Writing across the Curriculum: Case Studies of Three Content-Area Teachers

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WRITING ACROSS THE CURRICULUM:

CASE STUDIES OF THREE CONTENT-AREA TEACHERS

Patsy A. Hamby

A Dissertation

Presented in Partial Fulfillment of Requirements for the

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In a qualitative study in a school district transitioning from rural to suburban based on a population growth and a shift in demographics, attitudes about writing, writing practices, writing assignments, and assessment practices of three teachers in the curriculum content areas of math, science, and social studies were investigated. Individual interviews with the teachers, observations of their classroom practices, interviews with focus groups in their content areas, and examinations of rated assessments provided the data for the study. The results indicated that the teachers’ past negative experiences with writing reflect in their teaching practice, as all are reluctant to generate or assign writing tasks for their students. Indeed, the researcher found that the teachers in the study minimized writing, preferring instead that students verbally communicate their cognitive processes. Although this study consists of only three case studies of teachers in their content areas, its implications are relevant for schools and school systems attempting to incorporate standards-based instruction into the curriculum. Students need to demonstrate higher levels of functioning within Bloom’s and Webb’s taxonomies on high-stakes testing; yet if content-area teachers remain reluctant to deal with written evidence of such cognitive processing, the veracity of their assessments is questionable.
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CHAPTER I
INTRODUCTION

Writing well provides our students the ability to collaborate and compete on a global scale; and in the changing global economy, the ability to communicate effectively is a primary component of their success. The complex globalization today’s students will encounter as adults requires that they not only have the ability to function within a diverse workforce, but that they also know how to communicate and motivate (Friedman, 2007). Writing, which some have identified as merely another form of conversing, in actuality promotes logical reasoning that creates intelligence through the formation and expression of ideas (Foster, 1992). Early epistemological studies of theorists such as Piaget (1959), Bruner (1966), and Vygotsky (1978) support a powerful correlation between thought and language that promotes understanding of one’s environment. Emig (1983) claims that writing is the outcome of methodic involvement among hands, eyes, and brain; she therefore considers writing the dominant mode for learning. The relationship of writing to reasoning and learning leads one to conclude that writing is a critical component of instruction. Writing well provides our students the ability to collaborate and compete on a global scale.

The quality of teaching and learning in our schools has recently fallen under close scrutiny; and accountability regulations at federal, state, and local levels are becoming increasingly demanding (Creighton, 2007). Traditionally, most stakeholders seem to blame English department faculty for deficiencies in students’ communicative abilities
and hold that the responsibility for literacy instruction, particularly at the secondary level, rests entirely with the English teacher (Foster, 1992). If so, English teachers may be considered somewhat successful: The latest report from the National Center for Education Statistics (2009) reveals that, overall, 12th graders’ writing has improved by five points since the previous NAEP in 2002, increasing from 148 to 153 on a 0-300 scale, with male students showing the most significant increase at eight percentage points.

Langer and Applebee (1987) indicated more than a decade prior to the 2002 NAEP results that the traditional written product required by teachers centered around a prescriptive, constricting, formulaic approach with an emphasis on grammar and usage. Langer and Applebee (1987) conclude, however, that writing instruction that promotes learning is preferable to assigning tasks that are easily scored for the number of mechanical errors. They further note that writing to promote learning requires attitudinal changes not only in the perceptions of educators, but also for the general public. Historically, such changes occur slowly.

The emphasis on writing in schools may be increasing, but writing assignments across subject areas may not necessarily promote higher-order thinking and logical reasoning (Garner, 2007). These characteristics are located at the higher domains of Bloom’s taxonomy (Bloom & Kratwohl, 1956) and of Webb’s (2006) depth of knowledge (DOK) chart (see Appendix E). Teachers who de-emphasize students’ writing abilities because they feel writing belongs exclusively within the language arts classroom thereby limit their students’ learning processes to lower levels of knowledge acquisition (Hermsen & Franklin, n.d.). This study proposes to investigate these issues by
interviewing teachers regarding their perceptions about writing and the prescribed
Georgia Performance Standards. Additionally, teachers will be observed discussing their
teaching practices in focus groups with their colleagues and observed in their classrooms
with students as the teachers present writing assignments. Samples of written work
generated by students and the teacher commentary on those assignments will be
examined.

*Trends and Existing Research*

To what extent and for what purposes do teachers in the core content areas of
math, science, and social studies incorporate writing into their classroom teaching
practice? Research validates writing, particularly in the content areas of math and
science, as a predictor of achievement (Hoyle, O’Dwyer, & Chang, 2011), but are
teachers implementing it as a tool to predict or to measure knowledge?

In reviewing the existing literature, the researcher should be wary. A person finds
research designed as a promotional strategy to validate a company’s own claims that a
particular program effectively interposes writing into one of the content areas. Several
previous studies about the efficacy of writing strategies raise concern. In one study,
4MALITY, a program researched by Malory, Edwards, and Anderson (2010),
incorporates writing as students create their own math problems in order to demonstrate
problem-solving skills; however, the validity of their claim of significant improvement in
math scores is questionable because they did not include a comparison or control group
as a component of their research design. The researcher should question the integrity of
such a research design.
The Georgia Performance Standards (GPS) for the core content areas of science, social studies, and mathematics appear to be limited to prescriptive assignments that do not require depth of knowledge or foster learning. For example, the current GPS’s for writing in the content area of mathematics focuses primarily on vocabulary acquisition, requiring only that teachers provide contexts for demonstrating proficiency with newly-acquired vocabulary; the math standard with a specific reference to writing states that students will, “use content vocabulary in writing and speaking” (Georgia Performance Standards: Mathematics, 2010). The failure to clarify writing as a means of demonstrating conceptual understanding as posited by Kelley, Lesaux, Keiffer, and Faller (2010), however, allows teachers to assert that multiple-choice items, matching activities, and word banks for fill-in-the-blank assignments provide sufficient demonstration of mastery. Nagy, Berninger, Abbott, Vaughan, and Vermeulen (2003) determined that a significant correlation exists between writing ability and word acquisition and that writing is no longer limited primarily to improvements in reading comprehension. Writing also provides students the ability to analyze their reasoning processes and to synthesize their knowledge in a clearly demonstrable form (Kelly, Lesaux, Keiffer, & Faller, 2010). But are teachers aware of these purposes for writing, and are they implementing writing to learn into their classroom?

The social studies performance standards also specifically state that the intended purpose of writing is limited to demonstration of vocabulary acquisition. Jones and Thomas (2006), in an attempt to establish a bridge between social studies and the language arts curriculum, denote vocabulary acquisition primarily as a means of
providing labels for key concepts, but they fail to transition from vocabulary acquisition into student writing. The science standards, in contrast, describe three purposes for writing: The student should be able to write “clear, coherent laboratory reports”; write accounts of “current scientific issues”; and create written presentations that “support scientific arguments” (Georgia Performance Standards: Science, 2010). But are these standards recognized by teachers in the content areas as promoting writing to clarify learning, or does writing play no overtly significant role in the math, science, and social studies curriculum?

Within this context of standards, accountability, and the relegation of writing significance to the English curriculum, I propose to examine teacher perceptions regarding the performance standards. Do teachers feel the standards are too limiting and therefore assign writing that surpasses these requirements to promote analysis and synthesis? Or do teachers feel that these requirements may be met with a perfunctory assignment and then concentrate on other areas of the subject-specific curriculum content they deem more critical than synthesis and analysis? Insight into these areas of teachers’ perceptions in order to determine their effect on student learning is the purpose of this study.

The Current Educational Context

Over the past three decades, school systems have seen a dramatic increase in the number of standardized assessments given to students and in the content areas assessed, especially those with a focus on writing (Collins, 2007). This testing focus has led teachers to implement more writing into their instruction, but current practice emphasizes formulaic writing (Smagorinsky, 2006) rather than writing-to-learn. Recently, the
prevalent emphasis, particularly in the district used in this study, is toward students demonstrating depth of knowledge (DOK) in the core content areas. Students are required to explain concepts and apply them in assignments that surpass recall and identification and instead incorporate processes that reveal both “strategic” and “extended thinking” (Webb, 2006). If students are to reach these higher-level requirements of Webb’s (2006) DOK taxonomy, teachers will contribute to this process by implementing more writing-to-learn strategies that incorporate analysis and synthesis of ideas.

Georgia’s current educational emphasis on writing to promote and demonstrate depth of knowledge in the core content areas comes at a crucial time when more weight is allocated to assessments generated by testing companies than to those created by classroom teachers. The local, state, and federal tendencies to assess students on single-event, high-stakes standardized tests are increasing, and test scores are becoming more critical measurements of teacher and student achievement. Failure to demonstrate mastery of the standards on the assessments results in students not receiving course credit (Georgia EOCT Interpretive Guide, 2010), even if they demonstrate mastery according to the teacher’s criteria. For writing, high school students at the secondary level in Georgia must demonstrate proficiency on the Georgia high school graduation writing test (GHSGWT) and end-of-course-tests (EOCT) in the core content areas. Optional assessments include writing sections of both the SAT and ACT, and students may also be selected to take the periodic National Assessment of Educational Progress (NAEP).

One of the desired outcomes of the current emphasis on assessment is to provide a strong curriculum that drives instruction and promotes student achievement in all core curriculum areas (Q&A: Georgia Performance Standards, 2005). However, in
Writing across the Curriculum

mathematics, only 63% of United States twelfth grade students achieved basic and above ratings on the NAEP, scoring an average of 153 on a scale of 300 (Mathematics 2009, 2010). In science, the twelfth grade average score in 2006 had declined to 54% of tested students at basic levels of achievement and above (USDOE, 2006); and in social studies, 47% of twelfth grade students scored at basic or above. On the state level, Georgia tests students using graduation tests (GHSGTs), which are defined as “standards-based” assessments that measure “how well students are mastering specific skills defined by the state of Georgia” (GHSGT results, 2010). Overall, Georgia students scored a 91% pass rate for the math portion of the GHSGT, 90% in both language arts and science, and 78% in social studies. According to the NAEP scores, Georgia’s performance is average when compared at a national level.

Qualitative research to observe student behavior and teacher performance is timely. Current education reformers, instead of focusing on effective strategies of individual classroom teachers, are attempting to find a effective instructional models and apply them to all teachers (Marzano, 2007). In fact, today’s school reform and curriculum policies are decided not by educators, but primarily by “politicians, bureaucrats, and eager-to-please textbook companies” (Pindar, 2004, p. 195). Many of their recommendations—such as the current pay for performance initiative or the emphasis on schools implementing policies that have proven successful in the corporate realm—are found to be ineffective when studied in educational contexts (Springer et al., 2010). While Marzano (2007) claims that no magic formula for effective classroom instruction exists, research identifies strategies that appear to work well for the majority of students. However, methods resulting from research findings benefit learning when they are
implemented in a way that allows for consideration of individual differences within
classrooms, schools, and districts. Educational leaders are more likely to be successful in
implementing change when they operate from a distributed view of school reform that
promotes a shared, joint interaction among leaders and teachers (Spillane, 2006).

Observations of actions and interactions among teachers and their students
engaged in assignments within their core curriculum areas of mathematics, science, and
social studies inform educational practices by revealing effective and ineffective
teaching. As an ancillary effect, such observations have the potential to promote
collaboration among teachers and administrators and to improve not only instruction but
school climate as well (Marzano, Waters, & McNulty, 2005). The goal of this research is
to provide material that adds to the discussion of writing in the content areas because it is
a study of practitioners conducted by a practitioner. This emic viewpoint of one who
participates in the field is seemingly given little consideration in the decisions that affect
educational practice. Opportunities to provide time and discussion and to reflect on their
practice are valuable to teachers who wish to improve their literacy instruction and who
wish to add their voices to the policy-making decisions that ultimately affect all
educators. As with all research, this study may offer a conduit into further research in the
area of writing across the curriculum (WAC).

Research Questions

The following research questions guided this study:

- How do teachers in the secondary core content areas of science, social studies,
  and math perceive themselves as writers, and how did they develop their attitudes
  about writing?
• What are the perceptions of these teachers about the Georgia Performance Standards for writing in their content areas?

• What are the teachers’ expectations of students regarding writing in their content areas, and how do they align those expectations with teaching practice and assessment?

• How do these teachers convey their expectations about writing to students, and to what extent do their actions and commentary on student assignments reflect their stated beliefs?

An investigation of these questions may generate emerging themes that address the teachers’ self-perceptions about writing and the impact of those perceptions on their writing instruction and assessment practice.

Definition of Terms

For the purposes of this study the following terms are used to define taxonomies of learning:

*Bloom’s Taxonomy*: A learning objectives paradigm consisting of six domains: remembering, understanding, applying, analyzing, evaluating, creating

*DOK (Depth of Knowledge) Taxonomy*: A learning objectives paradigm consisting of four domains: recall, skill/concept, strategic thinking, and extended thinking.

For the purposes of this study, the following terms are used to describe teachers as writers:

*Reluctant writer*: A teacher who expresses writing as a negative activity
Practical writer: A teacher who describes writing as an outcome of necessity, either in a social, professional, or family-related realm

Integral writer: A teacher who describes writing as both useful and creative way and who finds writing to be a pleasurable experience.

Diverse perspective: A teacher who relates to writing as useful for a particular purpose (Frager, 1994).

For the purposes of this study, the following terms are used to describe teacher roles in a writing-focused classroom activity:

Instructor: The creator and provider of knowledge

Assigner: The determiner of the frequency, purpose, and kinds of writing in the classroom

Audience: The reader whose expectations the students must understand and meet

Responder: The only assessor of the students’ ideas and mechanics (Fulweiler, 1988).

For the purposes of this study, the following terms are used to describe the roles of teachers as raters of student writing assignments:

Dualistic rater: A teacher who scores student writing as either right or wrong, generally based exclusively on mechanics

Relativistic rater: The teacher who examines the ideas in the document and makes suggestions for further development, generally based on teacher interests or what might bring the teacher self-satisfaction
Reflective rater: The teacher who demonstrates personal involvement with the paper and who may comment on a personal belief or share an experience related to the topic (Anson, 1989).

Origin of the Study

Two major events have most greatly affected my pedagogy for teaching writing: twenty years of tutoring students in Kennesaw State University’s Writing Center and the invitation from Dr. Sarah Robbins to participate in the first Summer Institute of the Kennesaw Mountain Writing Project (KMWP) in 1994. The first, tutoring college students individually, has provided insight the diversity of students’ approaches to writing assignments, from the highest anxiety levels to arrogance that an outside reader would presume to suggest revision to so masterful a piece. Tutoring, first as a peer and later as a university part-time faculty member, also caused me to conclude that the most successful approach to helping students improve as writers is conferring with them individually about their processes. I have found replicating this technique almost impossible to achieve in my high school teaching because of the increasingly growing number of students on my high school class roster. Out of necessity, I often design classroom instruction around a utilitarian model of writing rather than a best-practices model. This observation of my own practice causes me to question the extent to which any content area teachers with 140 students in classes each day are able to individualize writing instruction, if indeed they incorporate writing into their practice at all.

The other hallmark event in my growth as a writing teacher, participation in KMWP, led to a transformation in my self-perception as a professional educator. During the Summer Institute, teachers of language arts and other content areas at elementary,
middle, high school, and college levels, demonstrated engaging, student-centered writing lessons based on a specific text. I determined that my classroom would become a similar collaborative community of readers and writers. This affiliation with KMWP and the encouragement of Dr. Robbins then led to my participation in Keeping and Creating American Communities, a curriculum project which ultimately concluded in my contributions to two publications, Writing our Communities: Local Learning and Public Culture (Robbins & Dyer, 2005), and Writing America: Classroom Literacy and Public Engagement (Winter & Robbins, 2005). Presentations at educational conferences and involvement in other professional learning events at which I related writing-based instructional strategies soon followed. Desiring to improve my classroom writing instruction, I enrolled in a Master of Arts in Professional Writing degree program at KSU. Professional affiliations continued to affect my classroom practice as my pedagogy evolved, and, when the opportunity arose to participate in a cohort program for an Education Specialist degree in curriculum and instruction, I enrolled and completed the course requirements. I gladly welcomed the invitation to serve on an advisory panel for the English Education Doctoral Degree Program at KSU and enrolled in the first cohort offered for English education majors. All of these opportunities and events affect the lens through which I view education, and particularly the teaching of writing.

Throughout the doctoral program, I have given careful consideration to the culminating project, the dissertation, consistently aware that it would be writing-focused. The participant for my pilot study, conducted for a required research course months prior to my dissertation study, was the student teacher practicing in my classroom at the time. She led a student-centered classroom and exhibited all the characteristics of an integral
writer (Frager, 1994) as she maintained a daily journal for reflection and expressed a desire to eventually publish her creative writing endeavors as a young adult novel. As I collected data for the study, I contemplated whether her inclination to write was an anomaly or whether other teachers shared her passion. At first, I considered basing my dissertation inquiry on language arts teachers; but at a faculty meeting, our principal related that our district was implementing a depth of knowledge (DOK) emphasis across all curriculum areas which would include writing to promote and demonstrate understanding. This information sparked my interest in researching whether teachers’ instructional practices in the core content areas might provide insight into their current writing practices. I reasoned that such a study might assist school leaders in determining effective approaches for implementing the proposed emphasis on writing in students’ learning. As with all research, I realized that undertaking this inquiry would yield further questions. The study also establishes a context within which I might reflect on my own positionality as a teacher of writing. It therefore promises to affect classroom practice on several levels.
CHAPTER II

LITERATURE REVIEW

How does one judge a teacher’s view of students as writers? Do teachers understand their own meta-cognitive strategies as they attempt to teach students and to analyze their learning? Teachers benefit from a coherent personal philosophy if they are to enhance their effectiveness, if they are to construct a pedagogy which includes an explanation of the impact of current standards on writing. Other desirable traits of successful educators include the ability to describe how their students demonstrate mastery of the standards and what strategies the teachers implement to assess that students have attained higher levels of Webb’s (2006) depth of knowledge chart. Although a daunting task, teacher researchers may be in the best position to conduct research about interpretation and implementation of the standards because they have the ability to observe students in the actual process of writing (Goswami, Lewis, Rutherford, & Waff, 2009) as the students engage in activities that involve demonstrating understanding of concepts. At the high school level, successful students are able to deal with “abstract verbal issues and complex logical problems…the possible as well as the real, with the past and future as well as the present” (Foster, 1992, p. 17). They possess the ability to communicate through interaction as they make meaning and generate understanding, processes which promote seeing life through broad perspectives (Foster, 1992).
Foster (1992) identifies two types of writing that teachers of writing generally require of their students: (1) personal writing that is “reflective and inward-looking,” usually narrative and descriptive, that allows students to explore “their private experiences of the world”; and (2) academic writing, generally in the forms of reports and tests, that requires students to “master new forms, styles, and vocabularies” (p. 171) based on information gleaned from texts and lectures. Studies of types of writing by mode (e.g., argumentative, narrative, report, and analytical writing) have been conducted in grade-level classrooms (Hillocks, 2006), with attention given to improvement in writing skills and complexity of writing. Little research is available, however, regarding the effect on student writing of specific writing tasks such as peer editing (Atwell, 1998; Kirby, Kirby, & Liner, 2004), or of the effect of writing on student achievement within content areas; indeed, Berridge (2009) expressed frustration at the scarcity and the confusing nature of available research relating to the social studies curriculum.

**Brief History of Writing Instruction**

Writing instruction in the earliest textbooks emphasizes rules (Schultz, 1999), particularly those regarding grammar, usage, and conventions such as capitalization and punctuation, and not writing as inquiry. By the mid-nineteenth century, the emphasis on prescriptive grammar began to shift to a focus on rhetoric. Even then, evaluate grammar maintained its dominant position; in fact, the influence of the grammatical correctness inherent in early American education is still apparent today. In the dreadful-sounding “Deadly Sin Checklist,” Darling (1999) defines fragments, run-on sentences, and agreement errors to aid writers in avoiding the penalties associated with such transgressions. Early twentieth century writing focused on the utilitarian aspects of
writing as a means of increasing social awareness and instruction in morally correct behavior, and in 1936, the first proposal for a correlated educational curriculum appeared. Rather than recommending change which would incorporate writing into all academic areas; however, the report merely raised questions concerning the possible effects of an integrated curriculum (Applebee, 1974). More recently, the concept of writing as inquiry has become the focus of such organizations as the National Writing Project, a professional development program established in 1974, which authorizes and conducts studies that examine effective writing assignments and writing instruction designed to address specific criteria (Gardner, 2008).

Ozmon and Craver (2003) describe the role of teachers in the inquiry-based writing classroom as providers of interactions that allow students “to learn to express themselves” (p. 354) and to gain confidence through exploring, experimenting, and taking responsibility for their interactions. In order to achieve this condition, students need opportunities for critical discourse with their classmates. In fact, Bloome et al. (2008) promote analyzing classroom discourse in order to observe students engaged in their everyday lives, interacting with each other and with the world around them. They further suggest critical inquiry then be documented, and where it does not or cannot exist, opportunities for professional development could be provided to insure that the teacher learns how to incorporate opportunities for inquiry-based writing into the curriculum.

Research Approaches Relevant to the Study

Several approaches to the study of writing processes have been implemented. Research studies conducted during writing sessions created specifically for the purpose of research (Emig, 1983; Rijlaardsam & Ban den Bergh, 2006) have found that the nature of
the study itself may interfere with the very practice it purposes to document (Franklin, n.d.) as the presence of the researcher influences the writing environment he or she is attempting to observe (Geertz, 1973; Merriam, 2009). Perhaps more efficiently and effectively, the “think aloud protocol” Flowers and Hayes (1981) employ may provide insight into the complexity of writing processes and promote inquiry. Another research technique involves asking students to journal their behavior while undertaking a writing assignment and to reflect on their process (Smagorinski, 2006). Further insights are gained during interviews and observations to determine how students use writing to make meaning (Goswami, Lewis, Rutherford & Waff, 2009).

Teachers’ and students’ perceptions of writing and of writing assessment differ greatly. Interestingly, nearly four decades ago, Hillocks (1986) asserted that teacher-generated, inquiry-based writing assignments result in a lack of student commitment to writing. Instead, he claims, students demonstrate a stronger commitment to writing that they generate themselves. Furthermore, student self-assessments of their abilities differ greatly from the teacher- or system-generated assessments (or even those of researchers), primarily because of a difference in standards. While teachers are encouraged to generate and assess assignments based on pre-determined performance standards, students who generate their own assignments may not take performance standards into consideration.

Writing Assessment Limitations

Views regarding assessment of student writing also vary. Foster (1992) claims that one of the major problem areas of assessment is that the instruments used to measure language ability, standardized language tests such as the ACT and SAT, are ineffective. In fact, he claims that the instruments themselves “shape and define the knowledge they
claim to measure” (p. 128). Nor can assessments measure another critical factor, home environment, which directly affects student achievement (Marzano, 2003). Rosenblatt (1988) determined a link between other domains currently immeasurable on today’s assessment instruments: the subject matter and the student’s interests, needs, and prior knowledge.

Foster (1992) identifies other problems with measurement instruments based on cultural differences as lower scores for minority groups may not be indicators of lesser literacy ability but of “a mismatch between language strategies required by standard middle-class dialects and those entailed in nonstandard language forms” (p. 128). This idea of a required standard for communication contrasts with Shor and Freire’s (1987) viewpoint of dialogic inquiry as both liberating and transformational, values not evaluated in a one-time, high-stakes testing situation.

**Attitudes and Practice**

Among the factors affecting a teacher’s writing pedagogy is the perception of himself or herself as a writer. In a study involving 32 teachers who had attended a National Writing Project institute, Frager (1994) analyzed their perceptions of themselves as writers based on written discussions of their own writing. He then categorized the participants into four groups as follows:

- **Reluctant Writers.** These teachers expressed writing as a negative activity, primarily based on past criticism from a parent or former teacher.

- **Practical Writers.** These teachers described their writing as an outcome of necessity, either in a social, professional, or family-related realm.
• *Integral Writers* described writing in both useful and creative ways and found writing to be a pleasurable experience.

• *Diverse Perspectives* were also expressed by some of the 32 teachers in Frager’s (1994) study, with some viewing their writing as introspective and others relating that they used only particular kinds of writing, such as to create newspaper articles or to write grants.

I used these categories to discuss the writing practice of the participants both inside and outside the classroom.

Another major factor in assignment and assessment of student writing involves teachers’ attitudes about writing. Frager (1994) established that past experiences with writing affect how and what teachers expect of their students. Schunk and Zimmerman (2007) determined through meta-analysis of programs that provide intervention strategies to improve student writing that positive feedback from the teacher promotes student efficacy and affects a student’s desire to succeed. These findings invite questions about a teacher’s past experience with writing. If past experiences have been negative, will he or she effectively promote student efficacy in writing? Frager (1994) indicates that teachers with negative attitudes about writing communicate their anxieties to their students, and teachers who were previously criticized as writers were reluctant to write with their students or to require their students to use writing as reflective inquiry. Kallstrom (2005) deems the practice of reflective inquiry to be an essential element in equipping students to function in the global environment they will encounter as they leave the classroom.
Theoretical Stances Related to Writing Research

Regardless of the method implemented for an inquiry into teaching practice, the examination is necessarily based on effective research that improves instruction. A constructivist approach that provides intervention strategies based on teachers’ modeling their cognitive processes during literacy activities has been found more effective in improving student writing than the practice of focusing on mechanics (VanDeWeghe, 2008). Many factors—such as socio-economic status, prior learning experience, the educational level of parents, and the amount of protein in the growing child’s diet (Bainbridge & Lasley, 2002)—may influence a student’s academic achievement. However, research continues to support the fact that the primary determinant of how much a student learns is directly related to the quality of teaching to which the child is exposed, that is, to the overall effectiveness or ineffectiveness of the classroom teacher (Bainbridge & Lasley, 2002; Farkas, 2003). Teachers whose pedagogy includes modeling possess the self-efficacy to provide examples they have created themselves for concepts that are new to the students. Schunk and Zimmerman (2007) claim that the benefits of modeling for students are generalizable beyond the classroom. Teacher modeling may therefore help students demonstrate mastery on high-stakes tests they routinely face in the contemporary school, district, state, national, and international assessment-focused environment. With this constructivist approach, each learner is viewed as unique, and the teacher is a facilitator who helps students to achieve their own levels of understanding (Vygotsky, 1978). Students’ cultural backgrounds and their views of the world are valued, and the classroom becomes an arena for social interaction in which students are constructing knowledge instead of merely imitating that of the teacher. Within this
critical stance the students become more efficient and they scaffold the teacher, but students also may scaffold each other as they work with assignments the teacher has provided for them. For example, students may be paired at different levels of skill sets, with others of similar skill sets, or with those who may challenge them to achieve beyond their initial performance.

The phenomenological approach (Bogdan & Biklen, 2007) purports that researchers examine the interactions of people within a particular situation that exists in reality. Because phenomenology focuses on what happens in a range of existing contexts, it is an effective tool for detecting how students interpret an assignment. Green and Wallat (1981) divided their classroom research into interactional units, a methodology Smith (2008) implemented. Smith (2008) describes moment by moment an unfolding event as she observes teacher and students, noting the signals of communication, both verbal and nonverbal, and creating a detailed description of what occurred during the “learning opportunity” (p. 81). She then analyzes the interactional units, searching for patterns and themes relating to questions, responses, claims, and evidence and discussing how the findings might be interpreted. In particular, Smith notes that students frequently shift the topic of their discourse away from the pattern originally established by the teacher; for example, a student diverted the teacher’s question relating to a character in the text the teacher had assigned and opened a conversation in which students began relating their opinions about how people do and should behave.

A phenomenological approach sheds light on teachers’ attitudes and student interpretations of literacy-based inquiry events. This outcome is one I anticipated for this research study. Bloome et al. (1988) suggest that these verbal inquiry experiences
transcend the actual event and are evidenced in other forms of literacy, including reading and writing, and may even affect the participants’ political, economic, social, and cultural ideologies.

*Teachers as Raters of Student Writing*

Major discrepancies among teachers regarding their rating practices for student writing have been documented for more than half a century, notes Brooks (2004) in a meta-analysis of research regarding disagreement among graders. Even when raters attempt to synchronize their assessment using check lists to identify infractions, reliability is called into question. While one rater scored a document as exceeding standards, another rater scored the same written piece as failing to meet the established criteria. Other reliability measures to address this problem of grader diversity have involved the creation of multiple-choice test items on high-stakes tests (Brooks, 2004). Raters were also trained and multiple raters assigned to each test, an impractical solution for the overly-taxed classroom teacher. Curren (2006) defends the practice of high-stakes tests with multiple raters, but its significance to the average classroom teacher beyond providing data for administrators’ evaluations of teacher effectiveness is debatable. Teachers generally design their own assessments to provide immediate feedback that drives their instruction, but the high-stakes external tests provide no useful information because of the delay in access to the results (Harlen, 2005). Instead, teachers’ judgments need to be more highly valued than they are currently in order to relieve the damage caused by excessive external testing. Importantly, Harlen (2005) also recognizes that classroom teachers have access to evaluative measures other than tests.
Pre-assessment strategies some teachers implement for analyzing students’ prior knowledge include writing, talking, listening, and viewing, and such visual organizers as KWL (Know/Want to Know/Learn) charts and the Circle Thinking Map (Voltz, Sims & Nelson, 2010). Writing assessments during instruction include “observations, checklists, rubrics, logs, journals, sketchbooks, question-answering routines, modified cloze paragraphs, and vocabulary four-square” (Voltz et al., 2010, p.119). Regarding assessing after instruction, Voltz et al., (2010) suggest assessing meta-cognitive skills to determine whether students have achieved the ability “to discuss and critique their own understanding and acquisition of knowledge” (p. 120). Britton (1972) established the teacher role as rater of writing; and Fulweiler (1988) claimed that most writing practice in any content area is teacher-centered, an assertion that still holds true more than twenty years later. He identified the following roles for teachers:

- Instructor: The creator and provider of knowledge
- Assigner: The determiner of the frequency, purpose, and kinds of writing in the classroom
- Audience: The reader whose expectations the students must understand and meet
- Responders: The only assessors of the students’ ideas and mechanics

For the purposes of this study, I observed teachers and used Fulweiler’s (1988) categories to denote their roles.

While Walker (1992) succinctly identifies only two types of responses to writing, “criticism that intimidates” (p. 167) or criticism that instructs, Anson (1989) has identified the following criteria regarding responding to and scoring students’ essays:
• Dualistic Rating: The responder scores an essay as if he or she is the absolute authority, and writing is either right or wrong. A teacher who assesses in this fashion may generally score an essay based on mechanics.

• Relativistic Rating: The assessor examines the ideas in the document and imposes his or her own suggestions for further development, generally based on self-interests or what might bring the rater self-satisfaction.

• Reflective Rating: This assessor demonstrates personal involvement with the paper. He or she may comment on a personal belief or share an experience related to the topic.

Current policy in Georgia also requires that teacher rater commentary address the standards. The Georgia Department of Education has added criteria that teachers should discuss on the assessment the GPS upon which the assignment was based. Pool (2011) claims that this commentary, overtly stated on student work, provides evidence of the level of rigor and mastery every student is expected to achieve. For example, a teacher in a language arts class who has assigned a literary analysis essay to discuss imagery in a specific short story or poem should state that the essay either exceeds, meets, or fails to meet standard ELAALRL1, which requires that students identify and analyze structures in a text (Standard-ELAALRL1, 2011). Whether the student meets or fails to demonstrate mastery of the standard, the reflective rater also provides commentary that relates a personal connection to the imagery about which the student has written.

Writing in Core Curriculum Areas

In the 1970’s, Britton (1972) coined the term “writing across the curriculum,” and he also created a paradigm for evaluating writing based on writer roles. He presumed that
the entire academic community is responsible for teaching knowledge and skills related
to effective communication, learning, and values. Freisinger and Peterson (1981) then
provided the conceptual framework for inquiry-based writing across the curriculum, and
today the national, standards-based scope of writing mandate that it is no longer confined
to the language arts classroom; however, the results of my research indicate that it is.

The Alliance for Excellent Education (2006) reports that in order to improve
literacy, particularly of college-bound students, teachers in the core content areas should
instruct students in writing techniques that are relevant to that particular content area.
The writing ideal promotes “similarity of language across school subjects” (Popkewitz,
2004, p. 4). Present curriculum goals attempt to promote students’ becoming problem
solvers who are responsible for their own learning and processes of thinking, and the
focus of the standards is “to order and make visible children’s thoughts and actions for
supervision” (Popkewitz, 2004, p. 5).

Writing is a component of national math standards based upon the idea that
comprehension of mathematics is demonstrated through the students’ use of language
(Voltz et al., 2010). Writing provides one of the multiple means necessary for revealing
the logical and analytic processes students have utilized, and writing and language
functions assist them in constructing solutions (Popkewitz, 2004). Based on this
presumption, math instructors provide students with opportunities for application and
inquiry on a regular basis (Voltz et al., 2010). With a focus on the ability to reason, the
math standards purport “to develop understanding not only of mathematical content but
also of standards of communication, participation, and social relationships in the
classroom” (Popkewitz, 2004, p. 6). In this study, I investigated the extent to which the
math teacher provided students in a mathematics classroom these opportunities for writing as inquiry.

Within the past two decades, the science curriculum has also been re-designed to emphasize student participation and involvement that leads to both personal and emotional connections (Popkewitz, 2004). Bower (2000) closely aligns science skills with communication skills, purporting that students write about what they read. Among recommended writing tasks for integrated units of study, Bower (2000) includes outlining information, writing laboratory results, listing causes and effects, and describing similarities and differences. For my research, I examined the extent to which a science teacher provided opportunities for students to communicate in writing and in which of the proposed forms students wrote.

In the area of social studies, Risinger (1987), who defines writing as the means through which students integrate their cognitive processes, claims that writing serves not only as a means of content discovery, but also requires students to present facts and reveal generalizations and key concepts. Furthermore, Risinger (1987) claims, writing places the “responsibility for learning” (p. 2) upon the student, shifting it away from the teacher. While most writing assignments in the elementary social studies classroom appear to consist of brief responses, in the high school social studies classroom few teachers require writing assignments, possibly based upon their perceived inability to assess usage and mechanics. However, Risinger (1987) notes that course content should be the foremost consideration when students demonstrate abilities at the higher domains of Bloom’s taxonomy, which is applicable for social studies or indeed for any curriculum area. In this study, I examined whether the social studies teacher participant followed the
traditional minimum writing requirement or whether he required writing that serves as a vehicle for discovery, clarification, and generalization about key concepts.

The Georgia Performance Standards were designed as “a guideline for instruction that helps teachers, students, and parents know what topics should be covered and mastered for a particular course” and to provide a strong curriculum that drives instruction and assessment (Q&A: Georgia Performance Standards, 2005). The purpose of the Georgia curriculum designated in the Quality Basic Education Act of 1985 is to specify “what students are expected to know in each subject and grade,” kindergarten through grade 12, and to align those expected goals with the Criterion Reference Tests for students in first through eighth grades and with the Georgia High School Graduation Tests for students in the eleventh grade (Curriculum Frequently Asked Questions, n.d). Research is needed to examine the role that writing plays in the achievement of these goals, how teachers interpret the performance standards as they apply to writing, how their own attitudes about writing influence the assignments they generate for students, and how they assess their students once writing has been assigned.
CHAPTER III

METHODOLOGY

Schmoker (2011) emphasizes the reason teachers should allow students many opportunities to write: “Remember that any form of writing, short or long, generates and refines thought” (p. 82). This constructivist view purports that language is more than mere expression; it provides an essential means of clarifying one’s thinking as language and thought inter-connect (Piaget, 1959; Vygotsky, 1978). As children write they also redirect and recompose their thinking processes (Vygotsky, 1978). Emig (1983), who practices a systematic method for investigating people in the process of writing, claims that the context for the writing should be taken into consideration. She advocates the inquiry model that seeks explanations for a phenomenon, and I have implemented this inquiry model in my investigation of writing in three curriculum content areas: math, science, and social studies. Emig (1983) indicates that an investigation of this phenomenon of students making meaning as they write needs to be based on assumptions. The assumptions for this study include the following:

- Writing is more than expression; it is a means for synthesizing and analyzing information.
- Students’ refined thoughts generated through writing will be reflected in their performances on mandated high-stakes assessments.
Writing across the curriculum (WAC) is also a major component of this study. Conley, (2007) Director of the Center for Education Policy Research at the University of Oregon, expounds upon the need to implement more writing into high school classrooms:

If we could institute only one change to make students more college ready, it would be to increase the amount and quality of writing students are expected to produce. Develop student writing skills systematically in all classes across a range of writing genres…To increase the amount of writing that high school students do, assign many short, three- to five-page papers that require careful reasoning supported by research and citations. (pp. 27-28)

As both Schmoker (2011) and Conley (2007) indicate, writing in all content areas is essential. Unique to this qualitative research is the ability to explore the extent to which writing is implemented in curricular areas other than language arts. Writing provided the lens through which I interviewed and observed teachers in the content areas of math, science, and social studies to examine their basic premises for assigning writing tasks to their students and to what extent they did so.

*The Setting*

This research study occurs in a school setting, herein labeled with the pseudonym of Stamford High School, a suburban to rural community. As a practitioner, I have designed the study around what actually occurs in the classroom (Creighton, 2007). Indeed, Hunt (1989) claims that it is well worth examining the implementation of writing strategies in the actual context of the classroom. Emig (1983) also promotes observation, examination, and speculation regarding students engaged in the process of writing.
The participants in the case studies include high school teachers—one in science, one in social studies, and one in mathematics—engaged in what they do on a daily basis. They were selected for the study by convenience sampling (Johnson & Christensen, 2000), as their teaching schedules allowed me access to class periods in which they provided instruction during the time I was assigned a planning period. Chairpersons of each department for math, science, and social studies were asked to recommend teachers for the study whose students were primarily high school sophomores, as those students were being prepared for the barrage of high-stakes tests they face in their junior year, including the state-wide high school writing assessment. Through pre-planned interviews conducted with a specific set of questions (Wiersma & Jurs, 2009), I attempted to determine how teachers in the secondary core content areas of science, social studies, and mathematics perceived themselves as writers. Based on Bandura’s (1974) behavior theory that purports that people are influenced by past experience and his view of determinism by which self-influence plays a major role in decision-making, I looked for insight into teachers’ own writing practices and their perceptions of students as writers.

I also led one focus group discussion (Johnson & Christensen, 2000) in each of the content areas. These homogeneous groups consisted of teachers who taught the same course as the participants in the study and included the participants. In the math focus group, all three teachers taught the Math 3 course; in science, both taught chemistry; in the social studies area, the two teachers were the only ones who taught world history. As moderator for the discussions, I followed an interview protocol (Johnson & Christensen, 2000), asking open-ended questions and assuring that all members contributed to the discussion.
Another component of the study involved secondary teachers’ perceptions of the current Georgia Performance Standards for writing in their core content areas of science, social studies, and mathematics, information which I attempted to gain through interviews and observations. Through observations and examination of students’ work samples and teachers’ responses written on those documents, I surmised the teachers’ purposes for assigning writing in the core content areas of science, social studies, and mathematics and how and to what extent they assigned and assessed writing in their subject areas.

Methodological Orientation and Research Questions

For this study, I utilized the tools of qualitative research, relying on methodology that would help “uncover the meaning of a phenomenon” (Merriam, 2009, p. 5) relating to the participants. My aim was to approach the study from a constructivist viewpoint with inquiry as the primary methodology (Emig, 1983), one that is question-driven rather than hypothesis-driven. I asked questions that begin with “why,” “how,” “to what extent,” and “what influences led to your particular attitude?” Wiersma and Jurs (2005) state that specific research questions in an analytic approach utilized in specific cases lead to an explanation of phenomena based on emerging findings. Qualitative research is based on an interpretive stance (Merriam, 2009), and I also conducted interviews and observations in order to discover teachers’ attitudes, perceptions, and expectations about personal and students’ writing tasks.

Because the interpretive lens of the researcher also considers context (Emig, 1983), I observed teachers and students in the classroom doing what they normally do. Assumptions of qualitative inquiry are concerned with meanings, attitudes, beliefs,
experiences, and abilities, which I attempted to uncover. Because generalizations garnered from a study should be logical and truthful (Merriam, 2009), I based interpretations on scholarly sources in an attempt to make them acceptable and appropriate.

The goal of qualitative research is based on inductive inquiry (Wiersma & Jurs, 2009) and research questions that are clearly stated and understood. Therefore, I generated the following questions as the basis for this study:

- How do teachers in the secondary core content areas of science, social studies, and math perceive themselves as writers, and how did they develop their attitudes about writing?
- What do those teachers think about the Georgia Performance Standard for writing in their content areas?
- What are the teachers’ expectations of students regarding writing in their content areas, and how do they align those expectations with teaching practice and assessment?
- How do those teachers convey their expectations, and do their actions and commentary on student assignments reflect their stated beliefs?

My primary goal was to examine the writing practices of three teachers, one each in the content areas of math, science, and social studies, based on their past history as writers, their interactions with students, and their assessments of student writing.

*Case Study Research*

By the very nature of inquiry, qualitative research is inductive, basing analysis on emerging generalizations (Wiersma & Jurs, 2009). Another characteristic of qualitative
studies is that researchers do not attempt overtly to manipulate either the environment or the participants. I therefore examined classrooms and teachers as an outside observer without attempting to introduce any causal factors or to control any extraneous variables which could have compromised the outcome of the study (Johnson & Christensen, 2000). In examining the context for the study (Emig, 1983), I observed and described in field notes the teachers’ instruction and the students’ participation in the natural environment of their classrooms.

Case study is defined by Merriam (2009) as a system that limits the number of interviewees and observations, a process that involves focusing on individuals or particular locations over time; Bogdan and Biklen (2007) call this practice “[breaking] off a piece of the world that is normally integrated” (p. 60). Emig (1983) further distinguishes case study as close observation, a method that was incorporated into this study as I visited classrooms in order to determine the ways in which teachers in the core content areas implemented writing into their teaching practices.

Case study research may focus not only on an individual and provide rich description of the context and the actions of that participant (Johnson & Christensen, 2000), but case studies may also consist of cross-case analyses in which the researcher generalizes findings across school sites, classrooms, or individuals (Johnson & Christensen, 2000; Merriam, 2009). As I sought explanations for individual teachers’ classroom instructional decisions, I first wrote and then typed field notes from observations into Microsoft Word documents, transcribed recorded interviews, and wrote and then typed reports of my analysis of student assessments. I uploaded my documents into Altas.ti 6.2.15, generating and assigning codes and then conducting cross-analysis,
searching for recurring themes among the teachers’ attitudes toward writing, their perceptions of the teacher role, and their assessment procedures. I ultimately identified five major themes, which were then thoroughly analyzed in an attempt to identify thematically responses to the research questions that provided the basis for the study.

In addition to case study research, qualitative methodology also involves an ethnographic approach, a term Johnson and Christenson (2000) define as an attempt to describe the culture of a group of people, claiming ethnographers seek to document “attitudes, values, norms, practices, patterns of interaction, perspectives, meanings, interpretations, and language” (p. 29) of the participants. The ethnographic approach examines normal occurrences in everyday life (Merriam, 2009); and in the case of educational research, that everyday life exists within a school system, a school, and an individual classroom. Because the purpose of the ethnographic approach is to provide access to the world in which our subjects live—in this case the classroom—in order to examine their universe and the uniqueness of their situation (Geertz, 1973), my intention in this study was to observe and then described practices and patterns of interactions among specific teachers and students in specific classrooms doing what they normally do.

A phenomenological approach also defines this study as qualitative as it purposes to identify and clarify its own uniqueness based on the participants’ experiences and the occurrences I observed. For this study, I focused on the experiences and classroom practices of three teachers and attempted to identify and explain the implications of the events I observed. Bogdan and Biklen (2007) provide support for this practice of evaluating interactions that occur in a particular setting among people in their everyday roles.
One of the primary criticisms of ethnographic researchers is that they may interpret their findings as being applicable to other societies—in the case of this study, to other educational settings. The researcher remains cognizant that an examination of a microcosm does not provide one with a view of the entire culture (Geertz, 1973). Ethnographic research findings are “particular,” not “privileged” (p. 13), and descriptions and interpretations are not generalized or defined as analogous to any other learning environment. Therefore, although certain insights will arise from the analysis of these data, the findings from this particular study are not presumed to be directly applicable to any other classrooms or school environments.

Negotiating Access

I have taught at Stamford High School (a pseudonym), the setting for this study, for 12 years, and I currently teach college preparatory classes in the English department. The participants in the study teach in different curriculum areas, and although I was acquainted with them prior to the study, I had never met with them outside of the school environment nor had I previous access to their classrooms. Following the recommendation of the heads of their departments, I approached each of the three teachers about participating in the study, and all agreed and signed the required consent forms.

In teacher research, if one is not a researcher-participant (Bogden & Biklen, 2007) but is instead a privileged observer who has easy access to the setting (Wiersma & Jurs, 2009), he or she endeavors to be as unobtrusive as possible when observing events in order to produce minimal disruption to the learning environment. Therefore, prior to conducting observations, I interviewed each teacher in his or her own teaching
environment when no students were present. The teachers seemed comfortable with my presence in their classrooms and none appeared reluctant to answer questions. All three gave me permission to be in his or her classroom at any time and at my convenience. However, as an act of courtesy, I always informed them of my plans to observe, and only on one occasion did I visit a classroom when the teacher was absent and a substitute stood in her place, so I rescheduled the observation. During the pre-arranged before or after-school interviews, we often dealt with interruptions when students came by to turn in assignments or when announcements over the intercom made conversation difficult or impossible.

Data Collection and Analysis

To promote validity, the qualitative researcher writes thick descriptions and incorporates triangulation, which may consist of multiple data sources and points, including interviews, observations, and analyses of written texts (Merriam, 2009; Smagorinski, 2006). Generally, no manipulation of the environment is conducted as the researcher observes and at times may even carry the role of active participant in a realistic environment. For studies relating to the field of education, observations would usually occur in the natural context of the classroom.

For the interview protocol (Johnson & Christensen, 2000), I asked open-ended questions to obtain information about the participants’ attitudes, beliefs, background knowledge, history, and motivating factors regarding their writing practice. I purposed to generate spontaneous and genuine responses during interviews and focus group discussions using carefully constructed interview questions to guide the interactions among participants (see Interview Protocol, Appendix C).
Prior to the interviews, I examined the performance standards for each of the content areas in order to provide insight into the bases for the teachers’ interpretations of expectations regarding standards-based instruction. In the content area of math, I indentified the following current curriculum content standard as potentially indicative of a writing task although teachers may feel the standard could be achieved in ways other than writing:

MRC. Students will enhance reading in all curriculum areas by:...

c. Building vocabulary knowledge
   • Demonstrate an understanding of contextual vocabulary in various subjects.
   • Use content vocabulary in writing and speaking. (Georgia Performance Standards: Math, 2010).

In the content area of science, several standards are clearly aligned with writing tasks because “write” and “written” are specified in the language of the standard. The following science curriculum content standards relate to writing:

SCSh6. Students will communicate scientific investigations and information clearly.
   a. Write clear, coherent laboratory reports related to scientific investigations.
   b. Write clear, coherent accounts of current scientific issues, including possible alternative interpretations of the data
   c. Use data as evidence to support scientific arguments and claims in written or oral presentations. (Georgia Performance Standards: Science, 2010)
In the content area of social studies, I identified the following content standard as indicating that writing could be used as a means of measuring mastery:

**SSUSRC1 Students will enhance reading in all curriculum areas by:**

**c. Building vocabulary knowledge**

- Demonstrate an understanding of contextual vocabulary in various subjects.
- Use content vocabulary in writing and speaking.
- Explore understanding of new words found in subject area texts.

**d. Establishing context**

- Explore life experiences related to subject area content.
- Discuss in both writing and speaking how certain words are subject area related (Georgia Performance Standards: United States History, 2010).

Because of the nature of the interview protocol based on guiding questions and the spontaneity of the format for qualitative research, I decided to record the interviews and focus group discussions. I then transcribed, coded, and analyzed the data (See Appendix D for list of open codes).

In transcribing interviews and focus group discussions from the audio recorder, I wrote the conversations verbatim using a write-stop-replay-write process, and then I open-coded the written transcript. To perform open coding, the first step in the analysis process, the researcher may make notations in the margins of the transcripts while having what Merriam (2009) calls “a conversation with the data” (p. 178). Using Atlas.ti 6.2.15 software, I generated codes to identify patterns and behavior and then applied them to the observations. I then grouped these marginal comments into categories, thereby
performing the process of axial coding, which provides themes for analyzing and sorting the transcribed documents (Johnson & Christensen, 2000). Merriam (2009) recommends that via constant comparison of the data these categories be narrowed to a manageable number, with the researcher ultimately focusing on five or six key themes. As I organized the categories emerging during this axial process, I began to connect them to the research questions and focused on the emerging story (Johnson & Christensen, 2000).

Another data-gathering method which I incorporated into this study included observations of the learning environment and the resulting written observations in the form of field notes (Bogdan & Biklen, 2007). The purpose of these observations is to record what actually occurs in the setting with as little researcher interpretation as possible. They consist of details which are as exact a description of peoples’ appearances and actions as I could generate during my time in the classroom. I then transposed my hand-written notes into Microsoft Word documents and loaded them into Atlas.ti 6.2.15 software, where I analyzed them using open and then axial coding as described above.

Discourse analysis, a form of observation that I also integrated into this study, consists of closely examining literacy events in a classroom, looking for key themes or ideas which then become the basis for understanding the participants’ perceptions of the topic under study, whether it be addressing an issue or examining a social event (Bloome et al., 2008). The researcher may examine, for example, conversations to determine the existence of indicators such as those that lead to opportune teaching moments, the structure of status, or students’ verbal interaction with texts.

Case study research design may also include document analysis to supplement the observations and interviews (Bogdan & Biklen, 2007). For the current study, the
purposes of document analysis may be twofold: to examine student work and to examine teacher responses. Britton (1972) first identified the fact that students generally write school essays with teachers as the intended audience, and they write under the presumption that the teacher will also analyze their assignments (Beaufort, 2006). Teachers, however, have various intentions when they respond to student writing. Hunt (1989) found that the most frequently observed teacher practice is to help students understand correctness by pointing out errors. Hunt (1989) further considers that teachers often fail to place value on students’ intentions and ideas. Anson’s (1989) designations for responses to writing assignments were implemented in this study as a means of determining if teachers assume dualistic, relativistic, and/or reflective roles as raters and whether their responses indicate consistency with expectations. Another key element of document analysis in this study was to determine if teacher commentary reflected whether students had met, exceeded, or failed to meet the Georgia Performance Standards, a current assessment-related requirement in our school district.

A researcher may also perform cross-case analysis, building abstractions across cases in this study (Merriam, 2009). This practice often leads to themes and generalizability, resulting in frameworks for theory with deep integration. This concept was applicable in this study of individual teachers. Cross-case analysis revealed recurring teachers’ themes among the interviews, the observations of their classroom practice, and examination of their comments on student assessments.

Atlas.ti software

The use of computer software programs to sort and analyze qualitative data is becoming increasingly common (Garcia-Horta & Guerra-Ramos, 2008). While computer
assist qualitative design analysis software (CAQDAS) provide the benefits of sorting and coding data, they cannot provide the “meaning-making” component inherent in qualitative research (p. 163). Because these key elements cannot be computerized, the researcher should provide evaluation, interpretation, and generalization.

The CAQDAS used for this study, Atlas.ti 6.2.15, provided overall organizational capabilities during the open coding process and also for collapsing the data during axial coding. During analysis of the coded data, the software became a useful visualization tool for linking codes and emerging themes to relevant excerpts from the research documents. Evaluation, interpretation, and generalization of findings were then facilitated and validated with supportive data.

Benefits and Limitations

One of the primary benefits of a case study is the element of discovery (Ely, Vinz, Downey, & Anzul, 1997). The research questions frequently change, so I employed constructivist perspectives to document the themes that evolved from the observations of students in the process of learning and teachers in the process of teaching (Smagorinsky, 2006). Participants were also interviewed about their emerging literacy, and documents were analyzed to determine how students construct meaning and how teachers assess and respond to student writing. This interpretive stance leaves one open to important findings based on the uniqueness of the setting and the participants.

Another major benefit of this research is its timeliness. The current emphasis on teacher accountability demands documentation of teacher practice. Creighton (2007), a researcher who traditionally relies on statistical analysis, acknowledges the use of descriptive data as a powerful tool for analyzing what happens in classroom. Such
information leads to deep investigation of the phenomenon, a major component of qualitative research. With the emphasis on teacher accountability for student demonstration of DOK, evaluators should have knowledge of teacher perceptions of DOK and of how teachers implement it into their practice. Schools of education should also be made aware of current teacher expectations and practice in order to adjust their instruction to meet changing demands on educators once they enter the teaching field.

One limitation to ethnographic research, particularly case studies methodology, involves knowing how much data is enough. Merriam (2009) suggests that the saturation point has been reached when the researcher recognizes a highly repetitious nature in the data being collected. I considered that saturation may have been reached in my study when one of the participants used the phrase, “As I’ve said before.”

Efficient management of the data is another concern. Is it feasible for the researcher to use computer software to transcribe and code data? I determined to transcribe the recorded interviews myself based on my previous experience as an executive secretary in a corporate office, which helped develop my keyboarding skills. I also found that performing my own transcriptions brought me closer to the data and allowed for deeper insight than I might have had if another person or program had performed the tasks.

The researcher also determines how much time and effort to expend in learning to operate a program when he or she could be using that time to proceed with analyzing data. Because my university provided training in Atlas ti software, I purchased and used the program for coding data. The two-day workshop with guided practice in practical
application using my data and the tutorials available on the Internet gave me the information necessary to complete the coding process.

Other primary concerns of qualitative research involve confidentiality and anonymity, which both relate to concealing the identities of participants and protecting them from embarrassment or harm (Wiersma & Jurs, 2009). To guard against these ethical infractions, pseudonyms were assigned to the participants and to the site. Safe storage of the voluminous data collected was also provided; documents that were used to study student work and teacher feedback are stored in a safe, and observations and transcriptions generated as Word documents were saved in two places: One on the researcher’s home computer and on a flash drive which will be carried with the researcher during compilation and analysis of data, after which it will be stored in a safe.

Because I, the researcher, am a practitioner conducting action research at my own school site, my proximity to the data may hinder my ability to describe objectively and clearly the significance of this study (Merriam, 2009). “Epoche,” what Merriam calls “suspension of judgment,” involves divorcing one’s past experiences from the research situation (p. 199). Bogdan and Biklen (2007) claim it will be difficult to research and write without bias that reflects one’s own values and experiences. This ethnocentrism, which involves judging others according to one’s own standards or culture, needs to be explained if it cannot be eliminated (Johnson & Christensen, 2000). Merriam proposes that the researcher qualify personal interpretations and conclusions by carefully explaining to the reader his or her own assumptions and biases regarding the research being undertaken, and I have attempted to describe my own biases in the following chapter of this study. Validity may be achieved through credibility, and a clear
explanation of the researcher’s position and qualifications is imperative and therefore is included as part of this study.

A major criticism of qualitative research is that it lacks generalizibility in that a study may not be easily transferred to another site; however, the very nature of ethnographic research defies transferability. Therefore, detailed thick description (Geertz, 1973) situates the study’s location, participants, and findings so that readers of the research may determine which aspects might prove applicable to other situations (Merriam, 2009).

**Accommodations**

Through triangulation, I addressed internal validity by reporting multiple perspectives that concur with my interpretation of events (Bloome et al., 2006). This triangulation consisted of interviews, observations, and document analysis. Thick, rich description of findings and evidence provided in the form of direct quotes from the interviews, observations, and documents provide validity and promote transferability. Member checks provided assurance of the accuracy of transcriptions (Merriam, 2009), and feedback from those interviewed was solicited in an effort to determine whether the interpretations were valid.

The integrity of the researcher also comes into question in qualitative research, and reflexivity provides the means whereby the researcher explains her theoretical orientation and interpretations: “Investigators need to explain their biases, dispositions, and assumptions regarding the research to be undertaken” (Merriam, 2009, p. 219). Rater biases are provided in the next chapter of this report. Another strategy to identify gaps and achieve plausibility involves inviting a colleague to peer review the study and
provide feedback. Peer review for this study was provided by a cohort consisting of five people in the English education doctoral program at Kennesaw State University during the year this research was conducted.

Uniqueness of this Study

Teacher inquiry helps educators to determine if what we are teaching is promoting student achievement and whether, as a result of our instruction, students are becoming thinkers, writers, creators, and inventors (Goswami, Lewis, Rutherford, & Waff, 2009). As a result of this study, I hope to be “more cautious and objective in my assessment of curricula, methods, and materials” because what is being examined is “grounded” in my practice (p. 3). Unlike external evaluators who examine quantitative data such as the results of high-stakes assessments, student class rankings, and grade point averages, practitioners have opportunities to observe and document students demonstrating higher-order thinking processes. This privilege is denied those who evaluate only short-answer or multiple-choice responses on an assessment generated by a testing company.

Based on the recurring themes that arose during this study, I have proposed recommendations for improving professional practice in my subject area of language arts, other core academic areas, and for the teaching profession in general. As Geertz (1973) suggests, this study may provide the basis for other studies—not ones that begin where this study leaves off, but those that might add greater depth to the same conversation.
CHAPTER IV

FINDINGS

The Research Setting

Stamford High School (a pseudonym), the setting for this research, is a school that was once rural but is now transitioning to a suburban context and demographic. It serves students in grades nine through twelve (Narrative Report, 2008). Currently, the SACS-accredited school employs a faculty of 131 administrators, teachers, counselors, a graduation coach, media specialists, and paraprofessionals, with every teacher in the school holding certification in his or her teaching field and 59% of the faculty having earned Master’s degree or higher (School Profile, 2011). Additional staff members include a bookkeeper, clerks, administrative secretaries, maintenance personnel, cafeteria workers, a sheriff, and a parking attendant.

Serving 9th through 12th grades, the school currently has a student enrollment of 1,672, and student body demographics consist of 53% white, 33% African American, 8% Hispanic, 1% Asian, 4% multi-racial, and less than 1% American Indian (School Profile, 2011). The student population is evenly split between males and females, with 25% of students coming from economically disadvantaged households and 31.66% receiving free or reduced meals (Narrative Report). The average class size is 31 students, and the school is accredited by the Southern Association of Colleges and Schools (School Profile, 2011). The district’s per-pupil expenditure per year has averaged $7,763, and the pupil to teacher ratio, according to the latest available data, is 15:1 (School District Info, 2009).
As with the other four high schools in the district, the daily schedule for the setting of this study consists of either 100-minute or 50-minute classes, called a “hybrid schedule,” and students have the potential to earn up to seven credits per school year (School Profile, 2011). Currently, all students are required to pass a state high school writing test in order to graduate, as well as either end-of-course tests or graduation tests in the areas of social studies, mathematics, science, and language arts. The school offers honors and advanced placement courses in world history, geography, United States history, economics, government, physics, biology, psychology, statistics, calculus, studio art, English literature, and composition. Points are added to the students’ final grades upon completion of either honors or advanced placement courses as a means of rewarding them for the attempting the challenging curriculum these courses provide (School Profile, 2011).

Researcher Bias

As the researcher-practitioner conducting this study, I have a particular profile that positions me within the context of the research site. Specifically, I have 18 years of teaching experience in the public school system and am currently Teacher of the Year for both the school and the district. Having served over the years as the cooperating teacher for 16 student teachers in the high school classroom, I have taught English survey courses and courses for secondary English education majors at a local university. A participant in a 1994 National Writing Project Summer Institute, I am a strong proponent of teachers’ incorporating writing practice into every phase of student learning. I have led professional learning events about writing instruction, published lesson plans with writing emphases, and have contributed articles to publications sponsored by the local
university’s National Writing Project affiliation. A firm believer in teachers modeling their expectations, I recently submitted to a state English teacher’s council publication two creative writing pieces that were originally written as models for student writing, and these have been accepted for a forthcoming edition of a collection of teachers’ writings. I have also written reflective pieces on the art of teaching that have been published in printed texts. These achievements position me as a teacher within the school, district, and state and serve to indicate my credentials as a practitioner.

Entering the language arts classroom in 1994 with a Bachelor’s degree in English, I later earned a Master of Arts in Professional Writing (MAPW) for which my major concentration was Composition and Rhetoric, and an Education Specialist degree in Curriculum and Instruction. Both the MAPW program and involvement in a local university’s National Writing Project Summer Institute affected my pedagogy as I navigated away from a teacher-centered to a student-centered classroom. In an attempt to engage students and promote critical dialogue, in my own classroom I work to build writing communities through student-centered writing activities that allow students freedom of expression. In collaborative writing activities and creative writing assignments, I promote engagement with texts. I instruct students in reader-response techniques to promote inquiry and critical thinking about text, and I require that students write for audiences other than the teacher. Maneuvering within the standardized test-oriented education system as an educator and teaching students maneuverability may indeed be a daunting task; however, student engagement and critical analysis may be accomplished through a classroom community of writers, and my pedagogy reflects this assumption.
Data Collection

Research data, including interviews, observations, focus groups, and samples of graded student assessments, were collected during the spring semester of the Stamford High School 2010-2011 school year. Teacher participants were chosen by convenience sampling based on the fact that they conducted classes during my planning period, a necessity based on the fact that I, the researcher, am also a practitioner in secondary language arts in the same building and would have more flexibility with my time during that class period to schedule and conduct observations. Participants included one math teacher, one science teacher, and one social studies teacher, all of whom teach classes in their subject area that consist primarily of sophomores. The determination to study teachers of this grade level is based on the premise that these students are preparing for the high-stakes state writing test at the beginning of their junior year and would therefore greatly benefit from writing instruction and practice. Prior to the selection of participants for this study, department chairs in the subject areas were approached regarding teacher course assignments and schedules, and the chairs’ recommendations were then followed.

A total of two 20- to 30-minute interviews were conducted with the math teacher and three with the social studies and science teachers, all arranged in advance with the teachers to occur either before or after school. Originally, two interviews were scheduled for all teachers; however, based on comments from the math teacher, I determined that another interview was needed with the science and social studies teachers to provide uniformity of responses. I transcribed these interviews into Word documents, and after all data were collected, entered them into the Atlas.ti 6.2.15 qualitative data analysis.
software program, where they were open coded and then axially coded, primarily according to responses to the research questions but also according to emerging themes.

In addition to interviews, I conducted two 35- to 45-minute observations of each teacher during classroom instruction time, scheduling one of the observations in advance in order to assure that students and teachers would be in the classroom. All three teachers agreed that the second observation would be unannounced, an arrangement whereby I attempted to minimize the effect of the presence of the researcher on the teacher’s daily instruction plan (Merriam, 2009). One attempted observation was rescheduled because the teacher was not present at work that day. I then arranged an observation of this teacher on a later occasion. The observations were written in the form of field notes, which were then transposed into Word documents and entered into the Atlas.ti 6.2.15 software program. The field notes were then open coded and axially coded according to responses to the research questions and according to emerging themes.

Three focus group interviews were also conducted. The groups consisted of teachers who taught the same course as the teacher participant in this study, who graciously arranged these meetings with the teachers in their departments. The math teacher arranged a meeting with other Math 3 teachers during an early-release day; the science teacher arranged a before-school meeting with the lead chemistry teacher (the third chemistry teacher in the science department was unable to attend because several students arrived for tutoring on the morning of the scheduled focus group, so he declined in order to meet the needs of those students), and the social studies teacher arranged a before-school meeting with the other world history teacher in his department. The interviews were taped, transcribed, and entered into Atlas.ti 6.2.15 for coding purposes.
All three teachers provided samples of rated assessments for students who had returned signed parental consent forms to be research participants. The math teacher provided a unit assessment that consists of multiple-choice, fill-in-the-blank and graphing test items, and one final item which requires that students write a functional equation. The science teacher provided an acid-base assessment that consists of 16 multiple-choice questions, a section in which students label the acid/base content of elements, as well as a section in which the students generate an equation in response to eight test items. The social studies teacher provided a section quiz generated from a test bank provided by a textbook company, as the company’s reference appears at the bottom of the page. It consisted of eleven matching questions with a word bank provided, and one opinion question requiring a brief answer. These documents were analyzed, and researcher commentary in the form of Word documents was generated for the assessments provided for each subject area. These documents were then uploaded into Atlas.ti 6.2.15 software for coding.

In all, a total of 21 documents were examined, entered into the Atlas.ti 6.2.15 qualitative analysis software, and open coded; a total of 51 open codes were then applied, and axial coding reduced the number of codes to those which directly corresponded to the research questions. Themes which emerged based on the process of cross case analysis include the teachers’ attitudes about writing; their perceptions of the Georgia Performance Standards and standards-based instruction; their expectations of students regarding writing in their content areas; how they align those expectations with their practice and assessment, how they convey their expectations to students, and whether their actions and commentary reflect their stated beliefs. The central themes within this
research are writing across the curriculum and teachers’ integrating o of writing into their teaching practices.

*Math Teacher: Ms. M*

The math teacher for this study will herein be referred to as Ms. M.

*Professional background*

Ms M has been teaching for 19 years and was a computer analyst with a college degree in mathematics prior to returning to a local university for courses required for certification to teach. She began her career in education with all the necessary credentials, determined to teach the subject that she claims as her favorite. Her primary influence for teaching math was her father, who throughout her young adulthood encouraged her to use her math skills; her work with computers failed to meet his expectations. Finally, after her children were raised, she determined to follow his recommendations although he was deceased when she eventually began teaching. Her father would have been very happy to know that Ms. M is teaching math, she asserts, referring to math as her favorite subject in both high school and college.

*Teacher attitude about writing*

Claiming that even though she scored higher in verbal skills than in mathematical computations on high-stakes tests such as the Graduate Record Exam (GRE), Ms. M says she has never enjoyed writing.

 Ms. M: *I don’t like to write. I was always really good at umm correcting my children’s things that they wrote for school. I could always, what’s that called?*

*Researcher: Proofread?*
**Ms. M:** Proofread. Actually, on my GRE and all the high-stakes tests, my *verbatim* and that part of the test, those were always higher than my *mathematical*. But I, I didn’t like that. You know that was not...and so I, maybe I have to work harder but I love math; it just doesn’t come easy, but it’s what I love. I’ve always loved math. I don’t like to write. I think I tend to I know that in my writing in high school, if I could have just shot the bull—you know, some people just have that gift for gab, you know, they just write, write, write about nothing and they get an A. I can’t do that. I just kind of write and get to the point, and it’s usually short and sweet.

**Researcher:** Umm. What do you write now? If you pick up a pencil, what are you writing?

**Ms. M:** You know, every once in a while in the past for our professional learning, we’ve had to write things for, you know, for those buzz words, and I hated it, *hated it!* (P. Hamby, Transcription of interview, May 3, 2011)

As noted in the interview excerpt above, she uses the word “love” when she speaks of math and the word “hate” when she references writing, claiming that she never felt competent about her writing skills based on comparisons to the writing of her classmates and that she lacked talent for writing. As evidence, she indicated that other students would turn in two pages of writing on history or language arts essay assignments while she struggled to complete one-half page. Her grades were always exemplary; yet, because she had difficulty expounding on any given essay topic, she developed insecurities about writing. Now, however, she expresses confidence when she references her own children’s academic writing, claiming she frequently proofread their essays when they were in high
school. Ironically, this assertive characteristic does not transfer to her teaching practice, as she minimizes writing assignments in her classroom and was not observed assessing any writing of her students.

Ms. M also indicated her reluctance to write on a professional level. She seldom or never writes lesson plans, instructional tools, or reflections on her teaching practice. She expresses her total distaste for writing by stating that when she attended professional learning events that required writing to define current trends in education, she “hated it, just hated it.”

Her reluctance to write is also apparent in her personal communication away from the classroom. Only after prodding could she recall any personal writing, mentioning emails to her children, and she prefers brevity in that writing practice, asserting that she would rather talk with them on the telephone than write. She would never, she claims, just sit down to write; instead, now that her children are grown, she prefers the quietness of home away from the stress of school. She quickly diverted the conversation about writing to the pleasure of reading she has developed within the last year and a half; previously, she had not enjoyed reading either.

Teaching practice

During the first observation of a Math 2 class, the teacher is conducting a review for the End-of-Course Test (EOCT), to be administered in two weeks. The teacher provides a review question, asking students for their solutions; she pauses after the question, but no one offers an answer, so she provides it:

“How would you write that expression?” Again, no response, so the teacher reveals the expected answer.
“I don’t get this!” a student shouts.

The teacher writes the solution on the Smart Board, stating, “You don’t have to write it; just find the function!”

As the math students begin a worksheet on absolute value, an altercation between two female students erupts in the hallway outside the classroom door, and disruption ensues as students and the teacher rush to the door to observe the school resource officer hand-cuffing one of the girls while an administrator appears to be consoling the other.

The teacher finally sends students back to their desks. As they drift away from the door, they discuss the identities and reputations of two girls, as well as the consequences for the behavior in the hallway. The disruption has lasted approximately ten minutes.

At the beginning of another observation, this math class is disrupted as the tornado drill alarm sounds, and at the teacher’s instruction, the students clamber under their desks. After approximately 10 minutes of conformity to the drill routine, the students are again seated in their desks, but not before one student has requested, “Can’t we just stay under here?”

Again, the agenda for this class period involves a preparatory session for the EOCT, which will be administered in five days. On the Smart Board, the teacher demonstrates the solution for an equation, stating they will probably see a similar problem on the EOCT.

A male student blurts, “I’m scared for the EOCT!”
The teacher silences students who attempt to provide reassurance. She turns her back to the students and on the board solves problem seven on their worksheets.

“How can you remember range and domain?”

The students offer no response, so the teacher provides examples in the form of mathematical equations on the board. A student moves to the teacher desk, where he accesses her computer and deletes portions of the explanation.

“Grrr,” the teacher jokingly admonishes.

“I’m not gonna pass this test!” a male student shouts.

“Well, let’s just give up!” the math teacher whines.

“You’re not gonna fail this test!” a female student provided encouragement. (P. Hamby, Observation, May 5, 2011)

As the above field notes suggest, in spite of the chaos caused by disruptions, student disinterest, and frustration, expectations of the teacher are that she will help students achieve and demonstrate depth of knowledge (DOK) of the subject area. Furthermore, her students should meet or exceed standardized assessment criteria that will comparatively measure her teaching ability on individual, school-wide, district, state, national, and global levels.

The focal point of Ms. M’s teaching during the above observation was preparation for the math End-of-Course-Test, a high-stakes assessment used as an indicator of student achievement and teacher, school, and district success. Two students expressed absolute fear of the test, another requested further review of trigonometry prior to the test, and still another expressed fear that he would fail because of the limited time to take the test. The
teacher attempted to ease the students’ anxieties by stating they had a few more days to review, and then she proceeded with explanations of standard procedures for solving equations with students who now appeared to be more concerned with acquiring the information. Her instruction was interrupted several times with students’ outbursts about concerns for the impending exam.

In response to questions regarding Ms. M’s teaching practice, the following conversation ensued:

Ms. M: I give them two quizzes, we’re supposed to give at least two quizzes in math.

Researcher: Is that established by your department, by your chair?

Ms. M: I think so. I think that’s just, some of it we just do.

Researcher: OK. And then what do you do with the information umm, if a child’s not doing well?


Researcher: You said you learn a lot.

Ms. M: It just helps me. It gives me overall impressions of, say, I need to spend another day on this or I need to do this. To be honest, this year I’ve spent too many extra days on things and we didn’t quite finish what we were supposed to finish before the End-of-Course-Test.

Researcher: Because you had to loop back and bring them back up?

Ms. M: Yeah. Very slowly. Like for instance, we were just last week doing exponential equations where you, where your variable is in the exponent, and so the only way we have of solving those right now, this year, is to make the bases
equal, and then you have your exponent equal, well, that’s too, you know, that’s not too hard to show them how to get them, to teach them how to get the bases equal because 9 is 3 squared, but when they start setting the exponents equal, they can’t follow the equation because they don’t know how to solve equations.

**Researcher:** So you spend a lot of time working—

**Ms. M:** So yeah, things they should know. If they knew the things they should know the previous years, we would not have the problem.

**Researcher:** So that, you can tell by looking at their work that so many of them lack the background knowledge?

**Ms. M:** Oh yeah! Oh yeah! (P. Hamby, Transcription of interview, May 20, 2011).

The current administrators at the school site do not require submission of daily lesson plans; instead, instructional guides are provided by the district and discussed with other math teachers, and teachers proceed at an individually-determined pace. This practice is reflected in Ms. M’s comment that if students fail to demonstrate mastery on a particular formative assessment, she spends more time reviewing the concepts the students did not master. Pacing her teaching according to the progress of the students severely limited her ability to proceed with the instructional material. She had not taught all of the course content the students needed prior to the End-of-Course-Test, she stated. While some teachers may find a written plan beneficial as a pacing guide and written reflections to be aids to instruction, Ms. M does not consider implementing them into her teaching practice, perhaps based on her clearly stated reluctance to write.
Assessment

When I observed Ms. M’s classroom, I found that her teaching practice reflects an emphasis on students arriving at correct answers rather than on developing their comprehension of the processes involved in solving math problems.

_**Ms. M:** I need to be able to grade my papers, but that’s the last thing in the world I want to do._

_**Researcher:** Why?_

_**Ms. M:** I just—it’s boring._

_**Researcher:** And time consuming?_

_**Ms. M:** Yes, very time consuming. With math, and I’m sure that it is with you too, but with math, depending on how you grade it, if you grade it right and wrong, then it’s not as bad as sometimes, and if you grade it for partial credit, it takes even longer. And depending on the topic, if it’s graphing, or whatever, it takes—some things take longer than others. I try to make my tests so that they’re easier to grade, quicker to grade, but I have like 120 [students], but umm for just that one Math 2. But I probably, there are times when I don’t give partial credit, but there are times when there are like 20 problems on the, no say 25 problems on the test, and that would be like four points apiece. Well, I would just mark it right and wrong and give them, just take off, maybe three points apiece. So I, they automatically, whether, you know, that’s probably not even the best example, but a lot of times, it’s not even, you’re getting even more points in math for something wrong. (P. Hamby, Transcription of interview, May 20, 2011)
The Georgia Performance Standards for geometry, algebra, and numbers and operations are taped in rows to one entire wall in her classroom, and the unit question and the question of the day posted on the board (identical questions) indicate the precise standards she will be addressing. Both posted questions begin with the word “how,” indicating that explanations and compare/contrast to a previously learned concept are needed. However, Ms. M mentions neither the unit question nor the standards during the observations. Instead, she emphasizes the End-of-Course-Test and students’ ability to arrive at correct answers for sample questions for the test. She explains all of the processes for arriving at correct answers rather than having the students explain verbally or in writing their rationalizations for solutions. In fact, at one point she solves a problem on the Smart Board and explains how to plug in numbers to an equation despite the fact that a student specifically asks her not to reveal the answer but to give the class five more minutes reach a solution themselves. She later tells students to solve the 12 equations on the worksheets she has distributed; all 12 questions require numerical responses only.

The only writing by students involves their copying answers from the board as the teacher solves and verbally explains math processes, and then the students write the responses on the worksheets. Teacher questioning strategies during observations included primarily closed questions with single correct responses; even her invitation for students to request clarification was addressed in the form of a closed question as she inquired if they had any questions about her solutions. No students responded. On another occasion, she asked an open-ended question about how students could remember a concept but then proceeded to answer the question herself.
Observation of Ms. M’s classroom practice validates her interpretation of the Georgia Performance Standards as requiring short answers to indicate mastery of concepts. Her assessment practice further affirms that perception. Ms. M provided the researcher with a unit test that she had previously graded and entered into the grade book software program, and the researcher made copies prior to the teacher’s returning the graded originals to the students. Only the exams of those students who had returned consent forms for this study were examined by the researcher.

The unit assessment consisted of 10 questions, all multiple choice or fill-in-the-blank, and all required numerical responses. The multiple choice questions asked the students to circle the correct answer from the choices of four numbers or equations, and for the fill-in-the-blank questions, they entered numerical data in the form of functions or equations. One question on the test appeared in the form of a word problem, and students were required to show their work by writing the equation used to solve the problem. The only words students wrote on the assessments appeared to be their names; however, on one paper a student reflected her insecurity about an answer in the form of a comment to the teacher which read, “Not sure?” Next to the student’s words, the teacher had written a response of “-3,” thereby numerically validating the student’s insecurity and indicating the teacher’s reluctance to respond using written words. In fact, no commentary in the form of words from Ms. M appeared on any of the assessments even though the school district currently stresses the importance of teacher commentary that reflects the standards. During administrative walk-through’s, one of the evaluation criteria is that student work containing teacher commentary based on the standards be displayed in the classroom. In an interview, however, Ms. M claimed that she often does include
commentary on assessments with the intended purposes of pointing out their errors to the students and of indicating the correct response or to reveal the steps the students omitted in their solutions. She feels, however, that students seldom benefit from written comments because they generally discard papers once they have seen their grade, wasting both her time and their opportunity to improve. Expressing guilt about her lack of written responses on papers, she claims that commentary is time-consuming; however, if in her estimation the assessment was submitted by a student who would benefit rather than a student who refuses to follow instructions, she will take the time to comment. Instead of written commentary, she prefers to explain verbally the students’ errors, sometimes relating them in review sessions with the entire class. She also claimed that, because she dislikes grading and feels the necessity to grade quickly, she does not include test items that require written responses even though other teachers in the math department incorporate them on assessments.

All of the assessments Ms. M provided were scored with a red pen even though she stated that she at times uses other colors for variety, particularly purple, one of the school colors. She claims to have heard in a workshop that red may not be the best color for grading student work, but she could not recall the explanation. Marking incorrect answers by slashing through the number of the test item, she has written the negative number indicating the total point deduction for the grade either above or to the right of the students’ answers. Total scores for the assessment are written and circled above the students’ names at the tops of the papers. The unit test Ms. M provided the researcher seems to correspond with the criteria that she be able to score student answers in a short amount of time.
Ms. M made and then recanted the statement that grading papers is “a waste of time,” conceding that assessing students’ work does provide an indication of their progress. Assessments also provide a strong indication not only of current student weaknesses, but she also claims that they indicate the students’ lack of knowledge of background information, concepts they should have been taught in previous years. She nonetheless feels that assessing is not a desirable activity because, with a total of 145 students overall in the three math courses she teaches, she finds it time-consuming. She indicated that time spent planning is much more beneficial than time spent designing or rating assessments, a perception to which she was introduced at a professional learning event. Scoring answers as either right or wrong requires the least amount of grading time, she asserts, while grading for partial credit is more time-consuming. Once she has determined students’ weaknesses, she discusses and reviews those concepts during class, generally through teacher-centered instruction, as observed by the researcher. Students were not encouraged to examine their own understandings and to critique themselves as learners.

Math focus group

As revealed in the focus group conversation, other math teachers in this school deem writing more necessary than does Ms. M:

Math Teacher 2: If we look at standards, our standards, they’re process standards. It’s all about communication.

Ms. M: I think, like with our anchor charts, it’s really—umm—math workshops, so that’s—uh—not really standards.

Researcher: What’s the difference in math workshop?
Math Teacher 3: It’s just different things in the way they’re done. You’re going to have an opening, a work time, and a conclusion. With anchor charts things are written out as opposed to just saying it or showing it on the board and erasing it. It stays up.

Researcher: OK.

Ms. M: So there’s an example of an anchor chart. [Points to wall behind the researcher]

Researcher: OK. Do you both do this? [Question addressed to Math Teacher 2 and Math Teacher 3]

Ms M: They both have a lot more than I do. I didn’t go to that workshop.

Researcher: OK.

Ms. M: I’ll have to do it next year.

Researcher: OK. So this is something that you have, and will you all be required to have it?

All: Yes, yeah. Next year.

Math Teacher 2: It’s also another thing about the workshop models. It’s—ummm—student-focused. It encourages the student-focused classroom, which is not unique to the workshop model, but that is one of the things that it does push very heavily is that it’s student-focused and discussion groups—it does encourage group work most of the time. And writing. (P. Hamby, Transcription of interview, May 4, 2011)

During this conversation, Math Teacher 2 refers to professional development sessions at which math teachers are instructed on new teaching methods based upon a student-
focused classroom that emphasizes writing. Students are encouraged to create solutions step-by-step and to describe the process, explain their rationale, define terms, compare concepts, and clarify meaning in various contexts, all through the process of writing.

While Ms. M. remained silent, the other two teachers in the group explained the in-depth analysis that leads to greater understanding of math concepts that is inherent in this teaching strategy. They did, however, express their frustrations with students’ reluctance to accept this process rather than the traditional rote memorization they have been taught. They also commented on the difficulty with classroom management when shifting from a teacher-centered to a student-focused classroom.

Training for teaching this discovery learning model is also demanding, requiring much time in professional development sessions to become familiar with the concepts. Math Teacher 2 claimed that he has been training for the past six years on the model and Math Teacher 3 for four years, but teachers who have entered the profession within the past five years have been receiving training in their math education courses and leave college more prepared to teach with this approach. In our school, five math teachers are currently undergoing training, and Ms. M. is not one of them. Calling herself “the oldest teacher in the math department” and reminding us that she has taught for many years, she states that she is somewhat resistant to the new methodology. In fact, at times during the focus group discussion, she minimized the significance of the other teachers’ comments, claiming that some of the strategies were over-used and that the premise behind core concepts was simply to define terms or to create compare/contrast representations of students’ work. The other teachers, in contradiction, claimed that the new model
increases the students’ understanding and that it effectively promotes students’
cognizance of their learning processes.

Members of the focus group also frequently mentioned the Georgia Performance
Standards in their discussion, claiming that the discovery learning model is standards-
based, and the tasks included in this model are designed to reflect the standards. Two of
the teachers viewed all of the math standards as communication-based; in contrast, Ms.
M indicated that what she sees as the primary learning tool used in the model, anchor
charts, is more workshop-based than standards-based. While the other teachers thought
that writing to demonstrate depth of knowledge is inherent in the standards, Ms. M.
claimed that short answers demonstrate mastery of the standards, stating that short
answers show depth of knowledge. She thereby expresses that, unlike the pedagogy of
others in the group, writing is not inherent in any of the math performance standards.

Connections to Frameworks

Following Frager’s (1994) definition, I categorized Ms. M as a reluctant writer
because she perceives writing as a negative activity, and her perceptions about writing are
reflected in her teaching practice. By her own confession she never assigns writing tasks
to her students even though she feels they may be beneficial, nor would she care to spend
time assessing written work. Therefore, she could not promote student efficacy regarding
writing, which she might help enable if her own past experiences with writing been more
positive. Because she feels no need to write socially or professionally and relegates
family-related correspondence to an infrequent email, she is not what Frager (1994)
identifies as a practical writer, nor is she an integral writer because she expresses
opinions that indicate writing is neither a creative nor a pleasurable experience. Had she
indicated that she finds purpose in writing as an introspective tool or that she participates in any other particular forms of writing, such as professional articles on teaching practice for submission to education journals, she might be identified as one who holds a diverse perspective. However, because Ms. M several times expressed an aversion to any form of writing, she characterizes the reluctant writer.

I further found that Ms. M fulfills all the roles associated with a teacher-centered classroom. In the first role described by Fulweiler (1988), she is the creator and provider of knowledge, as students have neither control over nor do they provide any contribution to their own learning. They are provided little response time when the teacher asks if they need clarification of a concept, and she answers her own questions when answers are not immediately forthcoming from students. She also assumes the role of assigner as she alone determines the frequency, purpose, and kinds of written expression in her classroom, which consists of numerical responses only. She serves as the intended audience on all assignments, a fact that is validated by the student’s “not sure” comment on the unit assessment. Realizing that the teacher would be the only person to view the comment, the student expressed her uncertainty, adding a question mark regarding her ability to correctly answer the test item.

Using Anson’s (1989) categorization of assessors of student work, I identify Ms. M as a dualistic rater because all of her responses on assessments are based on the mechanics of problem solution with one right answer as the expected outcome. Although Anson’s (1989) categories are intended for evaluators of student writing, this researcher has applied an interpretation that encompasses all raters, primarily because, in this case, no student writing has been evaluated or even assigned; only numerical responses were
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anticipated. Because Ms. M anticipates an exact numerical answer to each question, she indicates errors with slashes and writes the correct response numerically next to the students’ answers. Even when a student attempts to communicate in writing by expressing insecurity about a test item, the teacher’s responding commentary is numerical and negative. As a rater, she does not provide any written suggestions for student consideration about how to arrive at the correct answer to a test item, the defining actions of a relativistic rater, nor does she relate student responses to previously studied or discussed material. Were Ms. M a reflective responder, she would perhaps have provided comments about her own experience with a similar test item and relate how she arrived at the expected answer, or she might have mentioned in writing another resource that she had found helpful in the past and from which the student might benefit. Clearly, Ms. M is a dualistic rater because she anticipates one correct response, and her marks on the unit assessment indicate that she scores only for exactness within the mechanics of numerical problem solution.

In the areas of self-perception, teacher role, and rater of student work, Ms. M demonstrates a reluctance to write or to allow her students the opportunity to generate or clarify their own learning processes through writing. Perhaps based upon her own sensitivities in this area, she has few expectations of her students.

Science Teacher: Ms. C

The science teacher for this study is herein referred to as Ms. C.

Professional background

Ms. C is currently in her fifth year of teaching. She originally graduated from a local university with a degree in bio-chemistry, intending to enter the medical field.
Realizing that she lacked the determination to complete the additional eight years of study required for medical school, she entered education through the Teacher Advancement Program (TAP), which provides career direction and professional development through mentors and coaches. Her mother is a lower-grades elementary teacher, and Ms. C credits that fact with her final decision to become an educator. Once she had made the decision, Ms. C spent two years in the TAP program, for which she took courses that required her to create lesson plans and complete portfolio projects, at the same time she was teaching high school science.

*Teacher attitude about writing*

Claiming that she excelled at writing lab reports for both high school and college science classes, Ms. C bases her self-perception as a writer on her grades and comparisons of her work to that of her classmates while she was in high school.

*Ms. C: My junior year. I got so frustrated, and I dropped an honors class for the first time in my life because umm...*

*Researcher: Honors English?*

*Ms. C: Yes. And I could not—she’s probably still teaching, but anyway, she taught honors lit, and I could not make higher than a C on any paper that I wrote for her, and I never knew why. You know what I mean? It would always come back with a C, and I’m like, I don’t know what I did cuz there would be like nothing on my paper, and I got so frustrated.*

*Researcher: Do you think that you remember that and it carries over into your classroom now?*
**Ms. C:** I guess it does in a way where I always have an answer key with points that kids can check. So if they’re like, I don’t understand where I missed points, I tell them, you know, come up here. Here’s my answer key. If you have a question about why you got docked points, let me know because sometimes they’ll compare answers. They’ll compare answers, they’ll compare tests after I give them back, and they ask why did so-and-so get credit for this, and I did the same thing and I didn’t get credit for it? And I’m like, well here’s why, so I can show them exactly how I graded their paper. So I guess in a way that does, because I guess if you’re giving someone a grade, you should be able to explain exactly why their grade’s that grade, exactly why did you make a 78 versus an 82, or something like that—I never grade on grammar because for my class it doesn’t matter. I mean, I feel like I’m not an English teacher, I’m not grading… I’m not teaching them grammar. You know, I can make comments to help them make things sound better or to help them improve their writing, but I’m not gonna grade on that aspect because I don’t teach it in here. (P. Hamby, Transcription of interview, Apr. 26, 2011)

Ms. C recalls that later while she was in a college science course, the professor raised her self-confidence about her ability to write lab reports, and she followed his instruction that writing should be direct. She therefore adopted the practice of eliminating any unnecessary verbiage while attempting to maintain flow in her written assignments. The professor instructed students to self-edit to determine where their papers could be simplified and their writing more direct, a practice which she found helpful and practical.
While she was in high school prior to her junior year, she recalls receiving feedback on her writing related only to grammatical issues; teachers never relayed suggestions about content that she can remember, and she consistently received A’s on assignments. However, in the excerpt above, she relates an exception: her 11th grade honors literature teacher. Ms. C never received a grade higher than C on any writing assignment for that course, and because the teacher never provided feedback, Ms. C could not determine how to earn a higher grade. She expresses great frustration with that teacher and says she even dropped language arts honors, the first time she had ever withdrawn from any course. She admits that the frustration she felt then affects her current pedagogy. So that her students won’t experience similar aggravation, she provides them with explanations and examples of correct responses when they inquire about their grades.

**Researcher:** You said that the main type of writing you do is in your field. Do you, have you written anything that’s outside your field? What kind of writing do you do outside of science?

**Ms. C:** Umm, not a whole lot. Uh, you know when I was taking English classes and stuff—you know, we’d write papers and persuasive essays and stuff like that. I don’t really practice writing outside of my field too much, other than the classes I’ve taken.

**Researcher:** If I were to ask you to tell me anything you’ve written in the last week, an assignment or anything, what have you written down in the last week?

**Ms. C:** Uh, let’s see. Nothing, you know.

**Researcher:** Like lists or anything.
**Ms. C:** (Laughs). [Inaudible] *You know, so, I don't do lists a lot, but that’s pretty much it.* (P. Hamby, Transcription of interview, Apr. 26, 2011)

Ms. C states that she performs no writing tasks that are not school-related; in fact, as noted above, she could not recall any writing at all outside of school within the week prior to the first interview. She does not mention writing, neither of a personal nature nor any that relates to reflection on her teaching practice, nor does she write for professional publication. The primary audience for any writing task appears to be her students in the form of commentary on their assignments, and the primary writing tasks she assigns them is laboratory reports in which she expects them to use specific terms and arrive at one right answer.

**Teaching practice**

Ms. C claims to incorporate calculation into her teaching practice more than any other student task because she states it is the intent of the Georgia Performance Standards for chemistry. One of the reasons she minimizes writing is because she finds it tedious to grade.

**Researcher:** Tell me how you feel about the Georgia Performance Standards as they may, according to your interpretation, [pause as school bell rings in background] relate to writing.

**Ms. C:** Umm, for chemistry, all of the writing is probably in like the, umm, what cha call it, the habits of mind standards—you know what I mean?—because in our actual standards, our performance-based standards are mostly calculating. There is some stuff where they have to like experimentally determine, experimentally explain what’s going on. So there are a lot of the standards which say the students
need to explain something. That’s where, you know, I have them do a lot of writing, for the most part.

*Researcher:* What about reports?

*Ms. C:* I really don’t do reports. I don’t do reports so much because they’re a lot to grade, and I know that’s a bad reason not to do them. (P. Hamby, Transcription of interview, May 5, 2011).

Ms. C appears somewhat contradictory when she claims first that the primary intent of most of the standards is for students to calculate and then states that many require the students to explain. She also claims that she assigns “a lot of writing,” but then claims not to assign it because of the time required for grading writing.

During a focus group discussion, another chemistry teacher concurred with her interpretation of the standards, stating that chemistry, the common subject area for the teachers in the focus group, is concerned with the processes of science, while biology, the pre-requisite course for chemistry, focuses on vocabulary and concepts and is therefore more conducive to writing assignments than is chemistry. Instead of interpreting the standards as process-based, however, Ms. C states the majority are calculations-based. Generally, writing as it relates to the process of solving problems when the teachers might require it is not in the form of traditional prose, but students may use bullet points to identify key components or steps. Nor is writing assigned as a requisite in and of itself; when assigned, it is generally a portion of some other demonstration of mastery teachers want students to express. Students may be required to write their perceptions as validation of their original interpretations so that, as one teacher explained, “They can’t
change their minds later,” instead of having them evaluate their emergent knowledge and express why they may have changed their minds about a concept.

Instead of writing to explain, students often complete graphs to provide demonstrations of emergent knowledge. For example, I observed an activity in which the students conducted a half-life decay lab. In collaborative groups while using candy as manipulatives, they drew and then filled in data on a chart on which they calculated radioactive and decayed computations. Ms. C monitored progress as she walked among the groups at the science tables, asking closed questions that generally related to numerical data, such as the total number of atoms the students should have recorded. When she asked a question related to the previous day’s lesson content, she answered the question herself before students responded. After several students attempted to complete their charts and expressed frustration, Ms. C modeled her expectations in front of the whole class with a visual demonstration of how students were to determine the half-life of an atom. When she perceived that one male student who was working alone had entered incorrect data, she pointed to another student and instructed her to help him. After the students had collected data for several minutes, Ms. C displayed an Excel chart on the Smart Board in front of the classroom and instructed students to fill it in. Individual students proceeded to the teacher’s computer to enter numerical data, which appeared on the screen for all to see. She then distributed graph paper and instructed them to chart their results as they examined their data. The excerpt below from observation notes describes another event involving magnetism in which students applied data to charts:

*Ms. C goes to the front of the room and tells the students she is aware that they have questions about their graphs. She uses the Smart Board and draws an*
example of a graph with plot points, explaining what information is used for each axis.

A student asks if a bar graph is acceptable, and she says it is then shows the students how to plot 0, 0 on a graph. She leaves the front of the room and begins going from table to table checking progress for each group. She tells one group that their data doesn’t look right, and a student exclaims, ―I thought so!‖

A group of four males in the corner of the room are discussing their data and then shift their discussion to computers.

The group at the front table now consists of 5 students because a girl has moved from a back table to work with them. Students are checking each other’s papers and then recording information on their own.

The teacher again moves to check on the new student and tells him about losing electrons and explains how to record data in either row 1 or row 2, according to the number of electrons he observes.

The three students who remain at the back table after the girl moved to the front are heard debating about how to record data correctly on their papers.

The teacher moves toward the poster of the periodic table on the wall at the right front of the room and tells students she wants them to think about their diagrams, which they should complete, and then she’ll check their work again.

A student goes to the front of the room and sits at the computer connected to the Smart Board. He draws a graph, and the teacher points out that his data needs to be spread out over the Y axis. He erases what he’s drawn and draws it again. (P. Hamby, Observation, May 11, 2011)
In the observation of the classroom activity described above, the reports required that students first enter information on charts related to their use of magnets and the positive or negative results of their experiments. After completing charts, the teacher instructed them to think about their data; then, they were to demonstrate results on a graph. When students exhibited insecurity about the assignment, Ms. C proceeded to the Smart Board and drew a model of a graph with the plot points, explaining how they related to the collected data. Students generally conversed and debated in their groups, discussing whether their data were correct and sharing expected answers with each other. Ms. C walked among their tables, providing correct data and showing students where to record the points on their graphs.

Although Ms. C stated during an interview that the GPS’s for chemistry require that students experimentally determine and explain concepts, she seldom has them write their reports although that form of writing has been her past practice. She found grading the written reports to be time-consuming, so she discontinued them. Another frustration involved the lack of effort most students put into their writing. Although she provided a rubric and verbally explained exactly what she required in their essay, many students turned in work that appeared to be written in haste. She defended this modification by claiming that if any of her students were to become science majors in college, their professors would provide them with outlines and sufficient information for completing requirements.
Assessment

Ms. C claims that writing is a major component of her assessment practice. In the interview excerpt below, she explains that she requires that students demonstrate DOK in their writing:

Ms. C: I like to focus more on writing to explain what you’re trying to say rather than a formal report.

Researcher: How do you assess that?

Ms. C: So, like what I do, right now we’re doing a unit on electronic configurations, and we’ve talked about what they are and stuff like that, and I’m probably going to be doing a pre-lab. I’m probably going to be doing a lab, like Monday or so with that, and basically what they’re going to be doing—they’re going to see which elements are magnetic and which ones aren’t, and umm, you know, I’m going to have them do a pre-lab with the stuff that we’ve been talking about, with the elements, and then I ask them to look at their data and look at their pictures they drew for those elements and see if they can find a connection, You know, so I go through, and as long as they’ve explained why they think they saw what they did, you know, with supporting data, I give them that credit for it.

Researcher: What are you looking for when you grade them? Do you have like certain terms in mind?

Ms. C: Yes. I have certain terms in mind umm most of the time. I put the terms in their pre-lab or in the question, like the terms that I want them to be using. You know, like if I ask them a short-answer question, I most of the time put ‘explain using words like’—so they know how detailed I want it to be, for the most part.
And when I’m grading like, their short answers on tests, I have like a check list. I have terms, you know, most of the time I try to simplify it. If they don’t use the exact terminology, as long as they’ve explained the concept, I give it to them.

**Researcher:** OK.

**Ms. C:** You know, like for example, my regular chemistry class, not the one that you’re umm watching, but in my regular chemistry class [all year, as opposed to a block class], they just took a test over the electronic configurations because we’re just a little off from my block, and umm I had them explain why a diagram is incorrect. Some of them were able to tell me well this broke Hun’s rule because that was the name of the rule it broke, Hun’s rule and they explained why. Some kids couldn’t tell me the rule that it was, but they could say you know these, you know it was a picture of two electrons, and they said these two electrons should not be together in the orbital because they should be in separate orbitals first and then they pair up. So they told me what Hun’s rule was; they didn’t exactly say that’s what the rule was, but they explained why the picture was wrong. And so I just have kind of a check list, and if they tell me any of those things on the check list, you know, I give them those points for it. (P. Hamby, Transcription of interview, May 5, 2011)

Although I observed no writing to explain processes in her classroom, Ms. C claimed that she requires written explanations, which she assesses based on key terms. She gave an example in which students from a class other than chemistry were asked to explain the errors in a diagram. She stated that she was checking for key terms, but if students failed to use the term but explained the concept, she credited the students with a correct answer.
However, she provided no graded assessments that required students to write explanations, to describe calculations, or to compare or contrast. Instead, the assessments consisted of multiple-choice test items and single-word responses, and, when required to calculate, students only had to provide the equation needed for a solution. For another quiz, the students numbered their own notebook paper and wrote only single-letter responses from A-D for items 1-25 and wrote equations for items numbered 26-28; therefore, when the assessments were returned to the students, they had no written access to the original test items; however, should a student request a copy of the original assessment, Ms. C provides it, she stated.

**Researcher:** How many students do you have throughout the course, the average course of the day?

**Ms. C:** Umm, I have, I’m trying to count here. About 115, I think—or 120—about 115, I think.

**Researcher:** OK, about how much time do you think you spend grading?

**Ms. C:** Oh gosh, a long time, but I get so behind on my grading because in-between, because I’ve taught two different classes this semester, but really, two of those classes were a block chemistry and a traditional chemistry, so really, I was, like setting up twice the amount of labs, so really, it was like having three preps. Umm, so, I mean, I would spend hours and hours and hours grading.

**Researcher:** On any given week, average week, how many hours would you guess, would you estimate that you spend grading papers?

**Ms. C:** Umm, probably three.

**Researcher:** OK. Weekends?
Ms. C: I take it home, I mean to do it on the weekends—I take it home in my bag, and then it just sits there. I never actually do it. And you know, sometimes, so, like I sat at my mom’s table and she’ll watch the baby. But you know, it really is hard to get grading done on the weekends. (P. Hamby, Transcription of interview, May 26, 2011)

Like the math teacher in this study, the primary reason the science teacher assigns no formal writing tasks is because of the amount of time required to assess them. Providing individual written commentary for each of the 115 students she sees throughout the day would require “hours and hours and hours” of grading. Generally, her notations on student work indicate expected responses or missed steps in a calculation, and students should understand how to perform the calculations correctly because the content of each unit is based on material in the previous unit. Ms. C uses short-cut notations with which the students are familiar, and the assessments provided to the researcher were scored with orange and gold colored markers, primarily because she has difficulty locating regular pens. The bright colors also promote visibility, she said, so students may easily identify their errors.

No teacher commentary that reflects the standards appears on the graded assessments because Ms. C claims that she prefers verbal commentary, which occurs instantaneously. As she questions the students during walk-around observations, she asks guided questions to promote understanding. If a student has answered incorrectly to a particular test item and explains verbally the process used for the solution, Ms. C allows him or her partial credit. She also provides positive verbal feedback during class periods rather than in written comments on student work; in fact, on the assessments provided,
she had written no commentary other than “work?” when a student had not written all steps for solving an equation. On the remainder of the tests, she marked “x” through test items with incorrect answers and in some places wrote the correct response next to the student’s calculation.

Science focus group

According to the teachers in the science focus group, depth of knowledge in the form of conceptual and mathematical comprehension is often demonstrated verbally and revealed during class discussions.

Researcher: What do you think about the other teachers in your department [regarding] writing? Do you think you’re all pretty uniform?

Ms. C: I think as chemistry teachers we are, but I don’t know about biology per se. My guess is, based on what it looks like when they come in, they don’t know how to explain really even what they think. I mean, that’s what I see. I don’t know, like, I don’t know that they get much practice writing.

Researcher: Would it be more helpful if they did?

Chemistry Teacher 2: It, it probably would. The biology, the nature of the biology course itself would lend itself to writing a little bit more. (P. Hamby,

Transcription of interview, May 11, 2011)

As suggested in the above discussion in the focus group interview of chemistry teachers, when they meet together as a department to create and share assessments, demonstration of mastery through written discourse is not a topic of discussion.
**Researcher:** One of the emphases that we have in our district now is this depth of knowledge. So, how do you get them there? How do you get them to demonstrate depth of knowledge?

**Science Teacher 2:** Typically, I do a lot of informal assessment where we’re discussing, we’re talking about a concept. Umm, there may be parts, especially in an inquiry lab, where I’ll ask them to put down their thoughts on paper—and then they have to come to grips with what their pre-conceived ideas were in contrast with what actually came out of it. Typically with depth of knowledge, what we’re doing in my courses is we’re looking at not only being able to solve the problem but at being able to understand why this particular formula is used or how these two concepts relate to each other conceptually as well as mathematically, so that’s usually how we address that.

**Researcher:** And it’s verbal, for the most part?

**Science Teacher 2:** Verbal, and well, they’re, they’re solving multi-step problems where they have to apply several concepts in a string to be able to get to the final, final product.

**Ms. C:** I would probably say, doing more of the multi-step problems because, you know, you can see if they can make that connection or not right away. You know what I mean? You know, like if you can give them something in two or three steps and they can solve that, then they’re obviously connecting—you know, putting those things together. Those things I do, and then I do have conceptual questions on tests, but they’re multiple choices.
Science Teacher 2: One of the things that I have done with the, occasionally chemistry but I’ve done it with other science courses I’ve taught when it lends itself to that is if they can describe what’s going on by drawing a picture and labeling things and doing that sort of thing, that’s also acceptable. (P. Hamby, Transcription of interview, May 11, 2011)

Teachers informally assess conceptual and mathematical comprehension as students solve multi-step problems to arrive at a final product, while formal assessment of problem solving is demonstrated via multiple-choice test items, through representation on a graph, or through drawing a diagram and labeling parts of scientific processes, all activities which minimize writing practice.

Connections to Frameworks

Like Ms. M, I categorized Ms. C as a reluctant writer (Frager, 1994). Her feelings of ineptitude as a writer, first exhibited during her high school junior year, coupled with the teacher’s failure to inform Ms. C about how to improve, led to her assumption that effective writing derives from conciseness. While she is not as passionately opposed to writing as Ms. M, Ms. C does not write for pleasure or for reflection, nor does she create lists to assist with recall of practical items or chores.

In her teacher-centered classroom, Ms. C is the creator and provider of knowledge (Fulweiler, 1988). Students are encouraged to work collaboratively to complete lab reports Ms. C provides. As she monitors classroom behavior, she fulfills the role of audience for the reports, indicating whether students have completed them correctly. If they have not, she indicates which students should assist the others without calling for
volunteers. She alone responds to student assessments as she uses notations for the purpose of having students confer verbally for clarification.

Using Anson’s terms (1989), I determined that Ms. C is a dualistic rater because she assesses only for correct or incorrect answers and provides no commentary that suggests other resources for further consideration or comparisons to other course content, characteristics of a relativistic rater. She reports no personal or shared experiences and demonstrates no personal involvement with the content, actions which would identify her as a reflective assessor.

In the areas of self-perception, teacher role, and assessor, Ms C reveals a reluctance to write, and she provides no opportunities for her students to generate or clarify their own learning processes through writing. Her commentary on student assessments does not reflect the GPS’s for science but only indicates incorrect responses.

**Social Studies Teacher: Mr. H**

The social studies teacher for this research is herein referred to as Mr. H.

*Professional background*

Mr. H has been a classroom teacher for 18 years, and he also fulfills the position of football coach. In fact, Mr. H became a social studies teacher based on advice from his own coaches that certification to teach a subject in the core curriculum area would improve his coaching employment opportunities to a much greater extent than would teaching only physical education courses. He claims that he chose social studies as his field primarily because of the influence of high school teachers who demonstrated interest in and enthusiasm for their subject area. Growing up in a military family, he was also fascinated by the history of the countries in which he lived, particularly Spain, and of
those countries they had the privilege of visiting while stationed in Europe. While mathematics and science were the courses in which he excelled because he felt challenged, he found his social studies classes undemanding because he memorized facts easily. He tells his students that he teaches world history as punishment because of “something he’s done bad” during his youth because if life were fair, he would be teaching math or science, he jokingly relates.

Teacher attitude about writing

In describe his personal writing habits, Mr. H states that he writes only what he feels is required, particularly in the form of memos to keep himself organized or as assignments for his post-graduate classes:

Mr. H: I make myself daily agendas.

Researcher: OK.

Mr. H: I write stuff like that down all the time, especially if it’s, like this is what we’ve installed, this is what I need to install. This is what I’ve worked on, I need to do this, I need to do that. You know, just a need-to-do thing. I haven’t done anything that’s been published. I really don’t have a desire to do anything like that. You know, obviously besides the research papers and reports and things like that that are standard to make it through some of your college classes, you know. It’s, I’m not a—I’ve never been comfortable with writing. I mean, to be honest with you, even now, I’ve been taking some graduate classes and because of format of how to compose those research papers...that’s frustrating for me. (P. Hamby, Transcription of interview, Apr. 28, 2011)
When asked about his personal writing habits, Mr. H claims the purpose for his daily agendas is to record to-do lists, and because he is currently enrolled in graduate school for a master’s degree in geography, he writes research papers and reports required by his professors. Mr. H claims he has never felt comfortable with writing, but once he grasped the idea of organizational structure and learned to narrow the focus for a topic for his school compositions, he found writing much easier.

*Mr. H:* I got where once I understood how to compose a paper and get your topics narrowed down for the body of your paper, it was a lot easier. I didn’t mind the research part of it. It was just back in those days without a computer. I remember back in college everything had to be typed, and I had one of those word processors. And it never failed, I’d get to the bottom of the page and I’d make a typo, and I had to stick in that little thing, and my paper was off, and there was just piles of junk, and—[laughs]

*Researcher:* OK.

*Mr. H:* It was rough. (P. Hamby, Transcript of interview, Apr. 28, 2011)

Mr. H’s initial response when asked about writing is to describe his frustration with the required format and actual composition processes for writing research papers for his graduate-level classes. He particularly recalls that when he attended college as an undergraduate, he became irritated with finding an error at the bottom of a typed page and having to use corrective tape, which would then throw his entire paper out of alignment, requiring that he re-type the whole page. Currently his frustration with writing relates to his previous writing experiences, and he claims that he has no desire to write for publication, repeatedly stating that writing was never his “favorite thing to do.”
Teaching practice

The world history class that is the subject of the observation below is comprised of high school sophomores and seniors, Mr. H explained, and his expectations of students differ based on their grade and maturity level:

The teacher dims the lights and attempts to display notes on the wall using the LCD projector, but he encounters problems. He asks a student, “What did you do with this thing?” to which the student responds, “Nothing,” and then he realizes the teacher is joking and smiles.

The teacher announces to the class, “As you go through your notes, be sure you know answers for the quiz tomorrow. Go ahead and do that while I try to figure out what is going on.”

While he is attempting to make the projector work, a student enters, approximately 20 minutes after class has begun.

The teacher asks, “Where have you been?”

“Library,” is the response, and the student proceeds to a desk.

Students continue to work quietly at their desks while the teacher succeeds in running the LCD projector. “Good job!” a student says as an image appears on the blank wall. Another student complains that she can’t see, so he enlarges the text on display.

All questions on display begin with “how” and “why,” in black print. All correct responses are written in red type. All are short phrases such as, “Better equipped” as the response to “How were UN forces able to push back the Chinese?”
Mr. H: “Guys, you don’t need to write all this down word for word. What should you write down?”

A student: “17th parallel.”

He tells them to read it and write down what they should know.

Mr. H then reads both questions and answers to students, going question by question and elaborating on some of the answers written in red, and students quietly copy notes from the projection. The teacher reads the question, “What is the domino theory?” and a student responds. “OK, good,” replies Mr. H, and then he paraphrases her as he walks around the perimeter of the classroom. He continues to read and explain. The only question on the wall phrased for a short answer is “9. In which country were several armies battling for territory?” The answer, written in red, is “N. Viet Nam.” (P. Hamby, Observation, Apr. 28, 2011)

As he prepared the students for an impending assessment, Mr. H provided the expected responses, telling students to abbreviate even further his own short answers, which appeared in red on the PowerPoint.

Mr. H explains the reasons he feels students should learn to abbreviate their writing:

**Researcher:** How do feel about having your students write? What do they write?

**Mr. H:** Um, we do, for me, and this is just a little bit different for this class, but when I was at [a high school in a neighboring district], I was teaching 9th graders, and I just found over the years of teaching that especially those guys didn’t understand how to outline or take notes, how to summarize. To me, that was one of the biggest things that I tried to instill into them was just, you know
guys, here is my outline, and I would go through and I would summarize whatever topic we were talking about. You know most kids just write word for word, and you know at the end of 20 or 30 minutes of me giving the notes, they were wore out and tired of writing. And it’s like, you know guys, you’re missing the boat, you need to start abbreviating, you need to start short-handing. You need to read it first and write down what you need and not what I wrote. And so I still do that for this class here at [Stamford]. (P. Hamby, Transcription of interview, Apr. 28, 2011)

As indicated in the interview excerpt above, Mr. H’s primary writing emphasis for the students he currently teaches is on minimizing writing, which he accomplishes by focusing on summarization, a strategy with which the seniors in the class demonstrate greater competency than do the sophomores. Mr. H explains that most students, especially 9th and 10th graders, write every word when instructed to create study notes, and then they become tired and frustrated with the length of time they spend in memorizing people, places, and events, the core concepts in the world history curriculum. Attempting to help them learn the note-taking skills of outlining and summarizing, Mr. H provides his students with models of his own writing and then encourages them to abbreviate notes, bullet key points, fragment sentences, and create a personal short-hand system. One of his primary goals is to bring them to the point where they can write three-word summaries of key ideas. Without this ability to minimize their writing, students may take up to half an hour of class time merely listening to lectures and copying notes, at the end of which they have grown weary and are no longer attentive, he explained; therefore, to overcome this ennui, he encourages them to abbreviate.
All 21 of the standards in the world history content area require writing, according to Mr. H, because they denote descriptions, analyses, and explanations of key concepts. While he uses multiple choice test items to assess whether students have read assignments, on formative and summative assessments he requires that students explain key concepts, such as describing two military tactics the Spartans used during the Peloponnesian War. The researcher’s discussion with the focus group validates Mr. H’s purpose for writing on assessments as pointing out main ideas and analyzing key concepts; however, the world history teachers say they will accept charts and jot lists as sufficient demonstrations of mastery. The focus group members also concurred that the only purpose for grading student notes is to monitor who is not following instructions; failure to take notes in class strongly correlates to failure on formative and summative assessments, they surmise. Generally when the world history teachers give students a writing assignment, it is graded as a formative assessment, and the majority of depth of knowledge questions are presented during class discussions. Because the world history curriculum lends itself well to cause and effect analysis, these teachers use this strategy to promote depth of knowledge in both discussion and writing. Mr. H states that he considers that students have demonstrated depth of knowledge when they relate an issue in history to present issues. In his opinion these comparisons generally occur more naturally during class discussions than in responses to essay questions on examinations. When students begin generating their own questions about historical events, people, and places, he also credits them with having achieved depth of knowledge.

The Georgia Performance Standards for his subject area are on display in his classroom, and he posts the standards addressed daily on the board in front of the
Writing across the Curriculum

classroom. Mr. H claims that he also verbally addresses the standards at the end of each class period as he is summarizing key concepts. However, he also tells the students that they are not expected to memorize the standards because he himself cannot recite them verbatim. The standards provide guidelines for course content. Mr. H. claims, and when he is “covering standards,” he attempts to remove some of the dryness by making the presentation entertaining, both for himself and the students.

Assessment

Mr. H discusses how he grades assessments for the 120 students he currently teaches:

Researcher: So your marks on a paper are encouraging? You know, like they’re good? What do you do if an answer’s wrong?

Mr. H: If it’s wrong I put a slash through it, you know. If it’s multiple choice, true/false, it’s just a slash, and we’ll go back and correct it—they’ll correct it.

Researcher: OK. So you don’t write a comment on there about what—

Mr. H: Usually it’s just, just on those little extended responses, you know I’ll write something.

Researcher: Do you let them know what the expected answer is, or do you generally wait until—

Mr. H: I do. And usually what I do, like, especially with unit tests, umm, just about every one of my unit tests is on Scantrons, so they’re all multiple choice. Umm, we try to do, you know, the writing, and the critical thinking questions and stuff like that as we go through the unit. So what I usually do is pass back the Scantron, give back the test and they go through and correct their mistakes, you know, and I have them rewrite the question, and I give them time, you know, I give
them the class period to look up the correct answers using their notes or their
book, or whatever, and we go through it all together, you know, and I’ll take that
up and actually count that as a separate grade.

**Researcher:** OK. Do you ever write on the Scantron?

**Mr. H:** If they did really well on the test or something, I’ll put a little note, you
know, “great job.” (P. Hamby, Transcription of interview, May 25, 2011)

Mr. H attempts to lessen his paper- grading load for his 120 students by often
using Scantrons on which students bubble in their responses to multiple-choice questions
for unit tests. When he returns the scored forms to students, he requires that they re-write
test items they marked incorrectly and reference their notes and the textbook to write
correct responses. He then credits the students with a separate grade for their corrections.
He also uses assessments generated by the textbook company, which generally consist of
lists of terms to be matched with their definitions and a test item that requires reflection
and a written response. Mr. H claims that when he scores these items, he anticipates that
students will explain their responses using details they have discussed in class and that
the older students, the seniors, will provide more in-depth responses than the
sophomores. He rates these items by slashing through incorrect terms, underlining or
placing small red checks next to responses that indicate depth of knowledge, and
indicating the need for more depth through commentary that includes questions that call
for further clarification.

**Researcher:** Do you do that [have students compare events] mostly in discussion,
or you also have them write about it?
Mr. H: Yeah, probably do more of that in discussion and these kids will generate questions. The essential question, the standard, you know, can they generate their own questions? If they can do that, to me, that’s—

Researcher: That’s depth of knowledge?

Mr. H: Not writing it down. To me, it’s not so much wording, but do they understand what we’re talking about?

Researcher: Looking more for verbal responses too, do you think?

Mr. H: Yes, ma’am. Yes, it’s discussion-based.

Researcher: OK, and, and to my way of thinking umm social studies issues lend a great deal towards cause-and-effect type writing.

Mr. H: Right.

Researcher: Do you have them, like, write more about that, or are your questions more, like, multiple-choice when it comes to, like the causes of a certain event in history? Do they explain it in their own words, or do they choose—

Mr. H: Mine’s more charts. As we’re going through a unit, I have them do a cause-and-effect chart where I’ll give them, you know, one and then they’ve got to write about the opposite.

Researcher: Is it like a jot list, or is it complete sentences?

Mr. H: Just a jot list.

Researcher: OK. And then do you do anything with that? Do you ever take that to a higher level, or are you satisfied with that? Or that’s, if they can do that, you’re satisfied that they’ve mastered the standards?
Mr. H: Well, for me, once again, yeah, I’ll do that, but then maybe the next day we’ll have that quiz with that extended response and then I’m looking for things, off the, off the jot list.

Researcher: OK. Do you ever take those jot lists up and grade them, or is it just for their notes?

Mr. H: Usually just for their notes. (P. Hamby, Transcription of interview, May 12, 2011)

Although Mr. H states he anticipates that students will provide detailed responses to test items requiring explanations, the assessment documents he provided as examples of student work indicate that single-sentence responses as indicators of depth of knowledge are accepted for full credit. For example, no points have been deducted on one student’s section quiz on which the response consists entirely of one fragmented sentence, and where Mr. H has indicated that a response needs clarification of the type of nation to which the student referred, the student has apparently been granted full credit because no points have been deducted. In fact, Mr. H has not deducted points on any of the written-response test items, even when he indicates that the response is not precisely what sought. It would appear that as long as the student made any attempt to respond in writing, the response is acknowledged with checks where appropriate and slashes through terms that are not acceptable, but all written responses receive full credit. Not one of the samples compares events in history with issues of the present, a response Mr. H accepted as depth of knowledge. One student compared the Marshall Plan to the Truman Doctrine, indicating that both provided aid to European nations, but this comparison occurs in one simple-sentence response consisting of ten words. Apparently, as Mr. H indicated earlier,
depth of knowledge occurs during class discussion because he stated that his students would rather talk than write.

Researcher: What do you expect when you look at student writing in regards to content area responses? Like, whenever you assign students to write something, how are you gonna grade it when they’re finished?

Mr. H: It depends on what it is. I think last time when we talked about the quizzes that I give, you know, they all have some type of—explain the, for example, the two tactics that the Spartans would have used against Athens in the Peloponnesian War, something like that, you know, so I’m just making sure that they’re at least able to explain. [School bell rings] As far as like a rubric? Or—

Researcher: Yeah, like when you assess those do you use a rubric, or are you, like, in your own mind looking for key terms or key concepts?

Mr. H: Yeah, I mean there’s always, whatever the key terms are because we use a lot of terms, but I do have a rubric that I use for those things, but it changes with every question, with every quiz, with every writing assignment. Sometimes it depends on who the student is. You know, and with this class I’ve got seniors and I’ve got sophomores, so I expect a little bit more. You know, if I have an explanation of this event, with, with seniors I would expect them to explain it a little more detail-wise. You know, so I have a few extra—

Researcher: When you grade them, do you like, umm, check, do you comment, do you “X” wrong answers?

Mr. H: Yeah, everything you just said, I do. You know, if it’s a multi-part question and there’s three, three or more different key terms or concepts that they need to
In the interview above, Mr. H states that as he is grading he anticipates that students will address key terms and concepts and that the assessments are based on rubrics. Traditionally, rubrics are handouts given to students when a task is assigned; it indicates how students will be rated according to specific domains of mastery and the points possible for each domain. However, the rubrics to which Mr. H refers are apparently not in written form and are not provided to the students in advance because Mr. H states that the rubrics may change with each assessment, with each test item, or even with each student based on his or her maturity level.

Mr. H grades student assessments with a red pen, claiming red is standard, and using red lowers his concern that students will attempt to alter their grades. If a student questions the teacher’s mark on a particular test item when the test is returned, Mr. H can quickly determine whether the student has attempted to change his or her initial response because the red mark indicates it was incorrect when written, and generally students cannot alter red marks. Mr. H slashes through incorrect answers and writes check marks in front of or above correct responses, and he often writes encouragement such as “Good Comparison” when a student has written an exceptional response. These marks are generated on the initial read-through of the assessment, but Mr. H states that he will have forewarned the students of which test items they may find difficult. During examination review, the written information is on the board when students enter the classroom, and he discusses key terms and anticipated explanations for particular questions. As he is monitoring the classroom during the test, he will not answer students’ questions, but he

*explain in there, you know, I'll check them off as I read it.* (P. Hamby, Transcription of interview, May 5, 2011)
may point out to a student that he or she needs to be sure to respond to all parts of an item.

Mr. H discusses the values he wishes to cultivate in his students:

**Mr. H:** I want them to learn about being able to work with someone else whether they like them or not, I want them to learn how to be organized, to learn how to study. I want them to learn how to apply themselves and be responsible for their own actions because that’s gonna carry them in whatever they do. Umm, to me there’s more important stuff than, than—

**Researcher:** Wrong answers?

**Mr. H:** More than wrong answers and stuff, but, like I said, because I’m so, so rough on them in class as far as doing the right thing, and acting properly in class, you know, it’s a struggle for them. You know, most of them, you know, it’s a love/hate thing. I mean, they, they’re either going to love the structure that I give them or they absolutely hate it, you know, but when they’ll conform, and most of them will buy into it, and they’ll do what they have to do to pass. You know, they may not like the class—

**Researcher:** Is that why your comments on their papers are more, are more positive—so that you can encourage them to do the right thing?

**Mr. H:** I mean, I guess. I hope so. I mean, every time I write nice job or great job, I don’t just throw out compliments just to make them feel good. So any time I write that down I hope it means something to them, you know. (P. Hamby, Transcription of interview, May 5, 2011)
Mr. H talks passionately about his affective goals for his students, and he claims that he focuses on collaboration and insists that students work with their classmates “whether they like each other or not.” He attempts to instill responsibility, organization, and study skills into proficiencies they will carry with them beyond the classroom. Structure is also a major emphasis, one which he claims students will either appreciate or despise; but he feels they generally “buy into” the idea of conformity and meet the requirements necessary to earn credit for the course. His primary method for achieving these goals relating to student attitude is through teacher commentary on their assignments; when he writes “great job” on a student’s paper, he hopes the student accepts the compliment and that it holds meaning beyond a good feeling.

*Social studies focus group*

During the focus group discussion excerpt below, Mr. H claims to assign some writing task every day and to administer formative assessments in the form of quizzes every other day.

*Researcher:* How often do you implement writing in your classroom? How often do your students actually have to write something?

*Mr. H:* Mine’s, mine’s pretty much daily. Whether it’s outlining their section or chapter or summarizing their notes that I put up, umm the daily quizzes that I give, and when I say daily quizzes, that’s about every other day that I give a quiz.

*Researcher:* [To Social Studies Teacher 2] How often do your students write?

*Social Studies Teacher 2:* I would probably, I would say, probably every other day. Whether it be doing a question from a section, I would be giving questions involving a detailed response, umm. That’s fairly regular.
**Researcher:** How do you think you address the depth of knowledge issue with your students? How do they demonstrate that they’ve gone beyond the basic response to, you know, a much deeper understanding of your content area?

**Social Studies Teacher 2:** I have them design a Facebook page for the Industrial Revolution. Or try to get them to follow the basic standards and key terms and try to get them to do more elaborate responses of that nature. And again, if it’s a general question or a third-tier question, I try to get them to analyze the aspects of what we’re doing and try to get them to, to describe and answer those questions.

**Researcher:** Do you think that’s pretty standard across your department, or especially your subject area?

**Mr. H:** I think it is. You know we [he and the researcher, in an interview] talked last time umm about, you know, in ancient civilizations the changes they made in their societies, or whatever the case may be, and then [they] compare that.

**Social Studies Teacher 2:** We grade from the standard and make sure they get all the points that were supposed to be answered by the standard. If I see grammar infractions, I grade against—if they’re trying to use instant message language, I generally will not accept that, of that nature. (P. Hamby, Transcription of interview, May 12, 2011)

Mr. H assesses students’ writing primarily based on whether students address key concepts. Social Studies Teacher 2, who assigns writing tasks every other day, claims that he grades against what he calls “grammatical infractions,” noting particularly writing that appears to be derived from abbreviations used in instant messaging, for which he
penalizes students. He also allows students to demonstrate analysis and mastery of concepts and provide elaborate responses by assigning such creative activities as creating a Facebook page for a person from the Industrial Revolution or some other period in history. These two teachers’ requirements and assessment practices appear to differ, as Teacher 2 generates assignments that require students to write creatively while Mr. H focuses primarily on minimizing writing.

**Connections to Frameworks**

In the area of personal writing, Mr. H is a practical writer, according to Frager’s (1994) categories because, unlike the other two teachers in this study, he indicates purposeful writing for both agendas and graduate-level course assignments. He identifies no reflective writing involvement, nor does he indicate interest in creative writing. His attitude toward writing is reflected in assignments for his students, in which he desires that the writing be concise and minimalistic.

Mr. H’s instructional practice is teacher-centered, as defined by Fulweiler (1988), with Mr. H as the primary provider of knowledge. Observations of his classroom confirm this designation, as the desks are arranged in long rows with all students facing the front of the classroom. Students are working quietly and independently, copying notes from the white board at the front of the classroom, from the PowerPoint slides projected on a wall to their right, or from the textbook. In preparation for an upcoming assessment, the teacher reveals test items the students may encounter, and all begin with “why” or “how.” The teacher provides his own responses to the questions on the slides, with questions in black font and responses in red; and students are expected to copy, memorize, and be prepared to reiterate the information the teacher has generated. He reads both the
questions and his responses to the class, occasionally using closed-question strategies, such as asking whether they would choose to live in a Communist country, but asking for no elaboration on their responses. He appears to be the sole provider of information, with the textbook used as ancillary material for defining terms, identifying people, and locating places on maps.

Using Anson’s (1989) categories, I determined that Mr. H is a dualistic rater. Using red ink to slash through incorrect responses and providing occasional encouragement through positive statements that give no indication of a connection to content, Mr. H rewards students who regurgitate information he has provided through teacher-led discussions; through study notes provided on PowerPoint slides; and through lists of events, people, and places students define using the textbook after they have copied what Mr. H deems to be significant. His commentary on assessments relates directly to the expected response, and he does not recommend resources outside of the required text that might interest the students. He does not provide commentary that matches the standards, as he claims that standards are posted in his classroom and that he mentions them during class presentations; this practice, he feels, is sufficient to meet requirements.

Summary of Findings

The participants in this study were one math, one science, and one social studies teacher, each at different stages in their careers. All three teachers are Caucasian, and the combined number of students affected by their instruction on an average day totals 380.
Table 1

*Comparison of Teachers by Experience, Career Stage, Ethnicity, and Students per Day*

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Subject</th>
<th>Experience</th>
<th>Career Stage</th>
<th>Ethnicity</th>
<th>Students Per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math: Ms. M</td>
<td>Math 2</td>
<td>19 years</td>
<td>Near Retirement</td>
<td>Caucasian</td>
<td>145</td>
</tr>
<tr>
<td>Science: Ms. C</td>
<td>Chemistry</td>
<td>4 years</td>
<td>Early Career</td>
<td>Caucasian</td>
<td>115</td>
</tr>
<tr>
<td>Social Studies: Mr. H</td>
<td>World History</td>
<td>18 years</td>
<td>Mid-career</td>
<td>Caucasian</td>
<td>120</td>
</tr>
</tbody>
</table>

While the years of experience for the math and social studies teachers appear to be almost identical, for the purpose of this study they are identified at different career stages because the math teacher has stated that this is a second career for her, and she anticipates retirement at the end of another full school year. The social studies teacher, however, is enrolled in a master’s degree program in his subject area at a nearby university, an indication that he will have the opportunity to apply course content to future classroom instruction. During interviews, he made no mention of retirement.

All three teachers expressed similar attitudes about themselves as writers, and all required little to no writing from their students, as indicated in Table 2. Furthermore, they all interpreted student demonstration of DOK as perceivable in areas other than writing.
Table 2

Teacher Attitudes about Writing, Amount of Writing Required, and Agreement with Focus Group Regarding Writing Assignments

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Math: Ms. M</th>
<th>Science: Ms. C</th>
<th>Social Studies: Mr. H</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attitude about Writing</strong></td>
<td>Negative</td>
<td>Negative</td>
<td>Negative</td>
</tr>
<tr>
<td><strong>Amount of Writing Required on Assessments</strong></td>
<td>None</td>
<td>None</td>
<td>Minimal/Abbreviated</td>
</tr>
<tr>
<td><strong>Amount of Writing Expected Overall</strong></td>
<td>None</td>
<td>Visual Organizers</td>
<td>Minimal/Abbreviated</td>
</tr>
<tr>
<td><strong>Work Accepted as Indicating DOK</strong></td>
<td>Exact Numerical Responses</td>
<td>Verbal Discussion</td>
<td>Verbal Discussion</td>
</tr>
<tr>
<td><strong>Agreement with Focus Group</strong></td>
<td>No/Focus Group Uses Workshop Model</td>
<td>Yes/ Visual Organizers and Discussion</td>
<td>Yes/Minimal Opportunities</td>
</tr>
</tbody>
</table>

Clearly, all teachers who participated in this study have negative perceptions of themselves as writers. Their attitudes are reflected in the assignments they generate for their students and in their assessment practices. Other teachers in their content areas appear to concur with them, with the exception of those in the math focus group. While two teachers in the math focus group are incorporating more writing-to-explain into their teaching practice based on the concept of the workshop model, Ms. M’s responses during the focus group interview indicate that she is in disagreement with them. She has not attended any professional learning events where the method has been explained and demonstrated, nor will she be doing so, in light of the fact that she will soon retire.

Responses to the researcher’s questions also allowed for comparison of the participants to the three seminal pieces, considered as frameworks for this study (see Table 3). Frager (1994) categorizes writers as reluctant, practical, integral, or diverse;
Fulweiler (1988) categorizes teacher roles in the teacher-centered classroom, allowing the researcher to determine whether the classroom is teacher- or student-centered; and Anson (1989) describes the roles of teachers as raters of student writing assignments.

Table 3

*Connections to Frameworks*

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Math: Ms. M</th>
<th>Science: Ms. C</th>
<th>Social Studies: Mr. H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Categorical Placement as Writer</td>
<td>Reluctant writer</td>
<td>Reluctant writer</td>
<td>Practical writer</td>
</tr>
<tr>
<td>(Frager, 1994)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Categorical Placement as Instructor</td>
<td>Teacher-centered</td>
<td>Teacher-centered</td>
<td>Teacher-centered</td>
</tr>
<tr>
<td>(Fulweiler, 1988)</td>
<td>classroom</td>
<td>classroom</td>
<td>classroom</td>
</tr>
<tr>
<td>Categorical Placement as Rater</td>
<td>Dualistic rater</td>
<td>Dualistic rater</td>
<td>Dualistic rater</td>
</tr>
<tr>
<td>(Anson, 1989)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As indicated in Table 3, all three teachers are either reluctant to write or, in the case of the social studies teacher, write only for practical purposes. Based on observations of their teaching practices, I identified all of their classroom instruction as teacher-centered. My analysis of their writing on student assessments yielded my determination that all three teachers are dualistic raters.

Based on the data collected, none of the teachers finds writing to be a pleasurable experience; none assigns writing tasks that allow students to demonstrate DOK; none exhibits a student-centered classroom; and all score student assessments for correct responses with no teacher commentary that suggests further development, shared experiences, or connections to performance standards.
CHAPTER V
CONCLUSIONS AND IMPLICATIONS

The purpose of this research was to examine one teacher in each of the three core content areas of math, science, and social studies about their self-perceptions as writers, as teachers of writing, and as assessors of writing. This study also examined teacher instruction in the area of writing as it relates to current standards and to the educational goal of helping students demonstrate depth of knowledge (DOK), a prerequisite for becoming life-long learners and successful competitors in an increasingly globalized contexts. The data collection process included interviews with three teachers; observations in their classrooms while they were teaching; evaluations of teacher commentary on student work; and focus group discussions, which included two or three teachers who taught the same course as the teacher participants. The recordings of these interviews and observations were transcribed and selectively coded, both openly and axially, and evolving themes were noted. Themes which emerged based include the teachers’ attitudes about writing; their perceptions of the Georgia Performance Standards and standards-based instruction; their expectations of students regarding writing in their content areas; how they align those expectations with their practice and assessment, how they convey their expectations to students, and whether their actions and commentary reflect their stated beliefs. While the overarching theme of this study is writing across the curriculum and teachers’ integrating of writing into their teaching practices, the study has overall implications relating to students’ literacy and critical thinking skills.
The constructivist lens through which I observed teacher and student interactions provided insight into what occurred in a math, science, and social studies classroom. The classes appeared to be teacher-centered, with teachers providing all instruction, activities, and assessments. In the math class, students were expected to solve teacher- or textbook-generated problems; in the science class, they were expected to complete visual organizers provided by the teacher; and in the social studies class, they were expected to copy notes verbatim that the teacher provided on PowerPoint presentations. With the exception of the social studies teacher providing students his notes as a model of abbreviated writing, none of the teachers modeled outcomes of anticipated responses to assessments. None provided scaffolding whereby students were grouped according to abilities, interests, or any other observable distinctions, and none provided activities in which students peer-edited or peer-reviewed each others’ writing or other assigned work. None discussed with me the probability of incorporating constructivism into their curriculum.

The phenomenological approach that defines this study also sheds light on individual teachers’ interpretations of literacy, of the Georgia Performance Standards, and of instruction that leads to DOK. I observed few literacy events taking place, and the only writing students performed was either to provide a numerical response, to complete a visual organizer by filling in measurable data, or to write abbreviated notes for future study. The math teacher indicated that short answers indicate mastery of the standards, and instead of helping students achieve strategic and extended levels of DOK, she required students to calculate and solve problems that she provided and never asked them to explain their reasoning processes. The science teacher stated that calculation is the
basic intent of the Georgia Performance Standards for the chemistry courses she teaches, and she prefers that students demonstrate DOK verbally in class discussions rather than in writing because she finds grading to be tedious and prefers short answers on assessments. While the social studies teacher mentions the performance standards in his instruction and displays them in his classroom, the only observable activity students performed during observations was note-taking, either directly from the PowerPoint presentation or as definitions of terms and events for study notes for an assessment.

Constructivism and phenomenology complement each other, particularly in writing, as I have discovered through the course of my studies and through implementation in the language arts classes I teach. The teachers in this study make no claim to having experienced a constructivist environment in a classroom, yet they are required to challenge students to demonstrate strategic and extended thinking processes.

*Practices and Attitudes*

Interviews, observations, and analysis of students’ work have provided the basis for several assumptions about the practices and attitudes of the participants in this study.

*The teachers*

The math teacher in this study, a Caucasian female referred to as Ms. M, has taught math for 17 years, and, having started teaching later in life, she anticipates retirement within the next year or two. The science teacher in this study, a Caucasian female referred to as Ms. C, is the mother of a child under the age of one. In her fifth year of teaching at the time of this study, Ms. C entered education through an alternative pathway that provided career direction and professional development while she was teaching. The social studies teacher included in this research, referred to as Mr. H, is a
Caucasian male who has been teaching for 18 years. His particular subject area is world history, and he is also a football coach. He is pursuing a Master’s degree in geography at a nearby university. As a result of the indicators from the data collected regarding these teachers, several implications for teaching and for student learning have been noted.

Frager’s (1994) roles: Teachers as writers

Because Ms. M adamantly expressed her love for math and her hatred for writing, I, the researcher, categorized her as a “reluctant writer” according to Frager’s (1994) definition. Ms. M expressed her disinclination to write, either for school-related purposes, such as lesson plans or reflection, or for personal purposes. She prefers verbal telephone communication with her immediate family over email, which involves writing. She made no mention of writing for publication or for professional reasons, and her attitude about writing may exclude these activities from her personal agenda. Although Ms. C, the science teacher, did not profess the same distaste for writing as the math teacher, she could recall no writing task of a personal or professional nature in the week prior to the first interview for this study, nor has she ever considered writing for publication. Therefore, she has also been categorized as a reluctant writer. Mr. H, the social studies teacher, writes only for specific purposes. Regarding instructional and athletic agendas and post-baccalaureate-level assignments, he relates some frustration because of prescribed formatting requirements; therefore, for the purposes of this study, I categorized him as a practical writer (Frager, 1994).

None of these three teachers has a positive perception of herself or himself as a writer. As the researcher with full knowledge of the assembled data, I therefore conclude from these indicators that their self-perceptions affect their classroom practice and that
they are therefore reluctant to assign writing to their students (Frager, 1994). They also note how time-consuming grading is as well, another strong motivation to limit or exclude writing assignments. This concept is validated through their comments during interviews, through observation of their classroom practice, and through examination of student writing required on assessments.

Fulweiler’s (1988) roles: Teachers as classroom instructors

The instructional methods noted during two observations of Ms. M, the math teacher, were teacher-centered, as she appears to be both the creator and provider of instruction (Fulweiler, 1988). Students are expected to supply exact numerical responses, both verbally and in writing, with no explanation of their cognitive processing strategies for deriving solutions. Ms. C is also the creator and provider of knowledge for her students (Fulweiler, 1988). While students were observed working collaboratively and appeared to generate shared knowledge, Ms. C provided the format, the purpose, and the expected outcome for the activity without input from the students. To a greater extent than either of the other two teachers in this study, Mr. H maintains a quiet, orderly classroom in which students do not collaborate with each other nor engage in lively verbal discussions, either with each other or with the teacher. Rather, the teacher rewards exact anticipated responses to closed questions.

Based on interviews, observations, and an examination of student assessments, all three teachers in this study conduct teacher-centered classrooms in which they fulfill the roles of instructors, assigners, audience, and responders (Fulweiler, 1988). Implications are that students are given little to no control over their own learning, nor are they
encouraged to express and expand their learning processes through the practice of writing.

*Anson’s (1989) roles: Teachers as raters*

I determined that, as the assessor of student work, Ms. M is a dualistic rater (Anson 1989) because she indicates with slashes the failure of the student to arrive at the exact anticipated numerical response. In alignment with her perception of writing as a distasteful activity, she provides no written suggestions on their papers for students’ consideration about how to derive the expected answer. Similarly, I categorized Ms. C, as a dualistic rater because she provides no commentary on assessments that reflects either the performance standards for a specific test item or an indication of an alternative approach to achieve an acceptable or correct answer to the item. When a student’s response was what Ms. C deemed incorrect, she immediately provided the expected answer rather than having the student explain his cognitive process or re-work the problem to identify his own error or to increase his understanding. In fact, her only marks on the paper consist of adding the corrected answer next to the “X” that indicates an incorrect response. Similarly, Mr. H I considered to be a dualistic rater because his assessments consist primarily of multiple-choice questions with one acceptable answer, plus one extended question for which students are given credit for abbreviated answers. He provides no teacher commentary that reflects either personal involvement or the performance standards.

Based on the comparison of the teachers in this study to Anson’s (1989) teacher rater roles, findings suggest the teachers demonstrate little personal involvement in
students’ responses to assessment items. They do not provide commentary that reflects the standards or that might assist students in expanding their knowledge.

*Enactment of the Georgia Performance Standards*

During the math focus group interview, two teachers in the Stamford High School math department stated that the math curriculum standards are process-based and therefore require explanations of the means whereby students arrive at solutions. However, Ms. M’s classroom practice validates the fact that she thinks that students have mastered the standards when they provide numerical answers to multiple-choice, fill-in-the-blank, or equation questions. Ms. C, the science teacher, states the performance standards for her subject area involve mostly calculating and experimenting, and once students have determined results they need to explain their process, which requires writing. However, after making this statement, she says that she allows students to demonstrate mastery of the standards verbally.

During an interview, Mr. H stated that all 21 of the curriculum standards for his content area indicate written expression to demonstrate mastery. However, based on commentary on the student assessment he provided for this study, he appears to accept abbreviated forms of writing, such as fragments and single-word explanations. The entire set of performance standards for the classes he teaches are displayed on the rear wall of his classroom, visible only from the teacher’s desk. The standard for the current lesson is posted on the white board in front of the room, but Mr. H claims that he considers them to be only guidelines for instruction. Students demonstrate mastery of the standards either verbally during class discussion, a practice which was not observed during either of the classroom observation; through bubbled responses to multiple-choice questions; or via
responses to a single test item on an assessment created by a textbook company, which calls for writing and for which Mr. H allows full credit for sentence fragments and single-sentence responses. These findings, suggest that the teachers in this study have differing interpretations of the Georgia Performance Standards and of how students demonstrate mastery of the standards.

Depth of knowledge (DOK)

The math teacher in this study claims that grading papers is a waste of time and that short answers are identical in meaning to depth of knowledge. She therefore appears to assign work that involves student responses that can be assessed quickly. In contrast, the science teacher claims that when students can answer “why” or “how” questions, they have demonstrated DOK, which she assesses through student participation in class discussions because, like Ms. M, she finds assessment very time-consuming. During observations, I noted that only one or two students participated in the discussion, thereby precluding any assessment of the perceptions of the majority of the class.

Mr. H considers comparison of one event in history to another to be evidence of higher domains of DOK. In fact, when noting levels of DOK (see Appendix E), the act of comparing falls within the domain of skills and concepts, the second of the four levels, and is considered a strategic rather than an extended demonstration of knowledge. Even this strategic thinking level, however, requires detailed support in the forms of description and examples, characteristics which were not observed either in classroom discussions or in student written responses on the assessment provided by the teacher. Rather than encouraging students to expound in writing on their ideas and to describe, illustrate, analyze, and synthesize, Mr. H stated that, in order to alleviate the stress he has
observed in his students when he assigns writing, he overtly and intentionally minimizes writing, encouraging students to outline, summarize and condense.

The teachers in this study were not observed generating classroom activities, leading discussions, or creating assessments that assist students in achieving DOK. Neither in written prose format, verbal interactions, nor in collaborative grouping activities did the students demonstrate explanations for cognitive processes that might be considered strategic or analytical. Teachers rewarded students for replication of exact numerical responses, as in the case of the math teacher; for transferring information from one visual organizer to another, as with the science teacher; or for the ability to compare and contrast one event with another, as in the case of the social studies teacher. None of these practices demonstrate the DOK taxonomy levels of strategic or extended thinking. Based on these findings, one may conclude that teachers hold various interpretations of what constitutes DOK and of how students demonstrate the four domains of DOK (see Appendix E).

Discussion of Research Questions

Responses to the research questions that provided the basis for this study were grounded in observations, interviews, and evaluations of teacher commentary on student work; that is, the data sources were triangulated, and they were member-checked. The first question, “How do teachers in the secondary core content areas of science, social studies and math perceive themselves as writers?” was addressed during initial interviews, when all three teachers indicated negative self-perceptions about writing. Their attitudes were formed primarily based on their teachers’ responses to written assignments when they were students, either at the high school or college level. The
science teacher expressed frustration with a high school language arts teacher who consistently graded her harshly on mechanics without clarifying her mistakes or recommending strategies for improvement. The math teacher stated that she was frustrated as a writer in high school because she lacked the ability to develop ideas and expand on them. As she compared her grades to those of her classmates who had this ability, her insecurities developed to an even greater extent. The social studies teacher expressed his frustrations as a college undergraduate when the format and revision processes of writing posed difficulties because of the limitations of the technology available at the time.

The research question, “What are the teachers’ expectations of students regarding writing in their content area, and how do they align those expectations with teaching practice and assessment?” was addressed through both classroom observations and analysis of the assessments the teachers provided. Teachers appear to expect students to write very little in the classroom, preferring discussion to writing; in fact, the social studies teacher insists that students condense, summarize, and bullet key concepts instead of analyzing and synthesizing information. Even though each of the teachers claims to incorporate higher-order thinking skills of analysis and synthesis into their professional practice, little or no evidence was observed because students were not asked to explain thinking processes or to generate new knowledge from what they had been given.

In response to the question, “How do the teachers convey their expectations?” observations of these teachers’ classroom practices indicate that students realize their teacher’s expectations. For example, in the math class, students expressed frustration with their perceived abilities to pass the upcoming standardized assessment. In the science
classroom, the ability to transfer information from one form of visual organizer to another was acknowledged as the teacher asked the successful students to share data with an individual or with the entire class by completing the grid that appeared on the Smart Board in front of the classroom. The science teacher or another student provided the data to those students who failed to demonstrated mastery of this skill. In the social studies classroom, the students who answered closed questions with the exact anticipated response received verbal affirmation from the teacher; those who could not provide a response remained silent and appeared to be searching their notes for information, or they continued to copy the teacher’s notes as they appeared on the PowerPoint projected onto the blank wall to their right.

As part of this research question, I sought to discover whether teachers’ actions and commentary on students’ assignments reflected their stated beliefs. They did not. While all three teachers professed during interviews that they assessed students’ abilities to extend their knowledge into the higher levels of Webb’s taxonomy, all three appeared to assess as acceptable the students’ abilities to recall information provided by the teacher during classroom presentations or discussions, or to transfer it from one format to another.

Limitations

This study is limited in its scope by its focus on one school setting and by its concentration on only three teachers; additionally, it is limited by the time given to gathering data (one semester) and by the shared Caucasian ethnicity of the teachers. The fact that I, the researcher, am also a practitioner at the site and was limited by the constraints of being an active teacher to conducting teacher and focus-group interviews
before or after school and to classroom observations during the afternoons on my
designated planning period are also a limitations to a generalization of the findings in this
study. Similar studies with greater depth and breadth over an extended period of time and
with a larger number of participants are needed for comparative data to emerge as
complimenting or confounding studies.

The school setting for this study, Stamford High School (a pseudonym), is
suburban to rural community. Urban schools with more economically and culturally
diverse student and teacher populations may achieve different results. This study is also
limited to three core content areas, and results may differ in career/technology, elective,
or other curricular areas. The courses observed were all at the instructional level, and
results and implications for teachers at remedial or enrichment levels may vary greatly
from these findings.

A primary limitation to this study involved the frequent disruptions during
teachers’ instructional time and during the teacher interviews. The scenario described at
the beginning of Chapter 4 exemplifies the flexibility required of both the teacher and the
researcher as the class under observation was disrupted by a tornado drill, by an
altercation which occurred outside the classroom door, and by student outbursts of
frustration. Such interruptions affect the dynamics of all teachers’ classrooms as the
teacher then adopts the role of manager of the environment rather than that of provider of
instruction or facilitator of learning. Front-office announcements over the intercom also
interrupted the classrooms being observed and the before-school interviews with
teachers. Students also interrupted these interviews to turn in assignments or to engage in
conversations of a personal nature with the teacher, as in the case of a student the science
teacher had taught previously; in some cases, as with the social studies teacher, the student was asked to wait; in other cases, the teacher detoured from the interview to address the demands of the student. Furthermore, while I was conducting the focus group discussion with science teachers, one of them was at the same time tutoring advanced placement chemistry students in an adjacent classroom, and they would come in with questions for which he would provide answers, after which he would return his attention to our focus group. For this focus group appointment, arranged by the science teacher who was also the subject-area participant, she was more than 10 minutes late to school, thereby shortening the amount of time for our meeting. On another occasion, I went to the classroom of Ms. M, the math teacher participant, only to find a substitute sitting at the teacher desk while students worked quietly on an assignment at theirs. Most teacher practitioners consider such interruptions and class disruptions to be normal occurrences and treat them with flexibility; to the outside visitor, however, they may be perceived as frustrating violations of a carefully planned agenda.

Conclusions

This study may add to the existing literature relating to teachers as writers and as instructors of writing, to actual versus perceived teacher roles, to teachers’ interpretations of performance standards, and to actual versus perceived assessment of DOK. The three participants in this study provide examples of teachers at various levels in their careers as professional educators: one has recently completed five years in the classroom; one is mid-career, has been teaching for 17 years, and is pursuing a higher-level degree in his content area; and one is nearing the end of her career, anticipating retirement within the next two years. Therefore, while this study may not exemplify teachers of all ethnicities,
it may provide implications for teachers at several career levels. I observed that no matter the years of teacher service, misconceptions exist regarding the teacher role as an instructor of writing, regarding standards-based instruction, and regarding assessments that reflect student cognitive processes.

None of the teachers in this study is an integral writer, a person who deems writing to be purposeful and pleasurable (Frager, 1994). One teacher claims to hate writing, another still carries from her high school experiences negative opinions and frustrations with the mechanics of writing, and the third is currently frustrated with what he feels is the strict format for his required academic writing. While current professional learning events emphasize the significance of engaging students in reflective writing that promotes DOK and higher-order thinking processes, the teachers in this study do not practice writing for these purposes themselves, nor do they feel confident in assigning or assessing student writing for these purposes.

During my experience in these three teachers’ classrooms, I observed that, based on their assignments and their interactions with students, all conduct teacher-centered classrooms. They fulfill the roles of providers and assessors of knowledge, they are the only audience for any student writing assignments, and they are the sole assessors of student ideas and responses. Students were not observed critiquing each others’ or their own knowledge, either verbally or in writing, and the sole incident of one student assisting another occurred in the science classroom when one student provided the data required to complete a chart on a laboratory report. Otherwise, students accessed the teachers’ knowledge (math), identified and charted visual evidence for their laboratory
reports (science), or followed explicit teacher instruction regarding where to locate information in the textbook or in teacher-generated notes (social studies).

**Implications**

Implications from this study may affect various facets of the educational environment, particularly teachers, planners of professional development, and administrators. While almost anyone who is part of the educational system should feel free to initiate conversation about what happens at school, teachers should be especially vocal about whether best practice is occurring because they have the greatest influence on how and what students learn in their classrooms. Planners of professional development may find the implications of this study helpful in determining agendas for professional learning events. Administrators are affected because, as educational leaders and evaluators of teacher practices, they may either welcome critical conversation about teacher practice or choose to repress it.

**For teachers**

The implications derived from this study that affect teachers are based on the premise that self-perception is often inaccurate. While the descriptions of their negative attitudes regarding themselves as writers appears to be generally correct as reflected in their teaching practice, they nonetheless expressed the ability to assign and assess writing that reflects DOK. I observed that they assigned no writing for students that may be considered detailed or reflective, yet all three claimed to observe evidence of DOK during class discussions and on formative or summative assessments. In actuality, students were merely restating ideas, events, and concepts previously presented by the teacher. Never did I hear a student begin a comment with “I think.” Instead, in the math
class I observed students who seemed frustrated, perhaps because they felt they lacked total recall of facts and numbers they would be required to retain for a high-stakes formal assessment. They may have been easily distracted because classroom activity and assignments held no connection to them outside of the present learning environment or the looming testing environment. In the science class, students merely transferred data from one format to another, from their laboratory test results to a chart to a graph. In the social studies classroom, they copied and abbreviated teacher notes and then used those as study guides for the teacher’s stated purpose of answering multiple-choice test items or of writing one-sentence or one-phrase responses to a single reflection question.

Based on the data from this study, it appears that these teachers would enhance their practice by using engaging and therefore more student-centered teaching strategies. Knowing how to create classroom communities in which students feel they are able express their own logical reasoning processes, either verbally or in writing, could reduce students’ fear of ridicule or failure, which was indicated in a student’s outbursts during the observation of the math class. Based on responses to interview questions, none of the teachers in this study has experienced such a safe classroom environment, and they would benefit from mentoring in how to employ practices they might observe in language arts classrooms that promote a collaborative learning context, such as the Summer Institutes of the National Writing Project provide for teacher practitioners. Instead of merely telling students how to condense information, teachers who want to work at higher levels of cognitive taxonomies and who want to encourage their students to do the same promote learning when they develop the capability to teach students how to organize their own ideas and data in order to develop problem-solving skills, logical arguments, and
applications across concepts as they express individual interpretations of curricular content. Observations of models of this practice could also prove beneficial.

All three teachers in this study expressed negativity about rating student writing assignments; in fact, the math teacher claimed that she never grades writing. The science teacher expressed frustration towards former high school English teachers who graded her writing harshly based on mechanics, so she claims only rate writing only for ideas and content. Similarly, the social studies teacher interprets grading writing as scoring mechanical errors, which he feels incompetent to assess, so he too grades writing primarily based on his check-list of terms he expects students to incorporate in response to test items and ignores mechanics.

Primarily, however, this study suggests that teachers need access to strategies for handling the overwhelming paper load to better equip them to assess the written expressions of students’ knowledge acquisition processes. For teachers, such as Ms. M, who see 145 students per day, Ms. C with 115 students per day, and Mr. H with 120, rating student work is a daunting task. Ideally, teachers would provide students opportunities to demonstrate DOK of each newly-presented concept; in reality, even having every student document DOK once per grading period would cause a teacher to relinquish any time devoted to lesson planning, to parent contact and conferences, and to most of the other assessment and instructional-related duties and routine daily operational responsibilities required of the professional educator. Time for family and personal recreation are, of course, denied any consideration for the teacher whose grading load of these assignments encroaches into after-school hours.
An implication of this study is that teachers may or may not comprehend the concepts of DOK and may find it difficult to plan instruction that addresses the higher domains of the taxonomy or to provide models for students. Some may not have experience with helping students become collaborative- and self-monitors of their classmates’ and of their own cognitive processes. Teachers might also generate content area, standards-based rubrics that assess the domains of strategic thinking and analysis while not neglecting the areas of organization and mechanics.

*For planners of professional development*

If professional development planners aim to promote teachers as writers, as assigners of writing, and as assessors of student writing, planners of events should incorporate strategies to engage teachers in writing that they find pleasurable and purposeful. The negativism that all teachers in this study express about writing provides a challenge for those who would insist that all teachers implement classroom writing that engages all learners in the art of reflection to arrive at DOK. Teachers who are resistant to writing themselves appear reluctant to assign or assess student writing.

Because of the perceptions of teachers—in this study, all three teachers—of writing as a distasteful activity, professional learning events should provide teachers with opportunities that present writing as engaging and purposeful. If they are to provide models of anticipated DOK responses and to assess them, teachers should have exposure themselves to demonstrations of expected outcomes. Guiding teachers to prepare and therefore model DOK in their content areas could prove beneficial. Math teachers who are encouraged to describe in detailed writing their own step-by-step processes for solving complicated mathematical equations may, in turn, more confidently provide
models of their expectations for students. Similarly, science and social studies teachers who experience writing their own DOK demonstrations of curriculum content are better equipped to create learning opportunities for students that promote demonstrations of higher levels of DOK.

When teachers become comfortable with writing and deem it useful and purposeful, they will sense the added learning resulting from requiring it of their students. The attitude of the math teacher in this study implies that the longer a teacher maintains a negative attitude toward writing, the more embedded that attitude becomes, culminating in her reference to hating to write. Although changing attitudes about writing may prove more difficult among teachers with more years of service, nonetheless doing so will improve the possibility that their students are writing and demonstrating strategic and extending thinking.

Planners of professional learning events might also consider allotting time for teachers to develop rubrics for assessing student writing in the content areas. Providing models of such assessment instruments and modeling the assessment process when using them to rate student work gives professional development planners the opportunity to increase teachers’ confidence in their abilities to generate writing and to respond to their students’ written work.

For administrators

Administrators at times fulfill the role of assessors of the classroom environment, seeking evidence not only of effective teaching practice but also of teacher commentary that reflects the performance standards, which, in the district in which this study occurred, are required to be visibly displayed in the classroom on samples of student
work. Administrators who experience generating such commentary themselves are more likely to recognize authentic teacher commentary that exceeds merely scoring an assignment for correctness and responding with encouragement that makes the student feel successful. Such experiences might yield the bases from which they would also be able to determine if a disconnect occurs between what a teacher perceives to be extended thinking but what is, in actuality, mere recall or basic skills.

The primary implication for administrators who evaluate teacher performance is that they, as observers and documenters of instruction that embraces the DOK philosophy, might best serve as instructional leaders when they have a working knowledge of what DOK is. If they, like the social studies teacher in this study, presume that they have observed evidence of DOK as presented by a student’s verbal interactions with either classmates or the teacher, they fail to distinguish higher- from lower-level performance indicators. Therefore, administrators benefit from professional development events in which they themselves practice providing evidence of DOK. In short, all groups experiencing the collaborative, student-oriented learning context espoused in numerous studies as best practice for writing instruction will be better equipped to lead such instruction, assess it, and mentor it.

For future study

Future studies related to teacher attitudes about writing, about perceptions of the teacher’s role as writing instructor, and about standards-based instruction that leads to DOK could incorporate a more diverse population of teachers and students, a wider range of content areas and of schools, and a longer time period for gathering data. A mixed-methods study might also prove beneficial, beginning with an analysis of pre-test data for...
both a comparison group and for an intervention group. Professional learning events for teachers that provide instruction on writing as evidence of DOK could be then conducted, culminating in an analysis of post-assessment data for both the control group and the study group. Observations and interviews conducted both pre- and post-intervention would provide triangulation and add further validity to future study.

Emerging Questions

Questions that have emerged during this study that warrant further research include the following:

- How might teachers’ negative self-perceptions about writing be overcome?
- What are the indicators that students are achieving higher levels of DOK?
- What correlations exist between DOK and the Georgia Performance Standards?
- What practices promote DOK, and how might teachers be encouraged to incorporate them into their classrooms?
- What teaching practices limit or prohibit students from achieving the higher levels of DOK, and how might these limitations be overcome?
- How might teachers who have not experienced a constructivist environment learn to challenge students to demonstrate strategic and extended thinking processes?
- To what extent might Stamford High School be considered one small pixel in a picture coming into increasing clarity about how education currently functions socio-culturally?
Final Commentary

Teachers endeavor to prepare students for a globalized workplace comprised of careers not yet imagined. Not only will effective communication be essential for success, but becoming lifelong learners and critical thinkers who can adapt to constantly changing contexts will prepare students for futures neither they nor we are able to predict. The classroom instruction I observed for this study falls short of such goals. The practices observed in this study limit classroom activities to rote memorization in preparation for high-stakes assessments, condensing writing for the purpose of gathering information for multiple-choice questions and other abbreviated responses to test items, and to transferring data from one visual organizer to another. These activities fall short of the strategic and extended thinking skills in which students use, explain, apply, and critique concepts, practices which prepare them for the challenges they will encounter when they leave our classrooms.

While all of these teachers perceived of themselves as instructors and assessors of higher-order thinking, not one engaged in reflective writing practice nor did any of them promote student reflection in their classrooms. On no occasion were students observed as creators of knowledge or as assessors of their own or of their classmates’ critical thinking processes. Instead, students prepared for teacher-generated assessments or for high-stakes, standardized tests that preclude deep knowledge and students’ engagement in their own learning.

Indeed, the factory model of education is alive and well at Stamford High School. Our students may demonstrate the ability to meet our current expectations, but when they have graduated and left our halls to encounter life assessments, they may find themselves
lacking in critical and analytical skills. They may discover that they have been left behind as a result of an educational system focused on uniformity, unrealistic expectations of teachers, and classroom instruction that never challenges them to explain, analyze, or synthesize the concepts they have encountered in the current education system.
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Appendix A

Parent/Student Consent Form

For Participation in Writing across the Curriculum: Case Studies of Three Content-Area Teachers

I agree/give my consent for (child's name) _____________ to participate in the research project entitled Writing Across the Curriculum: Case Studies of Three Content Area Teachers, which is being conducted by Patsy Hamby, phamby@paulding.k12.ga.us, 770-443-1182. I understand that participation is voluntary, and I can withdraw this consent at any time without penalty to my child’s grades or reputation. The data for this study will be kept for three years.

The following points have been explained to me and my child:

1. The reason for the research is to determine teacher perception and practice for writing in the content area of math, science, or social studies, and the benefits that I may expect from it include access to research in the area of Writing across the Curriculum.

2. The procedures are as follows: Participants in this study will be observed in their classrooms for thirty minutes, and teachers will be asked to surrender documents the students produce as assignments following the teacher’s assessment of those documents.

3. The discomforts or stresses that may be faced during this research are: an examination of pedagogical practices regarding writing in the content area and how these practices engage or disengage students.

4. Participation entails the following risks: none anticipated

5. Randomly assigned pseudonyms will be used for both teachers and students in this study. The school setting will also be given a pseudonym, and teachers and students will be assured of confidentiality regarding observations, interviews, and student work. The results of this participation will be confidential and will not be released in any individually identifiable form without the prior consent of the participant unless required by law. Data collected for this study will be safeguarded on a password-protected computer and on a flash drive, both kept under lock and key in the researcher’s desk drawer.

6. Inclusion criteria for participation: The participants in this study will be teachers between the ages of 30-40. Observations will be conducted in one social studies, one science, and one math classroom, each with high school students in grade-level classes the participants teach.

______________________________
Signature of Participant, Date

______________________________
Printed Name of Participant

______________________________
Signature of Parent or Guardian, Date

PLEASE SIGN BOTH COPIES, KEEP ONE AND RETURN THE OTHER TO THE INVESTIGATOR

Research at Kennesaw State University that involves human participants is carried out under the oversight of an Institutional Review Board. Questions or problems regarding these activities should be addressed to the Institutional Review Board, Kennesaw State University, 1000 Chastain Road, #0112, Kennesaw, GA 30144-5591, (678) 797-2268.
Appendix B

Teacher Consent Form

For Participation in Writing across the Curriculum: Case Studies of Three Content-Area Teachers

I agree to participate in the research project entitled Writing across the Curriculum: Case Studies of Three Content Area Teachers, which is being conducted by Patsy Hamby, phamby@paulding.k12.ga.us, 770-443-1182. I understand that this participation is purely voluntary, and I can withdraw my consent at any time without penalty to my job or reputation. The data for this study will be kept for three years.

The following points have been explained to me by the researcher:

1. The reason for the research is to determine teacher perception and practice for writing in the content areas of math, science, or social studies, and the benefits that I may expect from it include access to research in the area of Writing across the Curriculum.

2. The procedures are as follows: Participants in this study will be interviewed and observed in their classrooms for thirty minutes, and teachers will be asked to surrender documents the students produce as assignments after they have been graded and any rubrics or formal assessment instruments used.

3. The discomforts or stresses that may be faced during this research are: an examination of pedagogical practices regarding writing in the content area and how these practices engage or disengage students.

4. Participation entails the following risks: Generally, the effects of this study should be no more than those experienced in daily life. However, the potential exists for some discomfort on the parts of those participants who dislike or prefer not to write, but it is anticipated that this discomfort will be mild in nature.

5. Randomly assigned pseudonyms will be used for the teachers and students in this study. The school setting will also be given a pseudonym, and teachers and students will be assured of confidentiality regarding observations, interviews, and student work. The results of this participation will not be released in any individually identifiable form without the prior consent of the participant unless required by law. Data collected for this study will be safeguarded on a password-protected computer and on a flash drive, both kept under lock and key in the researcher’s desk drawer.

6. Inclusion criteria for participation: The participants in this study will be teachers between the ages of 30-40. Observations will be conducted in one social studies, one science, and one math classroom, each with high school students in grade-level classes the participants teach.

Signature of Investigator, Date

Signature of Participant or authorized representative, Date

PLEASE SIGN BOTH COPIES, KEEP ONE AND RETURN THE OTHER TO THE INVESTIGATOR

Research at Kennesaw State University that involves human participants is carried out under the oversight of an Institutional Review Board. Questions or problems regarding these activities should be addressed to the Institutional Review Board, Kennesaw State University, 1000 Chastain Road, #0112, Kennesaw, GA 30144-5591, (678) 797-2268.
Appendix C

Interview Protocol

1. Tell me about yourself as a teacher. Why do you teach, why do you teach your subject, what educational preparation and certifications do you have? How long have you been teaching?

2. How do you perceive of yourself as a writer?

3. What factors have contributed to your attitudes about writing?

4. What do you think about the Georgia Performance Standards for writing in your content area? (Copies of the GPS’ for writing in the content area will be provided should the interviewee ask for them.)

5. What are your expectations of students regarding writing in your content area?

6. How do you convey your expectations?

7. How do you assess student writing?

The following questions served as a guide for the focus group interviews:

1. How do you perceive the Georgia Performance Standards for writing in your content area?

2. In what ways and how often do you implement the performance standards for writing in your classroom assignments?

3. How do you feel teachers in your content area should assess student writing?

4. How much weight do writing assignments in your content area carry?
Appendix D

Open Codes used in Atlas.ti 6.2 Software

**Code-Filter: All**

HU:  WAC Research
File:  [C:\Users\Psyat\Documents\WAC Data\WAC Research.hpr6]
Edited by: Super
Date/Time:  09/23/2011 06:35:07 PM

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**Assessing student writing**

**Assessment informal**

**Assessment marks**

**Assessment of subject**

**Assessment types**

**Assessments**

**Assignments**

**Attitude about subject**

**Attitude about writing**

**Attitude Writing**

**Benefits of writing in content area**

**Certification**

**Collaborative planning**

**Color of pen**

**Degree**

**Discussion as means of DOK**

**Doc type math**
Doc type science
Doc type social studies
DOK
DOK training
Education
English teacher ref
Experience
Experience affects teaching
Experience with writing
Grade range
High stakes testing|Math
Intended audiencee
Math
Math|GPS
Math|Writing assignment
Minimizing writing in teacher experience
Minimizing writing task
Motivating students to write
Number of students
Professional development
Question types on assessments
Questioning strategies
Science
Science GPS
Social studies GPS
Social Studies|GPS
Standards
Student discussion for clarification

Student struggles

Student writing to communicate with teacher

Teacher attitude about assessment

Teacher centered

Teacher commentary

Teacher discussion to minimize written commentary

Teacher Expectations

Teacher explains concepts

Teacher explains concepts

Teacher silent

Teacher stress

Teaching experience

Test bank

vocabulary

What I write

Why teach

Writing assignments
Appendix E

Depth of Knowledge (DOK) Levels

**Level One** (Recall)
- Recall events and details of story structure, such as sequence of events, character, plot, and setting.
- Conduct basic mathematical calculations.
- Label locations on a map.
- Represent words or diagrams a scientific concept or relationship.
- Perform routine procedures like measuring length or using punctuation marks correctly.
- Describe the features of a place or people.

**Level Two** (Skill/Concept)
- Identify and summarize the major events in a narrative.
- Use context cues to identify the meaning of unfamiliar words.
- Solve routine multiple-step problems.
- Describe causes/effect of a particular event.
- Identify patterns in events or behavior.
- Formulate a routine problem given data and conditions.
- Organize, represent, and interpret data.

**Level Three** (Strategic Thinking)
- Support ideas with details and examples.
- Use voice appropriate to the purpose and audience.
- Identify research questions and design investigations for a scientific problem.
- Develop a scientific model for a complex situation.
- Determine the author's purpose and describe how it affects the interpretation of a reading selection.
- Apply a concept in other contexts.

**Level Four** (Extended Thinking)
- Conduct a project that requires specifying a problem, designing and conducting an experiment, analyzing its data, and reporting results/solutions.
- Apply mathematical model to illuminate a problem or situation.
- Analyze and synthesize information from multiple sources.
- Describe and illustrate how common themes are found across texts from different cultures.
- Design a mathematical model to inform and solve a practical or abstract situation.

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