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Academic Writing and the Pedagogical Practices of Effective Teachers

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ACADEMIC WRITING AND THE PEDAGOGICAL PRACTICES

OF EFFECTIVE TEACHERS

by

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DEDICATION

For over two decades, I have been privileged to work with students in public schools and

at the university. This dissertation is dedicated to them.

ABSTRACT OF THE DISSERTATION

Academic Writing and the Pedagogical Practices
of Effective Teachers
by
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Composition, particularly when academic register is required, is a complex task. Because cognitive flexibility theory explains how humans can spontaneously restructure knowledge and adapt to situational demands, it is ideally suited to the ill-structured domain of transactional writing. Global aspects related to paragraph and whole-text structure and local operations related to word and sentence-level features define academic writing. A mixed-methods design used quantitative methods for investigation of five corpora of 10th grade students' work. Qualitative methods were used to explore the means teachers used in promoting academic writing and the interactions they intended to promote via teaching cues, including prompts. Students' perceptions were similarly explored for contrastive purposes. Descriptive statistical and qualitative analysis of five corpora of student writing samples, high school exit exam results, surveys of students and teachers, and interviews with students and teachers were employed. This study suggests that interaction with students, while they compose, is critical to successful academic writing on the part of students. Systems are slow to change; however, this study may provide some models and descriptions of successful performance needed to encourage teachers and school systems to improve practice and academic outcomes in writing and content areas that include writing as a means of learning and assessment. Increased instructional precision may be of more value than simple prescription. Results suggest that cross-disciplinary activities may improve the uptake of academic words found on an academic word list. In addition, the type and quality of the prompts or directions for writing students are given affect the quality of students' written work. As well, students and teachers valued the cues and oral feedback provided on drafts of student compositions. The results of this study suggest that when students are provided a contextually rich environment, challenging writing tasks, and support with appropriate cues, they may succeed as writers and thinkers about complex topics within and across disciplines.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACKNOWLEDGMENTS

CHAPTER 1

INTRODUCTION

Results of the National Assessment of Educational Progress (U.S. Department of

Education, 2003) showed gains for 4th and 8th grade students in written proficiency for every

percentile band except the lowest 8th grade band for the 2002 administration of the

assessment over the 1998 administration of the test. Grade 12 results were less satisfying for

students in the 50th percentile band and below. Boys perform less well than girls at every

grade level tested (4th, 8th, and 12th) and blacks and Hispanics perform less well than whites

and Asian/Pacific Islanders. However, students at the proficient level, or above, consistently

make up less than 30% of student writers taking the assessment. In 2002, 31% of student

writers scored in that category, but only 24% of grade 12 students were proficient or better as

measured on the NAEP. While some progress has been made, there are significant gaps, too.

Professionals in education need to ask hard questions about how we teach our students to

write.

Some instructional practices may have the effect of an analgesic to solve educational

problems. The analgesic makes the symptom disappear temporarily, but the long-term effects

show up again sooner or later sometimes increasing the magnitude of the problem. Senge

(2006) characterizes this as an archetype: shifting the burden. In this archetype, the solvers of

problems resort to techniques and strategies that actually mask the underlying problem by

dealing with symptoms rather than causes. For example, a teacher notices that students

struggle with writing; they consistently use the same sentence structures within a piece of

writing and across several pieces of writing. Subsequently, the student is given a series of drills as an analgesic for the pain of the consistently boring sentences. After a delay, the student writes another piece only to resort to the same habit of boring sentence structures. The teacher, hoping for genuine learning, then evaluates the piece only to be disappointed. Returning the written work to the student after another delay, the teacher appends, orally or in colorful ink, the wish for a better job of constructing sentences "next time." And it is little more than a wish; the problem will resurface next time.

Instead of looking only at the errors or unsophisticated responses that student writers make, we instead might focus on the problem. This dissertation suggests that the problem may be, in part, the cues provided to students in preparation for writing and while they write. Writing is much too complex and dependent on variables that are unlikely to be the same from task to task and from time to time. Good writing instruction requires a teacher who actually writes and knows what good writing looks like in many genres and discipline-specific contexts. Having written many pieces and read many more, such a teacher knows why good writing looks as it does and can communicate that successfully to the students for whom the teacher has assumed a level of responsibility. This study suggests that interaction with students, while they compose, is critical to successful academic writing. Systems are slow to change; however, this study may provide the models and descriptions of successful practice needed to encourage teachers and school systems to improve practice and academic outcomes in writing and content areas that include writing as a means of learning and assessment.

A distinguishing feature of academic writing is often the stance the writer takes toward the content and the intended audience. Britton (1992) offers a spectrum of writing tasks (and, by extension, other language tasks) with expressive language in the center. He

discusses both oral and written language, but this paper focuses on written language. From expressive language children learn to write in a poetic stance or a transactional stance. However, Britton warns that the distinction "may not be a sharp one" (p. 174). In poetic writing, the reader must attend to the work as a whole; in other words, the poetic stance creates its own context in many ways. This is not to say that works of creative literature do not draw on the cultural experiences of the author or ask the reader to respond emotionally (cf. Rosenblatt, 1995). On the other end of Britton's spectrum are transactional tasks.

A transactional task requires the participation of others and depends on the context of what others write, say, and do. This dissertation, for example, assumes a transactional character in large measure. The reader may wonder how participation is integral to academic written work. This concept is worth a few words of explanation. First consider this sentence; I have given you a direction: "consider . . ." an invitation to be part of the evolving chain of logic represented in this proposal. Second, I have situated my work among the work of others. In the previous paragraph, the ideas of Louise Rosenblatt and James Britton are specifically included as a point of articulation: my ideas situated with those of other scholars. In addition, what is written here may invite your agreement or disagreement, provoke you to explore further and add to the grand conversation, and so on. There are other means by which participation is evident in transactional writing, of course. Some of those will be explored in greater depth in Chapter 2.

The concept of a spectrum of written tasks student writers might encounter in school invokes a corollary, as well. Academic writing is generally, but not always, transactional in nature. Academic tasks in high schools may ask students to participate by constructing domain-specific knowledge through writing. By listening to the teacher, reading the works of others, observing various phenomena, and engaging with the ideas of peers in the classroom,

the student synthesizes and constructs understanding, often through writing about the concepts and facts in that domain. If this is so, then the role and function of texts brought into the learning environment takes on particular importance. College writing tasks, much like high school tasks, often fall on a continuum of five types, according to Bean, Chappell, and Gillam (2007). These include writing to:

- Understand course content more fully
- Report understanding of what a text says
- Practice the conventions of a particular type of text
- Make claims about a text, and
- Extend the conversation.

Inaccurate texts, texts that adopt an academic stance while ignoring important information (e.g., Loewen, 1995), or insufficient access to many sources of information may inflict a kind of damage on thinking and student-writers' work that should not be ignored. How might students construct a thorough understanding of any concept when the sources with which they must engage are insufficient?

When students compose in writing (after all, one can compose with a paint brush, on a musical staff, or in one's head), it may help them to adopt the stance most appropriate to the task at hand. As Britton (1992) noted, the distinction is not perfectly clear; still, part of a writer's job relates to the purpose for writing. Teachers may be in a position to help student writers articulate that purpose and in so doing to learn the written forms that help the writers to become participants in the world of ideas found in the classroom. Academic writing takes many forms. An English teacher may ask students to write a lyric poem and consider that an academic writing task. A math teacher may ask students to write learning log entries describing how they prepare for tests in algebra. Both have academic purposes; however, the first task is clearly poetic and the second is largely expressive. For our purposes, academic writing will generally be considered closer to the transactional stance.

Academic writing and the language registers associated with it tend to separate the writer from the ideas offered. Such writing attempts to convey objectivity through choices the writer makes. These choices can include avoiding the use of personal pronouns or increased density of technical nomenclature, for example. Williams (2006) argues, by contrast, that the identity of the writer cannot be erased from the written work and it may be futile or illusory to try. Mlynarczyk (2006) concurs and adds that personal writing may be a route toward increased proficiency with academic discourse forms. The distinction for high school students is highlighted because they are typically novice writers unfamiliar with the rhetorical moves required to create specific enactments of transactional or poetic composition. High school teachers need tools and descriptions of student writing that are domain-specific and of sufficient complexity to provide the rich cases students might use to increasingly acquire proficiency with academic writing. In this way, students learn to navigate the spaces around and between poetic, expressive, and transactional writing.

Students may attend to the larger differences in purpose proscribed by the stance required. Dix (2006) found that 9- to 10-year-old students did adopt varying approaches in revising their written work dependent on whether the written task was largely transactional or poetic in nature. In Chapter 2, local operations and global aspects of written academic tasks are considered in greater detail. In many cases, the literature shows that academic writing is constructed in different ways depending on the domain or discipline under study. However, most of the work done in this area represents writing tasks at the post-secondary level. A guiding hypothesis in the proposed study are that teachers and students, due in part to lack of sufficiently described cases of domain-specific writing, may misunderstand the purpose of the writing task vis-à-vis the transactional-poetic spectrum. Close examination of students' written work in three disciplines may uncover specific differences that will

contribute to better descriptions of what high school students understand and are able to

write in those disciplines.

CHAPTER 2

REVIEW OF THE LITERATURE

Composition, it may be argued, is a complex task. Some may call for simplified structures to ensure easily comprehensible approaches to the task of writing (e.g., Seo, 2007), but the complex nature of the task may not be served by instructional routines that are always presented simply. Cognitive flexibility theory (e.g., Spiro, Feltovich, & Coulson, 1996) is frequently applied to computer-mediated environments; however, it is a useful framework for considering approaches to writing instruction. Cognitive flexibility theory suggests that ill-structured domains are those domains that do not lend themselves well to reduction, to disaggregation, or to oversimplification. Writing, as the domain of inquiry in the present study, may be better suited to what Spiro and his colleagues call the expansive and flexible world view, a view which avoids prescriptive approaches or single representations of the product or process. Taken from this perspective, the most appropriate means of determining just how teachers interact with students, curricular requirements, and the demands of academic writing is to observe it in progress and to use the written products as artifacts for discussion and analysis of the teaching processes that contributed to the students' interconnected understanding of writing in school.

WRITING AS A DOMAIN OF INQUIRY— THE STATE OF THE DOMAIN

The kouros are Greek statues from the sixth century BC, but in 1983, the Getty Museum in Los Angeles acquired what it believed was an authentic kouros statue. Gladwell

(2005) recounts how the museum employed experts to examine the statue's origins and chemical composition. The results were encouraging and the museum placed the kouros on display. However, two experts were troubled but could not say why. Experts, it turns out, have often integrated the skills of their craft so thoroughly that it is not immediately evident how they employ those skills, even to themselves. In an educational setting, teachers must be expert writers, and at the same time, they must also know how to make that expertise visible to their students. Knowing how to convey expertise is a product of close analysis of those expert processes. Much of the instruction novice writers receive is informed by the written work of expert or near expert writers.

Composing processes, particularly those of proficient writers, have been the subject of inquiry for some time. Emig (1971) followed Day (1947) and focused on proficient 12th grade composing processes, and Flower and Hayes (1981) similarly examined the composing processes of adults. Atwell (1987) proposed writing conferences where teacher and student interacted, but in her model students largely explored what Langer and Applebee (1987) term personal or informal writing. However, written discourse in school is often intended to promote learning about content. Writing research has focused on observations of proficient writers performing in expressive or poetic genres; but many school writing tasks do not emulate that model. Instead, they are transactional in nature. More often student writing is used to assess that learning. Here a dichotomy may have arisen (Pritchard & Honeycutt, 2006), for how does the writer's identity, which is part of the objective of transactional writing, interact with the scholastic purposes of writing and discipline-specific expectations? In this study, the actions of the teacher that promote use of academic language and the moves of writers who can successfully interact with the discourse of others will be examined. The main focus of academic content standards is on student outcomes (as it should be); however,

when attention is given to the academic nature of written work, it is usually based on rather generic and macro-sized notions of what writing is and how to teach it. The construct of the ill-defined domain may well be useful in exploring the practices of novice and expert writers and the pedagogical practices of teachers who use writing as a means of exploring their own disciplinary domains with students.

Cognitive Flexibility Theory

Cognitive flexibility theory, as noted above, is often applied to computer mediated environments. Indeed, Spiro and his colleagues (e.g., 1996) began their exploration of cognitive flexibility theory by examining the misconceptions of medical students. They used a computer program to mediate these misconceptions within the framework of cognitive flexibility theory. For example, an autobiographical, arts-based research study connecting the experiences of the study's authors (Carpenter & Taylor, 2003) in creating connective and expansive experiences which, in turn, promote ambiguity and complication demonstrates how a computer-mediated environment can assist learners to make sense of complex notions. Software called StorySpace™ permits the user to add, create, rearrange, and generally determine a meaningful, but personal, path through the information thus accumulated. The authors used this software to create understanding of a work of art. The authors treated the artwork as a text, and referred to Barthes' (e.g., 1953/1967, 1964/1967) notion of the reader as a creator of text rather than simply a consumer of text. Burmark (2008) treats images as texts to be interpreted, though she doesn't state directly that images are texts. Either way, visual images are subject to interpretation and must be comprehended on the reader's or viewer's terms. Through the StorySpace software, Carpenter and Taylor created, via words and images, an understanding of the art as text. They wondered whether the inclusion in the

text/art of the artist's mentor was a form of homage or depicted a different version of the mentor as something else (due to the somber look on the mentor's visage). The authors also linked their understanding of the target text/art (this author's term) to other works of art by other artists who explored themes they felt were similar. They noted connections to a popular television show, "Changing Rooms" from the BBC (similar to the U.S. version of Trading Spaces). They note that the leap from a work of art to a television show is a rather large one, but they go on to explain that the hypertext environment encourages such leaps. Similarly, hypertext may encourage connections and small steps at the same time.

Classroom situations and experiences that promote the messy and complex may also lead, in the view of the authors (Carpenter & Taylor, 2003), to thinking and artifacts of thinking that are increasingly meaningful, creative, and innovative. The authors suggest that textbook authors and lecturers may artificially neaten a domain for the purposes of simplifying the learning to take place. Creation of art, according to the authors, is neither linear nor neat at the outset. This author adds that writing is rarely linear or neat, as well. Cognitive flexibility theory explains how humans can spontaneously restructure knowledge and adapt to situational demands. Hypertext is a means of linking different texts or portions of the same text such that they need not be read in a linear manner or in a particular sequence. They caution, citing Spiro, that only hypertext, which is itself flexible, can promote the kind of thinking that cognitive flexibility theory explains. The authors summarize: "Our interest in the power of hypertext, and our desire to encourage change comes from our belief that if encouraged to think hypertextually, contemplation, reflection, reading, and writing become important, liberating experiences for teachers and students of art" (p. 53).

However, subsequent theoretical work by Spiro (2004) applies cognitive flexibility theory to the domain of reading and reading instruction rather than hypertext environments. Demonstrating how skilled or expert readers make use of multiple tools depending on the reading context and situation, Spiro writes,

> Similarly, the skilled reader will sometimes rely more on the use of knowledge of phonics, sometimes use whole-language approaches; sometimes rely on prior knowledge and contextual information, sometimes accept a premise of novelty and rely less on prior knowledge; sometimes read for accuracy, sometimes skim for gist—all depending on characteristics of what is being read, why it is being read, and who is doing the reading. And, of course, sometimes, these strategies of reading are used in combination rather than in isolation from each other. (p. 655)

Applying cognitive flexibility theory to misconceptions medical students hold about the anatomy and function of muscles and organs, Spiro, Feltovich, Coulson, and Anderson (1989) demonstrated how those misconceptions resulted from application of a single analogy (e.g., comparing blood vessel function to the plumbing of a house) causing the students to misunderstand key attributes of how the vascular system actually works. A key premise of cognitive flexibility theory is that ill-structured domains are complex and irregular; the implication is that such domains resist oversimplification and generalizations about context. In the study of analogies in the field of medicine that caused misconceptions, Spiro et al. found that students who have adopted a particular misconception based on a single analogy tend to resist changing their notions about the concept even if new instruction is introduced. The research suggested that the best means of correcting the misconception is introduction of multiple, new, more powerful analogies. In addition, these new analogies should be introduced while clearly showing the important attributes that the original analogy misses. Medical students, according to Spiro et al. often use the analogy of a team of rowers in a boat to describe the movement of some muscles. The analogy captures the notion that individual muscle cells work together to produce force, but it misses the notion that muscle cells

actually work by pulling toward the center rather than all cells pulling in the same direction from one end toward the other (pp. 516-517). A new analogy of rowers facing each other and pulling against each other captures this concept.

Why Cognitive Flexibility Theory Matters

Neils Bohr developed a model of an atom in the early 20th century that showed electrons orbiting a nucleus. This conception is still cited in school texts today and the public in general recognizes the visual model of the atom (see Figure 1). The model is often equated, by analogy, to planets (electrons) orbiting a larger body (the nucleus). As in the medical model described above, the Bohr planetary model explains many things about the structure of atoms, but it misses others. Among scientists, for example, a model based on the work of Schrödinger and Heisenberg shows electron clouds rather than orbits (cf. Environmental Protection Agency, 2007; Hawkings, 1996). The planetary-atomic structure analogy does misrepresent the structure of the atom in several important ways including the principle that the force at work in planetary orbit is gravitational, a weak force, while the force at work in the atom is a strong force. This distinction is critical if one is to understand nuclear interactions. This example is cited for two reasons: (a) the power of existing models in people's minds is difficult to overcome, even in the face of new, more complete models; and (b) models may not capture all the relevant attributes and characteristics of a phenomenon or domain of inquiry.
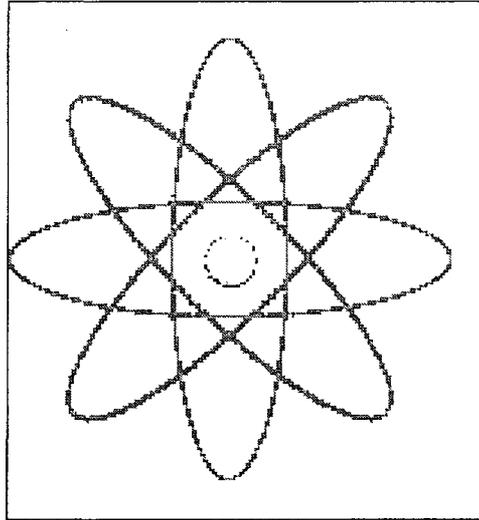
**Figure 1. The Bohr atom. Source: Public Broadcasting
Service. (1998).** *A science odyssey: Atom builder—You
try it.* **Retrieved July 3, 2008, from http://www.pbs.org/
wgbh/aso/tryit/atom/index-nojs.html**

In education, an existing model of learning is predicated on the notion that learners

know some things *a priori*. What students know before instruction has been characterized as

nonvisual information (Smith, 2004), prior knowledge, existing knowledge, background

knowledge (e.g., Strangman & Hall, 2004; Wolsey & Fisher, 2008), and so on, but the

theoretical work on which this is based began in 1932 with the publication of *Remembering*

by Bartlett. A schema, Bartlett suggests, is a hierarchical representation of knowledge, or a

plan for memories. The theory explains how long-term memory traces might be structured so

that memories might be retrieved on demand. Anderson (e.g., 2004) demonstrated how

schema theory works to explain reading comprehension. This application of the theory goes a

long way in showing how cultural information, previous experiences, and so on operate to

facilitate or hinder comprehension of texts read. Schema theory tends to inform pedagogy by

creating compartmentalized approaches and monolithic or generalized thinking according to

Spiro, Vispoel, Schmitz, Samarapungavan, and Boerger (1987). This approach may be useful

when considering the well-structured domain (Spiro et al., 1987) or introductory learning (Spiro, Coulson, Feltovich, & Anderson, 2004). Spiro and colleagues contend that oversimplification in advanced learning results in misconceptions about the content and may trigger strategic errors in applying important principles of the domain of inquiry. They call the tendency to reduce aspects of complex domains to simple representations the reductive bias. Their research suggests several themes relative to advanced knowledge acquisition. Here I simply list them, then explore those that are of particular relevance to this study.

- Avoidance of oversimplification and overregularization.

- Multiple representations.

- Centrality of cases.

- Conceptual knowledge as knowledge in use.

- Schema assembly (from rigidity to flexibility).

- Noncompartmentalization of concepts and cases (multiple interconnectedness).

- Active participation, tutorial guidance, and adjunct support for the management of complexity.

Oversimplification in writing instruction, and subsequently in the written work of public school students, may be manifest in pedagogical devices such as the five-paragraph essay or analogies comparing paragraph structure to fast food items (Fearn & Farnan, 2008a, p. 19). In this case, Fearn and Farnan refer to a popular metaphor of an essay resembling a hamburger with a thesis statement as the top bun, the meat and other dressings as the body paragraphs, and the bottom bun as the conclusion. When this author typed the search terms "five paragraph essay hamburger" into a search engine, several pages of hits referred to this metaphor. Proponents may argue that students must learn the basics before they can artfully create written work that exceeds this framework. Fairbrother (2003) traced the five-

paragraph essay (which she abbreviates as 5PE) to the mid-17th century and wonders why educators have not questioned the underlying assumptions of its purpose or utility in any meaningful way since. Dean (2000) suggests in an apology for the five-paragraph essay that the form is easy to grade, easy to teach because it's a formula, but also produces typically boring work. The five-paragraph essay format may be a fair example of how oversimplification of an ill-structured and complex domain has impacted pedagogy and perhaps caused students to misunderstand why schools require writing in the first place. Writing instruction that adheres rigidly to a process approach that marches students through steps (for example, prewriting on Monday, rough draft on Tuesday, and so on) may be another example of overregularization of the writing domain and tasks. Nuthall (2005) echoes this concern in noticing that teachers may work under the belief that if students are working toward a format deemed "proper" that learning is automatically taking place.

THE ILL-DEFINED NATURE OF WRITING TASKS: RELATED LITERATURE

Experts at any task apply skills in significantly different ways than novice learners. Author Ray Bradbury advises authors to write with passion and provides examples of how he does just that. However, he also cautions that while beginning writers may write with passion, they will not be able to do so with the adept skill of the experienced writer. "All of this is primarily directed to the writer who has already learned his trade; that is, he has put into himself enough grammatical tools and literary knowledge so he won't trip himself up when he wants to run" (1990, p. 7).Young writers in school are novices at the practice rather than inexperienced versions of expert writers, according to Berninger and her colleagues (Berninger, Abbott, Abbott, Graham, & Richards, 2002). Their cognitive model of the

writing task differs in important ways from that of Atwell (1987) and Emig (1971), especially when applied to transactional writing, a topic to be explored later in this chapter. They contend that writing is a more complex task than reading, and it is a different task rather than simply a mirror image of reading, although it draws on many of the same language and memory resources. Writing is much more than the inverse of reading in their model and may place greater demands on working memory than reading does (Berninger & Richards, 2002). If so, the cognitive resources used in composing may indeed demand difficult work for the novice writer, thus explaining why some students resist writing tasks in school but not other tasks such as reading or working in groups. This model is pedagogically useful in that it describes the jobs of writing; these jobs include generating ideas, attending to spelling, understanding and generating sentences, composing meaning at the paragraph and whole text level, and so forth. However, if students are to become proficient writers, they must attend to multiple jobs simultaneously and give priority to some jobs depending on the variables of the writing task at any given time.

A writer generating a written summary of a science experiment, for example, must determine key findings of the experiment, attend to the organizational structure of the experiment (source), decide if the structure of the experiment will lend itself to the summarization task, organize relevant points mentally or in written note form, determine which rhetorical structures from a store of such structures obtained from instruction and wide reading will create an interesting lead sentence, attend to orthographic and morphological features of the science vocabulary, and so on. In addition, the jobs of writing a summary will vary from novice writer to novice writer depending on individual factors such as the available background knowledge about the structure and purpose of summarization, prior

knowledge of the science concept itself, knowledge of stylistic elements such as how to structure the lead sentence, and lexical access to relevant vocabulary.

Successful writing instruction must, therefore, take into account a wide range of student skills and knowledge, complex cognitive functions, content knowledge, and knowledge of composing theory from idea generation to text generation. I argue that teachers must know the difference between good and poor writing, know that the difference can be measured, and know how to measure students' written products to inform instruction. If writing is a complex and cognitively demanding task, then it follows that teaching students to write is also a difficult and cognitively demanding task. At the same time, this dissertation argues that it is an attainable goal.

Stance

Much academic writing is a chimera, Williams (2006) asserts, in that it attempts to make objective the nature of academic writing by hiding or obscuring the writer. Some have argued that academic writing, with its lack of personal pronouns and use of the passive voice, provides an opportunity for anyone to participate regardless of gender, race, linguistic heritage, and so on. Nevertheless, Williams argues that a basic assumption of academic writing should be that readers assume that the identity of the author is important, after all. Williams cites several works that demonstrate that passion, as an aspect of identity, is exactly the quality that makes academic writing significant and worth remembering. Few question, he suggests, the value of passion in the work of such noteworthy academics. He then speculates that passion is frequently denied the student, yet reserved for the respected scientist. Williams proposes that we actively teach our students that the supposedly detached academic is, after all, simply performing a role. He goes on to encourage his readers to teach

students to question that identity and its relation to the work at hand. He sums up by quoting an unnamed scientist who embodies the idea that one need not divorce oneself from an identity as a person in order to pursue an academic life: "The scientist's goal was 'to be a physicist who didn't build bombs'" (p. 714).

The role of the personal narrative or personal writing, in school and elsewhere, is helping writers to make sense of their lives. Spigelman (2001) explores the role of such writing as it relates to scholarly writing. She traces the notion of scholarly writing as far-seeing (as opposed to personal writing) to Plato who characterized philosophers as experts who could see what the ordinary individual could not. Personal writing, according to Spigelman, may situate race, gender, class, and other such constructs in a context that makes them comprehensible. She briefly attends to the notion that traditional evidence in scholarship has silenced the voices of those outside the mainstream (read—women, minorities, other cultures). Spigelman reviews the ideas that writers, no matter their topic or approach, can divorce themselves from the place in which they write, the literary traditions that inform their approach, and the cultural milieu in which the writing occurs. Only those that have already paid their professional dues are able to "get away" with personal writing that may be considered scholarly. The status of the author impacts the value placed on the writing, perhaps regardless of the purpose or genre. This situates personal writing as a political act. In the classroom setting, expressivist writing was viewed as an alternative to writing tasks which asks students to make insightful commentary on topics about which they know very little. In time, Spigelman argues, the methods of such writing (free writing, journals, some workshop dialogs) were confused with the emphasis of the writing tasks ; that is, the individual voice versus writing to join a scholarly discourse community.

Finally, the author suggests that instructors do a disservice to their students by failing to teach them the means by which they can participate in the discourse community. Narrative, Spigelman (2001) continues, can serve the needs of the academic community; she cites Aristotle who suggested that narrative is an effective means of articulating the events of the past as they inform future events. Each story serves as an example which informs the dialogue. She concludes with an extended discussion of the need to problematize the discussion of narrative and scholarly forms. What does it mean to include or exclude particular forms of discourse? One problem is that personal experience is difficult to refute; at the same time, it may be difficult to generalize beyond the experience of the author. However, Spigelman proposes that scholarly writing often employs personal approaches, and she cites several examples in support of that proposition. The work of Bruner (2002), by comparison, saw the narrative as the pursuit of truth through an examination of law and literature.

Journals are common tools used in writing across the curriculum (e.g., Fearn & Farnan, 2008b). Mlynarczyk (2006) presents data connecting the notion that personal writing of the journal type can be a scaffold leading toward increased proficiency in academic writing. All writing is situated in a social context, in this view. For the academy, this assertion is of particular consequence: the academy is a social construction. She analyzed journal entries for five students looking for links between the students' personal or private writing that led to increased participation in academic discourse. She cites the case of Roberto, from her research, as exemplary. Roberto used his journal entries to navigate the complex world of such courses as philosophy and developmental writing.

Journals may be useful tools that assist students to enter the world of academic discourse, Mylnarckzyk (2006) found; however, students may regard their journals as private

writing. Since academic writing is necessarily public or social in character, some students were uncomfortable writing in their journals because they either did not wish to share their work or could not bridge the gap they perceived between the public and private spaces represented by the writing tasks. Some students chose to keep two journals, one in which they could write their private thoughts and another in which they could explore academic discourse they would share with the instructor. The study did not compare students' journal responses with academic writing in essays and other tasks; rather, the study relied upon grades and analysis of the journals.

The line between personal and academic writing may not be a clear demarcation, but it remains a useful means of thinking about writing tasks. Academic writing does make demands not necessarily present in personal writing even if a personal approach is taken. Charles (2006) compared 16 theses; 8 eight were from political or social sciences, and 8 were selected from the natural sciences. Each was analyzed to determine the stance the authors took in relation to their own work and the work of others through an examination of reporting clauses in the selected thesis. To create a concordance relative to selected words in the corpora (collection of theses), Charles used a software tool, WordSmith Tools®. These words included the words "that" and "it" as they related to averral (that is, the author asserts ownership or veracity of the idea or notion) and attribution. Averral (from the verb "aver") is the notion that the author is responsible for the accuracy or veracity of the propositions represented in the text unless attribution is made elsewhere. Hynd-Shanahan, Holschuh, and Hubbard (2004) proposed three attributes of writing history that demonstrate how a writer may aver through evaluating the quality of sources, contextualizing space, time, and place, and corroborating evidence across sources.

"That" clauses may not include all instances of averral or attribution, Charles reminds the reader, but "that" clauses are sufficiently generalized in academic writing to justify this approach to the analysis of the subject documents. The study proceeds on the assumption that averral is of three types: self-report, hidden report, and report without attribution. In self-report, the author uses phrases such as, "I suggest . . ." or "This author proposes . . . ." A hidden report is one where the source is obscured; the article identifies the phrase, "One can argue . . ." as a form of hidden report (of the general attribution type). Reports without attribution may make use of the passive voice (e.g., "It can be inferred . . .").

For the relationship of clause type to source type, Charles (2006) proposes what I term a *typology*, and she notes that the different disciplines result in different uses of averral and attribution. The study reports that social science (politics) theses are more likely to use human references than the natural sciences theses (materials). In this case, a non-human reference is one that is usually constructed in passive voice. Charles predicts that the reason for this discrepancy is the result of the type of work done within the discipline; natural sciences are more likely to report on observed phenomena, for example. Findings suggest that authors of academic works insert themselves into the texts they create (a stance) even if that stance is obscured by the use of passive constructions or other non-human referents to the source. The author also notes that use of nouns and verbs (and related noun or verb clauses) appear with some frequency in the theses. Nouns and noun clauses appear, as one might expect, in different ways between the two genres. Politics theses made more frequent reference to text nouns which refer to the source text while materials theses made more frequent use of research nouns which refer to the research observations. The study reported observations about verb use, as well. Verbs were classified as "show," "argue," "find," or "think." Materials theses relied more heavily on "show" verbs (reveal, demonstrate) whereas

the politics theses relied more heavily on other texts as shown through verb choices of the

argument type (argue, suggests, propose).

The use of averral and attribution appears to give the writer an objective viewpoint,

while at the same time permitting the writer to take a stance toward the work or the

conclusions of the work (e.g., "The findings in this paper show . . ."). Some discussion of the

I, we, and "this author" constructions are given as means of emphasizing the stance the

author has taken. Politics papers (which readers of this annotation can infer includes

education) tend to emphasize "argue" verbs and use of the personal pronoun ("I"). Materials

papers tend to use show verbs and emphasis on research nouns. Charles (2006) writes:

> In presenting their research to the disciplinary community, writers need to
> construct a stance which will maximize the likelihood of it being accepted. Thus
> they need to highlight their individual claims, while simultaneously fitting them
> into the framework of disciplinary knowledge and practice. (p. 514)

The complexities of writing for academic audiences and purposes are illustrated in

the foregoing studies. How these features function in academic writing are explored next.

Teacher and Students: An Instructional Dialogue

Two important aspects related to academic registers include vocabulary required to

successfully navigate the academic world students inhabit and the particular moves in written

discourse that demonstrate competence and ability to work within an academic environment.

Teachers often dance with difficulty along a fine line between preserving students' identities

as thinkers and learners and carefully scaffolding (Bruner, 1978) learning such that students

attain command of academic registers which might be evident in students' written work.

Cazden (2001) and Mehan (1979) described the means by which teachers succeeded or failed

in oral discourse to assist students to adopt the features of academic language, but their work did not explore substantially beyond the realm of oral exchanges.

Local operations are of particular interest in this study; key features of writing at the word through paragraph levels help shape thinking about content in differing ways depending on the discipline. For example, Fang, Schleppegrell, and Cox (2006) suggest, through their examination of the role of nouns in academic registers, that explicit instruction in the means by which language builds knowledge in content-specific areas can result in successful outcomes as students read and write academic texts. In his descriptive study of 4th grade science journals, Esquinca (2006) found a significant correlation between relational phrases in student writing and conceptual understanding. Nominalization is the use of parts of speech such as verbs in the noun position in a sentence. For example, in the following sentence, the verb "combining" is used as a noun: "During the experiment, the combining of two chemicals resulted in an unstable mixture." Interestingly, though nominalization is a common feature of the scientific academic register, the Esquinca study did not find a relationship between students' use of nominalizations and conceptual understanding.

Producing academic writing at the local operations level (e.g., word choice, sentence structure, and logical relations between sentences at the paragraph level) has not received much attention since the Applebee studies (1984). The following sections explore literature describing local operations followed by research and commentary regarding global aspects of academic writing tasks.

Local Operations: Word Level Features

Local operations include word choices, sentence construction, and interactions between sentences within a paragraph. Vocabulary control is a feature of competent writing within a given discipline. Flanigan and Greenwood (2007) suggest a theoretical approach to vocabulary instruction in the content areas and provide a case study as an exemplar of the framework. They describe a social studies teacher using a traditional approach toward vocabulary instruction; that is, students copy definitions to match vocabulary terms in advance of reading the content text. They assert that this approach is not effective and explore, briefly, the notion that research doesn't always translate readily into effective instructional practices. Vocabulary instruction, as Flanigan and Greenwood visualize it, focuses on effective comprehension of reading tasks. However, the study is based on a single case and there is no data to support the effectiveness of the approach other than general research data completed by previous researchers.

The premise of Flanigan and Greenwood's (2007) approach is that students' (referring to background or prior knowledge) purposes for learning specific vocabulary should be matched with instructional strategies; in other words, not just any vocabulary strategy will do. In their framework, they propose four levels of vocabulary based loosely on the work of Graves (2000), Beck, McKeown, and Kucan (2002), and others. Their four levels are: (a) critical words, (b) foot-in-the-door words, (c) critical "after" words, and (d) words not to teach. Critical words are those that students must understand in order to comprehend text but are not fully supported in-text. Foot-in-the-door words are those that the gist of the word's meaning can be briefly introduced and context (such as an appositive phrase containing a definition) in-text provides enough support. Critical "after" words are those

which add precision to the students' vocabularies, are high utility, or are well-supported in text. The final level, words not to teach, suggests that teachers sometimes teach words simply because the teacher edition of the textbook identifies the words as vocabulary. Reasons not to teach a word include words students already know or words that do not match the instructional purposes of the lesson. Flanigan and Greenwood propose a process for choosing words to be taught based on their four-level approach. The principle of planning with the end in mind forms the foundation for this process. They then return the reader to the case study to show how the teacher employed the framework and planning process to choose vocabulary and instructional strategies to match the framework. No data is provided to support the conclusion that the framework and planning process are effective; however, vocabulary instruction is relevant to the present study. This model may inform the instructional tasks teachers ask of students. The result may be increased uptake of new vocabulary in student work. In a study with 5th grade pupils, Lubliner and Smetana (2005) found that vocabulary interventions which focused on metacognitive skills and self-monitoring produced significant results.

The Academic Word List (Coxhead, 2000; Massey University, 2004), based on a corpus of 3.5 million words from university academic texts, includes words that exclude the most common in the English language and those that are not specific to just one discipline (called technical vocabulary in the Coxhead list). A premise of the academic word list is the notion that instruction in those words students might encounter in academic texts is likely to improve uptake or acquisition of those words as well as output in written tasks. The Coxhead list is constructed along the same theoretical lines as the tiered model (Beck et al., 2002). Tier one words, in the Beck et al. model, are common or basic words requiring little or no instruction. Tier two words are high utility words found across content or disciplinary lines

and which are frequently used by mature users of the language. Tier three words are found

far less frequently or are limited to specific domains. In *Writing Next*, Graham and Perin

(2007) note that discipline-specific vocabulary instruction may result in improved student

writing, but they assert that substantial additional work is needed in this area. Tier two and

tier three words, from the Beck et al. model, are characteristic of those content area teachers

in high school might expect students to recognize and understand in reading tasks and to

employ in constructing texts of their own within the discipline. By comparison, Zwiers

(2008) draws a series of overlapping circles to describe the interaction of foundation

language from home and culture with general academic language (for reading, writing,

thinking, and knowing) and discipline-specific language.

Personal pronouns are used somewhat differently in academic writing than in other

discourse structures. Harwood (2005) explores the use of the personal pronoun "I," the

inclusive pronoun "we" (which includes the writer and the reading audience), and the

exclusive pronoun "we" (which refers to the writer and those associated with the writer, but

excludes the reader) in his mixed methods study. He details a corpus-based study of

academic prose in the following disciplines: computer science, economics, business and

management, and physics. Pronouns assist the reader as an organizational device, a device to

include the readers as co-constructors of text, to recount experimental procedures, or to

acknowledge assistance or funding (e.g., I acknowledge the assistance of the Spencer

Foundation in preparing . . .). Some uses of personal pronouns present a low risk to the

reader, but others may present a high "threat to face" (p. 344). Inclusive uses of pronouns

tend to present a low threat to face, while exclusive use of pronouns increase the threat by

claiming authority. "Let's" and "Let us" are also cited as uses of inclusive and exclusive uses

of the pronoun. Use of pronouns may be used by the writer to express or impose power

relations. Harwood goes on to point out that the inclusive "we" is also a device used to spread the wealth (or lack thereof) among an entire discourse community. This device also reduces the threat-to-face aspect of academic writing.

A nomination process (Harwood, 2005) was employed for selecting the disciplines for inclusion. The fields were hard-pure (physics), hard-applied (computing science), soft-pure (economics), and soft-applied (business and management). Researchers (minimum of three) from British universities nominated the top three journals from within their fields. The two most popular journals for each of the four disciplines were chosen. Ten articles were selected for each discipline from the nominated journals for a total of 40 research articles (the corpus). The corpus was approximately 325,000 words in size. All instances of the target pronouns were studied in context to ensure that the author's informants were not the studied constructions (e.g., if an author quoted an informant who used "I" to illustrate a point). Uses of pronouns in these cases were deleted from further analysis. Quantitative analysis of the corpus showed that hard sciences were more apt to make use of the exclusive "we" while soft sciences were more likely to use the pronoun "I." Inclusive uses of "we" appeared more frequently in applied sciences than in pure sciences.

Qualitative analysis (Harwood, 2005) revealed that writers from all disciplines moved between the inclusive and exclusive use of pronouns to create a research space or recommend a procedure or methodology. Harwood postulates a fuzzy area between the inclusive and exclusive which writers exploit to include the reader in plugging gaps in the current research base, for example. The article proposes several rhetorical purposes:

1. Constructing novelty (by moving between inclusive and exclusive use of pronouns)

2. Describing disciplinary practices

3. Critiquing disciplinary practices

4. Elaborating arguments: the researcher's or the community's

5. Elaborating arguments: asking questions

6. Methodological description

7. Discourse guide (cf. Bean et al., 2007)

Harwood (2005) describes an analysis of English for academic purposes texts (EAP) which concludes that the authors of such texts tend to discount the use of the first person pronoun in academic writing if it is addressed at all. He concludes that the textbooks do not account for the full range of modalities available or useful in academic prose. The study was centered on pronoun use; thus articles that avoided pronoun use altogether were not fully treated in this study. Harwood points out that the EAPs are attempting to guide student writing while his own study examines the use of pronouns by experts in their fields and as writers.

The features of academic writing vary depending on a variety of factors that contribute to the complexity of writing for academic purposes. The choices students must make about vocabulary they feel competent to use (cf. Ooi & Kim-Seoh, 1996) may lead to how students produce vocabulary on writing tasks (Zwiers, 2008). Other factors related to pronoun use (anaphora), use of directives, and so on add to the complexity of the task. Students may be left to figure these structures out on their own or through expert instructional guidance if sufficient understanding of what students know about academic writing is available to teachers.

Local Operations: Audience

Authors take a position in relation to the audience they intend to address. The notion of audience is typically a generalization, and writers tend to take a position or stance based

on their perceptions of who the audience could be. For teachers, in a position of authority, this concept is especially important in that students may write differently, for good or ill, because students perceive and defer to the authority represented by the teacher and the school in general. Texts from different disciplines employ directives in different ways. As the reader will see, the activities and domain of inquiry dictate how directives might be used and in what ways the writer's authority is asserted.

A directive is an imperative imposed by the writer on the reader of the text. Directives often include verbs, such as, "consider," and "note," and auxiliary verbs, such as, "should," and "must." An example from a written text may illustrate how directives appear in texts: "Consider the visual impact of the Matson cartoon that appeared in the *New York Observer* after the attacks on the World Trade Center in 2001" (Wolsey, 2008b, p. 113). The reader is simply told what to do rather than invited or requested. Directives, according to Hyland (2002), attribute authority to the writer and direct the reader to attend accordingly. Hyland identifies three types of directives: textual acts (referring the reader to another part of text or another text), physical acts (which refer to research processes or action in the physical world), and cognitive acts (following a line of reasoning, for example). The author asserts different levels of authority depending on the type of directive (e.g., a textual act is not as forceful as a cognitive act, for example). Table 1 demonstrates categories and purposes of directives. Hyland points out that directives may be interpreted or seen as threats to the reader's face (do this, or . . .).

Hyland writes, ". . . but the ability of writers to establish effective relationships with their readers does build on the use of appropriate rhetorical choices to meet particular interpersonal expectations. Relationships typically imply professional equality in research papers, writer expertise in textbooks, and reader authority in student reports" (2002, p. 220).

The author goes on to point out that disciplinary conventions and genre convey relevant information about how the message is conveyed. The directives employed by the writer of a scholarly paper are a means of enforcing the writer's authority within the constructs of a given discipline.

Table 1. Categories of Directives

	Textual acts	Internal reference (see page 2 . . .) External reference
Directives	Physical acts	Research focus (set your meter at . . .) Real-world focus (ask a neighbor . . .)
	Cognitive acts	Rhetorical purpose (consider . . .) Elaborative purpose (view this as . . .) Emphatic purpose (please note . . .)

Source: Adapted from Hyland (2002).

The study analyzed a corpus of work composed of research articles, textbooks, and project reports written by undergraduates. The corpus spanned a range of disciplines. Interviews of researchers and students supplemented the analysis of the corpus. In a corpus of approximately 2.5 million words, the author found 4,723 directives throughout. As one might expect, student reports used imperatives the least while textbooks relied upon them the most (4 per 10,000 words for student reports versus 20.6 for textbooks). Texts selected were from those assigned or written by students and faculty at the university where the researcher works. Texts were searched using WordPilot for each of three surface features of text. Textbooks were more likely to instruct readers in real-world, non-research applications (four times more frequently). At the same time, textbooks were four times more likely to include the reader by use of plural, personal pronouns (e.g., "we," and "let's"). Interviews revealed

that students were aware of the use of modals (e.g, "must" and "should") but were wary of using them in their own writing because it might appear that they were telling their instructors (an expert, as they perceived it) what to do. Variations across disciplines showed that hard sciences tended toward directives far more than social sciences, but articles written for peers tended to use directives far less across the disciplines. It would be interesting to conduct statistical analyses of these results to determine significance, but this study did not go that far. Biology and philosophy texts seem to differ in important ways from other fields in both hard and soft sciences. Succinctness and precision are qualities of the papers that may explain the differences between disciplines (that is, the precise qualities of a paper in hard sciences may be a result of its empirical nature and the description of very specific and quantifiable variables). Use of only three surface features of text requires an inference on the part of researcher and reader that may not always be supported. The study proposed to analyze the responses of L2 (second language) readers and writers but spent little time exploring the aspects of that group.

Writers of academic texts situate their work within the social environment in which they find themselves and readers of those texts adopt stances appropriate to the texts. Directives are an important means by which authors situate themselves in the social construct of their disciplines. Writers insert themselves into texts in other ways that differ across and between disciplines. Metadiscourse is the means by which writers insert themselves into their texts. Hyland and Tse (2004) correct a common misconception; that is, metadiscourse is discourse about discourse. Metadiscourse, according to the researchers, signals the attitude the writer takes toward the content of the piece and toward the intended audience.It includes an ". . . array of cohesive and interpersonal features which help relate a text to its context by assisting readers to connect, organize, and interpret materials in a way preferred by the writer

and with understandings and values of a particular discourse community" (p. 157). Seen in this light, metadiscourse provides the thoughtful writer with the means of making a text particularly difficult or friendly to the reader. The authors suggest that metadiscourse serves purposes beyond mere connectives or transitions that guide readers. Metadiscourse, in their view, also permits the author to navigate community expectations and their own assertions. For example, phrases such as "admittedly" and "even if we assume" can serve as transitions while situating the authority or identity of the writer in the larger discourse. "However," "of course," and "by contrast" are concessive connectives that further align the writer's purpose with the discourse community and helps the reader navigate the terrain. Hyland and Tse also elaborate on the difference between internal and external connectives. An internal connective refers to the unfolding of the text itself while an external connective refers to the events described in the text.

A model of metadiscourse (Hyland & Tse, 2004) includes interactive resources (transitions, frame markers, endophoric markers, evidential, code glosses) and interactional resources (hedges, boosters, attitude markers, engagement markers, self-mentions). Two hundred forty dissertations from five Hong Kong universities were analyzed. These included 20 master's and 20 doctoral dissertations from each of six disciplines (electronic engineering, computer science, business studies, applied linguistics, biology, public administration). The researchers used the model of metadiscourse, mentioned above, for their analysis (Table 2).

Transitions and hedges in the Hyland and Tse (2004 study) were used more frequently than other forms of metadiscourse. In fact, transitions accounted for one-fifth of all the connections in the post-baccalaureate works studied here (Table 3, p. 34). Doctoral dissertations were more likely (10%) to employ interactive forms than the master's dissertations. Hyland and Tse speculate that the increase in the interactive is due, in part, to

the increased length of the doctoral dissertations. Doctoral dissertations were far more likely to employ evidentials as the master's dissertations; citation and establishment of one's credentials may be more important to the doctoral candidate than the master's candidates. The same is true of self-mentions which help establish an academic identity and engagement markers (e.g., "note that," "consider . . .") which similarly mark academic credentials. Soft disciplines were more likely to employ metadiscourse overall. This is also true of hedges and evaluative judgments. The authors expressed surprise that the biology dissertations employed evidentials more than any of the other disciplines. The authors caution against the idea that metadiscourse is a tool writers can use at will to manipulate the context surrounding the text itself. The distinctions in the model are somewhat "fuzzy" at best. In terms of K-12 education, post-baccalaureate dissertations are of limited use. The study does illustrate the relationship of the author to the reader and perceived expertise have bearing on the author's approach to local operations during composition.

Table 2. Metadiscourse in Postgraduate Dissertations (per 10,000 Words)

Category	Master	Doctoral	All	Category	Master	Doctoral	All
Transitions	75.8	95.6	89.0	Hedges	86.1	95.6	92.4
Evidentials	40.0	76.2	64.1	Engagement markers	39.7	51.9	47.8
Code glosses	27.4	40.6	36.2	Boosters	31.7	35.3	34.1
Frame markers	20.7	30.3	27.1	Attitude markers	20.4	18.5	19.2
Endophorics	22.3	24.0	23.4	Self-mentions	14.2	40.2	31.5
Interactive	186.1	266.1	239.8	Interactional	192.2	241.5	225.0

Source: Hyland, K., & Tse, P. (2004). Metadiscourse in academic writing: A reappraisal. *Applied Linguistics, 25*(2), 170.

Table 3. Metadiscourse in Postgraduate Dissertations Definitions

Interactive: Guides readers		Interactional: Author comments on and evaluates material, involves the reader	
Transitions	Connects text; e.g., conjunctions	Hedges	Imply reluctance to make a claim
Evidentials	Indicates the source of information outside the text	Engagement markers	Explicitly address the reader
Code glosses	Restatement of ideational information	Boosters	Imply certainty
Frame markers	Indicate text sequences, etc.	Attitude markers	Convey a writer's appraisal of the information
Endophorics	Refers to other parts of the same text	Self-mentions	Degree of author presence

Transitions phrase and sentence level constructions can help a writer navigate

subject, audience, and their identities as knowledgeable writers. As with other features, these

rhetorical moves at the sentence level may help form a description of what academic writing

looks like. Thompson (2001) draws a distinction between audience reaction to a written work

that is interactive or that is interactional. Interactive resources draw the readers' attention to

various features of the text while interactional resources draw the reader in and incorporate

the reader as a participant in the text for purposes of argumentation or ethos. Thompson calls

this construct the "reader-in-the-text." For example, an author may draw the reader into the

text by asking a question, and thus assigning the role of interrogator to the reader (cf.

Hyland, 2002). "After all, are not all these things exactly what makes a car worth driving? *To*

which we answer: yes [italics in original]" (p. 60). Commands are also a form of

incorporating the reader; Thompson suggests a recipe as an example where a reader is

commanded to "mix," "blend," and so on. To develop his notion of the writer arguing with

the reader, he explains the hypothetical-real pattern. In this pattern, the author presents a

supposition taken to be fact and attributes it to a general readership. Then, Thompson counters the position by elaborating, taking an opposite position, and so on. The pattern can be seen in this template constructed by author of the present study: "Most people acknowledge that . . . however. . . I shall argue, instead . . . ." Such arguments may be framed through use of a concessive, a phrase that admits part of the argument assume (the "Most people acknowledge . . ." portion). Concession is yet another, overlapping, means of bringing in the reader for the purpose of arguing.

Analyses of student drafts (including revisions) assisted Thompson (2001) to determine use of interactional resources in constructing texts. The author does not specify the criteria for selection of cases, the number of cases overall, the procedures for evaluating cases, or even the specific type of writing that made up the cases. There is one allusion to dissertations, and one can assume that the writing is university level work in an academic writing course. Several excerpts are included to illustrate the main points. Example number nine illustrates the use of projecting the process of discovery and reasoning that the author had gone through in writing the work, for example, as a means of arguing with the reader. Thompson shows that ambiguous constructions may arise when it is not clear who the source of a proposition might be (the intended reader, the writer?). Novice writers may improve their work if the instructor raises student awareness of choices about interactional resources that might be employed. The differences in voice attributed to the reader and to the writer are different, and awareness of this may permit novice writers to explore how they know whose voice is projected and how they know which voice it is.

An interesting, recent study examined use of passive voice in academic writing at the university. The findings may have implications for teachers who frequently advise student writers to avoid the passive voice (e.g., Culham, 2003). C. B. Wilson (2006) describes

feedback as a useful tool teachers may use to inform and scaffold instruction in writing, but feedback must be useful to the student to have any effect. Indeed, some feedback is not acted on even if students understand and read it. Other drawbacks noted by research Wilson cites involve peer-feedback where students may provide emotional responses to student work rather than the quality or content of the writing. The topic of feedback will be explored in greater depth later in this chapter. Wilson suggests that discrete elements of writing shown to be positively correlated with success on large-scale assessments may be helpful in providing useful feedback to students. The use of such discrete elements can potentially provide useful information to students when more individualized feedback is not available, vis-à-vis large scale assessments.

The study (C. B. Wilson, 2006) was conducted in two phases with the goal of that process being to increase reliability. *T* test analyses of 30 essays were done in round one followed by 50 essays in round two. The essays were selected from those that received a score of 7 or 8, scores which defined the boundary of what was passing and what was not. Statistical analyses showed that essays receiving passing scores used a much higher percentage of passive voice constructions than essays which did not make use (or make use as extensively) of the passive voice construction. Passive voice constructions are widely criticized in k-12 settings, yet much university writing demands it. It can be argued that the passive voice hides the agent in order to bring increased attention to the object of the action, as in this sentence. Further, the author argues discrete element analysis can point toward instruction which would increase students' possibilities of success on exams requiring connected text in academia.

Because assessment often drives instruction, Beck and Jeffery (2007) examined the types of knowledge measured by high-stakes writing exams in California (CAHSEE), Texas

(TAKS), and New York (Regents) from two different perspectives: What genre demands are made by the prompts and what genre demands to the benchmark or anchor papers supplied imply about the demands of the writing task. The study reviewed test-development material and content standards. Each state's standards called for understanding of writing tasks based on genre at some level of depth or breadth. States were chosen because they are the three most populous, and cases generated from two administrations of the test from New York, three from Texas, and four from California. Twenty prompts were examined in all. Forty-six benchmark papers were also examined and scored using the rubrics provided. The study noted features of academic register relevant to this study. Explanatory, narrative, report, and argumentative genres were presented in relation to use of verbs and nouns. For further detail, please see the article. However, each genre made different demands regarding verbs (mood, modals, and tense) and nouns (human agents or non-human agents).

A quantitative analysis of word frequency (Delta procedure) was employed to determine the frequency of such words as "explain" or "discuss." Beck and Jeffery (2007) found that terms, such as "explain," could be understood in multiple ways by student writers. Explain could mean to argue for how something works or to take a position and argue for it. Similar construct difficulties appeared for terms such as "argue," or "support your ideas," which create ambiguity or disconnect between intended purpose and student understanding of that purpose. Of interest, New York and Texas showed the most ambiguity between prompts and benchmark papers. As a result of the ambiguity, students who were asked to explain in the prompt may have also received the implied direction from the benchmarks to use a narrative style. The structures of the two genres are different, yet prompt and benchmark called for were misaligned.

The authors suggest that the valued form in Texas was narrative (as evidenced in the benchmark papers) even though prompts were intended to call for explanatory structures. New York sampled a wider variety of genres in their writing assessment tasks, but prompts, rubrics, and benchmarks displayed greater alignment. Alignment of prompt and benchmark papers were a little better in California than the Texas examples, but only by 2% overall. Finally, Beck and Jeffery (2007) conclude that states need not emphasize a wide range of genres in their testing schemes if there is a comprehensive assessment plan in place in the classrooms. They call for greater emphasis on argumentation given that this mode seemed to be the default mode displayed in the benchmark papers even when the prompts called for explanation or report, for example.

Global Aspects

Macro-level aspects of writing are more familiar than the discipline-specific local operations. Global structure (paragraph level and superordinate organization of connected text) has fared a bit better with some attention for modes and formats (e.g., Hillocks, 2002). Graff and Birkenstein (2007) describe a coherent framework for working with the particular moves writers make in academic contexts, but this work has not been examined in secondary level environments where teachers may expect students to write in a scholarly manner that acknowledges the conversation with others who have written on similar topics (transactional writing, according to Britton, 1992). Of interest, assessment structures such as the popular 6+1 Traits® (Northwest Regional Educational Laboratory, 2001) do assist student writers and teachers with global aspects such as content and organization. However, the assessment criteria are generic in nature. Without guidance, students may not be able to use 6+1 Trait Writing as a guide for determining how to organize a paper for science topics rather than

expressive (Britton, 1992) pieces. Attempts to assist content teachers (e.g., mathematics, science, social studies, physical education) shape writing to the needs of their content areas often focus on formats, modes, or genres. Daniels, Zemelman, and Steineke (2007) offer 25 ideas for content-area teachers. The ideas all fall into one of two categories: an instructional approach or strategy (e.g., KWL; Ogle, 1986) or a format for writing (e.g., double-entry journal).

Academic writing relies on evidence of veracity in many ways. Damico and Baildon (2007) examined how 8th graders read to determine the veracity of information they encountered on the Internet. They base their work on a model of literacy that integrates literacy with subject matter and technology within three dimensions: operational (competencies with written language), cultural, and critical. The study reports two cases, each made up of a pair of students using a think-aloud protocol to illustrate for the researchers the thinking practices the students employed in determining suitability of web resources. The students analyzed multiple sources to develop an understanding of either Mexico and migration or the Mexican-American War then communicate those findings via a historical narrative. To accomplish this, students analyzed multiple websites on the topic, then wrote historical narratives that included a description of the problem's significance, a chronological account, tentative conclusions based on credible claims and evidence, a group reflection. Of interest is the emphasis on using multiple texts to come to an understanding of the topic through comparison and analysis of the texts followed by a written narrative of their journey to understanding. The researchers taught the students to evaluate claims for credibility and look for reliable evidence in support of those claims.

Then students worked in groups with the web-based texts affording students the opportunity to apply what they had learned. This process included identifying new

information, evaluating claims and evidence, and determining how the website might be useful in their own narratives. Finally, the researchers interviewed students and applied a think-aloud protocol to students navigating and evaluating the websites. Some students did not apply critical analysis on the same levels as other sets of students with some rating the same site as credible that other peers had not viewed in that way. Students were challenged to contextualize and corroborate information they found with their own prior and developing knowledge of the content. They learned to set purposes for reading from the sites, yet students weren't always able to think about how their developing knowledge from examination of other sites on the same topic affected their understanding of the site currently under consideration. In other words, it depended on when the site was visited in the sequence of sites how the students would then construct and analyze what they found there.

Central to students' capability to read and write in academic environments are the cognitive tasks of argumentation. Recall that Beck and Jeffery (2007) found that argumentation was a default mode for much of the work demanded of students on high-stakes assessments of writing. Toulmin (2003) identified the four main elements of argumentation as follows: claim (the position), clarification (qualifiers limiting the claim), evidence (support for the claim) and warrant (reasoning that connects the evidence to the claim). In constructing an argument, a writer considers and perhaps identifies a problem. Having identified the problem, the student must get to work arguing for solutions that are suitable. In doing so, the writer must also consider what others have written or said about the topic, what data may or may not be available, and consider the position of others that may not be in agreement. Schmoker (2007) reports on an Arizona school that purposefully makes time for students to read, write, and think using Toulmin's model during their classes.

Young writers who seek to negotiate difficult texts must find or create the space where their own background knowledge and voices fit with the texts that inform a given discipline. Attributing the source of one's knowledge is a higher cognitive process than simply identifying or recalling knowledge, as well (Anderson & Krathwohl, 2001). An innovative instructional routine to assist readers make inferences may also be a useful scaffold for helping writers find that space. Beers (2003) describes the "it says—I say—and so" scaffold which helps the reader work through questions that require inferences that connect a reader's background knowledge with the text under consideration. In this instructional routine, students are asked to combine what the text "says" and identify the knowledge the reader ("I say") must bring to make the inference complete. The "and so" portion of the routine is the statement that successfully blends what is in the text with what the reader knows to create understanding through inference. Similarly, academic writing tasks often require students to clearly differentiate what they know and how they know it from among their own experiences and observations and other texts they have encountered. Reversing the Beers strategy, teachers might help the writer to attribute their knowledge to their own experiences or the texts created by others: "I say—another text says—and so."

Prompts

A prompt is little more than a direction for writing, but thoughtful prompts do more than tell students, "Please write an essay comparing democracy with another form of government.[1] Due, Tuesday." Rubrics identify important characteristics of the writing to be done and gradations of quality against which a student or teacher can measure progress. The

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[1]Portions of this section on prompts are also in press as a contributed chapter with Lori Kelsey to be published by Guilford Publications in a book edited by Jill Lewis.

significant impact of prompts, whether provided to students in written or oral form, can be seen in the study by Beck and Jeffery (2007), described above, in which prompts called for forms of writing that were not always aligned with the rubrics or scoring guides.

Teachers can attend to four features of prompts when designing writing tasks for students (Hillocks, 2002). They are arrayed in Table 4. Prompts may include many variations on these four features, but what students are given to consider often determines how well they can write about a topic or in a given discourse type (e.g., letter, essay, story, newspaper article, etc.). What the prompt asks students to do guides what they will write.

Table 4. Features of Prompts

• Discourse type or structure
• Topic and/or subject matter
• Data (specified, not specified)
• Audience (mentioned, general, specific

For example, consider this prompt:

> In an essay (**discourse type**), consider the ramifications of General Lee's decision to have General Pickett lead a massive charge against the center of the Union lines on Cemetery Ridge at Gettysburg (**topic or subject**). Use information from the textbook, the Official Records of the War of the Rebellion,[2] and the PBS website[3] (**Data, specified**) in addition to any other reliable sources (**Data, unspecified**). Your essay will explain for your teacher and classmates (**audience, general**), how Pickett's charge was a turning point in the battle at Gettysburg and subsequently in the War, itself.

While Hudson, Lane, and Mercer (2005) found that 2nd graders, as developing writers may have been constrained in their writing of narratives when specific prompts or priming conditions for writing were provided in a variety of formats, high school writers may have

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[2]Access the Official Records at: http://www.civilwarhome.com/records.htm

[3]PBS Website: http://www.pbs.org/civilwar/war/map14.html

different needs as they work to conceptualize domains of knowledge. In fact, some prompts in the Hudson et al. study demonstrated particularly negative effects for writers who struggle with the result being that they wrote even less. By contrast, Chambers (2006) reported that high school students found that questions posed as prompts for discussion were useful in shaping thinking about historical documents. Oliver's (1995) inquiry into the degree of rhetorical specification along three dimensions—topic, purpose, and audience—of a set of prompts indicates that 7th graders, as immature writers, may write more effectively with less information provided in the prompt while 11th grade students are able to make good use of the information in the prompt. In addition, prompts might specify length of the final written product; however, this author agrees with Benjamin (1999): Giving page or word length requirements can often undermine our goals. Word length requirements tend to encourage young writers to add unnecessary wording to their work, and page length requirements just encourage students to use large fonts or wide margins. Instead, a specified number of paragraphs (minimum) are more likely to result in good writing. Of course, students will need to know what a well-developed paragraph looks like.

Two instructional routines may help teachers to prepare prompts for writing that add sufficient guidance to student writers. Santa (as described by Alvermann, Phelps, & Ridgeway, 2007) suggests the RAFT prompt with each letter designed to remind the teacher of one element of the prompt: Role assumed by the author, intended Audience for the written product, Format of the work, and Topic. The RAMPS routine (Duke, 2001) is similar: Role, Audience, Mode, Purpose, Situation. Prompts may be analyzed in a variety of ways including the four features of prompts in Table 4 (Hillocks, 2002), adherence to the two instructional routines described in this paragraph, degree of specificity, and so on. Another option is to examine prompts to determine the types of cognitive tasks required to accurately

complete the writing task. Another way to think of this approach is through consideration of the intended instructional outcome successful which results from completion of the task as defined by the prompt. Actual student responses might differ from the intended outcome, of course.

Objectives and instructional tasks are often described using taxonomies of educational objectives originally designed by Benjamin Bloom and his associates (cf. Krathwohl, 2002). The most recent revision of this taxonomy (Anderson & Krathwohl, 2001) uses a table or matrix to assist educators in describing educational objectives. The vertical axis of the table includes four knowledge dimensions; i.e., factual knowledge, conceptual knowledge, procedural knowledge, and metacognitive knowledge. Tasks can then be aligned against one or more of six cognitive process dimensions; i..e, remember, understand, apply, analyze, evaluate, and create. Krathwohl points out that some of the names for cognitive processes were changed and reordered from earlier versions of the taxonomy. For example, teachers may be familiar with the "comprehend" level of the taxonomy though the current version uses the term "understand." Cognitive processes are hierarchical but overlapping in some ways, as well (Krathwohl, 2002). In addition, each category of the cognitive process domain includes subcategories which will be described in greater detail in Chapter 4. Prompts for writing may be classified using the revised taxonomy. From an analysis of the prompts they assign using the revised taxonomy, teachers might determine the qualities of the thinking tasks represented in their students' writing.

ASSESSMENT AND FEEDBACK

The role of the teacher must transcend simply assigning written products, evaluating those products, and providing a macro-process for producing the work. Applebee's studies

(1984) found that a high percentage of textbook exercises that called for writing cast the audience as the teacher in the examiner role and very rarely in the role of participant in an instructional dialogue. If the Berninger et al. (2002) assertion that student writers are not well-served through replicating instructional tasks based on what expert writers do, an investigation of the role of instructor feedback is in order. The role of feedback in education is well documented (e.g., Hattie & Timperley, 2007); however, the role of feedback in writing instruction is less well documented (Graham & Perin, 2007). Atwell (1987) and Rief (1992) describe writer's conferences (adding the cumbersome verb "conferencing" to the pedagogical lexicon when "conferring" works as well), but these conferences may not adequately describe the types of frequent and purposeful interactions novice writers require. The nuances and moves the writer of well-written academic text make may reflect the interaction of a knowledgeable other, the teacher, with novice writer as the composing is done. A more realistic strategy for teacher interaction is proposed by Pope and Beal (2001). Their strategy is called D.A.N.C.E. and the acronym stands for: Describe, Account, Nudge, Compromise, and Envision. In these encounters with students and their writing, the teacher might describe the student's work, account for it in terms of the expectations of the assignment, nudge students through suggestions or questions, compromise in terms of gaps in writing proficiency or goals, and envision or plan the writing. The Hattie and Timperley (2007) model describes three types of information good feedback might provide: information about the goals vis-à-vis the work in progress, information about the way the work is proceeding, and information about the next instructional challenges (feed up, feed back, and feed forward, respectively). A typology for feedback on written work at the graduate level is suggested in earlier work the author of the present study conducted (Wolsey, 2008a), but the

typology does not suggest specific approaches teachers may take in promoting academic

writing. An improved version appears as Table 5.

Table 5. Feedback Typology

Purposes	Types	Qualities	Forms
Feed back (How am I going?) Feed up (Where am I going?) Feed forward (Where to next?)	Affirmations (simple and complex) Clarifications Observations Corrections: content Corrections: mechanics, usage, spelling Questions Exploratory Personal	Identified positive aspects of the work Explains rather than labels Perceptive Corrective Compassionate Useful Timely Linked to specific criteria Expands, clarifies, elaborates	Written during Written after Oral during Oral after Teacher Peers Other parties Link to feed forward . . .

Rubrics are a popular tool for providing feedback to students (e.g., Culham, 2003).

These tools inform students of general criteria and lay out expectations for performance.

While rubrics are useful tools for evaluating student work (Goodrich, 1997; Grisham &

Wolsey, 2005; Jackson & Larkin, 2002; Montgomery, 2000; Quinlan, 2000) and may be

used to provide feedback about broad goals in writing tasks, there is little in the literature that

focuses on what teachers do to promote effective composition especially academic writing.

M. Wilson (2006, 2007/2008) finds rubrics confining given their focus on just a small

number of criteria. For example, the 6+1 Trait rubric (Northwest Regional Educational

Laboratory, 2001) identifies the following traits: Ideas, organization, voice, word choice,

sentence fluency, and conventions. The plus one trait in 6+1 is presentation. The problems

Wilson notes are the generic nature of the criteria and the limited focus on just those six

areas.

In a study of first year college English written products, Broad (2003) found over 89 categories of values held about students' writing by teaching assistants, adjunct professors, and full professors. He divided these into groups. Forty-six values were related to textual criteria including 31 textual qualities (e.g., significance, audience awareness, and so on) and 15 textual features (e.g., paragraphing, legibility, spelling, content, etc.). Twenty-two criteria were contextual in nature (e.g., purpose of the writing task, course goals, etc.). In addition, he identified 21 other factors that dealt with the nature of the scoring task (scoring of sample or "live" texts, and so on). Broad is careful to point out that his 89 criteria shouldn't become a checklist or rubric, and he encourages revision of the criteria through a process he calls dynamic criteria mapping. Other schools might have different values than those of the professors and teaching assistants he studied; therefore, the criteria he identified would not apply in other situations.

None of the authors who advocate use of rubrics substantially explore the specific demands of writing in specific content areas. While researchers are beginning to describe the differences and commonalities of writing in different disciplines and for different purposes, there is not a great deal of alignment between assessment and discipline-specific writing tasks. Spandel and Stiggins (1997) suggest that teachers do use their scoring guides as examples to be adjusted for different modes of writing such as journalistic writing or persuasive writing. They suggest that scoring guides for a persuasive piece, for example, might be adjusted to include criteria for analyzing and refuting counterarguments. Beck and Jeffery (2007) found substantial mismatches between prompt or direction for writing and the rubric used for assessment of high-stakes writing tests. When such errors occur, the rubric as an assessment tool is even more problematic. Whether teachers use rubrics or not, better descriptions of discipline-specific writing will inform the conversations they have with

students about their written work and how students think through writing about content. Like the five paragraph essay, rubrics applied uncritically may ignore what cognitive flexibility theory suggests about the importance and centrality of multiple cases from which schema may be constructed to solve problems.

CONCLUSION

Given the recent gains on the NAEP and other measures that may be due in part to increased attention to writing tasks, continued progress will require additional research that informs writing pedagogies (Graham & Perin, 2007). Research to date confirms many instructional practices such as use of a writing process, planning and prewriting, and specific goals for writing (e.g., Stiggins, 2005). However, little is known about the teaching/learning interactions that occur once an assignment to write has been given. Similarly, little is known about the nature of feedback provided by effective teachers of writing in the disciplines. A number of specific characteristics of domain-specific writing are known, but the application of these characteristics to high school writing tasks is yet to be explored. This study recognizes that the essence of teaching is communication and seeks to describe the conditions of those practices that promote progress when the task given students is complex and ill-defined as it is in the instance of writing. In describing the practices of effective teachers who know and can make visible for student writers the moves of academic writing, this study contributes to the overall knowledge of writing pedagogy and fills a significant gap in the research base regarding instruction in writing. As teachers become aware of the specific needs of writing in their chosen disciplines and are able to assist students to be increasingly familiar with the conceptual knowledge contributed by other thinkers, they will increasingly be able to identify these practices for their students. When this knowledge is

visible to students, the strategies required to write effectively in the discipline will, with time and effective instruction, become skills (Frey, Fisher, & Berkin, 2008) students conversant with content and academic writing can rely upon. Description of how teachers identify these practices and interact with students to promote proficient academic writing can inform the profession in ways that traditional foci on processes and quantity of production cannot.

In 1981, Applebee suggested that teachers take a stance that "encourages students to explore and discover and seldom dominates the class" (p. 105). This study proposes to describe the domain-specific writing of some 10th grade students and to investigate just what it is that teachers say and do that promotes such exploration that might result in successful academic writing.

CHAPTER 3

METHODS

This study describes academic writing among 10th graders at one urban school that draws its population from the wider metropolitan region and explores the scaffolding interactions that occur between teacher and students. One intact class of 10th grade students (the entire 10th grade population at the school), along with their teachers, make up the study sample. The study was carried out in two overlapping and interlocking phases using a mixed methods design. Quantitative analysis of student writing in each of three disciplines—English, social studies, and science—were completed as well as a qualitative inquiry into pedagogical methods and the perceptions of teachers about academic writing. Quantitative methods permit close examination of the local operations at the word and sentence level students use that permit them to engage in transactional writing. The inquiry draws on the mixed methods triangulation design (Creswell & Plano Clark, 2007) and in-depth analysis follows a case study approach that creates deep understanding and description (Creswell, 1998).

RESEARCH QUESTIONS

I. Using the seven dimensions (academic words, 6 discourse moves) as criteria, how do 10th grade written artifacts compare in each of the following disciplines: science, English, social studies?

   A. Discourse moves:

1. Summarizing the point of others

2. Quoting others

3. Responding to the contribution of others

4. Differentiating the writer's point from that of others

5. Anticipating objections

6. Indicating why the topic matters (Bean et al., 2007; Graff & Birkenstein, 2007).

B. Academic word list (Coxhead, 2000)

1. To what degree do words from an academic word list appear in a sample of 10th grade writing artifacts? (Coxhead, 2000).

II. In what ways do teachers interact with students to produce effective academic writing?

A. How do teachers and students define academic writing?

B. In what ways, if any, do content teachers make visible the language of the discipline and subsequently scaffold student command of the language in written discourse? In what ways might a teacher promote discourse moves in academic writing?

C. To what extent do writing prompts influence students' academic writing?

A matrix presenting an overview of the methods and their alignment with the research questions can be found in Appendix A.

SETTING AND PARTICIPANTS

Participants for this study are all teachers and 10th grade students at a new charter school (NCS) that draws its population from all areas of a southern California metropolitan area. Because the school is new, established in 2007, a wide range of scholastic experiences are represented among the population of students, and this population of students is somewhat representative of the larger metropolitan area. This setting was purposefully selected for data collection because students there represent a typical high school population as compared with the surrounding schools. The school was selected, in part, because students would be representative of a larger population. The researcher identified the school because many university professors also support the school by teaching some courses or providing administrative services. In addition, the researcher provides technical support for some of the school's operations thus facilitating access to data. Table 6 compares ethnicity and eligibility for free or reduced price lunch for NCS and three additional comprehensive public high schools near NCS (within a 5-mile radius) and state averages. Tenth grade students have at least one year of high school experience as traditional 9th grade students prior to coming to NCS. Most of these students will also be available for follow-up studies in the two subsequent years (grades 11 and 12) of their K-12 careers. Tenth grade students at NCS are a more diverse group than their peers in 9th or 11th grades (the school does not yet have a 12th grade class). Note the percentage of those listed as "other" in Table 6. Forty 10th grade students responded to a survey from which the following demographic data was drawn. Twenty-six students or 65% characterized their homes as urban, 11 students or 28.9% indicated their homes were suburban, and 1 student (2.6%) indicated that the home was rural. Two students skipped this question. Twenty-four respondents or 61.5 % were boys while 15

or 39.5% were girls. One student skipped this question. Students were asked the name of the school attended during their 9th grade years. Twenty-seven different schools were named by 39 different respondents. Seven teachers of 11 possible responded to the survey. All seven characterized the school setting as urban. The difference between characterization of the school as urban and the varying characterization of the students' homes is due to the school drawing its population from a wide geographic area.

Table 6. Demographic Data for Study School, Three Comparison High Schools, and State Averages

School	Hispanic	African-American	White, not Hispanic	Others	Free or reduced price lunch eligibility
NCS	34	18	34	11	46
NCS 10th grade students only	23	13	38	26	N/A
Local High School 1	46	15	28	10	65
Local High School 2	37	16	31	15	51
Local High School 3	53	16	16	14	70
State Average	48	8	29	16	51

Note. Due to rounding, figures may not total 100.

Source: Great Schools. (2008). Metropolitan area student information. Retrieved February 10, 2008, from http://www.greatschools.net

Of 11 possible teachers at NCS, seven responded to the survey. Demographic data gathered from the survey appear in Tables 7 and 8. Though the school serves students in grades 9 through 12, at least one teacher indicated teaching students in grades 6, 7, and 8. Several faculty members are also on the faculty of a large, metropolitan university and hold advanced degrees in education or their specific content fields. Two teacher participants teach English-language arts, two teach social studies, three teach science, and one teaches physical education.

Table 7. Grades Taught by Teacher Participants

Grades taught	n
6	1
7	1
8	1
9	5
10	6
11	3
12	1

Table 8. Teacher Participants Self-Reported Years of Teaching Experience

Years teaching	n	Percentage
1 to 5	3	42.9
6 to 10	1	14.3
11 to 15	3	42.9
16 to 20	0	
21 +	0	

As a charter school with a relatively small student population of less than 300 students, NCS is able to focus curriculum around a central theme. At NCS, the theme is developed around a career path in partnership with a large local business. In addition, innovations in student scheduling are possible that permit students to participate in internship experiences at the local business partner and to restructure the school day in such a manner that additional flexibility is part of the students' routine. The student schedule is built around specific lecture, seminar, and workshop periods, with additional time in a kind of electronic study hall. This schedule will be further described in Chapter 5.

One indicator of a school's success is the achievement of enrolled students on standardized assessments. In California, students in high school must pass the California

High School Exit Exam (CAHSEE), a criterion-referenced test of proficiency in English language arts and mathematics. Students take the test for the first time in 10th grade. The English-language arts portion of the exam is divided into six sections including five composed of multiple choice questions and one essay prompt for a total of 73 items. Raw scores are converted to scale scores, and students that achieve a scale score of 350 or higher pass the exam (Educational Testing Service, 2008). Those that do not attain a passing score may retake the exam at a later date. For comparison, during the 2006-2007 administration of the test (the most recent statewide data available), CAHSEE was administered to 480,890 10th grade students across the state with 77% of those students passing the exam in English-language arts (California Department of Education, 2007). At NCS, 37 student scores were available. The mean for the 10th grade population is a scale score of 393.2 with a median score of 392.1 and the mode of 421. One student did not take the exam; two others passed the exam but their scores were not available. The lowest score was 335 and the highest was 450. At NCS, 95% of 10th grade students (n = 39) passed the English-language arts portion of CAHSEE at the first administration of the exam for this class of students.

The high school exit exam includes a writing applications component which requires students to write an essay. Thirty-six scores, on a 4-point scale, were available for NCS students. The arithmetic mean for NCS 10th graders is 2.75 but the median is 3. High score for NCS students is 4 and the low score is 2. The mode for students' scores is 3. Seventeen students received a score point of 1 or 2 and 18 received a score point of 3 or 4. CAHSEE tests writing applications by assigning each student test-taker a prompt from one of five different writing types: biographical narrative, response to literature, expository essay, persuasive essay, or business letter (California Department of Education, 2004). For each,

students must draw on their own background knowledge of writing tasks and the topic assigned. Students are not allowed to conduct research on their assigned topics. Comparison data for this test with other schools was not available, but score points of 3 and 4 using a holistic rubric for each type of writing generally indicate competence with the writing task.

DESIGN OF THE STUDY

The study was conducted in two phases in a mixed methods research design. Creswell and Plano Clark (2007) describe a mixed methods approach they term a triangulation design: convergence model. In this model, quantitative data and qualitative data are collected simultaneously, then the data are compared and interpreted. Data collection is concurrent with equal priority in analysis (cf. McMillan & Schumacher, 2008). In this study, field work and archival data were relied upon to accomplish the research objectives. Participants were selected, in large part, because of the similarities to other populations throughout the metropolitan area and the state. In addition, the sample size is approximately equivalent to class sizes common in other schools throughout the state and nation. The institutional review boards at the University of San Diego and at San Diego State University approved the project as well as administrators at NCS. Consent and assent forms were distributed to potential participants by the researcher. A teacher volunteered to collect the students' forms and return them to the researcher.

Quantitative Data Collection Methods

Phase one of the study was assembly and analysis of a corpus of 10th grade student work from three disciplines: science, social studies, and English-language arts. Students at NCS routinely upload their work into a course management system known as BlackBoard™.

Written assignments nominated by the teachers as representative of work done in the subject area for 10th grade were downloaded from BlackBoard or collected via email. Using a software concordance program, i.e., WordSmith 5.0, the corpora were analyzed for use of words from the Academic Word List (Coxhead, 2000). HyperResearch software was also employed to determine global organizational constructs that students used in writing each paper. Each paper in the corpus was coded for overall structure and the following discourse moves of academic writing: (a) recognizing the contribution of others, (b) summarizing the point of others, (c) quoting others, (d) response to the contribution of others, (e) differentiating the writer's point from that of others, (f) anticipating objections, and (g) indicating why the topic matters (adapted from Bean et al., 2007; Graff & Birkenstein, 2007).

A confounding variable in determining global moves is the directions or prompts provided to students in advance of the writing assignment. For example, directions may explicitly state the type of text structure to be employed; for example, "Compare and contrast the leadership styles of General U. S. Grant and General R. E. Lee" indicates the global organization students are to use. Similarly, directions may also imply, rather than explicitly state, an organizational type. Therefore directions or prompts for writing provide context for explaining the effect of this variable.

ACADEMIC WORDS

The Academic Word List (Coxhead, 2000; Massey University, 2004) is, as the name suggests, a list composed of those terms that appeared most frequently in a corpus of university level work excluding the most common 2,000 words in English and excluding

terms that are used within a narrow range, such as discipline-specific words. WordSmith 5.0 lexical analysis software permits the user to examine a corpus of work in a variety of ways. For the present study, the WordSmith word list tool was used to create a list of words that appear at least once in each corpus. The word list tool is also capable of comparing two word lists to determine which words the lists share in common. This function was used in the study reported here where word lists created from student written artifacts were compared with the Academic Word List. To check the validity of WordSmith, the researcher selected a random series of 20 words found on the Academic Word List and compared them against the original student work corpora to ensure that each word did, in fact, appear on both lists.

The corpora collected in this study are composed of 10th grade work samples downloaded from BlackBoard with one exception. One teacher asked students to email assignments to her; these were then forwarded to the researcher. The composition of the corpora follows:

- Science summary task: 26 documents, 3,615 total words

- English persuasive letter task: 10 documents, 7,023 total words

- English literacy letters task: 98 documents, 17,646 total words

- Social studies essay task (one child policy in China): 38 documents, 13,722 total words

- Essential question essay task: 24 documents, 10,091 total words.

SURVEYS

All 10th grade students were surveyed, as well, about their perceptions and use of academic writing (see Appendix B). In addition, all teachers regardless of grade level assignment were invited to participate in the survey. Survey objectives (Schonlau, Fricker, &

Elliott, 2002) are to provide data as a baseline for comparison of interview data, establish a baseline for further research in future projects, and determine student experience with academic writing. Survey instruments were constructed using existing literature on academic writing as a beginning point. Informal categories of writing were drawn from work done by Applebee (1984, p. 15) and modified to include the threaded discussion post (e.g., Wolsey, 2004) though threaded discussion posts were not included in this study. Academic writing tasks were also drawn from Applebee's work. Features of academic writing that teachers might expect to see in student work were synthesized from Graff and Birkenstein (2007) and Bean et al. (2007). Both of these works discuss academic writing as it exists in higher education; therefore, one outcome of this study is to identify what high school teachers expect in comparison. By finding the commonalities and gaps, it may be possible to better articulate what characteristics of academic writing might be usefully taught in high school. The student survey mirrors the teacher survey except questions are addressed to students in respect to their roles in school.

Qualitative Data Collection Methods

Properly, the proposed inquiry is not a case study; however, a case study (Stake, 2005) approach informs the choice of instruments given the wider interest, beyond mere description of student writing artifacts, in writing pedagogies. The study sample is composed of one intact class of 10th grade students (the entire 10th grade population at the school) along with their teachers. Teachers include all those assigned to teach 10th grade students in the following disciplines: English literature, the sciences, and the social studies. The 10th grade teacher working with the principal investigator identified three students whose work spans a

range from poorer writers, to average writers, to proficient writers based on the writing sample. One English language learner was also interviewed. These four nominated students were interviewed to add greater depth to the data set.

INTERVIEWS

Follow-up interviews with 10th grade teachers and four students served to add depth to the quantitative analysis described above (see Appendix B for interview protocol). Interviews with teachers lasted approximately 45 minutes to an hour. A total of five teachers were interviewed. All names are pseudonyms.

- Dr. Romer and Mr. Bowdoin, science teachers, were interviewed together.
- Mr. Gardner, English-language arts teacher.
- Ms. Vega and Ms. Snyder, social studies teachers, were interviewed together.

Each interview was recorded using an .mp3 recorder. Interviews were conducted at the school site, during teachers' preparation time. Each interview was conducted over the course of a week near the end of the school year.

Student interviews were also conducted near the end of the school year and each lasted between 20 to 30 minutes. Four students nominated by Mr. Gardner, the students' English teacher, were interviewed to explore pedagogical practices from the student perspective. Mr. Gardner provided an estimate of each students' approximate level of achievement in writing.

- Jay, Hispanic, an English language learner, still struggling with written tasks in English

- Jacob, Caucasian and working on grade level on 10th grade writing tasks

- Isabella, Hispanic and working above grade level on 10th grade writing tasks

- Akua, African and an English language learner whose work is quickly approaching 10th grade level on writing tasks

Each student was interviewed individually, and each interview was digitally recorded for later analysis. Once interviews were completed, the researcher made notes while listening to each interview. In addition, each interview was reviewed twice and lists of themes generated and refined on the second review. In student interviews, participants were presented with paper copies of writing samples of their work. Thus, each student had a collection of several writing samples, numbering approximately five selected from various disciplines, genres, and production dates. Students were asked to choose artifacts as examples and describe the artifact's strengths as well as what the writer could do to improve the writing in the discipline for which it was written. The protocol for these surveys is included in Appendix B.

Halo effects result when an impression formed early in a study influence ratings on future observations (Isaac & Michael, 1995). The structured interview format (Fontana & Frey, 2005) reduces halo effects. In order to further explore the complicated intricacies of how teachers interact with students to produce effective discipline-specific writing, this study draws on the traditions of collective case design (Stake, 2005). Interviews maximize learning following the case study tradition from sources rich in information (Patton, 1990; Stake, 1995) and potentially provide contextual data (Creswell, 1998) which further enriches the data and thus the findings. Since writing involves complex cognitive functions and instruction in writing along with curricular aims introduces additional variables, it is appropriate to examine pedagogical practices in situ.

REACTIVITY

Research participants often react to the presence of researchers by responding in a variety of ways. Reactivity was reduced because the researcher is often on campus and students at the field study site are used to seeing him in classrooms and consulting with teachers. At the same time, participants may respond to the study by adjusting their behaviors. Attribution theory (e.g., Green, Lightfoot, Bandy, & Buchanan, 1985) suggests study participants, in general, adjust their behavior to rebel or conform to the expectations they perceive even if those expectations are only implied by the fact that an investigator is studying the phenomenon. This behavior is consistent with positive impression management theories (cf. Bagby & Marshall, 2003), a form of response bias in which test-takers tend to maximize the traits they perceive as desirable. In the present study, student participants may attribute their successes on year-end writing samples to their own ability as writers and may adjust their writing from the time when participants became aware of the study and its purpose. Similarly, teacher-participants may attribute student success to dispositional factors such as teaching ability or lack of growth to external factors beyond their control. Attribution theory informs this study in another significant way.

An underlying hypothesis grounding this study is that when students are aware that there are or may be differences in the writing across disciplines, they are more likely to adopt those structures and attend to the nuances and characteristics in their own writing. Similarly, teachers may respond by directing students' attention toward the features of discipline-specific texts they read and write. Such behavior may demonstrate the efficacy of the present study.

PROMPTS

Prompts for writing are essentially directions to students as to what topics, audiences, and so on should be addressed in their assigned written products. For some writing tasks at NCS, teachers upload prompts for writing to BlackBoard where students may access and complete the task using either a comment field in the BlackBoard environment, a word processing tool, or paper and pencil. Each prompt available in BlackBoard was downloaded for this study and analyzed by the researcher and one additional teacher. No reliability rating was employed, but the analysis by the additional teacher reduced the possibility of a halo effect introduced by the researcher. The analysis criteria were the cognitive process dimension categories in a taxonomy of educational objectives (Anderson & Krathwohl, 2001). The results of both analyses were compared to determine the general types of tasks called for in the prompts for writing found in BlackBoard. Finally, anecdotal observations made by the researcher over the course of the school year as a technology consultant fill in and add depth to the data set.

DATA ANALYSIS PROCEDURES

Statistical analyses were conducted using standard Excel® spreadsheet software and qualitative analyses were done using HyperResearch® software. Descriptive statistics were calculated for collected survey data other than open-ended questions. Pearson product-moment correlations were computed for Academic Word List data comparison with the 10th grade corpora. Data from interviews were classified using the categorical aggregation approach (Creswell, 1998). In categorical aggregation, a collection of instances are examined as the researcher looks for a theme or themes to emerge. Excel spreadsheets were created for

analysis of the BlackBoard prompts. Data analysis occurred continuously throughout data collection as the researcher attempted to identify emerging themes as well as tease out anomalies and contradictions (Holsti, 1969; Merriam, 1988). Some preliminary categories were generated from the literature and altered as additional themes and patterns emerged (Fook, 2002). An organized documentation system helped establish the confirmability of research findings.

CHAPTER 4

FINDINGS AND RESULTS

This study describes aspects of academic writing among 10th graders at one urban

school that draws its population from the wider metropolitan region and explores the

scaffolding interactions that occur between teacher and students. One intact class of 10th

grade students (the entire 10th grade population at the school), along with their teachers, make

up the study sample. In Chapter 2, a range of attributes found in academic language,

particularly academic writing, were explored. Zwiers (2008) describes three functions of

academic language which may fairly apply to academic writing, as well. The functions are to

describe complexity, higher-order thinking, and abstraction. Academic writing, as a form of

transactional communication (Britton, 1992), also requires articulation of a writer's views

with those of others interested in the domain of inquiry. In the present study, the researcher

asked students and teachers for their definitions of academic writing, analyzed prompts for

writing, and evaluated student writing samples, and interviewed students and teachers for

additional clarification and elaboration.

Major themes or topics describing academic writing tasks at the study school emerged

during the analyses of the data set. In order to establish a frame of reference and definition,

student and teacher responses were synthesized to determine how each group characterized

academic writing. The discourse moves students employ or do not employ in constructing

their own transactional texts are dependent on the sources students have encountered in large

measure. Therefore, the sources students believe they are permitted to use, have available, and can comprehend are explored next. Discourse moves and use of academic words are reported followed by analysis of the prompts and cues that may scaffold student work. In Chapter 5, each research question will be addressed individually followed by implications of the results reported in this study.

WHAT IS ACADEMIC WRITING IN 10TH GRADE?

From survey data, students characterized academic writing in a variety of ways. Twenty-seven responses addressed English-language arts as the content area they wished to characterize while 10 addressed academic writing in social studies, math, or science courses. Among the most common were references to mechanical and usage features of writing, for example, spelling, complete sentences, and "proper punctuation." Also common were references to format which included lab reports, five paragraph essays, research papers, and summaries. Features related to word choice and vocabulary were only mentioned four times from 37 responses received. Specific content was mentioned only three times in the students' responses.

Teachers' responses were more varied and generally reflected greater depth of understanding, as one might expect. Six responses generated three references to higher-order thinking, two references to traits of writing (e.g., Northwest Regional Educational Laboratory, 2001), and three references to research or gathering information. There were no references to spelling or usage and only one reference to format in a general manner (". . . students write organized essays that show a command of the language"). Tables 9 and 10 summarize an analysis of students' and teachers' responses. The difference between teachers'

understanding and that of students is noteworthy, and this difference will be further explored

in Chapter 5. In Table 9, student survey responses were read and coded for the concepts and

terms students used to describe academic writing. The responses were then reread, recoded,

and consolidated. For example, a student response indicating a five paragraph essay (student

response number nine) was initially coded as "organization" but later consolidated with other

responses as "format." A similar procedure was used in Table 10. Teachers' expectations

were coded during an initial reading and categories determined during a second reading. For

example "audience and purpose" from respondent number four were included in the broader

category of "writing traits" (Northwest Regional Educational Laboratory, 2001) with

responses such as "voice of school" from respondent number five. References to the synthesis

were coded using Bloom's Taxonomy (Anderson & Krathwohl, 2001). Responses that

included a wide range of skills normally found on the taxonomy were coded as "wide range."

An example of such a response is: "gathering of information, synthesis, analysis,

interpretation and summary" (respondent number one). Respondents who included only the

lower three levels of the taxonomy were coded as "low range."

Table 9. Student Definitions of Academic Writing ($N = 37$)

Content	3
Effort	1
Format	10
Literary devices or response	3
Mechanics	13
Personal	2
Purpose	2
Register	2
Vocabulary	4
General writing competence	1

Table 10. Teacher Definitions of Academic Writing ($N = 6$)

Bloom's Taxonomy (wide range)	1
Bloom's Taxonomy (low range)	2
Organization/format	1
Synthesize sources (Bloom's Taxonomy—high range)	2
Use of language	2
Writing traits	2

To further explore how students and teachers perceive academic writing tasks, each participant was asked to describe a recent academic writing task. Students were asked to describe a task they had completed; teachers were asked to describe a task they had assigned. Teachers' perceptions differed from that of students in their descriptions of a specific task as they did in describing the academic writing in general. Students favored format of the assignment with purpose for the assignment following a distant second (Table 11) while teachers favored content and description or summarization in their descriptions of the task (Table 12). One student noted the academic writing task as a concern for grades and unimaginative prose, "It was pretty hard to do, becuase [sic] in order to obtain a good grade. I would need a lack of creativity and right [sic] more so like a research paper."

In contrast, teachers were more interested in content learning and concern for the texts with which they hoped students would engage as they considered that content. Format of the written product appears to be far less important as long as students are getting at the essence of the content as one teacher noted, "I recently asked students to summarize their findings from a simulation of bio-geochemical cycles in which each student represented a nitrogen atom, a carbon atom, or a water molecule. They could write the results in the form of a poem, song, or biography."

Table 11. Description of a Recent Academic Task—Students (*N* = 36)

Content	3
Creative	2
Essential question—synthesis	3
Format	16
Literary device	5
Mechanics	1
Purpose	8
Other	1

Table 12. Description of a Recent Academic Task—Teachers (*N* = 6)

Content—specific	4
Description or summarization	3
Format	2
Questions (response or answer)	1
Recall	1
Use literary device	1

In general, teachers in this study tend to describe academic writing in terms of the content. Content includes discipline-specific concepts and tasks related to interpretation of data and other texts such as summarization. On one hand, students tend to describe academic writing in terms of format, mechanical control of language, and purposes for writing. Purpose, as explained by students, was generally specific to the prompt they were given for writing. Prompts will be explored in greater depth later in this chapter. Students' view of purpose seemed to coincide with teachers' notions of learning about content. For example, one student respondent wrote, "We were assigned a creative writing piece where we had to incorporate certain literary devices into our stories. The story could be whatever you wanted it to be, but somewhere you had to use a combonation [sic] of hyperboles, similes, metaphors, or idioms." In this student's view, command of literary devices was obviously an academic

task even though the format of the assignment was a creative piece. Her purpose for writing was clearly to gain control of literary devices or to demonstrate such control.

An important feature of academic writing in secondary schools has to do with the length of the student-created text. Page-length, word count, and paragraph counting criteria are often features of assigned academic tasks in middle and high schools. Length requirements may promote deep thinking via elaboration (or long thinking as Graves, 2002, calls it), reference to other texts, and consideration of the complexity of the concept. In some cases, a length requirement for an academic task may be a call for concision or brevity, as well. At NCS, paragraph requirements appear to be the most common means of thinking about the length of a given paper. During interviews with teachers and students, many referred to length as a function of paragraph organization. Survey responses bear this out (Table 13).

Table 13. How Long Should It Be?

Length	Teachers ($N = 7$)	Students ($N = 36$)
Paragraphs	All 7 teachers indicated a paragraph requirement, though one indicated that no minimum was required but the assignment could not be done in less than 8 paragraphs.	Twenty-six of 36 student responses indicated a specific number of paragraphs.
Pages	Two teachers indicated a page requirement. One indicated format requirements (e.g., double-spaces, font size and style).	Twenty-five of 36 student responses indicated a specific number of pages. Of those, 14 students indicated a one-page minimum. Five 5 indicated a two-page minimum. Two students indicated that the length had to be short or half a page to meet the requirement. Two students indicated that the assignment had to be "enough."
Words	Three teachers indicated a word length requirement.	Eight students indicated a minimum word length. Two students responded by providing a page length instead. All other responses indicated that page length did not matter or was not specified.

EXPECTATIONS FOR ACADEMIC WRITING

Students fully expected to write in all three disciplines examined in this study (i.e.,
English, social studies, and science), and they expected to write at least one paragraph of
connected text at least once each week (Table 14). When asked about the frequency of tasks
in academic style per month, the responses seemed to agree with the assignment of academic
writing in all three target disciplines. In all three disciplines, students indicated that they write
10 or more times each month in each discipline. Teachers, however, take a different view.
Four of the six teachers responding indicate they only assign writing in an academic style
three times each month. Only one teacher assigned six pieces per month with none reporting
higher figures (Table 15, p. 73). If we assume that there is a one-to-one correspondence
between teachers' assignments and students' completion of those assignments, a problem of
perception arises. Even though some teachers responding to the survey taught 9th and 11th
grade students, none of the teachers reported assigning 10 academic writing tasks in one
month. Many 10th grade students, on the other hand, reported more than 10 academic writing
tasks each month. Clearly, there is a discrepancy between what teachers and students perceive
as an academic writing task.

Part of the question as to what assigned tasks are considered academic in nature may
lie in the students' and teachers' responses to a question about the frequency of informal and
more structured or formal tasks. Table 16 (p. 74) shows that students tend to agree about the
frequency of informal writing opportunities, such as a quickwrite or journal entry. Teachers
indicated they assigned more formal tasks, such as a persuasive essay or summary,
occasionally or rarely. Only one teacher indicated assigning such tasks regularly. This data

indicates that students may perceive the less formal writing tasks as academic in nature while

their teachers do not.

Table 14. Student: Writing Frequency (*N* = 37)

5. Subjects where I am expected to write more than a paragraph at least once a week		
Subject	Percent	Response count
English-Language Arts	100.0	35
Social Studies	100.0	29
Math	100.0	9
Science	100.0	26
Art	100.0	2
Music	0.0	0
Physical Education	0.0	0
Other	100.0	7

Note. Students at NCS do not take traditional music or physical education courses; however, the survey asked for this information. Thus, percentages are reported here.

Earlier, the view of academic writing as a kind of transaction with other participants

within a domain of inquiry was explored. To determine the transactional nature of academic

writing at NCS, participants were asked to indicate whether selected features of academic

writing were expected or employed when students were assigned to write. In self-reporting

expectations of students, teachers (Table 17, p. 75) favored description, classificatory

structures, and evaluation over narration. Similarly content-specific vocabulary and complex

sentence structures were valued by teachers. However, the distribution for students (Table 18,

p. 76) in each category was spread across the continuum from always to never. For example,

eight students believed their academic writing tasks required complex sentence structures

sometimes while four believed those assignments required complex sentence structures rarely

or never. Three students did not know what the question was asking of them. Related to

Table 15. Frequency of Academic Writing Tasks

Students: 17. How many times each month during the school year do you write using academic style in the following courses:											
	1	2	3	4	5	6	7	8	9	10+	Response Count
English	2.9% (1)	0.0% (0)	0.0% (0)	11.4% (4)	8.6% (3)	2.9% (1)	2.9% (1)	5.7% (2)	0.0% (0)	65.7% (23)	35
Math	48.3% (14)	24.1% (7)	10.3% (3)	3.4% (1)	3.4% (1)	0.0% (0)	0.0% (0)	3.4% (1)	0.0% (0)	6.9% (2)	29
Social Sciences	2.9% (1)	2.9% (1)	5.9% (2)	5.9% (2)	8.8% (3)	5.9% (2)	8.8% (3)	17.6% (6)	11.8% (4)	29.4% (10)	34
Physical Education	76.0% (19)	16.0% (4)	0.0% (0)	0.0% (0)	0.0% (0)	4.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	4.0% (1)	25
Science	3.0% (1)	6.1% (2)	9.1% (3)	12.1% (4)	12.1% (4)	6.1% (2)	3.0% (1)	21.2% (7)	3.0% (1)	24.2% (8)	33
Electives	55.6% (15)	18.5% (5)	14.8% (4)	3.7% (1)	0.0% (0)	0.0% (0)	3.7% (1)	0.0% (0)	0.0% (0)	3.7% (1)	27
Teachers: 15. How many times each month do you assign students to write in an academic style?											
	16.7 (1)	0	66.7 (4)	0	0	16.7 (1)	0	0	0	0	6

Table 16. Matched Questions Writing Types (Comparing Teacher and Student Responses)

Teachers Describe Academic Writing Tasks				Students Describe Academic Writing Tasks			
Question	Possible Responses	Percentage	n	Question	English-language arts (percent-count)	Social studies (percent-count)	Science (percent-count)
5. Informal writing tasks such as journals, quickwrite, letters or poems I routinely assign in my classes:	Regularly Occasionally Rarely Never	71.4 28.6 0 0	5 2 0 0	6. Informal writing tasks such as journals, quickwrite, letters or poems are assigned in each of these classes.	Regularly 69.4% (25) Occasionally 30.6% (11) Rarely 0 Never 0	Regularly 38.2% (13) Occasionally 55.9% (19) Rarely 5.9% (2) Never 0	Regularly 30.3% (10) \ Occasionally 48.5% (16) Rarely 21.2% (7) Never 0
6. Frequency of academic writing tasks (report, persuasive writing, analysis, summary) which require students to use specific vocabulary and sentence structures in my classes:	Regularly Occasionally Rarely Never	14.3 42.9 42.9 0	1 3 3 0	7. Academic writing tasks (report, persuasive writing, analysis, summary) in which I am required to use specific vocabulary and sentence structures.[a]	92.1% (35)	68.4 (26)	54.3 (21)

[a]Students were asked only to indicate if they were required to use the formats and features indicated.

Table 17. Teacher Expectations

11. Which of the following do you expect to see in academic writing tasks in your discipline for the grade level you teach?						
	Always	Often	Sometimes	Rarely	Never	Response Count
Use of subject-specific (vocabulary about the subject such as "mitosis" in a biology course) vocabulary	50% (3)	50% (3)	0	0	0	6
Complex sentence structures (more than one clause)	16.7% (1)	83.3% (5)	0	0	0	6
Classification: Cause/Effect	33.3% (2)	16.7% (1)	50% (3)	0	0	6
Classification: Compare/Contrast	33.3% (2)	16.7% (1)	50% (3)	0	0	6
Other classification	0	20% (1)	80% (4)	0	0	5
Narration (tell a story)	0	16.7% (1)	50% (3)	16.7% (1)	16.7 (1)	6
Description	50% (3)	0	50% (3)	0	0	6
Evaluation using criteria	16.7% (1)	33.3% (2)	33.3% (2)	16.7% (1)	0	6

Table 18. Students' Understanding of Teacher Expectations

13. Which of the following does your teacher, from question 8, above, require in your writing?							
	Always	Often	Sometimes	Rarely	Never	Don't Know What It Is	Response Count
Use of subject-specific (vocabulary about the subject such as "mitosis" in a biology course) vocabulary	32.4% (12)	35.1% (13)	16.2% (6)	10.8% (4)	2.7% (1)	2.7% (1)	37
Complex sentence structures (more than one clause)	22.2% (8)	36.1% (13)	22.2% (8)	5.6% (2)	5.6% (2)	8.3% (3)	36
Classification: Cause/Effect	17.1% (6)	31.4% (11)	28.6% (10)	14.3% (5)	5.7% (2)	2.9% (1)	35
Classification: Compare/Contrast	33.3% (12)	19.4% (7)	33.3% (12)	5.6% (2)	5.6% (2)	2.8% (1)	36
Other classification	5.7% (2)	28.6% (10)	40.0% (14)	14.3% (5)	0.0% (0)	11.4% (4)	35
Narration (tell a story)	10.8% (4)	18.9% (7)	32.4% (12)	21.6% (8)	13.5% (5)	2.7% (1)	37
Description	54.3% (19)	31.4% (11)	8.6% (3)	2.9% (1)	0.0% (0)	2.9% (1)	35
Evaluation using criteria	30.6% (11)	30.6% (11)	19.4% (7)	5.6% (2)	5.6% (2)	8.3% (3)	36

sentence structure and uptake of new vocabulary, Mr. Bowdoin and Dr. Romer indicated, during interviews, that students sometimes "lifted" phrases from other text sources. They indicated that this was a concern for them, though both wanted students to write in a scholarly way.

SOURCES STUDENTS RELY UPON IN WRITING
FOR ACADEMIC PURPOSES

Furthering the exploration of how students situate their own understanding with that of others, students were asked to identify by general attribution which data sources they used in support of their written work. Again, the perceptions of students were quite different from that of their teachers. To learn how students and teachers perceived and understood the need to attribute sources of information and how that information was provided, two questions were asked of each participant group.

In comparing the data provided by students and teachers, one notices that both student and teacher participant groups believe they share the responsibility for identifying sources for academic writing tasks (Tables 19 and 20). However, 27% of students believe they identify (select) the sources while no teacher believes students identify the sources relied upon in academic writing for that discipline. It may be that students believed they should mark all responses that applied, but the question was a forced choice with only one correct response possible (the software ensured compliance with this criterion). Participants could change their answers until they clicked the button to submit the page of questions and move to the next page. The question arises as to what sources students rely upon in constructing a written product exploring a given topic. In another question, participants were asked to identify the source by type rather than by naming who chose the source. Again, students clearly believed

Table 19. Identify Sources

Teacher Responses: 10. Do you expect students to use data to support their academic writing? (check all that apply):		Student Responses: 12. In most of the academic writing tasks you write, are students expected to identify information sources or does the teacher provide the information sources for you?	
Students identify the sources	0	I identify the sources	27% (10)
I (teacher) provide the sources	16.7 (1)	The teacher provides the sources	5.4% (2)
I identify some sources and the students provide some sources	83.3 (5)	I identify some sources and the teacher provides some sources	56.8% (21)
I don't know	0	I don't know	10.8% (4)

Table 20. Use Data to Support Writing

Teacher Responses: 12. Do you expect students to use data to support their academic writing? (check all that apply):		Student Responses: 14. Are you expected to use data (check all that apply):	
From peers	33.3% (2)	From peers	44.1% (15)
From information provided by the teacher	100.0 (6)	From information provided by the teacher	88.2 (30)
From course textbooks	83.3 (5)	From course textbooks	73.5 (25)
From student-selected sources	33.3 (2)	From student-selected sources	61.8 (21)

they selected their own sources of information far more than their teachers indicated in their expectations. Course textbooks and the teacher were identified by both students and teachers as significant sources of information. In interviews, students and teachers indicated that they relied on single sources of information, such as a textbook or lecture, as potential sources for academic writing. However, where students indicated they did research on their own using Internet sources to supplement textbooks and lectures to inform their writing, teachers bemoaned the students' preference for doing so. Akua recounted his use of the ask.com website to find information about seals in San Francisco to enhance his writing on an assignment about endangered species He was aware, too, of the video he watched in class, but neither of these sources were cited in his paper.

DESCRIBING 10TH GRADE WRITING FOR ACADEMIC PURPOSES

In order to understand the written academic products of 10th tenth grade students, a description of their work is in order. In the present study, the use of words found on the academic word list (Coxhead, 2000) and six different discourse moves are examined. No claim is made that these descriptors represent all available descriptors of academic writing; however, the seven features (academic word list and six discourse moves) are indicative of the features one might expect to find in academic writing. Additionally, students' scores on the California High School Exit Exam (CAHSEE) as reported in Chapter 3 may add to a description of the students' writing proficiencies.

Discourse Moves

Isabella, a student interviewed for this research, described her writing by indicating the importance of claim, data, and warrant. The investigator asked where she had learned those terms for academic writing, and her reply was that she learned to use them from her 4th grade teacher. Isabella's use and application of the Toulmin model of argumentation (2003) more than 5 years after she learned about it indicates the possibility that 10th grade students are capable of attributing ideas to specific sources and making appropriate inferences about those sources.

From corpora made up of 196 separate documents and 52,097 words written by 10th graders at NCS, students explicitly cited another source 76 times, explicitly responded to a source 64 times, and summarized a source when they otherwise were not directed to do so 74 times. However, an examination of the contexts in which students employed discourse moves may prove more enlightening. As described in Chapter 3, five sets of texts were created. Each corpus corresponds to a different writing task. Two tasks were selected from the students' English-language arts course, one from science, and one from social studies. An additional task was an interdisciplinary writing assignment the faculty at NCS refers to as an "essential question." Essential questions ask students to cross disciplinary boundaries to synthesize what they have learned, identify patterns of social behavior and scientific evidence, and engage in abstract thinking about and across common school disciplines. An example prompt and rubric may be found in Appendix C.

Analysis of the corpora highlights differences and similarities across the disciplines. Each corpus was analyzed for use of six different discourse moves (Bean et al., 2007, Graff & Birkenstein, 2007). However, the context for assignments in each corpus must be taken

into account during the analysis. For example, two corpora explicitly required students to summarize another text. Other discourse moves may be implied in the task assigned to students, but students were not directed to use the discourse moves as part of the direction or prompt. Table 21 summarizes the discourse moves students employed. Specific instances of sources students cited are also noted. Students' papers that contained a reference to another text were recorded as citing a source. Largely, students did not use, and the school did not provide, a style guide such as that provided by the Modern Language Association (Gibaldi, 1998) or the *Publication Manual of the American Psychological Association* (APA, 2001). Student work that named an author or another text was coded as citing a source. The two summarization tasks had a high incidence of citing sources and summarizing as noted in the discussion to follow.

Descriptions of each type of text and composition of the corpora can be found in Chapter 3. In order to be coded as a discourse move, students in some way had to indicate the point-of-view to which they referred; that is, there needed to be clear evidence of averral or attribution. In the social studies essays on the topic of China's one-child policy, students often cited figures and paraphrased policies but only 1 student of 38 actually indicated a source (he looked it up on an Internet website). In all other cases, the students treated data as common knowledge without attribution. Students sometimes stated opinions but these were (with the exception noted above) not situated as discourse moves that helped the reader to negotiate where the student author averred and where the student author could have or should have attributed the information to another source.

Table 21. Discourse Moves in Student Work Corpora

	Literacy Letters	Persuasive Essay	Science Summary	Social Studies	Essential Question
Number of Documents/Number of Words	98/17,646	10/7,023	26/3,615	38/13,722	24/10,091
Recognizing the contribution of others (citing a source)	†	3	†	1	1
Quoting others	0	0	0	0	0
Summarizing the point of others	††	1	††	2	0
Anticipating objections	0	4	0	0	0
Differentiating the writer's point from that of others	0	0	0	0	0
Response to the contribution of others	58	4	2	0	0
Indicating why the topic matters	0	6	7	24	11

†All literacy letters made reference to the students' free reading books by authors' name, title, or both. There were four instances of students citing a specific source by page number within the summarized text itself. There were eight instances where students cited another text for comparison. All science writing made reference to the source text for the summarization task in some manner.

††All literacy letters and all but one science summary made reference to the source text since the task included directions to summarize a specific text.

Literacy letters required summarization of a source text as did the science writing task. Most students specifically named the book they were reading in the literacy letters, though two students only gave their paper the same title as that of the book they were reading. Many also included the authors' names. In the science summary task, students generally made reference to the source text usually by reference to "the article," rarely by the article's title, and never by the author's name (Gugliotta, 2008). Several students also incorporated the name of the human subject of the article, Laurie Marker, a wildlife biologist.

When students are specifically given a text as a source, they tend to use it, though in the examples of the science summary and the literacy letters only one text is required. Isabella and her science teachers concurred, though, that summarizing single texts were useful in helping students understand challenging texts. The prompts for literacy letters tend to require a response to the literature students were reading; therefore, students did respond. In writing the essential question response, the social studies essay, and the persuasive essay for English class, students were far less likely to cite a source or make use of any of the other discourse moves. This is of interest primarily because it would seem students could choose any number of texts including lectures, podcasts, textbooks, and Internet sources through which to negotiate their own meanings in writing these assignments.

Students were more adept at indicating why the topic about which they wrote was significant or mattered even on rather abstract topics that did not immediately have an impact on the students' own lives. Near the end of the school year, students were asked to write a letter to a wildlife foundation integrating what they knew of a particular endangered animal and its loss of habitat. Christian, an English language learner, noted in this essential question response: "The future of the green Sea Turtle can only be preserved if we do something to help them but in a much bigger way . . . ." Students seemed to benefit from the thematic teaching embodied in the NCS essential question approach developing an understanding of curricular topics by relating them across disciplines. Even early in the year when the notion of the essential question was new, Jacob wrote that healthy societies are characterized through leadership and he employed specific rhetorical devices to emphasize why he felt the topic mattered, "What makes a healthy society? Well it is the leadership, the strive for a change and to learn from others and a good heart."

Words That Matter

Students had a sense that the words they chose were indicative of their command of academic language in written tasks. Each student interviewed was able to point out deliberate word choices that demonstrated competence with tier two and tier three words (Beck et al., 2002). Jacob was very proud of his use, in an essential question response, of the term "social outlook" and his use of it shows a willingness to take syntactic risks in using the term. He wrote, "When you can have enough respect for other people and the equality of difference then that's when you can make a difference in the social outlook." In a separate interview, Jacob's social studies teacher chose the same passage from a set of six papers Jacob had written as an example of students' attempts at uptake of discipline-specific vocabulary. Christian referred to a level two word he had used in writing about endangered wildlife and that he believed indicated increasing control of academic vocabulary. The word he chose was "essentially."

Students' uptake and subsequent use of tier three words is largely beyond the scope of the present study; however, some description of how 10th grade students use tier two words in their written work is possible by comparing word lists created from the corpora collected for this study with an established word list. As described in Chapter 3, the Academic Word List (Coxhead, 2000) is based on a corpus of 3.5 million words at the university level. It is subsequently arrayed in ten lists of 60 word families (except the final list which is composed of 30 word families). Each list represents increasingly less common words as found in the source corpus than the words on the previous list (Massey University, 2004). In the present study, each 10th grade word list (generated from the 10th grade corpora) was compared against the entire Academic Word List. One should not expect 10th grade students to employ words

from the Academic Word List at a similar rate as that reported by Coxhead. With those

stipulations in mind, the Academic Word List does provide a baseline against which 10th

grade students' work might be compared. With additional study by increasing the size of the

10th grade corpora and adding corpora at additional grade levels, a fair description of how

students use words representative of mature users of the English language may be attained.

By comparing each 10th grade corpus, it is possible to make some determinations

about how students use and choose words in their own scholarly pursuits. Table 22 displays

the results of word list comparison of each 10th grade corpus against the Academic Word List.

A scatterplot diagram (Figure 2, p. 87) demonstrates a nonlinear relationship between each

10th grade corpus, but from the scatterplot it is possible to determine which of the corpora

might be correlated. The Pearson product-moment correlation coefficient calculations

(Hinkle, Wiersma, & Jurs, 2003) outlined below may be useful in indicating that there is an

effect related to the Academic Word List; however, care must be taken not to infer more than

the data actually indicate. The correlation coefficient for all five word lists showing total

word count in each corpus against total Academic Word List total matches is .493, a low

positive correlation. When the literacy letters are removed, the correlation coefficient is .840,

a high positive correlation. Tenth grade words that match the Academic Word List appear in

Appendix D. To verify the effect, correlation coefficients were calculated for distinct words

and Academic Word List distinct matches. Distinct words are the number of distinct words in

each 10th grade corpus; that is, the total of all words found in the 10th grade sample also occur

at least once in the Academic Word List. The correlation coefficient for 10th grade distinct

words and Academic Word List matches is .691, a moderate positive correlation. The

Table 22. Academic Word List Analysis

	Number of Documents	10th Grade Word Count	AWL Count	Percent Total Word Count to Total AWL Count	10th Grade Distinct Words	Word Count to Distinct Word Ratio	Matches to Distinct AWL	Mean Word Length (in char)	Word Length Std. Deviation	Number of Sentences	Percent Words to Sentences	Percent Distinct AWL Matches to Distinct Words	Mean Sentences (Number of Sentences/Number of Documents)
Science	26	3,615	104	2.88	830	22.96	65	4.6	2.31	223	6.17	7.83	8.58
English-Persuasive	10	7,023	217	3.09	1,453	20.69	138	4.28	2.31	349	4.97	9.50	34.90
English-Lit Letters	98	17,646	380	2.15	2,496	14.14	187	4.1	2.16	981	5.56	7.49	10.01
Social Studies	38	13,722	656	4.78	1,716	12.51	237	4.61	2.56	693	5.05	13.81	18.24
Essential Questions	24	10,091	808	8.01	1,781	17.65	231	4.72	2.54	596	5.91	12.97	24.83

correlation coefficient for the same criteria excluding the literacy letters corpus is .963, a very

high positive correlation.

Student Word Count
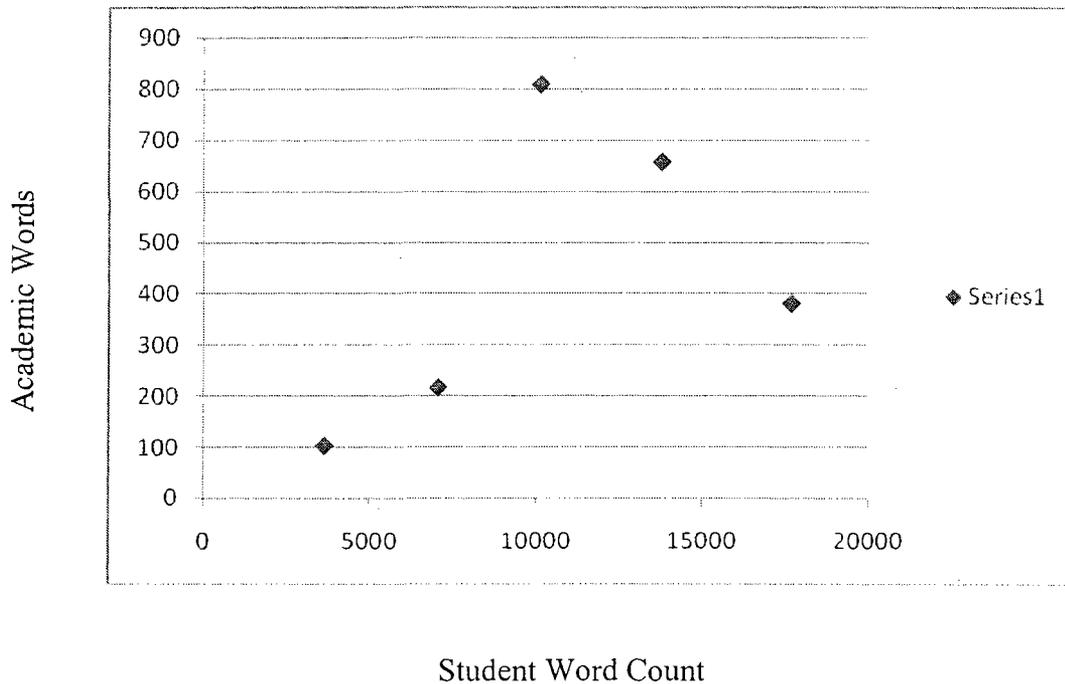
**Figure 2. Scatterplot showing 10th grade word count and Academic Word
List total count matches.**

As the word count increases, the number of academic words used also tends to

increase uniformly across the disciplines with the exception of the literacy letters. These

letters are a special case the implications of which will be examined in greater detail in

Chapter 5. Note that the word count is a measure of the size of the corpus, so it would not be

appropriate to infer from this data that if students were to write more words of connected text

that their use of academic words will also increase. The correlations explained above may

indicate that uptake of words on the Academic Word List is fairly constant across disciplines,

however. The correlation analyses do suggest that there is an interaction between the various

types of writing represented by each corpus. The nature of that effect cannot be explained by the correlation analyses. For this, qualitative inquiry is indicated. Descriptive statistics may provide additional insight; expressed as a percentage, the total words in the corpus compared to the total words from the Academic Word List is noteworthy. The relatively high incidence of academic word use on essential question assignments (8.01%) and on the social studies assignment (4.78%) bears further examination (see Chapter 5).

Jacob, during an interview with a set of his papers downloaded from the BlackBoard classroom management system available, chose words that he felt indicated control of language in academic writing tasks. When asked what he thought made the two pieces he selected from the set "academic" in character, he responded that he did not use "I" and used what he called "more advanced writing." Though students had a difficult time explaining the features of their own writing that they felt were academic in nature, they were clearly aware of some features this study calls local operations; that is, they were aware of use of pronouns and vocabulary that emulated that of the texts they encountered in school.

WRITING AND THINKING IN THE DISCIPLINES

In response to an open-ended question at the end of the survey, one 10th grader typed (capitalization and punctuation are copied exactly from the student's response), "During my 8th grade year, I realized that English, History, and Science. All use different styles of writing. It's best not to write an essay that is for all. Otherwise you are bound to fail one essay." The student quoted here understood that language use varies across the disciplines, at least those disciplines that commonly make use of writing in public high schools. The

question then before the field is how best to assist students to actively learn to use the academic words and language across disciplines and discipline-specific language.

Prompts

Writing prompts are the directions teachers give students for school-sponsored writing. Emig's characterization of school-sponsored writing is negative; she views it as limited and limiting (1971, p. 97). Hillocks (1986) counters that the research evidence does not support this view. Whatever the results, there is general agreement that the prompts for writing tasks in school shape the final result and perhaps the process students use in composing. Students and teachers at NCS use an Internet-based classroom management system for some academic tasks known as BlackBoard™For example, 10th grade students take an English course with several face-to-face features, but they also are enrolled in a corresponding course in BlackBoard. Teachers may post a written task which students will complete. Teachers require several different modes of responding. Some tasks require the student to post the completed product back to BlackBoard for their teachers to read; these products may be wordprocessed documents which are uploaded as attachments or teachers may ask students to post responses directly into a "comment" field in the BlackBoard environment. An example of the comment field response can be seen in Figure 3. The prompt written by the teacher is labeled "1" and the student's response is labeled "2." A final format for written tasks available in BlackBoard is the use of threaded discussion groups (e.g., English, 2007; Wolsey, 2004). Written work in threaded discussions were not included in this study. Teachers reported, during interviews, that they had difficulty with some aspects of the electronic environment. As the school year progressed, teachers used the BlackBoard tool for

fewer and fewer tasks. Teachers of 10th grade English and science posted few assignments in

BlackBoard by November of the school year. The social studies teachers continued to post

short response assignments throughout the school year.

Figure 3. Comment field in Blackboard.

The prompts found in each 10th grade BlackBoard environment were downloaded

then coded against Bloom's revised taxonomy (Anderson & Krathwohl, 2001) for the type of

cognitive activity that the prompt seemed to require in students' responses. Each prompt was

rated twice, once by the researcher and once by a classroom teacher with 28 years of

experience teaching high school content in a variety of disciplines. Each prompt was

evaluated as to the primary cognitive activity found in the taxonomy with a score of one.

These were then totaled for each evaluator to determine the range and levels of thinking the

prompts required in students' written work in 10th grade. The results in Table 23 show the

levels of thinking required by the writing tasks in each of the three disciplines. A visual

examination of the chart will show that the two evaluators agreed most of the time and most

Table 23. Analysis of Prompts in Blackboard

	Biology (8 prompts)		English (15 prompts)		Social Studies (31 prompts)	
	Evaluator 1	Evaluator 2	Evaluator 1	Evaluator 2	Evaluator 1	Evaluator 2
1.0 Remember						
1.1 Recognizing		1	1	1	2	2
1.2 Recalling	1	1	2	1	14	14
2.0 Understand						
2.1 Interpreting	1		3		3	3
2.2 Exemplifying			1			
2.3 Classifying			1		1	1
2.4 Summarizing	3	5	5	7	3	3
2.5 Inferring			1	1		
2.6 Comparing				1		
2.7 Explaining	1		1	1	4	4
3.0 Apply						
3.1 Executing		1			1	1
3.2 Implementing						
4.0 Analyze						
4.1 Differentiating				2		
4.2 Organizing						
4.3 Attributing						
5.0 Evaluate						
5.1 Checking	1					
5.2 Critiquing					2	2
6.0 Create						
6.1 Generating				1		
6.2 Planning					1	1
6.3 Producing						

of the written tasks across disciplines fell in two major categories of cognitive processing tasks: Remember and understand. Fewer tasks fell into the categories of apply, analyze, evaluate, and create.

By year's end, teachers posted few writing tasks in BlackBoard, and those tasks were generally short in nature and required cognitive work in the first two categories of Bloom's taxonomy (Anderson & Krathwohl, 2001). While initially, even more involved writing tasks including the prompts were published for students in BlackBoard, by mid-year most tasks had devolved to short summarization tasks or no tasks were posted at all. By mid-year, most of the threaded discussion groups were abandoned, as well. In interviews and one faculty meeting the researcher attended, teachers expressed frustrations with BlackBoard and the network that may have contributed to the lack of use of the classroom management system. These frustrations included slow server response time such that it took a long time to download student work; students who submitted work in formats the teachers' computers could not read, unfriendly interfaces within the classroom management systems that caused excessive confirmation notices to retrieve work or post grades, and an administrative requirement to use a different and incompatible student information system for actual recording of grades. During visits, the researcher noted that students continued to type their written work using the readily available word processing software, but they printed it out and submitted it in manila-type file folders to their teachers. Few of the prompts for writing were posted in the classroom management system. At the same time, the researcher found that teachers did monumental work in starting a new school, learning the complexities of a number of new school technologies, and so on. As a result, some features of BlackBoard that might have been beneficial were not employed to their full potential during the 2007-08

school year. Almost no work was submitted to BlackBoard by students after the winter break with the exception of the social studies course. In social studies, the summarization assignments posted in the comment field continued through the end of the school year.

Though the quality and frequency of the prompts for writing and work uploaded to BlackBoard diminished sharply, teachers continued to assign writing in each of the three content areas. Many of those tasks required complex thinking on the part of students. However, the tasks were assigned in a more traditional manner with a teacher describing the assignment in class, and students completing it at home or during their BlackBoard study period. They were then required to print it out and bring it to class.

Science and English teachers referred to RAFTs as a writing task they routinely assigned 10th grade students. Teachers tended to refer to RAFT (Santa, 1988) as a genre or type of written expression rather than as an instructional routine or method for planning a writing task (e.g., Buehl, 2001); a representative quote is, "I often assign RAFTs." Nevertheless, the tasks they described as RAFTs called, cognitively, for generation, differentiation, and evaluation of lecture, video, textbook, and other sources. One science teacher described what he termed a RAFT to organize, in a coherent manner, information from variety of sources to describe the interaction between deer and wolf populations in national parks Arizona. These RAFTs were written in class using paper and pencil rather than electronic tools. Part of the assignment is to take the point of view of the deer and write to the park service with advice on how to save the deer population. By comparing population graphs the students create, a lab experiment illustrating important concepts, and lectures students bring coherence to the various information sources they experience in this course.

Also characteristic of writing assignments at the school are the writing tasks they term "essential questions." The questions are posed as writing tasks. Figure 4 is an example of the writing prompt for one essential question. The interdisciplinary character of the assignment is further developed in the rubric in Appendix C. The essential questions ask students to organize content in an interdisciplinary manner that creates coherence and assists students with finding the themes and patterns that may not be encapsulated by the boundaries of just one discipline. While the written response and interdisciplinary nature of the essential question at NCS is largely an innovation of the faculty there, it is based on their examination of the work of others who describe essential questions and interdisciplinary work as a means of guiding curriculum development and engaging students (e.g., Jacobs, 1991; Wiggins & McTighe, 2005).

During interviews with teachers, the importance of the school's schedule in promoting interdisciplinary thinking and writing became apparent. The student schedule for classes is innovative as compared with the traditional comprehensive high school (cf. Goodlad, 1984). At NCS, students attend a lecture at least once per week in each of the core areas of science, math, English-language arts, and social studies. These lectures are somewhat traditional in nature with a teacher at the front of a large lecture hall or theatre. In larger classes, such as the 9th grade class, all students numbering over 100 students attend the lecture. During the week, however, students attend workshops and seminars with substantially smaller groups of students in each of their core area classes. Students may not have a scheduled workshop or seminar each day (a sample schedule appears in Appendix C). In these workshops and seminar courses, students explore and apply concepts they have learned by connecting lecture topics with earlier coursework. The schedule at NCS played an

important role in the type and quality of the writing tasks assigned by facilitating

interdisciplinary work and providing time for students to engage in the tasks of learning.

QUESTION:

How Does Natural Selection Explain Evolution?

ESSAY: 5 paragraphs

STRUCTURE:

☐ Introductory paragraph: This paragraph introduces the topic of natural selection. Hook your reader and set us up for what we are about to read.
- o 2nd paragraph:
- o 3rd paragraph:
- o 4th paragraph:
- o Conclusion: Include a brief summary of your essay's main points. You can also ask a provocative question, use a quotation, end with a warning, describe a vivid image, humor etc.

DUE:

Rough Draft due Friday, February 29 to Mr. Gardner

25 points (English)

Final due Friday, March 7 to Mr. Gardner

75 points (English) & 20 points (Science)

Figure 4. Essential essay #3.

Cues

Students took cues from the formats provided to them by their teachers. Social studies

and science teachers indicated that Mr. Gardner, the English teacher, worked with them to

understand the written tasks assigned in social studies and science. He then used the

workshop period to confer with students individually on their writing in English as well as in

social studies and science. As noted earlier, some of the written tasks assigned were planned

and implemented as purposeful interdisciplinary writing tasks, as well. Mr. Gardner asked

students to bring printed copies of their papers to workshop where he could work with students one-on-one to make adjustments in local operations and global aspects depending on what dialogue with the students seemed to indicate. Akua concurred when he advised teachers who want to help their students to be more effective writers to "try to talk with the student . . ." and he noted that his language arts teacher often did so. Though more research is needed in this area, students seemed to take their cues related to local operations from the written examples of academic writing they found or to which they were directed. Students took their cues about global tasks from their teachers' descriptions of the writing tasks and from conferences with their teachers. The present study suggests that students took their cues regarding local operations from texts they encountered; teachers rarely if ever brought these up during conferences or in the prompts they gave students.

Miss Vega noted that she felt she should provide students with a structure, often the five paragraph structure, to help them organize their work or bring coherence to it. Jacob and Isabella both noted that it helped if teachers provided examples of the type of writing or a framework for organizing the final product. Jacob pointed out that he was able to use the written feedback from his teachers to help shape future assignments, though he had a difficult time thinking of a specific example. Dr. Romer and Mr. Bowdoin both discussed the importance of highlighting the key concepts to which they wanted students to attend by placing an asterisk next to those concepts, increasing font size in PowerPoint®, or repeating key concepts such that students would be cued to include these in their notes.

CONCLUSION

Students at NCS tended to emphasize format and mechanics of writing in their characterizations of academic writing while their teachers emphasized content. Similarly, students seemed to view informal writing opportunities differently than their teachers did. While students demonstrated a general understanding of the different types of sources on which they drew in writing for academic purposes, they struggled with the ability to differentiate and identify sources of information in their writing. Teachers, by contrast, did not recognize the sources beyond their own classrooms on which students might draw as they wrote to understand content. Students were able to determine the significance of topics about which they wrote which speaks to the capacity of the school's structures and the instructional competence of the faculty in clearly articulating why topics and content in the curriculum mattered. At the same time, teachers tended to avoid using the technological tools that were abundantly available at NCS. Finally, those writing tasks that tended to cross disciplinary lines or draw upon rich sources of information and context were valued by teachers and students and produced higher incidences of word choices that might be characterized as academic in nature.

CHAPTER 5

DISCUSSION

I sat in the front of the theatre waiting for a teacher I was due to interview. Meanwhile, at the back of the otherwise empty theatre, Kyle and Candace sat with a laptop computer. They were engrossed in a video and discussing it, though I could not hear the substance of those comments. One might, at first, suspect that the students were just watching something downloaded from a social networking site or a DVD. This, however, was not the case. These two students were going over a video they had created using images they found on the Internet and text they had added to their project. They had studied endangered species in science and read about them in their English workshops and seminars. These two students had worked together to write a letter encouraging the World Wildlife Fund to support research in support of the American crocodile. They were preparing to present their movie to one of the school's science teachers by refining their arguments and going over their data. The essential question they were attempting to answer was not an easy one, either. While the topic of endangered species and the notion of species diversity was developed by their teachers, Kyle and Candace wondered, "What would earth would be like if there were no crocodiles in the American south?" It seemed to be vitally important to these two teenagers to understand endangered species, even though they lived far from the habitat of any crocodile.

Their video, which they were eager to share with me, very clearly showed waste in service of fashion with leather goods made of crocodile skins. The students developed a clear

chain of reasoning linking loss of habitat with the destruction of this ancient species. The images they chose reiterated what they had come to understand about the value of sharing a planet with other species. Their selected images contrasted crocodilian habitat showing the animals then pictures without the reptiles. So carefully were the images chosen that there was no question as to the depth of their thinking. Along with their movie, the students composed a letter in which they assumed the role of a preservation team for an endangered species of their choice. They were to persuade the World Wildlife Foundation to direct resources to preserve the species about which they wrote. An example letter by different students who worked collaboratively appears in Appendix C.

Akua told me that he is "not a fan of writing," but he quickly went on to show me why he found writing in social studies so engaging. He enjoyed writing when it helped him understand how society worked and how people lived in the past because it helped him understand the present, especially the political environment of the present, so much better. He explained that he liked writing when he knew it could help him understand how things are or how he could help. For Akua, writing had to be useful in some way he could see and understand. What struck me was that as a 10th grade student, he wanted to use his skill as a writer and knowledge of history to contribute. Commenting about politics specifically, he said, "I have to be [interested]. If I want to be able to vote, I want to know whom I'm voting for." The life of vibrant societies seemed to him to depend on being informed and also participating in the public sphere. Like Kyle and Candace, his essential question, one not specified for him by any teacher outright, was one about which he could speak at some length and passion. I inferred the question from his comments, but he wanted to know, "How does an understanding of history help us improve our lives today?" Once again, not an easy

question, but one this 10th grader knew he had to tackle. This study has sought to explain how

students at one high school learn to think about content and write in a way that enriches.

Transactional writing, as this paper asserts, is complex territory. Teachers who expect

students to write in expansive ways, to use writing to explore and inquire, and to

communicate important and difficult questions adopt a stance that does not trivialize or

oversimplify the task of writing coherently within and across disciplines.

Using the seven dimensions (academic words, 6 discourse moves) as criteria, how do tenth grade written artifacts compare in each of the following disciplines: science, English, and social studies?

Students at NCS are fairly proficient at determining why a topic matters and

summarizing single texts in a given composition. Teachers and students both recognized the

value of summarizing as a means of understanding difficult or challenging texts. In the

literacy letters students wrote to their teachers, students were able to adopt an informal tone

in explaining their books to teachers who were always the audience for these letters. The

informal tone did not appear to promote use of tier two words as found on the Academic

Word List (Massey University, 2004), but the purpose of the assignment was to encourage

engagement with the books students independently selected. Students treated these as a kind

of dialogue with their teachers about their reading choices. In this regard, the summarization

activity in concert with the informal tone seemed to be successful. The summarization

activity related to an endangered species, the cheetah, also seemed to encourage students to

identify important attributes of the source text and provide a purpose for reading.

At the same time, the preponderance of summarization tasks and cognitive tasks in

the "understand" family (Anderson & Krathwhohl, 2001) found in BlackBoard courses

seemed to encourage only minimal thinking about content causing students to simply extract

and report information. Though the electronic environment offers multiple choices for engagement with writing tasks (e.g., Boling, Castek, Zawilinski, Barton & Nierlich, 2008; Grisham & Wolsey, 2006) and rich content with multiple sources of information and representations of concepts, the teachers were unable to make the technology available for writing tasks work to their advantage in advancing critical thinking capacity through writing at NCS. Access to computers is largely not a problem, and the school administration is working to increase the capacity of the servers. An aggressive professional development plan along with some models of ways to manage technology may help teachers who struggle with technology to make better use of the resource in service of discipline-specific learning through writing and other media.

Teachers at NCS have adopted an instructional stance that promotes learning as inquiry. One result of this approach is student engagement with those writing and other thinking tasks (for example, the movie project described at the beginning of this chapter) that ask students to become involved in their own understanding by asking questions, looking for patterns within disciplines and across disciplinary lines, and to share what they know with each other and the school community. School as a community is evident even in the design of the central areas of the school. The school features a large student lounge area with rattan chairs and coffee tables where students hang out, socialize, and work on school-related projects. It's not uncommon to see students at a table discussing a project for one of their classes.

To what degree do words from an academic word list appear in a sample of tenth grade writing artifacts?

One hypothesis guiding this study is the notion that students engaged in highly literate environments are likely to try out and use increasingly precise words to express their understanding of complex topics and concepts. Two students writing collaboratively explained one problem faced by the endangered polar bear (see Appendix C), "Also, humans have this dismantled need to kill and use the skin of animals to sell and get 'money.'" The students' use of "dismantled" is a little unusual but demonstrates a desire for precision in describing a human characteristic the students find unreasonable. Students' uptake of new terms is partly a function of purposeful instruction (e.g., Graves & Watts-Taffe, 2002) and partly a result of exposure to words in contexts that help build word knowledge (e.g., Nagy, Herman, & Anderson, 1985). The notion of a universal design for learning (CAST, 2008; Rose & Meyers, 2002) suggests that students are more likely to learn and be engaged when the curriculum provides multiple means of engagement, multiple representations of key concepts, and multiple means of expression. A rich educational environment, then, might be defined as one which provides access to many sources of information, guidance in selecting and using those sources, and many opportunities for doing so. If students have many opportunities to read and have meaningful encounters with texts of many types, no big leap is required to infer that rich environments will result in better writing. Along with this students see and hear words in many contexts and are encouraged to try them out in their speech and in their written work. Such writing is a likely result of engagement where students take risks with vocabulary and sentence structures, become deeply involved with the discipline-specific and cross-disciplinary topics, and think of learning as inquiry.

In contrast to the summary writing found in BlackBoard, students seemed to thrive with the essential question assignments they were given. The essential questions asked students to cross disciplinary lines and integrate prior knowledge as they organize, critique, and hypothesize what they know and can find out. As students grappled with content and synthesized their learning, they also brought increasing precision to their written work through use of the tier two type words such as those found on the Academic Word List (Massey University, 2004). Though the corpora of words on which this claim is made is relatively small, there is enough evidence to suggest that students who are engaged with rich content and asked to synthesize and critique information may also draw on their word knowledge more deeply in a drive toward precision. As with the essential questions, the social studies assignment produced a greater percentage of academic words used than any of the remaining tasks, though not as great as the uptake of such words as those that appeared on the essential question tasks. This is especially noteworthy because the essential question tasks were given at mid-year but the social studies essay was assigned near the end of the school year.

In what ways do teachers interact with students to produce effective academic writing? How do teachers and students define academic writing?

Students tended to focus on format and mechanics of academic writing task when asked to define their views of what makes writing academic. However, teachers focused primarily on content but used format as a means of helping students organize and bring coherence to content knowledge. Teachers recognized that clarity of purpose in assigning writing helps students think through the writing task; similarly, students co-constructed purposes for writing that blended their views with a synthesis of sources to make sense of the

content. The more students were asked to make sense of complex topics and synthesize data, the more likely they reported they were to be engaged with the writing task. Though students did recognize the value of writing summaries, no student chose summarization tasks as an example of academic writing. It's possible that students did not recognize summarization as academic in character. Similarly, though all were presented with examples of their work (one piece is included in Appendix C) from the BlackBoard summarization tasks, not one chose to comment on these pieces of writing for any reason during interviews. They referred to their essential question responses, social studies essay on China's one-child policy and the World Wildlife Foundation persuasive letter when they wanted to illustrate some aspect of their work as scholars or to illustrate an important point they made through their writing.

In what ways, if any, do content teachers make visible the language of the discipline and subsequently scaffold student command of the language in written discourse? In what ways might a teacher promote discourse moves in academic writing?

Students struggled to elaborate how they knew what they knew about content and the texts they used as models for their own writing. However, they were aware they were making choices about words, sentences, and global organization. They relied on their teachers for cues as to how best to organize their written work. However, the cues they relied upon for local operations at the word and sentence level came mainly from terms and concepts highlighted in lectures as well as videos, podcasts, and readings from various texts. Though students rely on multiple texts (including lectures, podcasts, and so on), they often were not able to identify which sources they drew upon in explaining how they arrived at their conclusions on written work. Teachers provide many texts for students' consideration; however, both teachers and students tend to view content knowledge in a holistic manner. Just as students' word choices are enriched through reading multiple texts with many

opportunities to try out those word choices, students learn to emulate other features of academic writing while developing their own understanding within and across disciplines when they have rich contexts and many texts to inform that understanding.

In addition to the content-rich environment that provides contexts that help students to engage in long thinking (Graves, 2002), the opportunity to interact with knowledgeable others helps students to build confidence as scholarly writers and make adjustments to their writing. Isabellla described her meetings during workshop with Mr. Gardner to help her organize her work and revise it. The science and social studies teacher similarly valued the time Mr. Gardner spent in assisting students with writing tasks in those content areas. Students who are encouraged to write and read in class (rather than solely as homework) appeared to be more adept at academic writing. The student schedule built around specific lecture, seminar, and workshop periods, with additional time in a kind of electronic study hall may figure significantly in when and how students write. The seminar and workshop periods lent students the time they needed to work on their writing and obtain the advice and feedback of peers and teachers. The interdisciplinary character of the curriculum at NCS also meant that students often crossed disciplinary lines in their studies and transferred their understanding of content across disciplinary lines.

To what extent do writing prompts influence students' academic writing?

Cues for student writing include the prompts, or directions for writing, given to students. When prompts called for recall or summarization of a single text, rather *pro forma* responses were the norm. Implied in the fact that students never selected these written artifacts to illustrate their competence as scholarly writers is the lack of value students placed on them as learning tools, as well. The more developed RAFT prompts were much more

highly valued by students, and teachers valued them, too. Mr. Bowdoin and Ms. Vega became animated as they discussed the RAFT writing they assigned their students. The students' work on these demonstrated, in their view, engagement and understanding.

Essential question assignments are far less elaborate as prompts go. They are just questions, but the rubrics (see Appendix C) that accompanied the essential question assignments added detail that helped students understand the requirement to construct an understanding rather than just retell what was covered in class or the textbook. Students noted during interviews that the essential questions were difficult writing tasks, and teachers noted that the tasks were difficult to construct. The context of a coordinated curriculum built around these questions added depth from which students could draw conclusions and make inferences about content, patterns, and broader inquiry. Missing from the prompts or rubrics was any guidance as to identification, critique, or constructed understanding based on the many sources that informed the curriculum in each content area.

SUMMARY

Though there are areas where the faculty at NCS may improve where writing tasks are concerned, the lively and innovative environment will likely be the catalyst for continued reflection by individual teachers and the faculty as a whole. Interviews with teachers and students were a potential case study in the power of inquiry as a motivation for learning and for reflection as a means to continually improve practice and performance. Learning at NCS builds on rich resources, knowledgeable teachers who build and value their relationships with students, and varied opportunities for expression of newly constructed understanding. While students at NCS are given low-level tasks like those found in BlackBoard, they are also given

tasks that call for transfer and application, often across disciplines. Comparison of student work against the Academic Word List indicates that it is likely that a reciprocal relationship exists between the quality of the task and the willingness of students to use increasingly precise and specific words to accurately convey the meaning they intend. Teachers and students value the time spent at school working on writing tasks which improved interaction and feedback intended to improve writing. Finally, the quality of the prompts, their purposes, and the context in which they were given play a significant role in the quality of student writing and the value both teachers and students attach to those written products.

Implications

In 1976, Fader proposed that schools could succeed at improving the level of literacy of every student if teachers in every humanities and sciences classroom assigned and collected five pieces of writing of any length every 2 weeks. The purpose was to make writing an unavoidable task in school. Under this plan, the English teacher would assume responsibility for managing at least one of the five pieces collected from other teachers' classes. Two pieces were filed unread by teachers, and the remaining two were read by the content teachers. While the plan is more elaborate than space here allows, Fader's plan was one that built literacy in the places with the most context on which proficiency in reading and writing might be built. Those places were and are classrooms where content is taught and learned.

SCHOOL-WIDE CONDITIONS

One lesson learned from NCS is that school-wide conditions are a critical component of effective writing to understand content and construct understanding. NCS faculty members

were particularly successful at creating engagement with writing tasks and promoting interdisciplinary thinking and knowledge that is transferrable. The collaborative planning of teachers was evident within and between disciplines. Teachers identified collaboration as a part of the school's culture time after time, and teachers chose to be interviewed in discipline-specific teams (that is, the two social studies teachers were interviewed together and the two science teachers were interviewed together at their request). Partly, collaboration may be possible as an effect of school size. A study from Australia demonstrated the complexity of small schools and the importance of context in small school leadership (Clarke & Wildy, 2004). Wainer and Zwerling (2006), however, claim that small schools are not automatically a solution to many problems faced by larger schools; they note some problems associated with small schools and present statistical data in support of their claim. They imply that those that are successful are those which pay attention to curriculum and instruction. One NCS school leader told me that he did not want to work at a school where he did not know every single student (personal communication, 2007). The interaction of common foci on curriculum, instruction, community, and learning contexts at NCS may have some bearing on the success of those writing tasks that produce high-quality writing.

STUDENT IDENTITY CONSTRUCTION AND TRANSACTIONAL TEXTS

Identity construction is a primary task of adolescence. Constructing an identity always means paying attention to the contexts in which one finds oneself. Gee (2004) describes different Discourses (capital in original) which he terms identity kits for different contexts. He explains that Discourses are often embedded one inside the other. As an example, he describes the Sherlock Holmes' identity kit as one that includes use of logic, a pipe, and so

on. The Watson identity kit includes different items than that of Holmes; however, Watson's identity kit does include Discourse between Watson and Holmes, too. Thus, they share aspects of a common Discourse and each scaffolds the knowledge of the other. The notion of embedded Discourses is helpful in explaining how schools might use context to scaffold social languages among students. Social languages are connected to particular social activities, which is why students speak to each other using a different register and lexicon than the register and lexicon they employ when they speak to teachers or their parents.

Transactional texts, by nature, call for what Britton (1992) refers to as "participant" language; that is, language that invites others to respond and that is a response to the activities of others. Britton explains that young students begin with expressive language, but as they progress in school and life, they are increasingly called on to write and express orally that which is either poetic or transactional in character. He writes, "Children will not be able to fully comply with these demands [poetic and transactional language] at once. In fact, as we have suggested, it is by attempting to meet them that they gradually acquire the differentiated forms" (p. 174). Thus, if Britton (1992) and Gee (2004) are on to something useful, we can agree with them that contexts for language are critical if students are to successfully navigate the world of transactional texts they must read and understand as well as create on their own or with peers and teachers.

Teacher collaboration was a recurrent theme throughout the interviews which did not initially show up in the survey responses because of the structure of the survey questions. However, the students' work artifacts clearly demonstrated that their teachers collaborated in planning instruction and aligning curriculum and that such collaboration was also valued as a characteristic of student learning, as well. School-wide practices (e.g., Guthrie & Guthrie,

2002; Lenz, 2006) seemed to encourage students to write with attention to the significance of the problem under consideration, in part because of interdisciplinary cooperation (e.g., Jacobs, 1991).

Large-Scale Assessments of Writing Competence

One problem with large-scale assessments is that students are not permitted to use sources other than their own background knowledge in constructing responses even in persuasive types of writing. The problem of accountability in measuring students' actual performance is at issue here. Gearhart and Herman (1998) explore this problem as it relates to portfolio assessments where no boundaries on time and use of sources are created. Collaboration with peers and teacher is common in school writing tasks, as well as the ability to use a variety of sources introduces problems of accountability in assessing writing. For example, it is difficult to measure the proficiency of students whose work was heavily scaffolded by teacher interactions in contrast to the proficiency of students who did not rely on such interactions. Ball et al. (2005) pointed out the problems with the large-scale writing assessments on ACT and SAT tests that don't align with instructional techniques. Gere, Christenbury, and Sassi (2005) advocate teaching writing-on-demand as a separate genre of writing. Nevertheless, the effect of large-scale assessments on instruction must be further explored. Even though students scored well on the language arts portion of the California High School Exit Exam (CAHSEE), nearly half the student writers at NCS earned a score of one or two on the writing portion, a score that is not considered proficient on the four-point scale CAHSEE employs. As with other large-scale assessments, CAHSEE proctors ensure that students write their own papers without resources or collaboration.

At the end of the year, students at NCS wrote a response to a RAFT-type prompt, a letter to the World Wildlife Foundation, and on that task students did a reasonable job of writing overall. One might infer that if this collection of student work were given to the evaluators of the CAHSEE writing prompt that most of the students would earn scores demonstrating overall competence on the four point scale of three or four. While the effect of large-scale assessments on writing instruction and student performance likely deserves additional scrutiny (cf. Wolsey, 2006), the inverse of the large-scale assessment debate is also evident in this writing task. On the World Wildlife Foundation task, like many of the other tasks before it, the organization of the written product was specified for the students. On CAHSEE writing tasks, this is not the case; students must organize their work individually and without help. Teachers noted the importance of helping students learn what is important and how best to organize it, yet at the same time, we might ask how we can help students improve their own capacity to synthesize content knowledge and organize it in a coherent way on their own.

Instructional Implications

Understanding content in a scholarly way implies the ability to critique sources and differentiate the strengths, claims, and omissions of each. Moreover, academic writing asks the writer to adopt a negotiated stance among the work of others and which serves a variety of academic purposes (Bean et al., 2007; Graff & Birkenstein, 2007). Doing so means, in part, knowing how one came to a particular understanding and what of one's own experience shapes that understanding.

Teaching in such a way that students notice patterns and transfer their understanding to new and novel situations is not an easy feat. The ill-defined domain of writing intersects with other ill-defined domains of inquiry in science, social studies, and literature study in ways that suggest students must do more than simply replicate knowledge or piece bits together in order to accomplish a writing task assigned by a teacher. Students must come to think of writing as the route taken when inquiry involves the complex and the difficult. Benjamin (1999) suggests that teachers write prompts that ask students to transform knowledge from one form to another. Students who have read descriptive passages on life as a soldier during the Civil War might profitably transform that knowledge into a letter to Secretary of War Stanton asking for better conditions, for example. In this way, students must summarize the source text while also working with words and sentences to construct their own understanding of the soldier's plight.

Rather than perfunctory summarization assignments such as the ones found in BlackBoard, other options might be explored. Short cues are a type of writing in the disciplines (Fearn & Farnan, 2008b) that calls for limiting some aspect of the writing task such that students must capture what they know within the constraint provided. Fearn and Farnan suggest, as one example, the précis with the addition of a four sentence (in this example) maximum requirement. The four sentence limit requires students to identify the key attributes of the source text but reduce it to just four sentences that also captures central ideas and attributes of the source text.

PROMPTS

Just as prompts for short writing tasks might help students transform what they know such that they note how the concepts connect with other knowledge and lead to the essential questions in the disciplines and across them, prompts for composing longer tasks might also be written such that students take increasing control of the process they use to construct knowledge and communicate that knowledge through writing.

Helping students to achieve independence with a task or cognitive activity is one goal of instruction. Fisher and Frey (2003) apply the gradual release of responsibility model (e.g., Dole, Duffy, Roehler, & Pearson, 1991) to writing instruction in their action research study of one metropolitan high school class. The idea of gradual release of responsibility rests on teachers making plain the hidden knowledge about how learning occurs and what assumptions undergird specific content knowledge. Wiggins and McTighe (2005) note that content experts sometimes exhibit a blind spot for procedural and declarative knowledge they take for granted. This is particularly problematic in instructional settings where such knowledge is invisible to students and the instructor does not uncover this knowledge in such a way that students can make use of the information. Gradual release implies that teachers can uncover the hidden aspects of the understanding and gradually turn control for using the understanding over to students. Prompts for writing are one tool teachers might use to increase the responsibility for which students might increase their own control of how they shape the writing tasks they are assigned.

In Chapter 2, an example writing prompt demonstrated how teachers might direct students' attention to topics, data sources, discourse types, and audience (Hillocks, 2002). Using a gradual release of responsibility model, prompts might still indicate the need to select

data sources, but increase the responsibility students have for choosing those sources.

Similarly, students might select the most appropriate organizing principle for the tasks they

are assigned. Consider this prompt:

> During the previous semester, you have read two novels with the class, two novels you selected with your literature circles (Daniels, 2002), and several you have selected yourself. In addition, you have read about the authors on the Internet and read critiques of their work by your classmates in the BlackBoard threaded discussions. Choose some of these resources (data) and write a blog entry (discourse type) for other readers of novels (audience) who will be interested in a common theme in literature. Some sample themes are posted in BlackBoard on the unit seven tab to help you identify a theme of your own. (topic). The length is up to you, but as you know, organization is important to helping your readers understand the theme of the novels you read. Because of the complexity of the task, I suggest that you would want a minimum of six paragraphs in your blog entry. Content words to include in your blog entry: Theme, pathos, character of characterization, point-of-view, rising action. Academic words you may want to include: Analyze, context, create.

In this prompt above, the topic and discourse type are specifically addressed.

However, students are given some control over the length with ultimate control over the

means of organizing the blog entry. Several potential sources of data are identified, but to

address this prompt, students must select those texts which lend themselves to the topic as the

student writer comes to understand it. In addition content-specific words are provided to

encourage their use by students as are tier two words, selected from the Academic Word List

(Massey University, 2004). Inclusion of the tier two and tier three terms may increase student

uptake of these words into their own expressive lexicons.

PROMOTING WORD KNOWLEDGE

In addition to explicitly encouraging students to use words routinely found in

academic settings, students should encounter vocabulary specific to disciplines and

generalized across academic settings when their teachers speak, when they read texts

appropriate for the grade and the reading proficiency of the student, and when they talk to each other. Clark (2007) found that young children almost immediately repeat new words they hear from an adult with whom they're engaged in dialog. While the students in the present study are much older, the principle of providing students with opportunities to use new words in appropriate contexts is similarly important. Mr. Bowdoin and Dr. Romer both noted that students seemed to learn science most effectively when they were given opportunities to discuss the concepts which necessarily gave them the opportunity to try out the vocabulary associated with the concepts. The closer the opportunity to discuss the concept to the time the concept was introduced, these teachers felt, the more likely uptake of the word and its attendant concept would be.

ATTRIBUTION

Attribution is a difficult skill. As we have seen, students had little difficulty summarizing single texts such as an article or sections of a novel. However, when students draw upon multiple sources to construct their understanding of a concept or communicate with others about it, they must differentiate, compare, determine biases or points-of-view, and critique those sources against other criteria. They must then use the results of this difficult cognitive work to construct or create new understanding. This paper claims that writing is an ill-defined domain which resists overgeneralization and simplification; attribution adds complexity to an already difficult task. Hence, teachers can deliberately teach the skill of attribution through direct instruction (e.g., Hunter, 1982), through the cues provided in a prompt for writing, and in cues provided during conferences with students (e.g., McGiver & Wolf, 1998). Such conferences can be peer-to-peer or student-and-teacher. As

students work with multiple texts it may be useful to guide them through use of notes or another organizational system that permits them to keep track of relevant information (Damico & Baildon, 2007) and the source of that information. In addition, they should see models of attribution from other students and from their teachers. Naming specific sources in a PowerPoint slide show is one good way to provide models of attribution by weaving it into the context of instruction.

LIMITATIONS AND DELIMITATIONS

A limitation of this study is the composition of the corpora obtained from the 10th grade class. Even though the sample is small, the demographics of the school, following the case study tradition, are adequately represented. The sample may not represent a wide variety of writing types found in the 10th grade curriculum at NCS or at other comprehensive high schools, however. Another limitation is the size of each corpus. In some cases, a larger corpus might produce a different result. In addition, it was not within the scope of this study to use plagiarism detection software on the student work in the corpora. High school administrators (personal communications, 2008) expressed concern that sometimes students copied texts whole from Internet sources then used the electronic thesaurus to substitute synonyms for key words. If a sufficient number of such passages exist in the corpora, the result could be different.

DIRECTIONS FOR ADDITIONAL RESEARCH

Further study of how instructional methods in writing affect English language learners and culturally diverse student populations could be profitable using the methodology in this study. In addition, comparison of student corpora from the beginning of a school year with

those from mid-year and end-of year could prove interesting. There may be statistically significant differences that the word list comparison procedure can detect. If compared with instructional methods including conferring with students and writing prompts that make use of the gradual release model explained above, the efficacy of these approaches might be explained in a manner useful to practitioners.

Further study that includes examination of corpora from several secondary grade levels compared against the Academic Word List (Massey University, 2004) could potentially assist teachers in learning how best to assist students in becoming mature users of the language, at least in terms of word choice. A pre- and posttest design would be particularly useful. Observation of lessons and classroom practices could further inform such a study using a mixed methods approach. An intervention might be designed to demonstrate how teachers can purposefully assist students to develop proficiency with local operations in their writing. While comparison of elementary students' writing against the Academic Word List probably would not yield results of much interest, an examination of upper elementary and middle grades writing samples for use of pronouns and relational clauses might be helpful in constructing developmentally appropriate instructional sequences related to local operations. Esquinca (2006) examined 4th grade writing in science, so further study in this vein may prove useful.

In addition, the present study provides a foundation for future study as a formative experiment (e.g., Reinking & Watkins, 2004) that would permit the researcher to adjust complex and interacting variables in instructional contexts. Traditional experimental designs may limit the research by isolating some variables and ignoring others; whereas, a cognitive flexibility theory (e.g., Spiro, 2004) resists reductive tendencies, a formative experiment may

permit the researcher to explore and adjust complex variables *in situ*. The results of such a study could meaningfully inform teachers' practices in regard to transactional writing tasks in schools.

Yet another question raised in this study is an examination of why and how teachers choose to use or not use technology available to them. While technology use was not a focus of this study, it because clear that the cognitive load of learning to use the technology in ways that advanced the teachers' curricular goals was, at times, overwhelming. Teachers struggled with how to situate Internet sources within their curriculum and how best to assist students to make good use of these sources; therefore, some study in this area may also be indicated.

CONCLUSION

Unlike the experts the Getty Museum hired to examine the kouros who knew the statues were not authentic but could not explain how they knew (Gladwell, 2005), teachers must make their expertise in their respective disciplines, as writers and readers of scholarly text, and across disciplines visible to their students. Because cognitive flexibility theory explains how humans can spontaneously restructure knowledge and adapt to situational demands, it is ideally suited to the domain of transactional writing. Increased instructional precision may be of more value than simple prescription (Fullan, Hill, & Crévola, 2006). The results of the current study suggests that when students are provided a contextually rich environment, challenging writing tasks, and support with appropriate cues, they may succeed as writers and thinkers about complex topics.

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APPENDIX A

DATA COLLECTION PLAN MATRIX

Data Collection Plan

Question	Data Source	Data Source	Data Source
1. To what degree do words from an academic word list appear in a sample of tenth grade writing artifacts? 2. To what extent do writing prompts influence students' academic writing?			
a. Using the seven dimensions (academic words, 6 discourse moves) as comparison criteria, how do tenth grade written artifacts compare in each of the following disciplines: science, English, social studies?	Analysis of tenth –grade corpora against Coxhead word list. Analysis of tenth-grade corpora for use of the six discourse moves.	Student and teacher interviews.	Prompts for writing (directions).
A.	Comparison of content areas. Calculate rates Tools: WordPilot. Comparison of corpora. Instances of six discourse moves. Tool: HyperResearch		Student and Teacher interview data.
In what ways, if any, do content teachers make visible the language of the discipline and subsequently scaffold student command of the language in written discourse? In what ways might a teacher promote discourse moves in academic writing? 1. To what extent do writing prompts influence students' academic writing? 2. In what ways do instructional prompts for writing promote effective academic writing?			
A. In what ways, if any, do content teachers make visible the language of the discipline and subsequently scaffold student command of the language in written discourse? In what ways might a teacher promote discourse moves in academic writing?	Student interviews w/ artifacts (student-created writing examples downloaded from BB). 9 students.	Teacher interviews w/artifacts (student-created writing examples downloaded from BB). 3 teachers. NCS teacher survey (Tool: SurveyMonkey, Excel).	Analysis of prompts available in BlackBoard. Analysis of selected prompts delivered in face-to-face classes. CAHSEE scores.

APPENDIX B

SURVEYS AND PROTOCOLS

Teacher Survey

1. Informed consent

    a. Yes   no

Page 1

2. Gender

    a.   Male/Female

3. Grade levels taught

    a.   K-4, 5, 6, 7, 8, 9, 10, 11, 12

4. Years of experience teaching grades K-12:

    a.   1-5, 6-10, 11-15, 16-20, 20+

5. Demographic data:

    a.   Urban, suburban, rural

6. Subjects taught (mark all that apply):

    a.   ELA, SS, Math, Science, Art, Music, Physical Education, other

7. Informal writing tasks assigned
   regularly/occasionally/rarely/never

    a. Journal, quickwrite, freewrite, letters, stories, poems (from Applebee, 1984, p. 15), notes (moved from academic writing to informal)

8. Academic writing tasks assigned
   (regularly/occasionally/rarely/never

    a. Account or record of experience, report, summary, analysis, persuasive work, theoretical construction and/or defense,   extended definition*
    *added to Applebee's list

Page 2

9. In one or two sentences, provide your definition of academic writing for your discipline.

10. Think of a recent task you assigned to students in one of your classes that was designed to promote academic writing. Describe it briefly here.

11. Minimum expectations imposed:

Number of paragraphs?

Page length?

Word count?

12. In most of the academic writing tasks you assign, are students expected to identify information sources or do you identify the information sources for students? Students identify/teacher identifies

Page 3

13. Which of the following do you
always/often/sometimes/rarely/never
expect to see in academic writing tasks in your discipline for the grade level you teach?

Use of specialized vocabulary
Complex sentence structures (more than one clause)
Classification: Cause/effect
Classification: Compare/contrast
Other classification
Narration
Description
Evaluation using criteria
Use of data:
    From peers
    From information provided by the teacher
    From course textbooks

From student-selected sources
Discourse moves
    Recognizing the contribution of others (they say)
    Summarizing the point of others
    Quoting others
    Response to the contribution of others (I say)
    Differentiating the writer's point from that of others
    Anticipating objections
    Indicating why the opic matters
Concluding by:
    Connecting the parts
    Clarifying or elaborating
    Mixing colloquial and academic styles
    Restating the topics of body paragraphs

14. How many times each month during the school year do you write using academic style:

a. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10+

Student Survey

1) Informed consent

   a)   Yes   no

Page 1

2) Gender

   a)   Male/female

3) Grade levels

   a)   K-4, 5, 6, 7, 8, 9, 10, 11, 12

4) Demographic data:

   a)   Urban, suburban, rural

5) Name of the school attended in the last school year (in ninth grade)

6) Subjects where I am expected to write more than a paragraph at lease once a week:

   a)   ELA, SS, Math, Science, Art, Music, Physical Education, other

7) Informal writing tasks assigned
   regularly/occasionally/rarely/never

   a)   Journal, quickwrite, freewrite, letters, stories, poems (from Applebee, 1984, p. 15), notes (moved from academic writing to informal)

8) Academic writing tasks in which I am required to use specific vocabulary and sentence structures:
   regularly/occasionally/rarely/never

   a)   Account or record of experience, report, summary, analysis, persuasive work, theoretical construction and/or defense, extended definition*
        *add to Applebee's list

Page 2

9) Choose a subject area in order to answer the next question:

    a)   ELA, SS, Math, Science, Art, Music, Physical Education, other

10) In one or two sentences, briefly describe what you think academic writing is for the subject area you selected above.

11) Think of a recent task your teacher assigned where you were expected to use n academic *writing style. Describe it briefly here.*

12) Minimum expectations imposed:

    i)   Number of paragraphs?

    ii)   Page length?

    iii)   Word count?

13) In most of the academic writing tasks you write, are students expected to identify information sources or does the teacher provide the information sources for you? Students identify source/teacher identifies source

Page 3

14) Which of the following does your teacher from question 8, above (always/often/sometimes/rarely/never/don't know what it is) expect to see in academic writing tasks in your grade level? [don't know what it means option available for each item.]

    i)   Use of subject-specific (vocabulary about the subject such as "mitosis" in a biology course) vocabulary

    ii)   Complex sentence structures (more than one clause)

    iii)   Classification: Cause/effect

    iv)   Classification: Compare/contrast

v)   Other classification

vi)   Narration (tell a story)

vii)   Description

viii) Evaluation using criteria

ix)   Are you expected to use data:

    (a)   *From pers*

    (b)   From information provided by the teacher

    (c)   From course textbooks

    (d)   from student-selected sources

x)   When you write, are you expected to

    (a)   Recognize the contribution of others (they say)

    (b)   Summarize the point of others

    (c)   Quote others

    (d)   Respond to the contribution of others (I say)

    (e)   Show how your point of view is different than that of others

    (f)   Anticipate objections

    (g)   Indicate why the topic matters

xi)   When you write, are you expected to conclude or end your paper by:

    (a)   Connecting the parts

    (b)   Clarifying or elaborating

(c)   Mixing colloquial and academic style

(d)   Restating the topics of body paragraphs

15) How many times each month during the school year do you write using academic style in

    i)   (English/Math/Social Sciences/Physical Education/Science, Electives?)

    b)   1, 2, 3, 4, 5, 6, 7, 8, 9, 10+

16) Do you usually like to write (Stories, Essays/Journal Entries/Research Papers)

    a)   Yes/no

17) Anything else you would like to tell the researchers about your writing in school?

Teacher Interview Protocol

1) Informed Consent Script and basic information (years teaching, subject area)

2) Please tell me a little about the students you teach.

3) Tell me a little about a recent writing assignment that you thought helped your students understand the subject. What did you assign? What were students required to do? Were they able to use different sources of information? What were those sources? About how long was the final written product?

4) From a collection of writings this quarter/term, your student selected this piece as an example of how well he/she understood the concept or topic of the writing.

   A) Do you feel the student learned more about the topic as a result of writing this piece? In what ways is that learning evident (prompt for data sources and organizational structures as needed)?

   B) Are there any sentences in this piece that you feel show how the student has put together complex ideas in new ways? Show me where. Why do you think so?

   C) Are there any vocabulary words in this piece that you feel show how the student has mastered the concept the word represents? Show me which word. Would the student use this word in a class discussion before he/she wrote? How about after he/she had the chance to use the word in writing?

   D) Are there places in this writing that you feel you incorporated the ideas of others from your textbook, other readings, your teacher, or your peers? Show me where. How did you choose what ideas to include? Why did you choose that information? How are your ideas included along with those of the other sources of information?

   E) What did you say or do to help the student as he/she wrote this piece? (Prompt for directions, data source identification, time to write, interactions with the teacher—before writing, during, after, opportunity to prewrite, identification of key vocabulary, as needed).

   F) (Repeat this question set for each of the three students)

5) In general, what ways do you prefer to interact with students before, during, and after a writing assignment is given? How do you work with students to get them to use the vocabulary of your discipline? Tell me about the sentence structures your students use and how you work with them to use sentences as a vehicle for communicating complex idea in (your discipline). What support do you provide to students to help them organize their papers? In what ways do you encourage them work with concepts in required readings and other sources?

Student Interview Protocol

1) Informed Consent Script.

2) Please tell me a little about your school.

3) What are your strengths/weaknesses as a student? Any favorite subject areas?

4) Tell me a little about a recent writing assignment that you thought helped you understand the subject. What did the teacher assign? What were you required to do? Were you able to use different sources of information? What were they? About how long was your final written product?

5) Here are six papers you wrote this semester. Please organize these from the paper you feel is your best work overall to the one most in need of improvement of some type. From your collection of writings this semester, please select one piece that you feel shows how well you understood the concept or topic of the writing.

   A) In what ways did you learn more about the topic as a result of writing this piece? (prompt for data sources and organizational structures as needed).

   B) Are there any sentences in this piece that you feel show how you have put together complex ideas in new ways? Show me where. Why do you think so?

   C) Are there any vocabulary words in this piece that you feel show how you have mastered the concept the word represents? Show me which word. Would you use this word in a class discussion before your wrote? How about after you had the chance to use the word in writing?

   D) Are there places in this writing that you feel you incorporated the ideas of others from your textbook, other readings, your teacher, or your peers? Show me where. How did you choose what ideas to include? Why did you choose that information? How are your ideas included along with those of the other sources of information?

   E) What did your teacher say or do to help you as you wrote this piece? (Prompt for directions, data source identification, time to write, interactions with the teacher—before writing, during, after, opportunity to prewrite, identification of key vocabulary, as needed).

6) From your collection of writings, please select one piece that you felt was not of much help to you in understanding an academic or school topic. Why did you choose this piece? Why do you think your teacher assigned it? What topics were you studying at the time?

7) From your collection of writings, please choose one piece that you enjoyed writing. Why did you enjoy writing this piece? What did your teacher say or do to help you as you wrote this

piece? (Prompt for directions, data source identification, time to write, interactions with the teacher, opportunity to prewrite, identification of key vocabulary, as needed).

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APPENDIX C

STUDENT WORK EXAMPLES

Letter to WWF

Dear WWF,

       We are members of preservation team and we want to bring to your attention the problem of the polar bear. We care for this animal because in approximately 100 years, this specie will be extinct. We care because this animal is so beautiful and this poor innocent animal is being killed not only from hunters, but because of global warming. Global warming is melting the ice and is leaving the bear no place to live. This specie should be helped and moved to a safer environment. We would like your help to preseurve this creature for many more years to come.

       Our species is endangered because of the natural fights that occur over a female polar bear. If the polar bear male wants a wife, he'd have to fight another bear that likes her. Which ever one wins is the one that gets the female bear. Also, humans have this dismantled need to kill and use the skin of animals to sell and get "money". They kill majority of the bears. Their main reason why the polar bears are endangered. Humans kill for money, survival, and sometimes even pleasure. If humans stopped, the polar bears would not be endangered. Global warming has now made itself a big factor in endangering the animal. The melting of ice glacier the fur on the bear that causes the bear to die from heat stroke, and drowning from having to swim for long periods of time are killing the polar bear as well.

       Our creature has been hunted and hunters have used their fur for many different things. Additionally, global warming has melted away their homes and their living environment. The temperature in the arctic region has increased a few degrees because of global warming. The polar bears need cold environments to survive. Their food supply has also been dying because of the increase in temperature. We really need your help to keep these beautiful animals alive.

       If we don't help he polar bears out now they will be for sure extinct in 100 years or less. There will be no more polar bears to take pictures of for the national geographic books, or there won't be anymore evolution of the creature because it will be extinct and no of its kind will be alive.

Sincerely,

Isabella and Akua.

My Defining Song

Music is apart of our everyday life and I think that the music you listen to really defines you as a person. Music is really just someone's inner feelings and experiences poetically and musically expressed. The song that I really think defines me is called "Swing Life Away" by Rise Against for its amazing thought about how they think life should be lived. "Swing life away" really defines how I want to live my life and it really defines my outlook on life.

Music is an art in which the thing it conveys is sound. Music is so apart of today's world because there are so many genres and types of music to fit every person. "Swing Life Away" is song that really uses great ideologies and amazing musicality to catch my attention and allow me to relate to it. This is because the lyrics really talk about real life and I am allowed to interpret them how ever I want. Rise against the artist really are amazing artist because they know how to really derive the importance of lyrics that relate to someone.

Going through life not letting obstacles stop me and letting love be the basis of my life is my aspiration. This song really hit me and allowed me to put my life in the song. In "Swing Life Away" there is a verse that says "We live on front porches and swing life away, we get by just fine here on minimum wage" and that verse is the basis of what defines me. I am going to just let life unroll and not let money be a factor of happiness. This song in so many ways defines me and that's why this song is one of my favorite songs.

This songs tempo and feeling is kind of a laid back don't get to stressed feeling and it's a song I listen to when I just need to think. Rise Against has this tendency in there songs to really perceive there emotions as just letting life go on with no regrets. Given that I know that this song really defines me and is the same as my inner feelings. I would say that if my inner feelings and thoughts about the future were in a song it would be this song. Just the title "Swing Life Away" really has so many ways to interpret it and it has so much depth for three words. People could interpret it as letting life just go on, or not caring about what happens next, or just letting your life go to waste, this songs title really has so many interpretations. I think of it as letting life unravel and not letting things bring you down.

People would argue that this song could have so many meanings and how could someone else's art be so much apart of you. People obviously aren't the same but because we all interpret things differently; I was able to interpret this song in a way that it really is the basis of my thinking; whereas someone else could not even care about this song. As a person w all have this universal thought process that allows us to interpret things differently. So it would be preposterous to say that this song did not define me when the theory is based upon my personal thought process.

Music is so much apart of my everyday life I listen to it all the time. The reason I listen to most of the music I love is because this music is representing me and defines me. The thought that music could define a person is in a way confusing but also very logical. because there are so many types of music. And music is a art and art is just feelings and thoughts in a medium, that medium for music being sound. Songs represent peoples thoughts and ideas and they can be interpreted any way you want them to be that's why I am able to say that this song really defines me.

Essential Essay #3

QUESTION:

How Does Natural Selection Explain Evolution?

ESSAY:

5 paragraphs

STRUCTURE:

☐ Introductory paragraph: This paragraph introduces the topic of natural selection. Hook your reader and set us up for what we are about to read.

☐ 2nd paragraph:
☐ 3rd paragraph:
☐ 4th paragraph:
☐ Conclusion: Include a brief summary of your essay's main points. You can also a also ask a provocative question, use a quotation, end with a warning, describe a vivid image, humor etc.

DUE:

Rough Draft due Friday, February 29 to Mr. Goodwin
    25 points (English)
Final due Friday, March 7 to Mr. Goodwin
    75 points (English) & 20 points (Science)

NOTES:

Essential Essay Rubric #3

	Biology/Anatomy	English
Advanced	* **Analyzes** Darwin's theory of natural selection and how it explains evolution. * Shows a thorough and in-depth understanding of the theory of natural selection. * Shows a thorough and in-depth understanding of evolution. * Provides multiple examples that correctly and thoroughly illustrate the relationship between natural selection and evolution.	* Rich topic/idea development with many supporting details * Highly organized * Few or no spelling or capitalization errors * Wide use of sentence structure, grammar, and punctuation
Proficient	* **Explains** the theory of natural selection and how it explains evolution. * Shows a thorough understanding of evolution. * Provides an example that illustrates how natural selection explains evolution.	* Moderate topic/idea development with adequate supporting details * Logically organized * Few spelling or capitalization errors. * General use of sentence structure, grammar, and punctuation
Basic	* **Describes** the theory of natural selection and how it explains evolution. * Provides an example that illustrates how natural selection explains evolution.	* Topic development attempted with some supporting details * Somewhat organized * Some spelling or capitalization errors * General use of sentence structure, grammar, and punctuation
Below Basic	* **Identifies** the relationship between the theory of natural selection and evolution and defines them both. * Provides an example but does not thoroughly illustrate the theory and evolution.	* Limited or weak topic development with few details * Organization attempted but unclear * Several spelling or capitalization errors * Limited use of sentence structure, grammar, and punctuation
Below Basic	* **Defines** natural selection. * Defines evolution. * Provides an incomplete	* Little topic/idea development * No evidence of organizational structure * Serious spelling or capitalization errors * Sentence structure, grammar, and punctuation interferes with communication

Essential Question Essay Rubric
World History + Biology + English

	World History	Biology	English
5	• Explain how health is related to world history • Provide more than one example from Unit 2 of how world history has affected the environment, culture, and beliefs • Provide more than one example of how environment, culture and health beliefs affect our health	• Explain how health is related to biology • Explain genetics role upon our health and its relationship with the environment (pollution, global warming, etc.). • Explain how environment, culture, and beliefs affect your health and relate to biology (provide several example)	• Rich topic/idea development with many supporting details • Highly organized • Few or no spelling or capitalization errors • Wide use of varied sentence structure, correct grammar and punctuation
4	• Describe how health is related to world history • Provide an example from Unit 2 of how world history has affected the environment, culture, and beliefs • Provide an example of how environment, culture, and beliefs affect our health	• Describe how health is related to biology • Provide more than one example of how your environment, culture, and beliefs affect your health • Describe how environment, culture, and beliefs affect your health and relate to biology	• Moderate topic/idea development with adequate supporting details • Logically organized • Few spelling or capitalization errors • General use of sentence structure, grammar, and punctuation
3	• Provide an example of how health is related to world history • Provide an example of how world history has affected either the environment, culture, or beliefs • Provide an example of how either environment, culture or beliefs affect our health	• Provide an example of health related to biology • Give an example of how environment, culture, and set of beliefs affect your health • Describe a connection between environment, culture, and beliefs your health, and biology	• Topic development attempted with supporting details • Somewhat organized • Some spelling or capitalization errors • General use of sentence structure, grammar, and punctuation
2	• Describe environmental exposure, culture, and beliefs affecting health • Connect or relates to world history to environment, and culture	• Describe how environment, culture, and beliefs affect your health in general • Connect or relate biology to what you are exposed to in your environment and your health	• Limited or weak topic development with few details • Organization attempted but unclear • Several spelling or capitalization errors • Limited use of sentence structure, grammar, and punctuation
1	• State the relationship between environment and culture with health	• State relationship between your health and how it's affected by environment and culture	• Little topic/idea development • No evidence of organizational structure • Serious spelling or capitalization errors • Sentence structure, grammar, and punctuation interferes with communication

How do environment, culture, and set of beliefs affect a person's health?

Sample Student Schedule

For illustration purposes, just the morning portion of the schedule is shown. Each seminar is assigned to a particular teacher. This student is assigned English in the afternoon; therefore this course does not appear in the illustration. Though the schedule indicates lecture, the location determines whether the class is a lecture or workshop. Lectures are held in large lecture halls while workshops are in smaller classrooms.

Bell Schedule View

10 1102   HSHMC

	Monday April 7, 2008	Tuesday April 8, 2008	Wednesday April 9, 2008	Thursday April 10, 2008	Friday April 11, 2008
	Attendance 7:30 AM - 8:00 AM	Attendance 7:30 AM - 8:00 AM	Attendance 7:30 AM - 8:00 AM	Attendance 7:30 AM - 8:00 AM	Attendance 7:30 AM - 8:00 AM
8:00 AM	Modern World Hist., Culture & Geography 106 8:00 AM - 9:00 AM	Integrated Health & Internship 2 106 8:00 AM - 9:00 AM	Modern World Hist., Culture & Geography 106 8:00 AM - 9:00 AM	Integrated Science 112 8:00 AM - 9:00 AM	Integrated Science 112 8:00 AM - 9:00 AM
9:00 AM	Modern World Hist., Culture & Geography 110 9:00 AM - 10:00 AM	Integrated Health & Internship 2 SG1 9:00 AM - 3:00 PM	Modern World Hist., Culture & Geography 110 9:00 AM - 10:00 AM	Seminar 10th 105 9:00 AM - 10:30 AM	Seminar 10th 105 9:00 AM - 10:30 AM
10:00 AM	Seminar 10th 108 10:00 AM - 11:00 AM		Seminar 10th 108 10:00 AM - 11:00 AM	Integrated Science 101 10:30 AM - 12:00 PM	Integrated Science 101 10:30 AM - 12:00 PM
11:00 AM	BlackBoard 111 11:00 AM - 12:00 PM		BlackBoard 111 11:00 AM - 12:00 PM		
12:00 PM	Lunch 12:00 PM - 1:00 PM	Integrated Health & Internship 2 SG1 9:00 AM - 3:00 PM	Lunch 12:00 PM - 1:00 PM	Lunch 12:00 PM - 1:00 PM	Lunch 12:00 PM - 1:00 PM

BlackBoard Summarization Task

Grade Assignment: Modern Culture

Assignment Information

Name	Modern Culture
Instructions	As nations changed politically and economically at the beginning of the 20th century, society responded with changes in literature, art, architecture, and music. Review the attached Powerpoint slideshow and then select two of the people from the slideshow to research in greater detail (use the Internet, your textbook, or print resources at school including encyclopedias). In the comment/text box, summarize your research into two paragraphs and explain how these artists reflect the political and economic changes taking place
File To Attach	Modern Culture (WH_2_Modern Art.ppt)
Clear Attempt	Click this button to clear this attempt [Clear Attempt]

User's Work

User's Comments Emile Zoia a French writer and a really important example of a naturalist, wrote three plays and four novels that helped influence the shaping of modern culture. He sought ideas about poverty and alcoholism. His writings also tackled the issue of violence and other social issues and conditions during the second industrial revolution.

Frank Lloyd Wright influential architects that shaped the understanding and development of modern architecture. His works are still influencing architects today and inspiring them. He influenced the modern American house today.

User's Files

APPENDIX D

ACADEMIC WORD LIST COMPARISON DATA

Distinct words comparison: Tenth grade corpora with Academic Word List

Literacy Letters

N	Word	Freq.	N	Word	Freq.	N	Word	Freq.
1	ACCESS	1	35	COMMITTING	1	69	ENCOUNTER	1
2	ACHIEVING	1	36	COMMUNITIES	1	70	ENORMOUSLY	1
3	ADJUST	1	37	COMMUNITY	7	71	ENVIRONMENT	2
4	ADULT	2	38	COMPLEX	3	72	EVENTUALLY	1
5	ADULTS	3	39	COMPLEXITY	1	73	EVOLVED	1
6	ADVOCATES	1	40	CONCENTRATE	2	74	EXPOSURE	1
7	AFFECT	1	41	CONDUCT	1	75	FACILITY	2
8	AFFECTS	1	42	CONSTANTLY	1	76	FILE	1
9	APPARENT	3	43	CONTACT	1	77	FINAL	5
10	APPARENTLY	1	44	CONTRACT	1	78	FINALLY	7
11	APPRECIATE	1	45	CONTRASTS	1	79	FOCUS	1
12	APPRECIATED	1	46	CONTRIBUTIONS	1	80	FOUND	7
13	APPROACHED	1	47	COUPLE	2	81	FOUNDATION	1
14	ASSIGNMENT	1	48	CREATE	2	82	FUNCTIONED	1
15	ASSIGNMENTS	1	49	CREATED	1	83	GOAL	2
16	ASSISTANCE	1	50	CREATING	1	84	GOALS	1
17	ASSISTANT	1	51	CREATIVE	1	85	GRADE	2
18	ASSUME	1	52	CULTURES	1	86	GRADES	1
19	ASSUMPTIONS	1	53	DATA	1	87	GRANTED	1
20	AUTHOR	77	54	DEFINE	2	88	GUARANTEE	1
21	AUTHORITIES	2	55	DEFINITE	1	89	IDENTICAL	1
22	AUTHORS	10	56	DENY	1	90	IDENTIFY	3
23	BENEFICIAL	1	57	DEPRESSED	2	91	IDENTITY	1
24	BENEFITING	1	58	DETECTIVE	2	92	IMAGERY	1
25	BRIEF	1	59	DETECTIVES	1	93	INCAPABLE	1
26	CATEGORY	1	60	DIMENSIONAL	1	94	INCIDENT	1
27	CHAPTER	6	61	DIVERSE	1	95	INJURED	1
28	CLASSIC	1	62	DOMINATION	1	96	INPUT	1
29	CODE	3	63	DRAMA	3	97	INTELLIGENT	1
30	COMMENT	1	64	DRAMAS	2	98	INTENSE	5
31	COMMENTS	1	65	DRAMATIC	2	99	INVOLVE	1
32	COMMIT	2	66	ECONOMICAL	1	100	IRRELEVANT	1
33	COMMITS	1	67	EMPHASIZE	1	101	ISSUE	1
34	COMMITTED	1	68	EMPHASIZING	1	102	JOB	2

N	Word	Freq.	N	Word	Freq.	N	Word	Freq.
103	JOURNAL	1	137	PLUS	1	171	SUMMARY	1
104	JUSTIFIED	1	138	PREDICTABLE	1	172	SURVIVAL	1
105	JUSTIFY	1	139	PREDICTION	1	173	SURVIVE	1
106	LABEL	2	140	PRIMARY	1	174	SURVIVOR	2
107	LABELED	4	141	PROFESSIONAL	1	175	TARGET	1
108	LAYERED	1	142	PUBLISHED	1	176	TECHNIQUE	2
109	LOCATION	1	143	PURSUES	1	177	TECHNIQUES	1
110	LOGIC	1	144	QUOTATION	2	178	THEME	3
111	MAINTAINS	1	145	QUOTE	3	179	THEORIES	1
112	MAJORITY	1	146	REACTS	1	180	TRANSITIONS	1
113	MEDICAL	2	147	REJECTED	1	181	ULTIMATELY	1
114	MENTAL	3	148	REQUIRED	1	182	UNDERESTIMATING	1
115	MENTALLY	2	149	RESEARCH	2	183	UNIQUE	4
116	METHOD	1	150	RETAIN	1	184	VALID	1
117	MILITARY	3	151	REVEALED	2	185	VISION	1
118	MINORITY	1	152	REVEALING	1	186	VISUALIZE	1
119	MOTIVATION	1	153	ROUTES	1	187	VOLUNTEERS	1
120	NEVERTHELESS	1	154	SCHEDULE	1		Total instances	380
121	NONETHELESS	1	155	SECTION	1			
122	NORMAL	2	156	SECTOR	1			
123	NORMALLY	1	157	SEEKING	2			
124	OBTAIN	1	158	SEEKS	1			
125	OBVIOUSLY	2	159	SERIES	5			
126	OCCUR	1	160	SEX	2			
127	OCCURRED	2	161	SIGNIFICANT	1			
128	ODD	1	162	SIGNIFICANTLY	1			
129	ONGOING	1	163	SIMILAR	4			
130	OPTIONS	1	164	SIMILARITIES	1			
131	OUTCOME	1	165	SIMILARITY	1			
132	OVERALL	1	166	SOLE	2			
133	PARTNER	1	167	SOMEWHAT	1			
134	PERSPECTIVE	4	168	STYLE	12			
135	PHENOMENAL	1	169	STYLES	1			
136	PHYSICALLY	1	170	SUCCESSOR	1			

Persuasive Letters

N	Word	Freq.	N	Word	Freq.	N	Word	Freq.
1	DEFINES	9	35	OBVIOUSLY	2	69	CREATED	1
2	FOUND	6	36	PARAGRAPHS	2	70	CREDIT	1
3	INTERPRET	6	37	PHYSICALLY	2	71	CYCLE	1
4	LEGAL	6	38	RELY	2	72	DEBATABLE	1
5	DEPRESSION	5	39	SERIES	2	73	DECADES	1
6	GRADE	5	40	ACHIEVE	1	74	DEFINING	1
7	ISSUE	4	41	ADEQUATELY	1	75	DEPRESSING	1
8	MEDIUM	4	42	ADJUSTMENT	1	76	DERIVE	1
9	COUPLE	3	43	ADULTS	1	77	DESPITE	1
10	DEFINE	3	44	AFFECTED	1	78	DIMENSIONAL	1
11	FINALLY	3	45	ALBEIT	1	79	DISCRIMINATION	1
12	PANELS	3	46	ALTER	1	80	DRAMATICALLY	1
13	PROCESS	3	47	ALTERNATE	1	81	ENHANCE	1
14	RESTRAINING	3	48	APPARENTLY	1	82	ETHICAL	1
15	SECTION	3	49	APPRECIATE	1	83	FACTORS	1
16	SEX	3	50	AREA	1	84	FILES	1
17	STRESS	3	51	AREAS	1	85	FOCUSED	1
18	SURVIVE	3	52	ASSUME	1	86	FUNCTION	1
19	TEAM	3	53	ATTACHMENT	1	87	FUNCTIONS	1
20	ADULT	2	54	ATTITUDES	1	88	GENERATION	1
21	ATTITUDE	2	55	AUTHORS	1	89	GRADING	1
22	COMMUNICATION	2	56	AUTOMATICALLY	1	90	GUARANTEE	1
23	DEBATE	2	57	BENEFIT	1	91	IDEOLOGIES	1
24	ECONOMY	2	58	BENEFITS	1	92	IGNORANT	1
25	ENERGY	2	59	COMMUNICATE	1	93	IGNORE	1
26	ENVIRONMENTAL	2	60	COMMUNICATED	1	94	INDUCED	1
27	FACTOR	2	61	COMMUNITIES	1	95	INSTRUCTORS	1
28	FINAL	2	62	CONCLUSION	1	96	INTEGRAL	1
29	FINANCIAL	2	63	CONSEQUENCES	1	97	INTERPRETATIONS	1
30	ILLUSTRATIONS	2	64	CONSEQUENTLY	1	98	INTERPRETED	1
31	INTELLIGENT	2	65	CONSTRUCT	1	99	INVOLVED	1
32	ISSUES	2	66	CONTACT	1	100	JUSTIFICATION	1
33	MAINTAIN	2	67	COOPERATION	1	101	LABEL	1
34	MENTAL	2	68	CORE	1	102	LINK	1

N	Word	Freq.	N	Word	Freq.
103	LOGICAL	1	137	UNIQUE	1
104	MINIMUM	1	138	WHEREAS	1
105	NEGATIVE	1		Total instances	217
106	NORMAL	1			
107	OBVIOUS	1			
108	OCCUR	1			
109	OUTCOME	1			
110	PARAGRAPH	1			
111	PARALLEL	1			
112	PARALLELS	1			
113	PERCEIVE	1			
114	PERCENT	1			
115	PROCEDURE	1			
116	PROCEDURES	1			
117	PROCEEDED	1			
118	PROMOTE	1			
119	RANGE	1			
120	RANGES	1			
121	RESEARCH	1			
122	RESEARCHERS	1			
123	ROLE	1			
124	SCHEDULE	1			
125	SIGNIFICANCE	1			
126	SOURCE	1			
127	SPECIFIC	1			
128	STATUS	1			
129	STRESSED	1			
130	STRESSFUL	1			
131	SURVIVAL	1			
132	TEMPORARILY	1			
133	THEORY	1			
134	TOPIC	1			
135	TRANSFER	1			
136	UNDERLYING	1			

Science Corpus

N	Word	Freq.	N	Word	Freq.
1	ABNORMAL	2	35	IDENTICAL	1
2	ACCOMMODATE	1	36	INDIVIDUAL	1
3	ADAPTATIONS	4	37	MAINTAIN	1
4	APPROACH	2	38	METHODS	1
5	AREA	1	39	NORMAL	2
6	COMMUNITY	1	40	OCCUR	1
7	CONCLUDE	1	41	OCCURRING	2
8	CONFIRMED	1	42	PARAGRAPH	1
9	CONSTANTLY	1	43	PERCENT	2
10	CONTRIBUTED	1	44	PLUS	1
11	CONVINCED	2	45	PROFESSIONAL	1
12	CONVINCING	1	46	REJECTION	1
13	COUPLE	1	47	RESEARCH	8
14	CREATED	1	48	RESEARCHING	1
15	DECADES	1	49	SIGNIFICANTLY	1
16	DECLINE	1	50	SIMILAR	3
17	DECLINING	1	51	SIMILARITIES	1
18	DEPRESSED	1	52	SITE	1
19	DISTINCTIVE	1	53	STABILIZED	1
20	DIVERSITY	1	54	STABILIZING	1
21	ENVIRONMENT	1	55	SURVIVAL	3
22	ENVIRONMENTAL	2	56	SURVIVE	3
23	EVENTUALLY	1	57	SURVIVED	1
24	EVOLUTION	2	58	SURVIVES	1
25	EVOLUTIONARY	1	59	TEAM	1
26	EVOLVING	2	60	TRADITIONALLY	1
27	EXPERT	4	61	UNIQUE	1
28	FACILITIES	3	62	VARIABILITY	1
29	FACTORS	1	63	VARIATION	1
30	FOCUSES	1	64	VARIATIONS	1
31	FOUND	7	65	VIRTUALLY	1
32	FOUNDATION	3		Total Instances	104
33	FOUNDED	1			
34	FUND	2			

Social Studies Corpus

N	Word	Freq.	N	Word	Freq.	N	Word	Freq.
1	ABANDONED	1	35	CIRCUMSTANCES	2	69	DOCUMENTED	1
2	ABANDONING	1	36	CLARIFY	1	70	DOMESTIC	1
3	ABANDONMENT	1	37	COMMUNICATION	1	71	DRAMATIC	1
4	ACCESS	2	38	COMMUNITIES	1	72	ECONOMIC	14
5	ACCOMMODATE	1	39	COMMUNITY	2	73	ECONOMICAL	2
6	ACHIEVING	1	40	CONCEIVE	2	74	ECONOMICALLY	1
7	ADAPTATION	1	41	CONCEIVING	2	75	ECONOMY	7
8	ADULT	1	42	CONCLUSION	1	76	ENCOUNTERED	1
9	ADVOCACY	1	43	CONFLICT	1	77	ENFORCE	3
10	AFFECT	5	44	CONFLICTS	2	78	ENFORCED	2
11	AFFECTED	1	45	CONSENT	1	79	ENFORCEMENT	1
12	AFFECTING	2	46	CONSEQUENCES	4	80	ENSURE	2
13	AFFECTS	2	47	CONSISTED	1	81	ENSURING	1
14	AID	2	48	CONTRIBUTE	1	82	ENVIRONMENT	4
15	ALTERED	1	49	CONTRIBUTED	2	83	ENVIRONMENTAL	5
16	ANALYSIS	1	50	CONTRIBUTING	1	84	ESTABLISH	1
17	APPARENT	1	51	CONTROVERSIAL	2	85	ESTABLISHED	3
18	APPROACH	1	52	CONTROVERSY	1	86	ESTIMATED	1
19	APPROPRIATE	1	53	COOPERATE	1	87	ETHICAL	1
20	AREA	2	54	COOPERATING	1	88	ETHICALLY	1
21	AREAS	18	55	COUPLE	4	89	ETHICS	1
22	ASPECT	1	56	COUPLES	4	90	EVENTUALLY	5
23	ASPECTS	2	57	CREATE	4	91	EXCEEDS	1
24	ASSIGNMENT	2	58	CREATED	6	92	EXPANDING	1
25	ATTRIBUTED	1	59	CREATES	5	93	EXPORTING	1
26	AUTHORITIES	1	60	CREATING	2	94	EXPOSED	1
27	AUTHORITY	1	61	CULTURAL	3	95	EXTERNAL	1
28	AVAILABILITY	1	62	CULTURE	19	96	FACTOR	1
29	AVAILABLE	4	63	DEBATE	2	97	FACTORS	1
30	AWARE	5	64	DECADES	1	98	FINALITY	1
31	BENEFIT	6	65	DESIGNED	2	99	FINALLY	2
32	BENEFITS	4	66	DEVOTION	1	100	FINANCES	1
33	CAPABILITY	1	67	DISCRIMINATE	1	101	FINANCIAL	2
34	CHALLENGES	1	68	DISTRIBUTION	1	102	FINANCIALLY	1

N	Word	Freq.	N	Word	Freq.	N	Word	Freq.
103	FLEXIBLE	1	137	INVOLVE	2	171	PARTNERS	2
104	FLUCTUATING	1	138	INVOLVED	2	172	PERSISTENTLY	2
105	FOCUS	2	139	INVOLVEMENT	1	173	PHILOSOPHY	1
106	FOCUSED	1	140	INVOLVES	1	174	PHYSICAL	1
107	FOUND	1	141	ISSUE	16	175	POLICIES	4
108	FUND	1	142	ISSUES	6	176	POLICY	112
109	FUNDS	2	143	ITEMS	3	177	PORTION	2
110	GENDER	1	144	JOB	8	178	POSITIVE	3
111	GENDERS	1	145	JOBS	6	179	PREVIOUS	1
112	GENERATION	7	146	LABOR	3	180	PRIORITY	1
113	GENERATIONS	3	147	LOGICAL	1	181	PROCESS	3
114	GLOBAL	4	148	MAINTAIN	1	182	PROJECTED	1
115	GOALS	4	149	MAJOR	6	183	PROMOTES	1
116	GUARANTEE	1	150	MAJORITY	1	184	PROPORTIONS	1
117	HIGHLIGHTS	1	151	MEDIA	1	185	PSYCHOLOGICAL	2
118	IGNORANT	2	152	MEDICAL	2	186	RADICAL	1
119	IGNORE	1	153	MENTAL	1	187	RATIO	4
120	IGNORED	1	154	METHOD	4	188	REACT	1
121	ILLEGAL	3	155	METHODS	4	189	REGIME	3
122	IMPACT	2	156	MINIMAL	1	190	REGULATIONS	3
123	IMPLEMENT	1	157	MINIMUM	2	191	RELIABLY	1
124	IMPLEMENTED	2	158	MINORITIES	1	192	RELIED	1
125	IMPLEMENTING	1	159	NEGATIVE	5	193	RELY	2
126	INCENTIVE	3	160	NORMAL	1	194	REMOVING	1
127	INCENTIVES	1	161	NORMALLY	1	195	REQUIRED	1
128	INDEFINITELY	1	162	OBVIOUSLY	1	196	REQUIRES	1
129	INDIVIDUAL	3	163	OCCUPIES	1	197	RESEARCH	1
130	INDIVIDUALS	1	164	OCCURRED	1	198	RESIDE	1
131	INITIATIVE	1	165	OPTION	1	199	RESIDENT	1
132	INSTANCE	1	166	OPTIONS	8	200	RESIDENTS	1
133	INTENSE	2	167	OUTCOMES	2	201	RESOLUTION	1
134	INTERNAL	1	168	OUTPUT	1	202	RESOLVE	1
135	INTERVENE	1	169	OVERALL	1	203	RESOURCES	17
136	INVESTMENT	1	170	PARTICIPATION	1	204	RESPONSE	2

N	Word	Freq.
205	RESTRICTIONS	2
206	REVOLUTIONARY	1
207	ROLE	7
208	SECURE	2
209	SECURITY	1
210	SELECTIVE	1
211	SEX	30
212	SEXUALLY	2
213	SIMILAR	2
214	SOLELY	2
215	SOMEWHAT	1
216	STABLE	2
217	SUCCESSORS	1
218	SUFFICIENTLY	1
219	SURVIVE	2
220	SURVIVING	1
221	TARGET	1
222	TASKS	1
223	THEORY	2
224	THEREBY	1
225	TOPIC	2
226	TRADITIONAL	2
227	TRADITIONALLY	1
228	TRADITIONS	3
229	TRENDS	1
230	UTILIZE	1
231	VARIABLES	1
232	VARY	1
233	VIOLATE	1
234	VIOLATION	2
235	VIOLATIONS	1
236	VOLUNTARY	2
237	WELFARE	2
	total instances	656

Essential Question Corpus

N	Word	Freq.	N	Word	Freq.	N	Word	Freq.
1	ACADEMIC	1	36	CONSEQUENTLY	1	71	ELIMINATED	3
2	ADAPT	4	37	CONSTANTLY	1	72	EMERGE	1
3	ADAPTATION	4	38	CONSTITUTION	2	73	EMERGED	2
4	ADAPTED	2	39	CONSUMED	1	74	ENCOUNTER	2
5	ADJUST	2	40	CONSUMPTION	1	75	ENHANCE	1
6	ADJUSTED	1	41	CONTACT	1	76	ENVIRONMENT	65
7	ADJUSTS	1	42	CONTRIBUTE	2	77	ENVIRONMENTAL	2
8	ADULT	1	43	CONTRIBUTING	1	78	ENVIRONMENTALLY	1
9	AFFECT	27	44	CONTRIBUTOR	2	79	ENVIRONMENTS	1
10	AFFECTED	21	45	CONTRIBUTORS	1	80	EQUATION	1
11	AFFECTING	2	46	CONTROVERSY	3	81	EQUIVALENT	1
12	AFFECTS	11	47	CONVINCED	1	82	ERRORS	1
13	AID	1	48	COUPLE	1	83	EVENTUALLY	2
14	AIDS	1	49	CREATE	7	84	EVIDENCE	6
15	ALTER	1	50	CREATED	10	85	EVOLUTION	61
16	ALTERED	1	51	CREATION	5	86	EVOLVE	5
17	APPRECIATED	1	52	CREATOR	1	87	EVOLVED	3
18	AREA	2	53	CULTURE	33	88	EVOLVES	3
19	ASPECTS	1	54	CULTURES	8	89	EXPANSION	1
20	AVAILABLE	2	55	DEBATE	1	90	EXPLOITED	1
21	AWARE	1	56	DEFINED	4	91	EXPOSED	1
22	BENEFICIAL	2	57	DEFINITELY	1	92	EXPOSURE	1
23	BENEFIT	1	58	DEFINITION	4	93	FACTOR	8
24	BOND	2	59	DEPRESSION	1	94	FACTORS	9
25	BONDING	1	60	DESIGN	1	95	FEE	1
26	CAPABLE	2	61	DIMINISHED	1	96	FINAL	1
27	CHEMICAL	2	62	DISPLAYS	1	97	FINALLY	3
28	COMMIT	3	63	DISTINCT	1	98	FOCUS	1
29	COMPLEMENTARY	2	64	DISTRIBUTION	2	99	FOUND	6
30	COMPLEX	3	65	DOMESTICATED	1	100	FOUNDER	1
31	COMPONENTS	2	66	DOMINANT	3	101	FUNCTION	2
32	CONCEPT	1	67	DOMINATED	2	102	FUNCTIONS	1
33	CONCLUSION	3	68	DRAMATICALLY	1	103	FUNDED	1
34	CONCLUSIONS	1	69	ECONOMIC	1	104	GENERATE	1
35	CONSEQUENCES	1	70	ELIMINATE	1	105	GENERATION	18

N	Word	Freq.	N	Word	Freq.	N	Word	Freq.
106	GENERATIONS	7	141	MODIFIED	1	176	ROLE	6
107	GLOBAL	2	142	NORMALLY	1	177	ROUTE	2
108	GOAL	1	143	NUCLEAR	1	178	SCENARIO	2
109	GUARANTEE	1	144	OCCUR	3	179	SECTIONS	1
110	IDENTICAL	2	145	OCCURRED	1	180	SELECTED	1
111	IDENTIFIED	1	146	OCCURS	5	181	SELECTION	63
112	IGNORANCE	3	147	ODDS	1	182	SELECTIVE	4
113	IGNORED	1	148	OPTION	1	183	SELECTS	1
114	IMPACT	3	149	PERIOD	2	184	SEQUENTIAL	1
115	INCIDENT	1	150	PERIODS	1	185	SERIES	1
116	INCLINED	1	151	PHYSICAL	1	186	SEXUAL	1
117	INDIVIDUAL	7	152	PHYSICALLY	2	187	SHIFTING	1
118	INDIVIDUALS	5	153	POSE	1	188	SHIFTS	2
119	INITIATED	1	154	POSITIVE	1	189	SIGNIFICANT	1
120	INJURY	1	155	POSITIVELY	1	190	SIMILAR	9
121	INSTANCE	1	156	PRINCIPLE	1	191	SIMILARITIES	3
122	INTERACT	1	157	PRINCIPLES	4	192	SIMILARITY	1
123	INVOLVE	1	158	PROCESS	7	193	SOURCES	1
124	ISSUES	6	159	PROCESSES	2	194	SPECIFIC	2
125	JOBS	1	160	PUBLISHED	1	195	SPECIFICALLY	2
126	LEGISLATURE	1	161	RANDOM	3	196	STABILITY	2
127	LIBERALISM	1	162	REGULATIONS	1	197	STABILIZE	1
128	LIBERATING	1	163	RELEASED	1	198	STABLE	4
129	LIBERATION	1	164	RELIANCE	1	199	STATUS	1
130	LINK	2	165	RELYING	1	200	STRESS	1
131	LOCATION	1	166	REQUIRED	1	201	STRUCTURE	1
132	LOGICAL	1	167	RESEARCH	2	202	STYLE	1
133	MAJOR	8	168	RESEARCHED	1	203	SUBMISSION	4
134	MAJORITY	1	169	RESEARCHING	1	204	SUCCESSIVE	1
135	MATURED	1	170	RESOLVING	1	205	SURVIVAL	14
136	MECHANISM	2	171	RESOURCES	4	206	SURVIVE	21
137	MECHANISMS	1	172	RESPONSE	1	207	SURVIVES	3
138	MEDICAL	1	173	RESTRICTIONS	1	208	SYMBOL	1
139	MENTAL	1	174	REVOLUTION	20	209	TASK	1
140	MILITARY	1	175	REVOLUTIONS	4	210	TASKS	1

N	Word	Freq.
211	TEAMING	1
212	TEMPORARILY	1
213	TERMINAL	1
214	THEORIES	2
215	THEORY	24
216	TOPIC	3
217	TRACES	1
218	TRADITION	1
219	TRANSFER	2
220	TRANSFERRING	1
221	TRANSFORMED	1
222	TRANSMIT	1
223	TRANSPORTATION	2
224	ULTIMATELY	1
225	UNIQUE	1
226	UTILIZED	1
227	VARIATION	2
228	VARIATIONS	5
229	VIA	1
230	VIOLATED	1
231	WIDESPREAD	1
	Total instances	808