning, Knowledge Telling, and Knowledge Transforming.

Findings Related to Research Strand 3

The third research question in this study asks: *Does the use of Reflection/Exit writing affect fourth grade elementary students' self-perceptions of their ability to write as measured by the Writer Self-Perception Scale (*WSPS*)?* To answer this question, a subset of items from the *WSPS* (12 items; see Appendix K for presentation of factor analysis and item reduction) were used to measure students' (N=54) self-perceptions of their ability to write at pre-intervention and again at post-intervention. Each of the

twelve items asked students to rate the strength to which they agreed with the writing self-perception statement provided (e.g. `I write better than other kids in my class`), using a 5-point Likert Scale. The researcher assigned each response with a numerical value, representing the degree to which the respondent agreed with the statements provided in the items: Strongly Agree (SA) = 5, Agree (A) = 4, Undecided (U) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1. Composite means for these 12 items were calculated as a measure of overall student writing self-perception due to the one-factor solution (provided in Appendix K). Results presented below accounted for the diverse student sample through an analysis of case study classroom and group membership (intervention vs. comparison). Table 11 depicts the descriptive data for these variables, including mean student responses (presented with standard deviations) at pre-intervention and post-intervention.

Table 11.

Descriptive Statistics. Writer Self-Perception Scale from Pre-Post Intervention.

	Pre-Intervention	Post-Intervention
Mean Range = 1-5	Mean (SD)	Mean (SD)
Teacher		
Ms. D.	3.59 (.67)	3.56 (.71)
Mr. M.	3.98 (.31)	3.81 (.37)
Ms. T.	4.02 (.91)	3.91 (.58)
Ms. Y.	3.72 (.59)	3.89 (.72)

A series of paired-sample *t*-tests were used to evaluate the impact of the intervention and determine if students' self-perceptions changed over time, by comparing

their Writer Self Perception Scale pre-test means to post-test means. This type of statistical analysis is appropriate when collecting data from the same set of respondents at two points in time, i.e. pre-intervention and post-intervention. Paired-sample *t*-test help to determine if there is any statistically significant difference between the respondents' mean scores, over time. For this study, paired-sample *t*-tests were used to determine if statistically significant changes occurred in students' self-perceptions by case study classroom (teacher) from their pre-intervention sample to their post-intervention sample. Figure 13 shows mean students' responses from pre- to post-intervention by case study classroom.

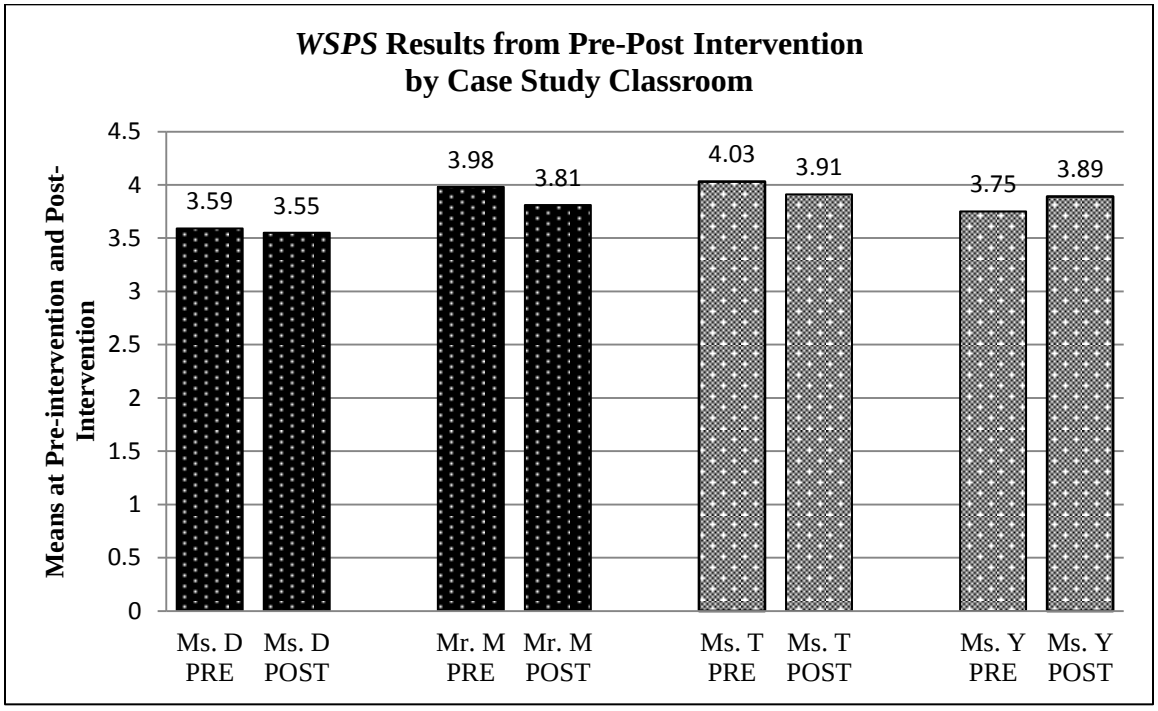

Figure 13. WSPS Results from Pre-Post Intervention Case Study Classroom.

***WSPS* Survey Results from Pre-Post Intervention by Case Study Classroom.**

Ms. D.'s Intervention Classroom (Low Fidelity/Low Implementation). A paired-sample *t*-test was conducted to evaluate the impact of the intervention on the writing self-perceptions of Ms. D.'s students from pre-post intervention. For students in the Ms. D.'s classroom, there was not a statistically significant difference between scores at pre-intervention (M = 3.59, SD = 0.67) and post-intervention (M = 3.55, SD = 0.27), t (9) = .264, p = .800. The mean decrease of these Ms. D. scores was -.03, with a 95% confidence interval ranging from -.25 to .31, but differences between the means were not statistically significant.

Mr. M.'s Intervention Classroom (High Fidelity/High Implementation). The second intervention group analyzed with paired-sample *t*-test was Mr. M.'s classroom (high fidelity/high implementation), from pre-post intervention. The Mr. M. students did not have a statistically significant differences between pre-intervention (M = 3.98, SD = 0.46) and post-intervention (M = 3.81, SD = .37), t (12) = 1.76, p = .104. The mean decrease in these Mr. M. scores was -.16 with a 95% confidence interval ranging from -.04 to .37, but differences between the means were not statistically significant.

***Ms. T.'s Comparison Classroom*.** A paired-sample *t*-test was conducted to evaluate the change in student writing self-perceptions in Ms. T.'s from pre-post intervention. Ms. T.'s students were provided with no intervention, so results demonstrate the change in student writing self-perceptions when given just the traditional writing curriculum. For students in this Ms. T. classroom, there was not a statistically significant difference between scores at pre-intervention (M = 4.03, SD = 0.91) and post-intervention (M = 3.91, SD = .58), t (14) = .537, p = .599. The mean decrease Ms. T.'s

scores was -.11, with a 95% confidence interval ranging from -.34 to .56, but differences between the means were not statistically significant.

***Ms. Y.'s Comparison Classroom*.** Finally, a paired-sample *t*-test was employed to evaluate the change in student writing self-perceptions in the Ms. Y. classroom of Ms. Y. from pre-post intervention. Ms. Y. students were provided with no intervention, so results demonstrate the change in student writing self-perceptions with the traditional writing curriculum. Ms. Y.'s students did not have a statistically significant differences between pre-intervention (M = 3.74, SD = 0.59) and post-intervention (M = 3.89, SD = .72), t (15) = -1.24, p = .234. The mean increase in Ms. Y.'s students' scores was .15 with a 95% confidence interval ranging from -.04 to .11, but differences between the means were not statistically significant.

***WSPS* Survey Change Between Groups: Intervention vs. Comparison.** The comparison group classroom was comprised of the Ms. T. and Ms. Y.'s students. An independent samples *t*-test was employed to compare student writing self-perceptions (as measured by the *WSPS*) for the intervention and comparison groups (calculated by subtracting post-intervention means minus pre-intervention means). There was no significant difference between students writing self-perception scores for the intervention group (M = - 0.16, SD = 0.33) and comparison group (M = .02, SD = .67; t (39) = .947, p = .135).

Summary of Results

The purpose of this study was to determine the impact a content-area writing intervention had on students' writing quality, writing quantity, and writing self-perceptions. Three distinct strands of data were collected and analyzed.

Research Strand 1 presented quantitative data that addressed research question 1: *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quantity (word and syllable length)?* . Results show that both comparison classrooms and the high-fidelity intervention classroom (Mr. M.) observed significant gains in the length of the writing samples from pre-post intervention. Between groups, however, there were no significant differences in the change in writing length.

Research Strand 2 presented two qualitative analyses of student samples, to answer the question: *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quality?* For these analyses, a holistic (TAKS) writing rubric was employed to evaluate student writing samples at pre-intervention and post-intervention. Results show that in the case of the high-fidelity intervention, improvements in writing quality from pre-post intervention, as measured on the holistic rubric, were significant ($p = .002$), with a large effect size ($\eta^2 = + .54$; see Cohen, 1998). Comparison group classrooms and the low-fidelity intervention classroom did not have significant gains in the quality of student writing from pre-post intervention. Between groups (intervention vs. comparison), there was a significant difference between students' change in writing quality, as measured on the state's rubric ($p = .005$; $\eta^2 = + .17$). In a second writing quality assessment, content analysis was used

to interpret themes related to students' cognitive development in writing that emerged from the data. Students in the high-fidelity intervention group also demonstrated improved writing quality through content analysis measures, with higher levels of cognitive development in writing at post-intervention. Comparison classrooms and the low-fidelity intervention classroom made little growth in cognitive development in writing.

Finally, Research Strand 3 used a pre-intervention and post-intervention collection of the *Writers' Self-Perception Scale (WSPS)* to answer the question: *Does the use of Reflection/Exit writing affect fourth grade elementary students' self-perceptions of their ability to write as measured by the Writer Self-Perception Scale?* Results show that none of the case study classrooms experienced significant differences in writing self-perceptions, and there were no significant differences in writing self-perceptions between groups.

Chapter Five interprets the findings from these data analyses. The discussion includes an integrated summary, where findings from each of the four data points will be discussed, so that a greater understanding is reached. Future directions for the intervention are explored, along with the limitations of this study and the implications it presents.

Chapter V

Discussion

The purpose of this study was to evaluate the effectiveness' of a purposeful, content-area writing intervention, Reflection/Exit writing, on fourth grade students' writing development and writing self-perceptions. The intervention was administered in the spring of 2012 to two groups of fourth grade classrooms, one bilingual classroom and one mainstream/ESL classroom. Students were asked to write three times per week for 12 weeks (the study was extended to 14 weeks due to state standardized testing and spring break). Two comparison groups (one bilingual and one mainstream/ESL) were used to determine if any changes to student writing or student self-perceptions occurred as a result of the intervention or due to a common writing curriculum in place in all four classrooms. This was a formal study of the CMCD component of Reflection/Exit writing (Freiberg, 1992), and provides some clarity on the impact this intervention has on student learning and students' writing self-perceptions. It helps educators and facilitators understand the potential benefits/limitations of integrating Reflection/Exit writing in their content-area classrooms, as a part of their normal instructional routine.

The design of this case study utilized a mixed methods approach that drew from both qualitative and quantitative methodology in a parallel, concurrent mixed model design. Three distinct strands of data were collected simultaneously, to address different research questions.

Research Strand 1 used quantitative methodology to study changes in students' writing length, through word and syllable analysis. Inferential statistics (paired-sample *t*-

tests) measured if the length of students' writing from pre-post intervention to determine if it changed significantly in each case study classroom. A second analysis (using independent-samples *t*-test) measured if there were significant differences in change in writing length between the intervention and comparison groups.

Research Strand 2 employed predominately qualitative methodology to measure the change in students' writing quality, through content analysis and two raters' assessments of writing samples, using a holistic rubric. Content analysis measured the presence of three themes of cognitive development in writing in students' samples across the intervention. Results from students' holistic rubric scores were then analyzed statistically to determine if the quality of student writing improved statistically from pre-post intervention in each case study classroom (through the use of paired-sample *t*-test). A second analysis helped to determine if writing quality changes were statistically significant between intervention and comparison groups (through the use of independent-samples *t*-test).

Finally, Research Strand 3 employed quantitative methodology to evaluate the changes in students' writing self-perceptions through the use of the *Writer Self-Perception Scale*, administered pre-intervention and post-intervention. A first analysis used paired *t*-test to determine significance within each case study group, from pre-post intervention. A second analysis used independent-samples *t*-test to determine significance between intervention and comparison groups.

Fifty-six students comprised the student sample, broken into the following groups:

Low Fidelity/Low Implementation Intervention Classroom

Ms. D. intervention classroom = 12 students

High Fidelity/High Implementation Intervention Classroom

Mr. M intervention classroom = 13 students

Comparison Classrooms

Ms. T. = 15 students

Ms. Y. = 16 students

Classroom groups were treated as individual cases, and analyzed separately to gain a better understanding of the effect that program fidelity and implementation had on students' writing and self-perceptions.

In a second analysis, the high-fidelity intervention classroom comprised the intervention group, and was compared to the two comparison classrooms.

This study examined the following questions:

(1) *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quantity (word and syllable length)?;*

(2) *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quality (TAKS Writing Rubric and content analysis)?; and*

(3) *Does the use of Reflection/Exit writing affect fourth grade elementary students' self-perceptions of their ability to write as measured by the Writer Self-Perception Scale?*

This final chapter discusses the study's overall impact by case study classroom, and between intervention and comparison groups. It identifies inferences related to each research strand, presents implications, recognizes limitations, and gives directions for future research.

The Study's Overall Impact

In a mixed methods design, the researcher brings together qualitative and quantitative methodologies at the conclusion of this study in order to produce a fuller or more complete picture for the purposes of triangulation (Tashakkori & Teddlie, 2003). This study used a parallel, concurrent mixed methods model: with three distinct strands of research, using qualitative and quantitative methodologies. The three strands of research are presented below. Inferences related to each strand help to provide a better perspective of the overall impact the intervention had on students' writing self-perceptions and writing samples.

Inferences

In the discussion that follows, each research strand is presented separately. A brief review of literature related to each strand is presented. Overall interpretations are discussed for each research question to help readers ascertain a complete understanding of the study's findings and the impact the intervention had on fourth grade students' writing development (quantity and quality) and writing self-perceptions.

Inferences Drawn from Research Strand 1. *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quantity (word and syllable length)?*

This research strand explored the impact of Reflection/Exit writing on students' quantity of writing (as measured in words and syllables). The research on writing has shown significant relationships exist between writing length and writing quality (Gansle, Noell, VanDerHeyden, Naquin, & Slider, 2002; Graham, Berninger, Abbott, Abbott, & Whitaker, 1997; Malecki & Jewell, 2003). Additionally, the calculation of syllable-length is commonly is used as a measure of text difficulty at the elementary level (Olinghouse & Leaird, 2009). Syllables per word help to determine the complexity of the text—the presence of more multi-syllabic words showing an increase in text difficulty. Word and syllable length were used as a measure of writing quantity (syllables per word was also presented here, used as a measure of text difficulty). Inferences for this research strand are presented below.

Daily writing instruction leads to growth in student writing. Fourth grade results for case study classrooms revealed that student writing increased in length as measured in words and syllables significantly in three of the four case study classrooms (two comparison classrooms and one intervention classroom), with the exception of Ms. D.'s low fidelity/low intervention classroom, over the course of the study.

In the course of a school year, it is expected that students receiving consistent, daily writing instruction would demonstrate an increase in writing length (compositional fluency) over a period of 14 weeks, and these results reflect that notion. As students received the typical curriculum in fourth grade (one hour of designated writing

instruction), they were able to produce longer samples (in terms of words and syllables), with statistically significant gains and large effect sizes in writing length from pre- to post-intervention for three of the four case study classrooms.

This was not the case for writing complexity, or syllables per word. In the overall sample, students' writing complexity declined over the 14-week study with Ms. T.'s case study classroom as the only exception, showing an increase in complexity (although her increase in syllables per word was positive, it was not statistically significant). None of the differences in writing complexity were significant within each case study from pre- to post-intervention. Additionally, differences between the intervention and comparison groups were not significant. From this, it is believed as students receive the normal curriculum in writing, they are able to write longer pieces of writing, but not necessarily more complex pieces of writing (in terms of syllables/word).

The writing to learn intervention, Reflection/Exit writing, improves compositional fluency in Math and Science classrooms, when implemented with fidelity. In the two Language Arts classrooms, Ms. T. and Ms. Y's classrooms, significant gains in writing length were found when each case study was analyzed independently, comparing students pre-intervention and post-intervention means. For Ms. T. and Ms. Y., differences between the means had large effect sizes in words per sample ($\eta^2 = .56$; $\eta^2 = .49$, respectively) and syllables per sample ($\eta^2 = .56$; $\eta^2 = .49$, respectively). We can infer that these gains are a result of the daily expectations to produce written work within a set amount of time (i.e. compositional fluency) in Language Arts classrooms.

Results in the writing length of each intervention case study were dependent on the fidelity of intervention. It was expected that intervention would help students in Math and Science classrooms out-pace their comparison group peers, but results were mixed. Mr. M.'s class showed statistically significant gains from pre-post intervention, with large effect sizes in word length ($p = 0.005$; $\eta^2 = .49$) and syllable length ($p = 0.002$; $\eta^2 = .57$). Additionally, the gains made by Mr. M.'s students approximated the growth made in Language Arts case study comparison classrooms. Ms. D.'s class showed little growth from pre-post intervention with no significant gains – as discussed previously, the fidelity of her intervention contributed to these findings.

These analyses suggest that when Reflection/Exit implementation is sound and fidelity is high Math and Science content area classroom can produce writing samples comparative to the levels of their comparison group, Language Arts classrooms where students practice composing and crafting their writing for longer stretches of time. All three classrooms made significant gains from pre- to post-intervention.

The intervention did not produce statistically significant differences between the intervention and comparison groups. A second analysis compared the intervention and comparison group's changes in writing length between the groups. There was no statistically significant difference found between groups. The intervention did not have any significant impact on students' compositional fluency (or the amount of writing students could produce in a given time) or writing complexity (syllables/word). Intervention group students grew at a similar rate as their comparison group peers.

Inferences Drawn from Research Strand 2. *Does the use of purposeful, Reflection/Exit writing affect fourth grade elementary students' writing development, as measured in quality (TAKS Writing Rubric and content analysis)?*

This research strand explored the impact of the Reflection/Exit intervention on the quality of students' writing. Prior research has shown that when bilingual students are given more time to write and to build their writing fluency in a second language, writing improves (MacGowen-Gilhooley, 1991). For all students (not just bilingual populations), learning how to write requires that students spend a great deal of time dedicated to writing: "Time is writing's greatest ally" (The National Commission on Writing in America's Schools and Colleges, 2003, p. 28). The National Commission on Writing in America's Schools and Colleges (2003) suggests that teachers can improve student writing by doubling the time students spend writing. Due to the nature of high-stakes assessments in all content areas, allotting this amount of time to writing is rarely a realistic proposition.

It was proposed in this study that a writing to learn intervention could bridge the gap between the amount of time allotted to writing instruction and the amount of time needed for writing instruction. As students were given more time to write in content area classrooms, their writing quality should improve. Inferences for this research strand are presented below for both the holistic rubric and content analysis assessments.

Inferences Related to Holistic (TAKS) Writing Rubric Results.

When implemented with fidelity, the intervention significantly improved writing quality. Within each case study classroom, results for holistic rubric scores differed (with means ranging from 1.06-1.92). Ms. D.'s class student writing scores decreased over the intervention, with differences between the means approaching significance ($p = .08$). It can be assumed that Ms. D.'s scores were was due to the fidelity of implementation in her classroom. The findings for Mr. M.'s classroom from the rubric assessment show a significant increase in student writing scores from pre- to post-intervention ($p = .002$), with a large effect size ($\eta^2 = .54$). In his room, implementation fidelity was sound and his students received the intervention as it was designed, which positively and significantly affected their writing quality. In comparison classrooms, students' scores increased throughout the intervention, but not significantly ($p = .27$, and $p = .33$). [It is important to note here that Mr. M.'s class was the only case where student writing development improved at significant levels, from pre-post intervention. Although student writing improved somewhat in comparison classes, growth was not significant and not at the same levels as Mr. M.'s students.]

A second analysis compared student writing quality change for the intervention and comparison groups (calculated by subtracting post-intervention means minus pre-intervention means). There was a significant difference between students writing quality scores for the intervention group and comparison group ($p = 0.005$), with a large effect size ($\eta^2 = 0.17$; based on Cohen's 1998 guidelines: .01 = small effect; .06 = moderate effect; .14 = large effect). These results imply that the use of the Reflection/Exit writing

in a Math and Science content-area classroom significantly improved students' ability to produce quality writing, when compared to their peers.

These improvements in the quality of student writing are impressive, given that no writing instruction was provided by Mr. M. in his Math and Science classroom. From these findings, it can be assumed that gains in the quality of student writing occurred as a result of a five to six minute intervention, administered three times per week for 12 weeks.

Hillview's fourth-grade writing development does not measure up to state standards. With the passing rate set at 2 for the holistic rubric of the state, most writing of students fell short of reaching the passing benchmark, across all classrooms. All students should be expected to meet the standard of a 2 when given normal writing instruction, so these overall results are somewhat problematic.

Comparison group teachers made some progress, but the majority of their students would still be considered failing at post-intervention. In Ms. T.'s room, 20% of students at pre-intervention received passing scores and 40% were considered passing at post-intervention. In Ms. Y.'s room, 6% of students at pre-intervention received passing scores; 12% were considered passing at post-intervention. These results suggest that even with the traditional writing instruction of one hour per day, the majority of comparison group students failed to make the necessary growth over the 14 week study.

In intervention classrooms, results were mixed dependent on the fidelity of implementation. In Ms. D.'s class, 41% of students were considered passing at pre-intervention while only 17% of Ms. D.'s students were considered passing at post-intervention. This result from Ms. D.'s class was unexpected—it would make sense that

students' writing would improve over time when given daily instruction in writing and additional time to write in math and Science through the intervention. These results suggest that throughout the intervention, Ms. D.'s students made no gains in writing quality. Instead, the trend in her classroom was in the other direction and student writing quality decreased over the course of the intervention.

In Mr. M.'s class, 15% of students received passing scores at pre-intervention, while 62% of students received passing scores at post-intervention. The gains in Mr. M.'s class are impressive. Nearly half of his students receiving a failing score at pre-intervention achieved a passing score at post-intervention. These results demonstrate that the Reflection/Exit intervention, when implemented with fidelity and as designed, can meaningfully improve the number of students receiving passing scores in writing in a content-area classroom, where no writing instruction was provided.

Findings presented here suggest that given the typical daily writing curriculum, most of students at Hillview will need further development to meet current and future state standards. The intervention, when used with high fidelity/high implementation, seemed to mediate these results. Further development in Hillview's writing curriculum is needed, along with new approaches for writing instruction, to ensure students meet the state's passing standards.

Inferences Related to Content Analysis Results.

Given daily writing instruction, students' cognitive writing development improved throughout the fourteen week study, with the results from the high-fidelity intervention group out-pacing their comparison group peers. Using content analysis procedures,

three themes were developed by the researcher, based on defining features that were present in student writing (theme development and defining features are discussed in chapter 4). The researcher based these themes on two of the on the levels of cognitive development in writing: planning and translating (Flower & Hayes, 1981). Within translating, Bereiter and Scaramalia (1987) differentiate between knowledge telling and knowledge transforming as two different levels of development. The three themes used for analysis were: (1) *planning*; (2) *knowledge telling*; and (3) *knowledge transforming.*

Planning was the baseline theme, or the lowest level of cognitive development in writing, the researcher utilized. Writing appearing to be recitation of knowledge, i.e. a word and its definition, or where writers seemed to be making lists without any explanation or description) was coded as planning across the student samples, planning remained a fairly consistent and present theme in all case study classrooms. *Planning* results varied by case study classroom, but all classrooms showed a majority of students used planning in their samples across the intervention. Some samples went from showing only *planning* at pre-intervention to showing all three themes (*planning, knowledge telling* and *knowledge transforming*) at post-intervention. The presence of *planning* was not viewed as a sign of cognitive writing development, but rather a sign of very basic writing. To determine student improvement in cognitive writing development, this discussion focuses on only the higher levels of cognitive writing development: *knowledge telling* and *knowledge transforming*.

Knowledge telling, the second level of cognitive development used in these analyses, reflected a deeper level of cognitive writing where writers were no longer restating and listing what they knew, but now were able to put learning into their own

words. Improvement in *knowledge telling* was viewed positively and was a sign of improved thinking and better quality writing.

Results for *knowledge telling* varied by case study classroom. Ms. D.'s case study was the only classroom where there was a decline in students' ability to use *knowledge telling* in their writing; the other three study teachers showed improvement throughout the study, to varying degrees. In Ms. D.'s case study classroom, the presence of *knowledge telling* declined from pre-intervention (75%) and post-intervention (25%). The Ms. D. results are problematic because her students were clearly capable of producing this level of cognitive development in writing, as demonstrated on the first collection, but did not produce the same results on their post-intervention samples. Teacher expectations and implementation fidelity likely affected Ms. D.'s results, discussed in greater detail below. Mr. M.'s students experienced a marked increase in the amount of *knowledge telling* across the intervention from pre-intervention (15%) to post-intervention (69%). Ms. T.'s students also experienced a marked increase for *knowledge telling* across the intervention, from pre-intervention (27%) to post-intervention (47%). Ms. Y.'s students experienced a marginal increase for *knowledge telling* across the intervention, from pre-intervention (25%) to post-intervention (31%).

These results indicate that as students spent more time writing (all four classes received daily writing instruction in their Language Arts classrooms), their abilities to express their own thoughts and ideas improved somewhat. However, the intervention's impact is apparent: Mr. M.'s case study classroom had the largest gains in the *knowledge telling* theme, indicating that the intervention had a positive effect on students' ability to put knowledge into the own words.

The presence of *knowledge transforming* (the highest level of cognitive development used in these analyses) in student samples reflected the most developed levels of thinking and knowing content. Students who were able to make the transition to *knowledge transforming* demonstrated the ability to become "expert writers" by synthesizing, reprocessing or repackaging knowledge in an increasingly complex way, expanding on their thoughts, and moving toward a more comprehensive picture (Bereiter & Scardamalia, 1987, p. 18). The theme of *knowledge transforming* showed improvement in half of the case study classrooms.

Two case study classrooms did not improve in *knowledge transforming*. Ms. D.'s students demonstrated a decline in the amount of knowledge transforming across the intervention, from pre-intervention (0 %) to post-intervention (8%). This was the only classroom to have such a decline in *knowledge transforming*. Ms. Y.'s students demonstrated no increase amount of *knowledge transforming* across the study, from pre-intervention (0%) to post-intervention (0%).

In Mr. M.'s and Ms. T.'s classrooms, the presence of *knowledge transforming* improved. For Mr. M.'s case study, none of his students exhibited knowledge transforming at pre-intervention and almost one-third (31%) showed *knowledge transforming* at the study's conclusion. Ms. T.'s students' also increased their amount of *knowledge transforming* from pre-intervention (20%) to post-intervention (40%), though not at the same level as Mr. M.'s case study classroom.

Results from the *knowledge transforming* theme indicate that when given a high fidelity intervention, students are able to make the transition to expert writing at higher rates than peers in comparison group Language Arts classrooms. For intermediate-level

writers in an elementary setting, these results are impressive. Novice writers become expert writers in time, but not all students make this transition until much later in their schooling if at all (Bereiter & Scardamalia, 2010). For students to demonstrate *knowledge transforming*, they have to work at a more complex levels of thinking. Therefore, results that demonstrate students made this transition to expert writing are noteworthy.

Intervention and comparison groups were analyzed separately in the results section in Chapter 4. *Results showed that when implemented with high fidelity, the intervention group shows greater levels of cognitive development in writing than the comparison group.*

It makes sense for students receiving daily writing instruction (from Ms. T. and Ms. Y.) to progress through the stages of cognitive development in writing with a natural progression, from the most basic (*planning*) to the most complex (*knowledge transforming*). The results for all three themes indicate that a content-area writing intervention in Math and Science, when implemented with fidelity, can help students produce deeper levels of cognitive development in writing in than their peers in Language Arts comparison classrooms. These results suggest the importance of incorporating writing to learn in content area classrooms on a scheduled, consistent basis.

Inferences Drawn from Research Strand 3. *Does the use of Reflection/Exit writing affect fourth grade elementary students' self-perceptions of their ability to write as measured by the Writer Self-Perception Scale?*

This research strand explored the impact of Reflection/Exit writing on students' writing self-perceptions. Prior research has shown that students' self-perceptions are influenced by their interpretations of their environment and by outside forces, such as reinforcements or evaluations (Schunk & Meece, 1992; Schunk, 1992). Self-perceptions are important because they affect students cognitive and motivational functioning in school (Bouffard, Marcoux, Vezeau & Bordeleau, 2003). Teachers can stimulate students' self-perceptions through building their confidence and providing them with autonomy in their learning (Shunk, Pintrich & Meece, 2008). Through this intervention, autonomy was provided to students in the nature of the open-ended writing prompt *"Today I learned…"* Students were not required to write on any given topic, but were allowed autonomy in choice of topic—they could write about any learning that had happened on that day. In addition, the use of a routine writing intervention that is designed to build writing fluency and improve the quality of student writing, it was proposed that students' confidence in their ability to write would improve.

This research strand suggested that an intervention using writing across the curriculum (Reflection/Exit writing) that built student confidence and allowed for student autonomy would improve students' writing self-perceptions. Specifically, this strand measured writing self-perceptions through the use of a subset of items from the *Writer Self-Perception Scale,* an instrument designed to measure intermediate-grade students' writing self-perceptions, given at pre-intervention and again at post-intervention.

It was expected that students' self-perceptions would change over time in all four groups, through the use of a standardized, fourth-grade curriculum designed to improve writing. Additionally, this research strand proposed that as intervention classroom students' confidence and sense of autonomy grew, so would their self-perceptions in writing. Inferences for the data collected related to students' writing self-perceptions are presented below.

Hillview students' writing self-perceptions did not change over the fourteen week study, given daily writing instruction (with and without the intervention). Overall, none of the case study classrooms had statistically significant results between students' pre-intervention means and post-intervention means. In addition, there were no significant differences in the writing self-perception changes between the intervention and comparison groups. The intervention did not seem to impact students' writing self-perceptions in any notable way. Additionally, the traditional curriculum in writing did not seem to positively impact students' self-perceptions. An interesting finding was that Hillview students have generally positive self-perceptions about their ability to write, averaging 3.55-4.03 on a 5-point Likert scale. A score of 4 indicates that students tend to "agree" with the twelve indicators of writing self-perception.

However, in three out of four case study classrooms students declined in their self-perception scale means, although not at statistically significant levels. Ms. Y.'s classroom was the only case study classroom whose means improved marginally from pre-intervention (3.75) to post-intervention (3.89). Ms. D.'s class reported the lowest sense of writing self-perceptions, averaging 3.59 at pre-intervention and decreasing to 3.55 at post-intervention. Ms. T.'s class reported the highest initial self-perceptions

(4.03), but also showed a slight decline to post-intervention (3.91). Mr. M.'s class experienced a similar decline, from pre-intervention (3.98) to post-intervention (3.81). Although none of these findings reached significance, the general direction of diminished writing self-perception was surprising. It was expected that as students' ability to write improved, their writing self-perceptions should improve.

The overall decline in students' writing self-perceptions may be due to an increased awareness of their ability to write. The findings from three case study classrooms suggest that as students become more aware of their competence in writing (or lack of competence), their self-perceptions may decrease as they take into account their past performances and the feedback they receive form others (peers, teachers, parents, etc.) to reach a more accurate assessment of how they are performing.

Previous studies of the self-perceptions of elementary children show a similar decline in students' self-perceptions of competence in various academic domains (Reading and Math) across elementary school from grades one to four (Eccles, Wigfield, Harold & Blumenfield, 1993, Marsh, Craven & Debus, 1998). In this study, this decline in students' self-perceptions was not significant, but the overall negative direction of students mean scores warrants future research on the changes in students' self-perceptions in writing over time, across the elementary grades.

Summary of Results

Overall, study results indicate that when implemented with fidelity, Reflection/Exit intervention improves the quality of student writing, as measured through content analysis and through scale scores on the holistic (TAKS) writing rubric. In the

case of the high-fidelity intervention, improvements in writing quality as measured on the holistic rubric from pre-post intervention were significant (p = .002), with a large effect size (η^2 = + .54). Comparison group classrooms and the low-fidelity intervention classroom did not have significant gains in the quality of student writing from pre to post. Between groups (intervention vs. comparison), there was a significant difference between students' change in writing quality, as measured on the holistic rubric (p = .005; η^2 = + .17). Additionally, students in the high-fidelity intervention group demonstrated improved writing quality through content analysis measures, demonstrating higher levels of cognitive development in writing (planning, knowledge telling and knowledge transforming) measured at post-intervention. Comparison classrooms and the low-fidelity intervention classroom made little growth in cognitive development in writing. The comparison classrooms did demonstrate significant gains in the length of the writing samples from pre-post intervention, as did the high-fidelity intervention classroom. Between groups, however, there were no significant differences in the change in writing length. Finally, there were no significant differences in students' writing self-perceptions in either comparison or intervention classrooms. This study demonstrated that when Reflection/Exit writing was implemented without consistency or fidelity, there were no notable changes in student writing quantity, quality or self-perceptions from pre to post. When implemented with fidelity, students in the intervention classrooms outperformed comparison group peers in writing quality on the holistic rubric and in their levels of cognitive development in writing. Analyzing the intervention through multiple strands allowed for a more comprehensive picture of the impact Reflection/Exit writing had on student writing quality, quantity, and self-perceptions.

Lessons Learned from this Case Study

Implementation fidelity is a crucial determining factor in an intervention's impact on student success. The two intervention classrooms had markedly different results. As discussed above, this can be attributed to the fidelity of the intervention—one teacher systematically implemented the intervention, while the other did so in an inconsistent way failing to adhere with regularity to the schedule of intervention. The finding related to the differences between the two teachers was an unintended consequence in this study, but one that warrants further exploration.

The realities of a school are not always easy to frame in educational research. Teachers are unique individuals and take away from each staff development different levels of knowledge and motivation to implement new strategies. Joyce and Showers (2002) discuss that the transfer of a professional development varies greatly, and in order for new professional development to impact student achievement there must be consistent and appropriate use of the new skills and strategies in classroom practice.

Marzano (2011) takes this analysis a step further, explaining that a new strategy is just a tool that teachers can use to differing levels of effectiveness and how a teacher uses a strategy is key to how effective it will be on student learning. Teachers can implement a strategy at four levels of effectiveness. At the beginning level, little fluency exists in the strategy and little impact on student learning is found while at the developing level teachers use a strategy with relative ease, but no large gains in student learning are found. During the applying level, teachers apply the strategy with ease and monitor student learning to ensure it is effective. At this level, large gains begin to show. Finally at the

innovating level, teachers are so familiar with the strategy they are able to adapt it to meet specific student needs, which maximizes student learning (Marzano, 2011). Marzano (2011) further asserts teachers' level of effectiveness at implementation might help explain some of the variation in research findings.

In this study, Mr. M.'s class showed large gains in writing quality, implying he was implementing at the applying level or beyond to get such results. Ms. D., on the other hand, had minimal results in all four data points, implying that her implementation of this new strategy was at a beginning or developing level. Although Ms. D. did meet the mechanics of the intervention—she collected all 36 samples, as requested, but it seemed as if she went through the motions of the intervention without truly taking ownership and building intervention in her classroom, as it was intended. In addition, her samples were collected in shorter bursts of a few days in a row, without the consistency over time that we know developing writers need.

The timeline of the study also may have affected the fidelity of the intervention itself. Typically, the Consistency Management & Cooperative Discipline project is implemented a minimum of a one-year period and strategies are given more time for development and refinement. With a 14-week intervention (12 weeks of sample collection), teachers had a shortened amount of time to refine their skills and improve on their implementation. The timeframe of the study impacted the results, but the gains by Mr. M.'s class over such a shortened period demonstrate the potential impact the intervention could have when put in place for one year (as is typical in the CMCD project).

In addition, the professional development used in this intervention was lessened due to the shortened period of the study. Typically, teachers receive walk-throughs, coaching, and several sessions of professional development when implementing CMCD strategies. For this study, teachers were only given a one hour professional development prior to the study's start to provide them with information about Reflection/Exit writing and how it should be implemented. This shortened professional development plan may need further development in order to ensure teachers' effective, high fidelity implementation. Without effective implementation, this cannot achieve the desired outcomes on student learning. Joyce and Showers (2002) explain that in order for professional development to transfer effectively into the classroom, four criteria for successful instructional delivery must be met: theory, demonstration, practice with feedback, and peer coaching with follow-up. For some teachers, an introduction to a new model with a demonstration is enough to get them to achieve high-implementation, as was the case for Mr. M. For other teachers, a more extended professional development system is needed. This professional development presented theory and demonstration, but lacked the coaching and feedback components that the typical CMCD implementation provides. This is a potential limitation of this study, and future studies should adhere to a more supportive professional development model.

Fourth grade writers are in need of more effective writing models that will improve the quality of their writing. Hillview students' post-intervention samples would fall short of meeting the state standard on the holistic (TAKS) writing rubric. As stated in Chapter 3, this rubric has been used to measure the development in fourth-grade students' writing since 2003, so teachers were familiar with the scale and its components.

After the intervention, 68% of Hillview students had a below-standard performance, or earned failing score (1) on the rubric assessment. Twenty-three percent of Hillview students met the standard and only 9% were above standard at post-intervention. Presented in Chapter 2, the National Assessment of Educational Progress (NAEP) study reported that only 23% of our nation's fourth graders were found to be at or beyond the "proficient" level in writing. When presented in conjunction with these data, 31% of the fourth grade students at Hillview would be considered at a proficient or above level having met the standard on the state's holistic rubric. However, in Mr. M.'s Math and Science classroom, 61% of students would be considered proficient. These data suggest that nearly fifteen years after the assessment of the NAEP that the problem with creating proficient writers remains is evident in this study.

Daily writing instruction needs to be studied with different models if students are to meet current and future state standards. The argument for more intensive writing instruction and alternative ways to integrate writing into other content areas is just as prevalent now as it was 15 years ago. Potential interventions or alternatives to the traditional writing curriculum are needed.

Implications

Content area teachers at the elementary school levels including those areas that typically do not have extensive writing in their curriculum would benefit from the use of reflective writing in their classrooms. Reflective writing, or writing to learn, asks students to think at more critical levels, promotes ownership of what is learned, and helps them to apply their learning into a new context (Urquhart, 2005). When students write in

the content areas, they learn how the disciplines are inter-connected, are given space to reflect on their learning, and teachers gain a perspective on students thinking. Through establishing this routine of reflective writing in the content areas, this study suggests students writing will improve in all three sections of the state's holistic writing rubric: focus and coherence, organization, and development of ideas. In addition, the use of this intervention helped move students to higher levels of cognitive development in writing. This study implies that teachers of all content areas can help students to improve the quality of their writing by requiring that they write to learn on a regularly occurring schedule.

Writing has become the "Neglected 'R'" of education (The National Commission on Writing in America's Schools and Colleges, 2003), due to the recent emphasis on No Child Left Behind legislation and the testing that it mandates. More time has become dedicated to subjects that are tested annually like Math and Reading. Writing often receives little emphasis in the curriculum, with the exception of the grades at which it is assessed. Students need more time to write in our schools. This study suggested that incorporating a writing to learn intervention would help to bridge the gap between the amount of time allotted to writing instruction and the amount of time needed for writing instruction.

In addition to improving writing quality, using a writing to learn strategy has been shown to increase student achievement in other content areas (Bangert-Drowns, Hurley & Wilkinson, 2004). Jurdak and Abu Zein (1998) found that reflective journal writing produces cognitive benefits in Math achievement in the areas of conceptual understanding, procedural knowledge and mathematical communication. Hand, Prain,

and Wallace (2002) report that a writing to learn intervention in Science significantly improved students' ability to answer higher-level Science questions than students who did not experience the intervention. This study suggests that educators of all disciplines are writing teachers—a content area writing to learn intervention can positively impact student achievement in writing and in other content areas as well.

Limitations

Addressed above in lessons learned, the two intervention teachers, Mr. M. and Ms. D. had different levels of implementation with respect to the Reflection/Exit intervention. This unintended consequence affected the study's outcomes. From a research perspective, the results of these two classes were not presented in conjunction, as the findings in each case were distinct. Analyzing each class as a case study presents some limitations to generalizability, but most case studies are unique elements of research that often can explain the larger statistical findings. For comparative purposes, the case study of the students in Mr. M. class comprised the intervention group, as he was the only intervention teacher to use Reflection/Exit writing as it was intended and designed. His results were compared to the combined results of Ms. Y. and Ms. T., the comparison group. The small number of students in Mr. M.'s classroom limits generalizability.

A second limitation of this study is the sample size and the lack of diversity in the sample. The sample was limited to fourth-grade students that were predominately Hispanic, and from low SES backgrounds. In addition, of the 77 students in the selected teachers' homeroom classes, 56 (or 73% of the total student population) comprised the

student sample. Nevertheless, this limitation did not seem to influence the levels of significance in at least three of the outcomes in which statistical analysis could be conducted. This sample might not represent the majority of the students in fourth-grade classrooms.

The methodologies used in this study also present some limitations. A mixed method research design was employed to conduct an analysis of the effectiveness of a writing intervention. Findings present a complex picture of student writing, through four points of data: writing length, writing quality as measured on a holistic rubric, writing quality as measured through content analysis, and writing self-perceptions. Due to the complexity of data collected, the researcher's interpretations and inferences may pose as a limitation. In qualitative studies, one of the foremost limitations is that the researcher is the instrument. In addition, the survey of students, the *WSPS,* presents limitations including the respondents' honesty, motivation and ability to read and understand each of the items. This study also used inferential statistics, specifically paired-sample *t*-tests to determine the differences between two means and independent samples *t*-tests to determine differences between the intervention and comparison groups. The values used for inferential statistics examine students' mean scores and the differences between them—therefore, assumptions can be made about the general trend of the classrooms, but cannot look at how individual students performed.

Teacher expectations also present a potential limitation to this study's findings. The quality of these teachers were not formally assessed or presented in this discussion, however different expectations for student work were apparent to the researcher. Low teacher expectations have been proposed as one contributor to the achievement gap

(Weinstein, 2002; Weinstein, Gregory & Strambler, 2004). The "Pygmalion effect" or the self-fulfilling prophecy may be at play here—students in middle elementary grades (more so than younger students) are able to sense teacher expectations and often live up to them, positively or negatively (Weinstein, Marshall, Sharp & Botkin, 1987). Students perceive what the teacher expects, internalize those expectations and achieve accordingly (Brophy, 2004). Future studies of Reflection/Exit writing should account for differences in teachers—that is, determine if, or to what degree a teacher's expectations influence the intervention's effectiveness.

Future Directions

The "Mozart Effect"- Use of Music to Enhance Learning. Presented initially in Chapter 2, the "Mozart effect" argues that when children are exposed to music, their performance on learning tasks is enhanced (Hetland, 2000; Cassidy, Henley & Markley, 2007). Research has shown that the use of music increases students IQ scores (Rauscher, Shaw & Ky, 1995) and puts students in a positive mood, which may impact performance (Cassidy, Henley & Markley, 2007; Hetland, 2000). Across the literature, results on the Mozart effect are mixed. Used since the early 1990s, the Reflection/Exit writing intervention has incorporated the playing of classical music while students write as a component of its design. Students seem to respond positively to the music used while they compose, but this facet of Reflection/Exit writing has never been independently measured. Future studies should look at the use of the intervention with classical music, and the use of the intervention without music, to determine if the addition of music truly

has a "Mozart effect"—and students' Reflection/Exit samples reflect higher levels of thinking.

Reflection/Exit Writing for Bilingual Learners. Bilingual learners are a unique population to study, due to their unique demands as limited English proficient (LEP) students. The goal of bilingual education is to preserve literacy in students' native language (L1) while transitioning them to become fluent in English (L2). In terms of writing, fluency means LEP students have automaticity of language use as they write (Wolfe-Quintero, Inagaki, & Kim, 1998). Wolfe-Quintero, Inagaki & Kim (1998) suggest teachers use routines to build writing fluency, because the students' writing gets longer and becomes easier for them to produce it in a given timeframe (p. 128). Building fluency is a foundational step in second language learning—particularly in writing (Green, 1998).

This intervention incorporated the use of a scheduled, five to six minute writing to learn routine that was an addition to the required writing in bilingual students' Language Arts instruction. Due to the One-Way Dual Language guidelines of the district, Hillview students learn 100% of their Math instruction in English-only. For Mr. M.'s and Ms. Y.'s fourth-grade classes, 50% of their language arts instruction (taught by Ms. Y) was in English and 50% was in Spanish. Asking students to write three times per week in English, for an average of 180-216 additional minutes of writing in English had a significant impact on the writing quality of Mr. M.'s students. However, this study did not focus specifically on bilingual or LEP populations - two of the case study classrooms were bilingual and two were traditional/ESL classrooms. Future research is needed to determine if the gains in Mr. M.'s room could be attributed to their more limited

exposure to writing in English than comparison classrooms. Few studies exist which examine the writing achievement of LEP students in L2. August and Shanahan (2006) explain:

> Research on the development of writing skills in English Language Learners is extremely sparse, and research on cross-linguistic influences in the acquisition of writing skills by English language learners is even sparser. Thus, much more research that focuses on the relationship between English Language Learners' first and second language skills in the context of learning to write for academic purposes in English is necessary. (Soltero-González, Escamilla, & Hopewell, 2012, p. 169)

Future studies are needed to determine how this writing to learn intervention in English contributed to students' growth in L2 writing, and what effects it could potentially have in the writing development of this specific population of LEP learners.

Change in Affect: Using Krathwohl's Affective Domain. As the researcher was developing themes for content analysis (the second measure of writing quality), affective responses were found in student writing. The researcher worked systematically to classify every component of student writing—regardless of how infrequent, and capture its essence in the defining features, ensuring a total picture of what student samples actually contained. Fourth-grade samples included personal reactions to their learning. These affective responses were identified through this systematic process and were noted in two of the nine defining features that comprised the phenomena found in student writing. Listed below, these two defining features are provided, along with excerpts from student samples to demonstrate how they appeared in student writing.

Defining Feature Eight: Personal reaction to learning (e.g. *we all honor them because of the hard work they did was for all of us, to give our homes and rights.*); and,

Defining Feature Nine: Describing how learning helps me (e.g. *[Writing] helps your memories flow. It also helps you think about the day that you have had sadness or happiness in your life.*).

Initially, the researcher considered incorporating affective response as a theme for writing analysis; however, it was decided the presence of affective responses to learning was interesting, but was ultimately outside the realm of the research questions about the quality of student writing. The affective domain is "the least studied, most often overlooked, the most nebulous and the hardest to evaluate of Bloom's three domains" (Kirk, 2013). In future studies, this component of students' Reflective/Exit writing could be measured and quantified through content analysis processes. The affective domain (Krathwohl, Bloom & Masia, 1964; Krathwohl, 2012) emphasizes a feeling tone, an emotion or a degree of acceptance or rejection to learning. The two defining features above demonstrate responding to (showing new behaviors as a result of an experience) and valuing (showing involvement or commitment to) the learning, two of the levels presented in the affective domain. The use of the affected domain taxonomy, created by Krathwohl, in future studies would help researchers to determine how students feel about, have internalized or value their learning (Krathwohl, Bloom, & Masia, 1964).

Uses of Exit Writing. Exit slips and exit tickets are beginning to be seen in classrooms, as reflective tools that add closure to lessons (Marzano, 2012). This study used a specific exit writing intervention, Reflection/Exit writing, developed in the early

1990s for use in the Consistency Management & Cooperative Discipline project (Freiberg, 1992). In the 20 or so years since conception, teachers have adapted exit writing for varying uses and with different intended outcomes. Marzano (2012) suggests there are four distinct types of prompts teachers use in exit writing: (1) prompts that provide assessment data (e.g. What confused you about today's lesson?); (2) prompts that stimulate self-analysis (e.g. What could you have done today to help yourself learn better?); (3) prompts that focus on instructional strategies (e.g. How did the group work today to help you understand the content?); and (4) prompts that are open communication to the teacher (e.g. What is something I could do to improve your understanding of the content?). When viewed within this framework, Reflection/Exit writing's prompt of *"Today, I learned…"* provides teachers with assessment data about learning. Future directions formal study could include incorporating other types of prompts for Reflection/Exit writing, including those that allow for student self-assessment, assessment of instructional strategies, or ask students for their opinions/perspective through a communicative prompt.

Reflection/Exit Writing with Larger Scale Study and Diverse Learners. This case study used a specific population of 56 predominately Hispanic, low SES fourth-grade students within an urban elementary school. Numbers in case study classrooms varied from 12-16, so each unit for analysis was relatively small. Hence, generalizability may be an issue. Future directions for research include: (1) expanding the study' population to include a greater amount of participants for a larger scale study; (2) including a more diverse group of learners in the population of the study with varying demographics and ethnicities; and, (3) expanding the participants to include learners at

several levels, including primary, middle school and high school students. Future directions include studying the impact Reflection/Exit writing has on larger groups in different subjects and grade levels.

Final Thoughts

Writing is a complex process for students, requiring them to problem-solve as they compose (Urquhart, 2005). Many teachers avoid teaching writing because it is such a difficult process to assist students with—writing can be an arduous and frustrating task for students. Writing is an often neglected subject in our schools (The National Commission on Writing in America's Schools and Colleges, 2003). Yet, across the last fifteen years, the majority of America's students continue to perform at basic levels or below basic levels on the National Assessments of Educational Progress (U.S. Department of Education, 1999; Institute of Education Sciences, 2003, 2008).

A writing to learn intervention has been proposed in this study as a potential facilitator for student development in writing. Sorenson (1991) suggests that a writing to learn and learning to write are other sides of the same coin: the two support one another (Introduction, para. 1). Writing to learn makes passive learners into active learners, who must mentally engage with content-area material as they put their written thoughts together. Writing to learn provides an opportunity for students to stop and reflect on what was learned, make connections between ideas, and discover what is still confusing them—essentially to "figure stuff out," giving teachers critical information about what students understand (Sorenson, 1991; Daniels, Zemelman, & Steineke, 2007).

Bangert-Drowns, Hurley and Wilkinson (2004) conducted a meta-analysis of

writing to learn interventions, finding that 36 of 48, or 75% showed consistent, positive outcomes on student achievement. Among the characteristics for success in academic achievement were interventions that require students to: engage in writing to learn 3-4 times a week, use metacognitive prompts (requiring students to reflect on current understandings, confusions, and learning processes), write for less than 10 minutes (as opposed to more time, which was less effective; Bangert-Drowns, Hurley, & Wilkinson, 2004).

This study provides further support to the conclusions reached by Bangert-Drowns, Hurley, and Wilkinson's meta-analysis: students' writing quality improved significantly when they were given a consistent, high fidelity writing to learn intervention that was metacognitive, administered three times per week, and short (five to six minutes). Additionally, this study found that high fidelity intervention students were able to move toward more expert levels of cognitive writing development with the use of a five to six minute intervention, three times per week times per week for only 14 weeks. The researcher could find no research related to measuring students' levels of cognitive development in writing, so this study presents a fresh perspective on analyzing students' writing development.

Although this was a case study, this model of writing to learn warrants further examination, as its implications for the writing development for young writers has significant potential. When implemented with fidelity and as designed, the Reflection/Exit writing intervention produced significant gains in student writing quality (versus comparison groups), the intervention facilitated students' ability to achieve higher cognitive development in writing and the intervention improved writing length (pre-post;

on pace with comparison group classrooms). The intervention did not impact writing self-perceptions. The case study in the classroom of Mr. M. presents a strong argument for the use of Reflection/Exit writing as an instructional tool to improve the quality of student writing in a Math and Science classroom. This study suggests that educators need to explore alternative models to traditional writing instruction, including incorporating writing to learn in the content-area classrooms, as an integral part of students' normal instructional routine.

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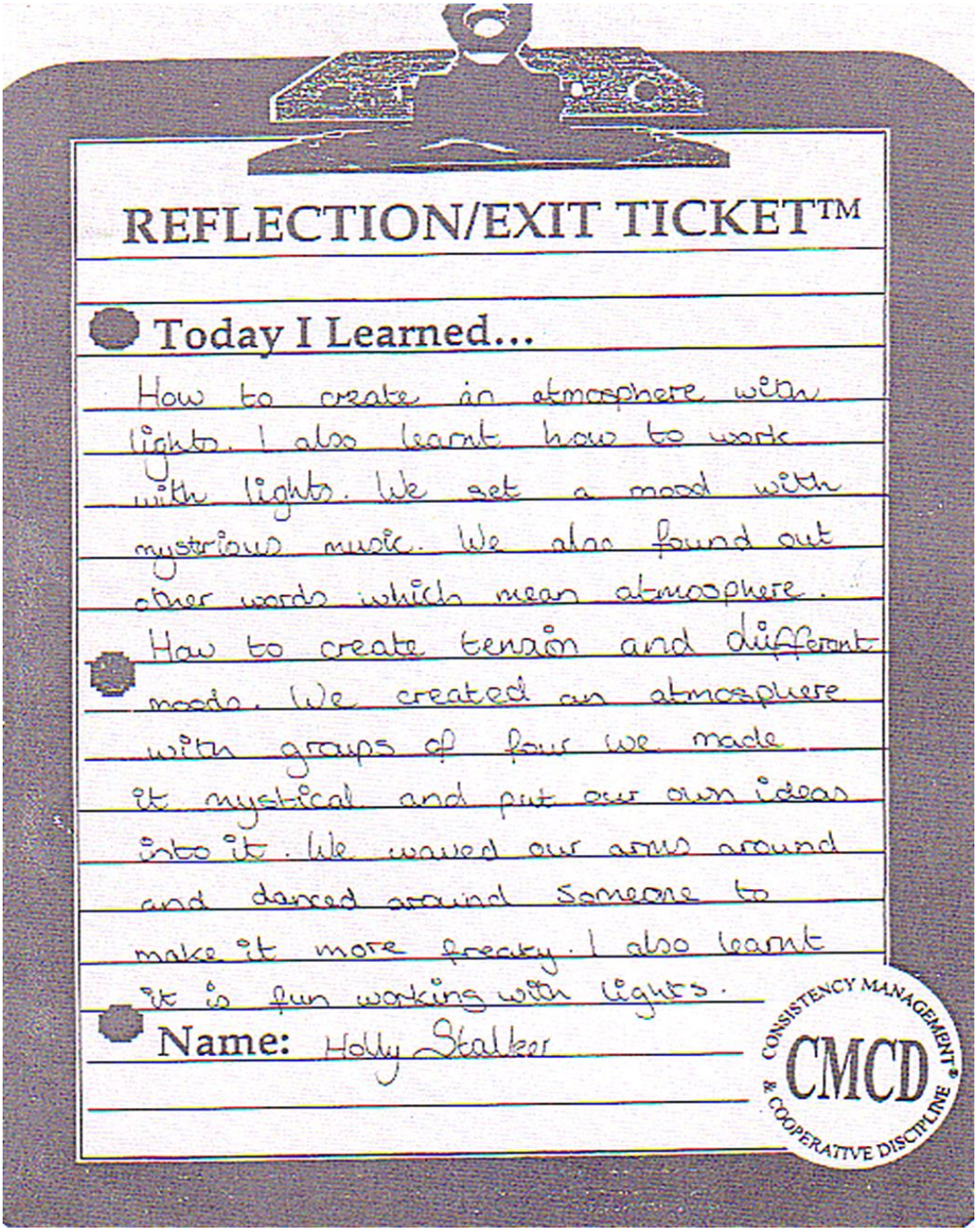
Appendix A

Sample Reflection/Exit Writing



REFLECTION/EXIT TICKET™

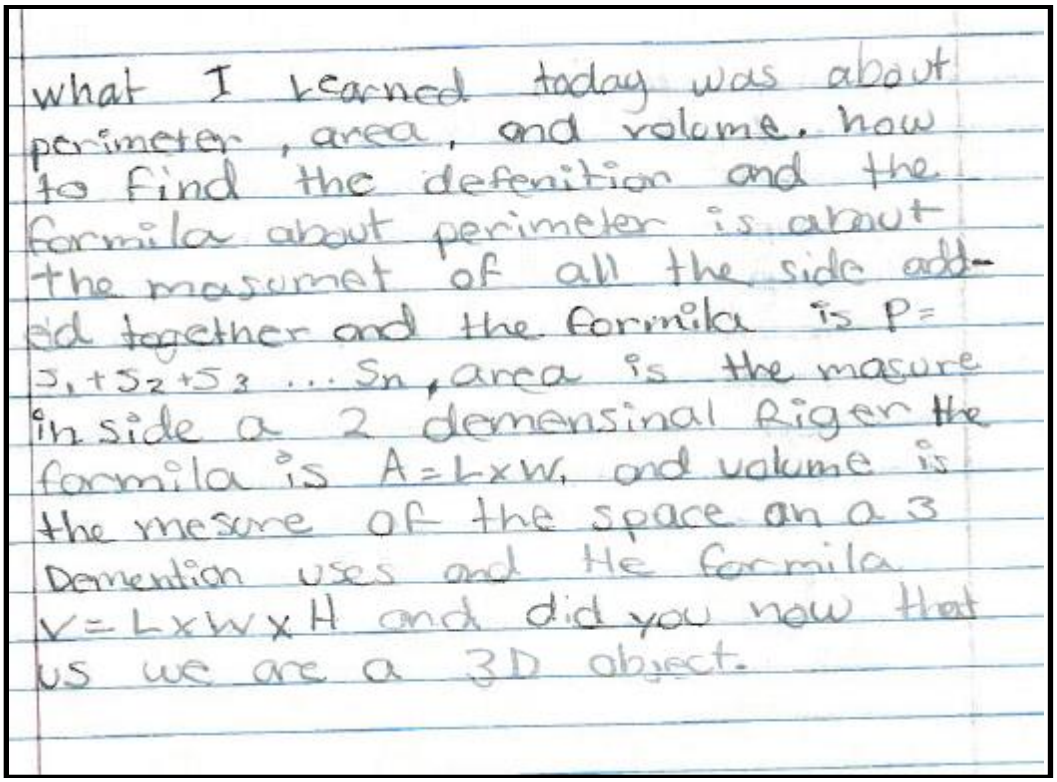
Today I Learned...

How to create an atmosphere with lights. I also learnt how to work with lights. We set a mood with mysterious music. We also found out other words which mean atmosphere.

How to create tension and different moods. We created an atmosphere with groups of four we made it mystical and put our own ideas into it. We waved our arms around and danced around someone to make it more freaky. I also learnt it is fun working with lights.

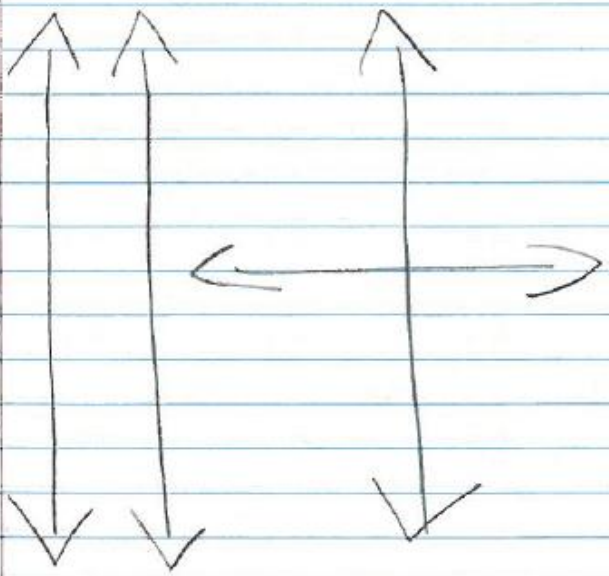
Name: Holly Stalker

CONSISTENCY MANAGEMENT & COOPERATIVE DISCIPLINE CMCD



what I learned today was about perimeter, area, and volume. how to find the defenition and the formila about perimeter is about the masumet of all the side add-eid together and the formila is P= $S_1+S_2+S_3 \ldots S_n$, area is the masure inside a 2 demensinal Riger the formila is A=LxW, and volume is the mesure of the space an a 3 Demention uses and He formila V=LxWxH and did you now that us we are a 3D object.

Today I learned.. about lines about how they are Similar to angles, like perpendicular Forms a right angle and the intersecting lines form an obtuse and acute. See I just nameded all the angles and lines. Wait I missed a the and that line is the parallel but that line dose not form angle at all. parallel just goes on and on they never will stop or meet it just goes on and will never stop.



Parallel

Appendix B

TAKS Writing Rubric

SCORE POINT 1

EACH COMPOSITION AT THIS SCORE POINT IS AN INEFFECTIVE PRESENTATION OF THE WRITER'S IDEAS.

Focus and Coherence

- Individual paragraphs and/or the composition as a whole are not focused. The writer may shift abruptly from idea to idea, making it difficult for the reader to understand how the ideas included in the composition are related.
- The composition as a whole has little, or no, sense of completeness. The introduction and conclusion, if present, may be perfunctory.
- A substantial amount of writing may be extraneous because it does not contribute to the development or quality of the composition. In some cases, the composition overall may be only weakly connected to the prompt.

Organization

- The writer's progression of thought from sentence to sentence and/or paragraph to paragraph is not logical. Sometimes weak progression results from an absence of transitions or from the use of transitions that do not make sense. At other times, the progression of thought is simply not evident, even if appropriate transitions are included.
- An organizational strategy is not evident. The writer may present ideas in a random or haphazard way, making the composition difficult to follow.
- Wordiness and/or repetition may stall the progression of ideas.

Development of Ideas

- The writer presents one or more ideas but provides little or no development of those ideas.
- The writer presents one or more ideas and attempts to develop them. However, this development is so general or vague that it prevents the reader from understanding the writer's ideas.
- The writer presents only a plot summary of a published piece of writing, a movie, or a television show.
- The writer omits information, which creates significant gaps between ideas. These gaps prevent the reader from clearly understanding those ideas.

SCORE POINT 2

EACH COMPOSITION AT THIS SCORE POINT IS A SOMEWHAT EFFECTIVE PRESENTATION OF THE WRITER'S IDEAS.

Focus and Coherence

- Individual paragraphs and/or the composition as a whole are somewhat focused. The writer may shift quickly from idea to idea, but the reader has no difficulty understanding how the ideas included in the composition are related.
- The composition as a whole has some sense of completeness. The writer includes an introduction and conclusion, but they may be superficial.

- Some of the writing may be extraneous because it does not contribute to the development or quality of the composition as a whole.

Organization

- The writer's progression of thought from sentence to sentence and/or paragraph to paragraph may not always be smooth or completely logical. Sometimes the writer needs to strengthen the progression by including more meaningful transitions; at other times the writer simply needs to establish a clearer link between ideas.
- The organizational strategy or strategies the writer chooses do not enable the writer to present ideas effectively.
- Some wordiness and/or repetition may be evident, but these weaknesses do not completely stall the progression of ideas.

Development of Ideas

- The writer attempts to develop the composition by listing ideas or briefly explaining them. In
  both of these cases, the development remains superficial, limiting the reader's understanding and appreciation of the writer's ideas.
- The writer presents one or more ideas and attempts to develop them. However, there is little evidence of depth of thinking because this development may be somewhat general, inconsistent, or contrived.
- The writer may omit small pieces of information that create minor gaps between ideas. However, these gaps do not prevent the reader from understanding those ideas.

SCORE POINT 3

EACH COMPOSITION AT THIS SCORE POINT IS A GENERALLY EFFECTIVE PRESENTATION OF THE WRITER'S IDEAS.

Focus and Coherence

- Individual paragraphs and the composition as a whole are, for the most part, focused. The writer generally shows the clear relationship between ideas, making few sudden shifts from one idea to the next.
- The composition as a whole has a sense of completeness. The introduction and conclusion add some depth to the composition.
- Most of the writing contributes to the development or quality of the composition as a whole.

Organization

- The writer's progression of thought from sentence to sentence and paragraph to paragraph is generally smooth and controlled. For the most part, transitions are meaningful, and the links between ideas are logical.
- The organizational strategy or strategies the writer chooses are generally effective.
- Wordiness and/or repetition, if present, are minor problems that do not stall the progression of ideas.

Development of Ideas

- The writer attempts to develop all the ideas included in the composition. Although some ideas may be developed more thoroughly and specifically than others, the development overall reflects some depth of thought, enabling the reader to generally understand and appreciate the writer's ideas.
- The writer's presentation of some ideas may be thoughtful. There may be little evidence that the writer has been willing to take compositional risks when developing the topic.

SCORE POINT 4

EACH COMPOSITION AT THIS SCORE POINT IS A HIGHLY EFFECTIVE PRESENTATION OF THE WRITER'S IDEAS.

Focus and Coherence

- Individual paragraphs and the composition as a whole are focused. This sustained focus enables the reader to understand and appreciate how the ideas included in the composition are related.
- The composition as a whole has a sense of completeness. The introduction and conclusion are meaningful because they add depth to the composition.
- Most, if not all, of the writing contributes to the development or quality of the composition as a whole.

Organization

- The writer's progression of thought from sentence to sentence and paragraph to paragraph is smooth and controlled. The writer's use of meaningful transitions and the logical movement from idea to idea strengthen this progression.
- The organizational strategy or strategies the writer chooses enhance the writer's ability to present ideas clearly and effectively.

Development of Ideas

- The writer's thorough and specific development of each idea creates depth of thought in the composition, enabling the reader to truly understand and appreciate the writer's ideas.
- The writer's presentation of ideas is thoughtful or insightful. The writer may approach the topic from an unusual perspective, use his/her unique experiences or view of the world as a basis for writing, or make interesting connections between ideas. In all these cases, the writer's willingness to take compositional risks enhances the quality of the content.

Appendix C

Texas Education Agency Correspondence On Reliability

Email Received 9/10/10:

Dear Ms. Templeton,

Based on your request, our contractor, Pearson, has provided the following data regarding the reliability and validity of the TAKS written composition scoring rubrics. This data refers to the main administration of the TAKS writing and ELA tests in spring 2010. Thank you for your patience.

Barbara Tutt

ELA & Writing Team

Student Assessment Division

Summary of Scorer Agreement (Reliability), TAKS,

TAKS (Accommodated)

Grade	Number of Responses Read	Agreement Rate (%) After 2 Readings	Number of Third Readings	Agreement Rate (%) After 3 Readings
4 (English)	326,934	64.0%	117,504	97.7%
4 (Spanish)	23,065	68.0%	7387	98.3%
7	333,102	64.0%	121,001	98.0%
9	1,097,235	76.2%	260,714	99.7%
10 WC	327,249	66.6%	109,442	98.3%
10 SA	926,445	73.9%	241,885	98.9%
11WC	280,997	65.3%	97,350	98.4%
11 SA	843,042	73.0%	227,500	99.3%

Summary of Validity Packet Results, TAKS,

TAKS (Accommodated)

Grade	Agreement Rate (%)
4 (English)	76%
4 (Spanish)	81%
7	79%
9	94%
10 WC	83%
10 SA	90%
11WC	77%
11 SA	91%

Appendix D

Writer Self-Perception Scale

WRITER SELF-PERCEPTION SCALE

Listed below are statements about writing. Please read each statement carefully. Then circle the letters that show how much you agree or disagree with the statement. Use the following scale:

SA= Strongly Agree
A= Agree
U= Undecided
D= Disagree
SD= Strongly Disagree

Example: **I think Batman is the greatest super hero.** SA A U D SD

If you are *really positive* that Batman is great, circle SA (Strongly Agree).

If you *think* that Batman is good but maybe not great, circle A (Agree).

If you *can't decide* whether or not Batman is the greatest, circle U (Undecided).

If you *think* that Batman is not all that great, circle D (Disagree).

If you are *really positive* that Batman is not the greatest, circle SD (Strongly Disagree).

1. I write better than other kids in my class. SA A U D SD
2. I like how writing makes me feel inside. SA A U D SD
3. Writing is easier for me than it used to be. SA A U D SD
4. When I write, my organization is better than the other kids in my class. SA A U D SD
5. People in my family think I am a good writer. SA A U D SD
6. I am getting better at writing. SA A U D SD
7. When I write, I feel calm. SA A U D SD
8. My writing is more interesting than my classmates' writing. SA A U D SD
9. My teacher thinks my writing is fine. SA A U D SD
10. Other kids think I am a good writer. SA A U D SD
11. My sentences and paragraphs fit together as well as my classmates' sentences and paragraphs. SA A U D SD
12. I need less help to write well than I used to. SA A U D SD
13. People in my family think I write pretty well. SA A U D SD
14. I write better now than I could before. SA A U D SD

Source: Bottomley, D.M., Henk, W.A., & Melnick, S.A. (1997/1998). Assessing children's views about themselves as writers using the Writer Self-Perception Scale. *The Reading Teacher*, 51, 286-296.

Appendix E

Committee for the Protection of Human Subjects

Approval Letter

UNIVERSITY of HOUSTON

COMMITTEES FOR THE PROTECTION OF HUMAN SUBJECTS

August 25, 2011

Ms. Stacey Templeton
c/o Dr. H. Jerome Freiberg
Curriculum and Instruction

Dear Ms. Templeton:

The University of Houston Committee for the Protection of Human Subjects (1) reviewed your research proposal entitled "Writing to Learn: Purposeful, Daily Content Area Writing's Impact on Elementary Students' Self-Perceptions and Development in Writing" on August 19, 2011, according to institutional guidelines.

The Committee has given your project unconditional approval; however, reapplication will be required:

1. Annually
2. Prior to any change in the approved protocol.
3. Upon development of unexpected problems or unusual complications

Thus, if you will still be collecting data under this project on **September 1, 2012**, you must reapply to this Committee for approval before this date if you wish to prevent an interruption of your data collection procedures.

If you have any questions, please contact Alicia Vargas at (713) 743-9215.

Sincerely yours,

Dr. Scott Stevenson, Chair
Committee for the Protection of Human Subjects (1)

PLEASE NOTE: (1) All subjects must receive a copy of the informed consent document. If you are using a consent document that requires subject signatures, remember that signed copies must be retained for a minimum of 3 years, or 5 years for externally supported projects. Signed consents from student projects will be retained by the faculty sponsor. Faculty are responsible for retaining signed consents for their own projects; however, if the faculty leaves the university, access must be possible for UH in the event of an agency audit. (2) Research investigators will promptly report to the IRB any injuries or other unanticipated problems involving risks to subjects and others.

Protocol Number: 11025-01 Full Review __X__ Expedited Review_____

Appendix F

Teacher Recruitment Script

I am looking for teachers to assist me in conducting a study about the effects of a content-area writing intervention on fourth grade students' writing ability and perceptions about writing. This study will be my doctoral dissertation and is a requirement for the doctoral degree at the University of Houston.

The writing intervention used in this study will involve students reflecting on what they have learned at the end of the day for 5-7 minutes, three days per week for a total of 12 weeks.

Teachers that choose to participate will be divided into two groups—those administering the intervention (intervention group) and those not administering the intervention (comparison group).

The intervention group will receive a one hour training on the intervention, learn about its potential benefits, and be instructed on how to introduce it and sustain it within your classroom.

The comparison group will not receive the training, and these teachers will be asked to continue with writing instruction as it normally occurs in your classroom. Comparison group teachers will receive the training after the conclusion of the 12 week study, in order to preserve the study's design.

I will collect data from both groups in the form of: student surveys (given before and after the intervention), student writing samples (collected at three points during the study), and teacher interviews (from the intervention group only, given before and after the intervention).

Study results will be available to you after the conclusion of the study, along with the final dissertation, when completed. Participation is voluntary. All information will be maintained by me and teacher and student identities will be kept anonymous.

This is a great opportunity for you to try out a new writing intervention and determine whether or not it is effective for use with your students, and/or the grade level as a whole. I am available to answer any further questions you may have about the study.

This project has been reviewed and approved by the Principal, the Study District, and the University of Houston Committee for the Protection of Human Subjects: 713-743-9204.

If you choose to participate, you must sign and return the teacher consent form I provide. I will need your consent by December 1, 2011.

Thank you for your consideration. What questions do you have?

Appendix G

Teacher Permission

UNIVERSITY OF HOUSTON
CONSENT TO PARTICIPATE IN RESEARCH
TEACHER PERMISSION

PROJECT TITLE: Writing to Learn: Purposeful, Daily Content Area Writing's Impact on Elementary Students' Self-Perceptions and Development in Writing

You are being invited to participate in a research project conducted by Stacey Templeton from the Department of Education at the University of Houston. This project is a part of a doctoral dissertation, under the advisement of Dr. H. Jerome Freiberg.

NON-PARTICIPATION STATEMENT

Your participation is voluntary and you may refuse to participate or withdraw at any time without penalty or loss of benefits to which you are otherwise entitled. You may also refuse to answer any question.

PURPOSE OF THE STUDY

The purpose of this study to determine the role a purposeful, daily writing intervention may have on two student outcomes: (1) student self-perceptions of their ability to write and (2) student writing development, as measured in quantity and quality.

PROCEDURES

You will be one of approximately ___4__ teacher subjects and 80 student subjects to be asked to participate in this project.

All students will complete a survey, the *Writer Self-Perception Scale* prior to and after the intervention (approx. 10 minutes each administration).

Throughout the 14 week study, students in the intervention group will write for five minutes, three times a week, at the end of each day, explaining what they have learned throughout their content-area courses (math, Science, Social Studies). Notebooks will be provided for students to keep their writing. Three student samples will be collected by the researcher for analysis. The total time commitment for this group of students will be: 3 hours, 50 minutes over 14 weeks.

Students in the comparison group will write three, five minute samples for comparative purposes. These will be collected by the researcher for analysis. The total time commitment for this group of students will be: 35 minutes over 14 weeks.

CONFIDENTIALITY

Your participation in this project will be kept anonymous. Student first names and teacher initials will be used by the researcher, but only for the purposes of organizing and comparing student data. This information will not be included in the study's reports or final products.

RISKS/DISCOMFORTS

Within this study, no reasonable foreseeable risks, discomforts, or inconveniences, will be posed to you or your students.

BENEFITS

This study could potentially benefit your teaching practice and provide you a new means of engaging your students in content-area writing in a meaningful way.

Potential benefits to your students include: increased time writing about what they are learning in math, Science, and Social Studies; increased ability in writing; and increased beliefs that they are "good" writers.

ALTERNATIVES

Participation in this project is voluntary and the only alternative to this project is non-participation.

PUBLICATION STATEMENT

The results of this study may be published in professional and/or scientific journals. It may also be used for educational purposes or for professional presentations. However, no individual subject will be identified.

SUBJECT RIGHTS

1. I understand that informed consent is required of all persons participating in this project.

2. All procedures have been explained to me and all my questions have been answered to my satisfaction.

3. Any risks and/or discomforts have been explained to me.

4. Any benefits have been explained to me.

5. I understand that, if I have any questions, I may contact [*insert principal investigator's name*] at [*insert work or UH telephone number*]. I may also contact [*insert faculty sponsor's name*], faculty sponsor, at [*insert UH telephone number*].

6. I have been told that I may refuse to participate or to stop my participation in this project at any time before or during the project. I may also refuse to answer any question.

7. ANY QUESTIONS REGARDING MY RIGHTS AS A RESEARCH SUBJECT MAY BE ADDRESSED TO THE UNIVERSITY OF HOUSTON COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS (713-743-9204). ALL RESEARCH PROJECTS THAT ARE CARRIED OUT BY INVESTIGATORS AT THE UNIVERSITY OF HOUSTON ARE GOVERNED BY REQUIREMENTS OF THE UNIVERSITY AND THE FEDERAL GOVERNMENT.

8. All information that is obtained in connection with this project and that can be identified with me will remain confidential as far as possible within legal limits. Information gained from this study that can be identified with me may be released to no one other than the principal investigator [*and his/her faculty sponsor*]. The results may be published in scientific journals, professional publications, or educational presentations without identifying me by name.

I HAVE READ (OR HAVE HAD READ TO ME) THE CONTENTS OF THIS CONSENT FORM AND HAVE BEEN ENCOURAGED TO ASK QUESTIONS. I HAVE RECEIVED ANSWERS TO MY QUESTIONS. I GIVE MY CONSENT TO PARTICIPATE IN THIS STUDY. I HAVE RECEIVED (OR WILL RECEIVE) A COPY OF THIS FORM FOR MY RECORDS AND FUTURE REFERENCE.

Study Subject (print name): _____

Signature of Study Subject: _____

Date: _____

I HAVE READ THIS FORM TO THE SUBJECT AND/OR THE SUBJECT HAS READ THIS FORM. AN EXPLANATION OF THE RESEARCH WAS GIVEN AND QUESTIONS FROM THE SUBJECT WERE SOLICITED AND ANSWERED TO THE SUBJECT'S SATISFACTION. IN MY JUDGMENT, THE SUBJECT HAS DEMONSTRATED COMPREHENSION OF THE INFORMATION.

Principal Investigator (print name and title): Stacey Templeton, UH Doctoral Candidate

Signature of Principal Investigator: _____

Date: October 18, 2011

Appendix H

Script For Teachers To Use With Students

Script for Teachers to Use with Students—Intervention Classrooms

Boys and Girls,

Our class has been chosen to participate in an exciting University of Houston research project about writing. Researchers want to know what will happen when fourth graders are given several opportunities to write about what they have learned in class. The last five minutes of the day you will write about what we learned in class using a Reflection/ Exit Ticket developed by Professor Freiberg at U of H. Exit Tickets will start with the words: "Today, I learned…" and you will continue with your own words and ideas about what you learned in class. In Exit Tickets, you can describe new ideas you learned in any subject, expand your thinking on new ideas, or write your thoughts about the day. I will also play classical music during the writing time to let you know we are starting. Here is a sample of a fourth grade Reflection/Exit Ticket, so you know what they look like. (Have children follow along as you read the sample exit ticket.) You will each have a special journal where you will write your Reflection/Exit Tickets. I may collect them and see what you're thinking about in class. Researchers from the University of Houston will also read your Reflection/Exit Tickets. I will not give you a grade for the writing, but will support your efforts.

I will also ask you to complete a few short questions—called a survey. These questions will be used to help researchers understand your thoughts about writing. You will have one short survey before we start and the once at the end of the study.

For you to participate in the study I will need you to fill out your Student Consent, which tells the researchers you would like to participate. I'll read this aloud to you now. (Read the Student Consent). Please sign the bottom of this form if you would like to be a part of this study. There are no penalties if you decide not to participate in the study.

Your parents will also need to allow you to participate in this study. I'll pass out the parent participation forms now. (Pass them out.) Please take the form home and have your parents read through them and sign the bottom. I need these back by _____ (date), so we may begin our Reflection/Exit ticket writing.

What questions do you have? (Answer student questions, or if you cannot answer them, please record them and direct them to the researcher.)

Script for Teachers to Use with Students—Comparison Classrooms
Boys and Girls,

Our class has been chosen to participate in an exciting University of Houston research project about writing. Researchers want to know what will happen when fourth graders are given several opportunities to write about what they have learned in class. You will write about what we learned in class three times, using a Reflection/ Exit Ticket developed by Professor Freiberg at U of H. Exit Tickets will start with the words: "Today, I learned…" and you will continue with your own words and ideas about what you learned in class. In Exit Tickets, you can describe new ideas you learned in any subject, expand your thinking on new ideas, or write your thoughts about the day. I will also play classical music during the writing time to let you know we are starting. Here is a sample of a fourth grade Reflection/Exit Ticket, so you know what they look like. (Have children follow along as you read the sample exit ticket.) Researchers from the University of Houston will also read your Reflection/Exit Tickets. I will not give you a grade for the writing, but will support your efforts.

I will also ask you to complete a few short questions—called a survey. These questions will be used to help researchers understand your thoughts about writing. You will have one short survey before we start and the once at the end of the study.

For you to participate in the study I will need you to fill out your Student Consent, which tells the researchers you would like to participate. I'll read this aloud to you now. (Read the Student Consent). Please sign the bottom of this form if you would like to be a part of this study. There are no penalties if you decide not to participate in the study.

Your parents will also need to allow you to participate in this study. I'll pass out the parent participation forms now. (Pass them out.) Please take the form home and have your parents read through them and sign the bottom. I need these back by _____ (date).

What questions do you have? (Answer student questions, or if you cannot answer them, please record them and direct them to the researcher.)

Appendix I

Student Assent

UNIVERSITY OF HOUSTON
CONSENT TO PARTICIPATE IN RESEARCH
STUDENT ASSENT

PROJECT TITLE: Writing to Learn: Purposeful, Daily Content Area Writing's Impact on Elementary Students' Self-Perceptions and Development in Writing

You are being invited to be a part of a research project from the University of Houston. In this project, Stacey Templeton will be the researcher and Dr. H. Jerome Freiberg will be the advisor. There will be about 120-130 students participating in this study. This project is part of a doctoral degree program.

This study is being conducted to help find new ways to improve students' writing and how they feel about it.

You will be asked by your teacher to complete a questionnaire at two different times. Your teachers will also ask you to write for five minutes, three times a week about what you have learned.

You may choose to participate in the study or not to participate. It is your choice.

By participating in this study, your writing and feelings about writing might improve. You will get to tell your teachers what you learned, and ask questions about things that are confusing you in class.

Please let your teacher know if you have any questions.

NAME: _____

I agree to participate in this research project:

YES_____ NO_____

Signature: _____

Appendix J

Informed Consent for Parents

UNIVERSITY OF HOUSTON
CONSENT TO PARTICIPATE IN RESEARCH
PARENTAL PERMISSION

PROJECT TITLE: Writing to Learn: Purposeful, Daily Content Area Writing's Impact on Elementary Students' Self-Perceptions and Development in Writing

Your child is being invited to participate in a research project conducted by Stacey Templeton from the Department of Education at the University of Houston. This project is a part of a doctoral dissertation, under the advisement of Dr. H. Jerome Freiberg.

NON-PARTICIPATION STATEMENT

Your child's (student's) participation is voluntary and you or your child (student) may refuse to participate or withdraw at any time without penalty or loss of benefits to which your child (student) is otherwise entitled. Your child may also refuse to answer any question.

PURPOSE OF THE STUDY

The purpose of this study to determine the role a purposeful, daily writing intervention may have on two student outcomes: (1) student self-perceptions of their ability to write and (2) student writing development, as measured in quantity and quality.

PROCEDURES

Your child will be one of approximately ___80__ subjects to be asked to participate in this project.

This project will occur during your child's regular school day. He/she will be asked to complete a survey about his/her ability to write and his/her feelings about writing. These surveys will be collected before and after the study's intervention. He/she will also be asked to write about what he/she is learning for five minutes, three times a week. These writings will be collected and analyzed by the researcher.

CONFIDENTIALITY

Your child's participation in this project will be kept anonymous. First names and teacher initials will be used by the researcher, but only for the purposes of organizing and comparing student data. This information will not be included in the study's reports or final products.

RISKS/DISCOMFORTS

Within this study, no reasonable foreseeable risks, discomforts, or inconveniences, will be posed to your child.

BENEFITS

Potential benefits to your child include: increased time writing about what they are learning in math, Science, and Social Studies; increased ability in writing; and increased beliefs that they are "good" writers.

ALTERNATIVES

Participation in this project is voluntary and the only alternative to this project is non-participation.

PUBLICATION STATEMENT

The results of this study may be published in professional and/or scientific journals. It may also be used for educational purposes or for professional presentations. However, no individual subject will be identified.

SUBJECT RIGHTS

1. I understand that parental consent is required of all persons under the age of 18 participating in this project. I understand that my child (student) will also be asked to agree to participate.

2. All procedures have been explained to me and I have been provided an opportunity to ask any questions I might have regarding my child's (student's) participation.

3. Any risks and/or discomforts have been explained to me.

4. Any benefits have been explained to me.

5. I understand that, if I have any questions, I may contact Stacey Templeton at Hillview Elementary, 713-XXX-XXXX. I may also contact H. Jerome Freiberg, faculty sponsor, at 713-743-4953.

6. I have been told that my child or I may refuse to participate or to stop his/her participation in this project at any time before or during the project. My child may also refuse to answer any question.

7. ANY QUESTIONS REGARDING MY CHILD'S RIGHTS AS A RESEARCH SUBJECT MAY BE ADDRESSED TO THE UNIVERSITY OF HOUSTON COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS (713-743-9204).

8. All information that is obtained in connection with this project and that can be identified with my child (student) will remain confidential as far as possible within legal limits. Information gained from this study that can be identified with my child (student) may be released to no one other than the principal investigator [*and his/her faculty sponsor*]. The results may be published in scientific journals, professional publications, or educational presentations without identifying my child (student) by name.

NAME OF CHILD (STUDENT): _____

I agree to allow my child (student) to participate in this research project:

YES_____ NO_____

Signature of
Parent/Guardian:_____

Appendix K

Exploratory Factor Analysis

An exploratory factor analysis was conducted on the 14 item subscale of the WSPS. Items were subjected to a principal component analysis using SPSS. Prior to the principal components analysis, the researcher determined the suitability of these items for factor analysis through a correlation matrix. Most items were found to have medium (r = .30-.49) to large (r = .5-1.0) correlations, with the exception of items 2 and 7 (which did not have significant correlations with the other items and/or had negative correlations). The researcher noted these items, but did not exclude them from these analyses at this point. The Kaiser-Meyer-Olkin value was .766, exceeding the recommended value of .6 (Pallant, 2010) and Barlett's Test of Sphericity reached statistical significance, providing additional support to the factorability of these items.

Principal components analysis (Varimax with Kaiser normalization) revealed a four-factor solution with eigenvalues greater than 1.0, accounting for 37.6%, 13.2%, 9.7%, and 7.5% of the variance, respectively (explaining a total of 68% of the variance). An inspection of the scree plot revealed a clear break between the first and second component. Using Catell's Scree test, the researcher decided to retain only the first component for further investigation. This was further supported by an analysis of the Component Matrix, with 12 of the 14 items loading strongly (ranging from .568 - .763). The one-factor solution explained a total of 37.6 % of the variance.

Items 2 and 7 loaded weakly on this factor (.137 and .2, respectively) and upon further inspection of these items, they were removed from the analysis. Items 2 and 7 read: "I like how writing makes me feel inside" and "When I write I feel calm." The researcher decided that these items appeared to be assessing the feelings and emotional response to writing—they were not truly measuring self-perceptions about a student's

ability to write (the focus of this research question). The researcher decided to reduce the scale from 14 items to 12 items, with the removal of these two items.

A final principal components analysis was conducted (Varimax with Kaiser normalization) using the 12 item scale, with removal of items 2 and 7. This analysis produced a three-factor solution with eigenvalues greater than 1.0, accounting for 43.2%, 11.5%, and 9.0% of the variance, respectively (explaining a total of 63.6% of the variance). The scree plot revealed a clear break between the first and second component (as in the previous analysis), so a one-factor solution was accepted (see Appendix H for scree plot). The eigenvalue for this factor was 5.264. Analysis of the Component Matrix revealed that all 12 items loaded strongly on this factor (from .573 - .753 and presented in the table below). The one-factor solution explained a total of 43.2 % of the variance.

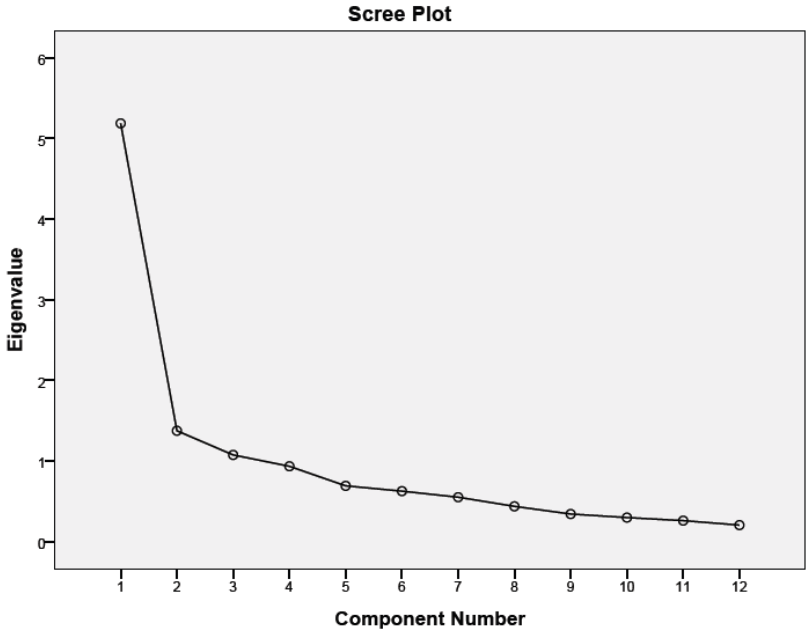


Table K1.

Pattern/structure of Coefficients for WSPS *Factor Analysis*

	Component 1	Component 2	Component 3
Item			
Item 1	.635	-.419	-.206
Item 3	.680	.339	.379
Item 4	.753	-.178	-.091
Item 8	.713	-.278	-.023
Item 12	.573	.637	-.017
Item 14	.608	.468	.323
Item 5	.645	-.148	.276
Item 6	.618	.280	-.488
Item 9	.667	-.182	-.409
Item 10	.603	-.248	.444
Item 11	.680	.211	-.243
Item 13	.692	-.334	.168

Reliability tests were run on the appropriateness of this scale for use with this population, and produced a Cronbach's Alpha coefficient of .876, suggesting very good internal consistency reliability for this sample. According to Salkind (2006), coefficients above .7 are deemed to be reliable. The table below depicts each item's means, standard

deviations, correlation, and the Cornbach alpha values (if the item was removed from the study).

Table K2.

Item Means, Standard Deviations, Coefficient Alphas, and Correlations

Factor 1: Writing Self Perceptions (α =.876)				
Item	Mean	S.D.	Corrected Item-Total Correlation	Alpha if Item Deleted
Item 1	3.37	0.977	.535	.869
Item 3	4.04	1.06	.619	.863
Item 4	3.37	1.01	.676	.860
Item 5	4.14	1.04	.564	.867
Item 6	4.30	0.882	.535	.869
Item 8	3.11	1.09	.622	.863
Item 9	3.89	0.839	.579	.867
Item 10	3.56	1.208	.508	.871
Item 11	3.71	1.22	.597	.865
Item 12	4.16	1.18	.496	.872
Item 13	4.22	0.924	.604	.865
Item 14	4.34	1.12	.542	.868
Average All Items =	3.85			

After identifying this one component, the researcher examined that nature of these 12 items in order to provide it with a label. Items that loaded the most strongly on this factor included: “My writing is more interesting than my classmates writing,” “My teacher thinks my writing is fine,” and “Writing is easier for me than it used to be.” Because all items loaded strongly on this one factor, and after analyzing the nature of each item, the researcher was able to infer that this factor represented students’ self-perceptions about their ability to write (in relationship to their past performances in writing, their peers’ performance, and considering the perceptions of their teacher/peers). This aligns with the scale’s initial intent, as a measure of students’ writing self-perceptions.

Appendix L

Overall Results

Presented below are the overall results for each data point, including all groups of students (four classrooms, N=56). They are presented here in an appendix, as they offer an important point of reference, but overall findings remain outside the study's intent (to measure the impact of the intervention) and research questions.

Writing Length – Words per Sample Changes. For the entire sample, student writing length (in words) increased throughout the study's 14-week duration from pre-intervention (M = 43.68, SD = 22.95) to post-intervention (M = 70.53, SD = 39.27). The difference between the means was statistically significant t (52) = 5.85, $p < .000$. The mean increase in students' number of words was 26.85 words, with a 95% confidence interval ranging from 17.64 to 36.05. The eta squared statistic uses paired *t*-test values to compute effect sizes. Eta squared calculates the total variation in means, explaining is the proportion that can be attributed to the intervention (percentage). In this analysis, the eta squared statistic ($\eta^2 = .39$) indicated a moderate effect size (based on Cohen's 1998 guidelines: .01 = small effect; .06 = moderate effect; .14 = large effect).

Writing Length- Syllables per Sample Changes. For the entire sample, student writing length also improved over the duration of the study in terms of syllable length, from pre-intervention (M = 56.39, SD = 26.88) to post-intervention (M = 89.26, SD = 46.60). The differences between the means were statistically significant t (52) = 5.76, $p < .01$. The mean increase in students' number of syllables was 33.86 syllables, with a 95% confidence interval ranging from 22.07 to 45.66. The eta squared statistic ($\eta^2 = .39$) indicated a large effect size (based on Cohen's 1998 guidelines: .01 = small effect; .06 = moderate effect; .14 = large effect). In the overall student sample, the number of syllables

students wrote at pre-intervention increased significantly at post-intervention, with a large effect size.

Writing Length - Syllables per Word Changes. For the entire sample, student writing complexity decreased over the duration of the study, from pre-intervention (*M* = 1.29, *SD* = 0.21) to post-intervention (*M* = 1.25, *SD* = 0.17). The results between means were not statistically significant *t* (52) = 1.25, p = 0.216. The mean decrease in students' number of syllables per word was -0.04, with a 95% confidence interval ranging from –0.03 to 0.11.The complexity of student samples decreased (though not significantly) from pre- to post-intervention.

Writing Quality - Holistic Rubric Changes. In the total sample of four classes, student writing scores improved in across time, throughout the intervention. A paired-sample t-test*t-test* was conducted to determine if differences in students' overall scores on the writing rubric were significant from pre- to post-intervention. Overall, students writing scores increased from pre- to post-intervention. The difference between students' pre-intervention means (*M* = 1.20; *SD* = .40) and post-intervention means (*M* = 1.41; *SD* = .65) was statistically significant *t* (55) = 2.36, $p < .05$. The mean increase in students' scores was .21, with a 95% confidence interval ranging from -.03 to -.40. The eta squared statistic ($\eta^2 = .09$) indicated a moderate effect size (based on Cohen's 1998 guidelines: .01 = small effect; .06 = moderate effect; .14 = large effect). Figure 4 shows the mean increases in student samples by classroom teacher from pre- to post-intervention.

Overall results for the entire student sample (N=56) show that at pre-intervention 80% of students (n = 45) had a below-standard performance, or received a failing score of 1 on the rubric; at post-intervention, 68% of students earned a score of 1 (n = 38). The

number of students who met standard at pre-intervention, receiving a passing score of 2, increased from pre-intervention (n = 11; 20%) to post-intervention (n = 13; 23%). Finally, the number of students performing above standard (with a rubric score of 3 or 4) increased from 0% (n = 0) at pre-intervention to 9% (n = 5) at post intervention. Figure 5 shows the percentage of students in each class who were below-standard (score of 1) at pre-intervention and at post-intervention. Figure 6 shows the percentage of students in each class who met standard (score of 2) at pre-intervention and post-intervention. Finally, Figure 7 shows the percentage of students in each class who were above standard (score of 3 or for) at pre-intervention and at post-intervention.

Writing Quality – Content Analysis. Student samples became increasingly more sophisticated over time. From pre- to post-intervention, *planning* remained a fairly consistent and strongly present theme in student writing, appearing in the majority of samples over time: pre-intervention = 89% and post-intervention = 84%. (The decline at post-intervention can be attributed to a greater percentage of students' writing in the *knowledge telling* and *knowledge transforming* themes.) *Knowledge telling* improved over time, with an increased presence of this theme occurring in the last collection: pre-intervention = 34% and post-intervention = 43%. *Knowledge transforming* showed the most marked improvement, with a notable increase in the presence of this theme from pre-intervention = 5% to post-intervention = 20%.

Writer Self-Perception Scale Results. A paired-sample t-test*t-test* was conducted to determine if students' general writing instruction, given to all students, had an impact on their writing self-perceptions over time (regardless of their group membership). Overall, the results between students' pre-intervention means (M = 3.85, SD = 0.69) and

post-intervention means (M = 3.82, SD =0.61) were not statistically significant t (53) = 0.43, p = 0.67. The mean decrease in students' scores was -0.03, with a 95% confidence interval ranging from 0.12 to 0.19. In the entire student sample, self-perceptions did not change over the course of the study.