

ABSTRACT

MASSENGILL, SONYA AMMONS. High School Writing Experiences, Writing Self-efficacy, and Composing from Multiple Sources: A Mixed Methods Study. (Under the direction of Carl A. Young.)

This study used a convergent parallel mixed methods design to explore the relationships between first-year college students' high school writing experiences, their writing self-efficacy, and their preparation for composing from multiple sources, a skill essential to the research-based writing commonly assigned at the college level. Using a sample of over 500 students in first-year writing courses at a large university in the Southeast, the researcher collected quantitative survey data about students' high school writing experiences and their writing self-efficacy. Concurrently, the researcher collected qualitative essay data requiring students ($n = 57$) in a subset of three participating classrooms to synthesize information from multiple sources to generate an original argument.

Descriptive statistics, factor analysis, and cluster analysis were used to identify types of high school writing experiences. The researcher then used one-way analysis of variance (ANOVA) tests to compare writing self-efficacy scores with types of high school writing experiences. To develop an understanding of associations between high school writing experiences, writing self-efficacy, and differences in students' ability to compose from multiple sources, a subset of the essays ($n = 8$) was then used for qualitative analysis.

This study found four different types of high school writing experiences and concluded that those differences were associated with small but significant differences in students' writing self-efficacy. Students in Cluster 1 (*Intensive Writing* group), whose twelfth-grade writing experiences included more frequent academic writing, as well as more narrative, creative and business writing tasks, than other groups reported the highest writing

self-efficacy. Cluster 2 students (*Academic Writing* group), who were frequently assigned academic writing, but rarely assigned narrative, creative, or business writing tasks, did not differ significantly in writing self-efficacy from Cluster 1 students. Cluster 3 students (*Infrequent Writing* group), who were assigned writing tasks least often in high school, and Cluster 4 students (*Writing to Demonstrate Knowledge* group), whose twelfth-grade writing was dominated by tasks such as short answer, copying text, and completing worksheets, demonstrated the lowest writing self-efficacy.

Open coding of 57 essays revealed five major skills associated with students' success in composing from multiple sources: Selection, Evaluation, Organization, Connection, and Documentation. Further qualitative analysis of essays purposefully selected on the basis of students' high school writing experiences and writing self-efficacy revealed four approaches to the writing task: Out-of-Control Essays; Source-Dominated Essays; Writer-Dominated Essays; and Conversation-Dominated Essays. Students with the highest writing self-efficacy consistently wrote stronger essays than students with lower writing self-efficacy. While students in the *Intensive* and *Academic Writing* clusters all wrote essays in which their own arguments dominated, high- and low-writing self-efficacy students from these clusters moved beyond out-of-control and report-like essays. Only two students moved beyond synthesizing sources to support their own arguments to engage in a conversation with their sources. The fact that the conversation-dominated essays were written by high self-efficacy students from the *Infrequent* and *Writing to Demonstrate Knowledge* clusters suggests the complexity of factors that contribute to developing the skills needed for composing from multiple sources at the college level.

The lack of information about the relationship between high school writing experiences and preparation for the kinds of writing frequently assigned at the college level has constituted an important gap in the research literature. This study provides useful information for high school and college writing instructors and should lead to improved teaching practices to prepare more students for the challenges of college-level writing.

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High School Writing Experiences, Writing Self-efficacy, and Composing from Multiple
Sources: A Mixed Methods Study

by
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DEDICATION

To my husband, Darrell.

BIOGRAPHY

A North Carolina native, Sonya Massengill graduated with a B. A. from Meredith College in 1981 with a double major in English and music. She then pursued graduate study in music history and vocal performance at the University of North Carolina at Chapel Hill, graduating with a M. M. in 1985. After teaching voice at UNC-Chapel Hill and privately, she shifted focus to raising two delightful daughters and volunteering in their elementary school. Those experiences led her to return to graduate school to pursue teacher certification in English Education at Campbell University in the 1990s. In 1998 she began teaching middle school language arts and social studies, moving five years later to teaching high school English. She has also combined teaching English with teaching private voice lessons and serving as a choral director at the high school level.

Once her daughters graduated from high school, she returned to graduate school to pursue a master's degree in English at North Carolina State University. After earning her M.A. degree in English with a concentration in Rhetoric and Composition in 2010, she entered the Ph.D. program in Curriculum & Instruction at NC State. She currently serves as English Department Chair at Wake Christian Academy in Raleigh, North Carolina, and as an Adjunct Instructor of English at Campbell University in Buies Creek, North Carolina.

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CHAPTER I: INTRODUCTION

As the National Commission on Writing (2003) has observed, “Writing today is not a frill for the few, but an essential skill for the many” (p. 49). The gatekeeping role of writing at the college level has long been acknowledged. With three-quarters of American students now enrolling in college (National Commission on Writing, 2003), preparing an increasingly diverse student population for the demands of college level writing becomes all the more imperative. Yet, most first-year college students struggle with language errors in their writing and are unable to analyze arguments or synthesize information to compose from multiple sources (National Commission on Writing, 2003). Furthermore, almost 35% of college students have reported feeling unprepared for college writing (Achieve, 2005), and postsecondary instructors report that high school is not preparing students for college writing (ACT, 2009; ACT, 2013). In 2006, the National Commission on Writing noted that schools had made only “limited progress in terms of student achievement” in the two decades since the public began to call for higher standards (p. 22). According to the most recent NAEP reports on writing, only 27% of twelfth graders are identified as Proficient or Advanced in writing; 21% are identified as not even possessing Basic writing skills – a level designated by NAEP as “denot[ing] partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade” (National Center for Education Statistics, 2011). Thirty-nine percent of Black twelfth graders and thirty-five percent of Hispanic twelfth graders performed below the Basic level. While 34% of White students and 38% of Asian twelfth graders scored at the Proficient or Advanced levels, only 9% of Black and 12%

of Hispanic twelfth graders scored above the Basic level (National Center for Education Statistics, 2011). Moreover, writing is now identified as functioning in a gatekeeping role for “higher-skill, high-wage, professional” jobs as well (National Commission on Writing, 2004, p. 19). While 59% of employers frequently require workers who can produce technical reports, and 62% require formal reports (National Commission on Writing, 2004), a population of high school students who cannot move beyond basic writing and synthesize information from multiple sources presents significant challenges for instructors at the college level charged with the task of addressing students’ lack of writing proficiency and preparing them for the writing demands of the workplace. According to a 2006 report from the National Commission on Writing, “we need a better understanding of what takes place in many classrooms” (p. 30). Unfortunately, the only age group less represented in recent research on writing than preschool and younger populations is high school students (Juzwik, et al., 2006).

Research Area

The persistence of inattention to research targeting writing at the secondary level (Durst, 1990; Juzwik, et al., 2006) is puzzling in light of the recent public discourse on the importance of writing in preparing students for college. A review of scholarly publications from 1999 to 2004 by Juzwik and her colleagues (2006) identified interesting trends in writing research. Although 51.4% of recent research on writing instruction focused on P-12 age groups, most of that research was on elementary and middle grades instruction (39%). While 48.6% of the research on writing instruction was on postsecondary and adult writing,

only 10.4% of the research focused on the high school level. Moreover, 80.9% of recent research about genres and writing examined the postsecondary and adult age range (Juzwik, et al., 2006).

Epistemological battles may be contributing to the lack of adequate information about high school writing experiences. The interdisciplinary nature of writing research and the complexity of the problems involved in teaching writing lead to natural conflicts among positivist, post-positivist, and constructivist methodologies that are not easily resolved. Federal mandates for more experimental and quasi-experimental research (U. S. Department of Education, 2005) render many of the qualitative studies that have dominated composition research since Janet Emig's (1971) seminal qualitative study of the composing processes of twelfth graders less competitive for funding. While experimental and quasi-experimental studies like those discussed in Hillocks' (1986) report on writing research from 1963 to 1982 are still being conducted, more recent reviews suggest growing interest in qualitative research designs (MacArthur, Graham, & Fitzgerald, 2006; Smagorinsky, 2006). Without funding, the extensive engagement in the field needed for qualitative approaches to writing research may be less feasible outside the university setting, thus contributing to the dominance of research related to postsecondary and adult writing.

Despite calls for the end to squabbling over quantitative and qualitative methods (Berkenkotter, 1991; Langer, 1987), tension still exists over methodological approaches to writing research. As recently as 2005, the infrequency of articles using methods Haswell (2005) described as "replicable, aggregable, and data supported" in publications by the

National Council of Teachers of English and the Conference on College Composition and Communication led Haswell to charge these organizations with being “at war” with one branch of composition research (p. 200). The journal *Written Communication* grew out of Stephen Witte’s vision of broadening the range of composition research, including studies using combinations of research methods (Haswell, 2005). Nonetheless, according to Juzwik and her colleagues’ (2006) review of over 1500 refereed journal articles with writing research from 1999 to 2004, qualitative research dominates the field. Only 11% of published writing research in their study used experimental or quasi-experimental methods; another 8.8% used correlation designs (Juzwik, et al., 2006). Clearly, the composition community is rejecting the Department of Education’s position that quantitative methods alone can answer the significant questions the composition field needs to consider.

In this context, Berkenkotter’s (1991) recommendation that researchers be trained to be “epistemologically ecumenical” and to “become conversant with more than one model of inquiry in order to make informed choices” (p. 166) remains sound advice for researchers interested in writing instruction. In addressing the challenges of preparing high school students for college-level writing, a mixed methods approach offers a useful range of methods for exploring a complex research problem.

Background of Study

In my own experience teaching first-year college writing, the disparity in preparation for college writing among my students was clear. While most students performed well on tasks requiring description or personal reflection, the shift to the less personal types of

writing that dominate college writing revealed major differences in skill and self-efficacy for the writing task. Particularly striking were skill differences and differences in students' writing self-efficacy for tasks requiring them to synthesize information from multiple sources to generate an original text. While these differences might be due to academic ability rather than to high school writing instruction, comments suggesting some students' lack of familiarity with the conventions of research-based writing indicated that inequities in high school writing instruction were contributing to students' frustrations with the writing task. Anecdotal reports from students I had previously taught in high school also suggested that they were frequently in first-year college writing classes with other students who were unfamiliar with the conventions of research-based writing. Despite the National Commission on Writing's (2003) call for high school programs to require writing assignments "demand[ing] analysis, synthesis, and research from every student" (p. 34), a nagging suspicion that not all high school students have been engaging in these rigorous writing tasks still lingers.

Sorting out the differences between struggling writers' skill gaps and motivational problems related to a lack of confidence in writing ability presented another challenge for addressing students' frustration with research-based writing. Often referred to in the literature simply as *term papers* or *research papers*, research-based writing can include a wide range of writing tasks that vary significantly across disciplines. Students might be asked to synthesize information to report information, to integrate information from source material with their own positions, or to create new knowledge (Brockman, Taylor, Crawford, &

Kreth, 2010; Brockman, Taylor, Kreth, & Crawford, 2011; Melzer, 2003, 2009). The cognitive demands of research-based writing render the task overwhelming to many students. Even for students who understand the task demands, effective task management strategies and persistence are necessary for success with research-based writing. Since differences in students' writing self-efficacy can contribute to differences in writing performance, a greater understanding of the relationship between high school writing experiences and writing ability beliefs should facilitate the use of more effective instructional approaches by writing instructors at the secondary and college levels.

Discussion in the research literature indicates that inequities in high school writing experiences, specifically in relation to types of writing assigned, may in fact be a reality (Applebee & Langer, 2006; Patterson & Duer, 2006; Scherff & Piazza, 2005; Sperling & Woodlief, 1997). As Patterson and Duer (2006) have noted, ACT data suggest that 25% of teachers of college-bound students do not teach research papers. Given the well-established relationship between self-efficacy and effort, persistence, and strategy use (Bandura, 1989, 1997; Pajares, 1996, 1997; Pintrich & De Groot, 1990; Shell & Husman, 2008; Zimmerman & Bandura, 1994), as well as the positive relationship between writing self-efficacy and writing achievement (Meier, McCarthy, & Schmeck, 1984; McCarthy, Meier, & Rinderer, 1985; Pajares, 2007; Pajares & Johnson, 1994, 1996; Schunk & Swartz, 1993; Shell, Murphy, & Bruning, 1989; Shell, Colvin, & Bruning, 1995), more information about the relationship between the kinds of writing taught at the high school level, writing self-

efficacy, and students' ability to compose from multiple sources for the kind of research-based writing that dominates college writing would be useful.

A mixed methods study based on the conceptual framework of Morse's (1991) methodological triangulation with simultaneous collection of three sources of data to provide complementary information at the interpretation stage offers a practical strategy for obtaining information about a wide range of high school writing experiences and making connections between those experiences, students' writing self-efficacy, and their preparation for research-based writing at the college level. This study seeks to answer questions about differences in first-year college students' high school writing experiences; relationships between those experiences and writing self-efficacy; and students' preparation for *composing from multiple sources*, a skill also referred to in the research literature as *discourse synthesis*. Composing from multiple sources is the writing that requires students to read and evaluate information from other sources, organize that information, and then synthesize information to generate an original text (Nash, Schumacher, & Carlson, 1993; Spivey & King, 1989).

Purpose Statement

The purpose of this mixed methods study was to address first-year college students' high school writing experiences, their writing self-efficacy, and their preparation for composing from multiple sources – a skill that often functions in a gatekeeping role at the college level. In this study, a convergent parallel mixed methods design was used to collect quantitative and qualitative data concurrently, analyze them separately, and then merge the results. In order to obtain information about writing experiences representative of a large

number of high schools, quantitative survey data were used to obtain information about the high school writing experiences of first-year college students in freshman composition classes at a large university in the Southeast. Additional quantitative survey data collected concurrently provided information about these students' writing self-efficacy. At the same time in the study, an essay task was used to provide qualitative data about a subset of these students' ability to compose from multiple sources. The qualitative essay data from the students were then used to compare differences in students' high school writing experiences and writing self-efficacy with students' ability to compose from multiple sources. Qualitative analysis consisted of fine-grained analysis of a subset of these essays to develop an understanding of the associations between students' high school writing experiences, writing self-efficacy, and specific skills needed in order to compose from multiple sources. The reason for collecting both quantitative and qualitative data was threefold: 1) to add to the knowledge base about differences in high school writing experiences; 2) to promote questioning about the relationship between high school writing experiences, writing self-efficacy, and preparation for composing from multiple sources; and 3) to lead to improved teaching practices.

Research Questions

In order to consider first-year college students high school writing experiences, their writing self-efficacy, and their ability to compose from multiple sources, the current study examined three research questions:

1. What are the differences, if any, in high school writing experiences among first-year college students in English composition classes?
2. What are the relationships between first-year college students' writing self-efficacy and their high school writing experiences?
3. What differences in students' competencies in composing from multiple sources are evident in purposefully selected essays from first-year college students?

Definitions of Terms

For the purposes of this research project, key terms are defined below:

Composing from multiple sources – Also referred to as *discourse synthesis* or *writing from sources*, composing from multiple sources refers to the process of selecting, organizing, and connecting information from more than one source to construct a new text (Spivey & King, 1989)

Preparation for college-level writing – Although writing tasks assigned at the college level reflect diverse beliefs about writing, including critical/cultural studies, expressivist, and rhetorical approaches (Dickson, Mejía, Zorn, & Harkin, 2006; Fulkerson, 2005), college-level writing emphasizes transactional writing with an emphasis on research-based writing (Addison & McGee, 2010; Melzer, 2003, 2009). *Preparation for college-level writing* is defined in the current study as students' competency in synthesizing information from multiple sources in order to generate an original text, a skill needed for college-level, research-based writing.

Research-based writing – A term often used in the research literature to refer to *term papers* or *research papers*, *research-based writing* is a common writing task at the college level, requiring students to synthesize information from several sources in order to inform, to integrate with their own arguments, or to generate new knowledge (Brockman, Taylor, Crawford, & Kreth, 2010; Brockman, Taylor, Kreth, & Crawford, 2011; Melzer, 2003, 2009).

Self-efficacy – An important construct in Bandura’s (1977, 1986) social cognitive theory, *self-efficacy* is a task-specific construct that indicates “people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances” (Bandura, 1986, p. 391).

Transactional writing – One of Britton’s three “functions” of writing, *transactional writing* is writing for the purposes of informing, advising, persuading, or instructing others (Britton, Burgess, Martin, McLeod, & Rosen, 1975).

Summary

While the need to prepare an increasingly diverse student population for success in college-level writing is widely acknowledged, the lack of research addressing the specific needs of college-bound secondary students presents a significant gap in the research literature. Exacerbating the problem of designing effective instruction is the difficulty of distinguishing between ability differences among students and motivational concerns. Students with low self-efficacy for a given task are less likely to demonstrate the effort, persistence, and strategy use that are necessary for success with challenging writing tasks.

This chapter has presented the rationale for using a mixed methods research design in order to obtain information about the relationships between first-year college students' high school writing experiences, their writing self-efficacy, and their ability to compose from multiple sources, a skill often required for research-based writing at the college level. By using methodological triangulation to collect data simultaneously from three sources, this study aimed to accomplish three goals: *1) to add to the knowledge base about differences in high school writing experiences; 2) to promote questioning about the relationship between high school writing experiences, writing self-efficacy, and preparation for composing from multiple sources; and 3) to lead to improved teaching practices.* Chapter 2 presents a review of the research literature relevant to high school writing experiences, writing self-efficacy, and the challenges of preparing students for composing from multiple sources in college-level writing.

CHAPTER II: LITERATURE REVIEW

Failure of High Schools to Prepare Students for College Writing

Over thirty years since the National Commission on Excellence in Education (1983) reported that American students were unprepared for the writing demands of the workplace, educators continue to struggle to teach an increasingly diverse student population to communicate effectively. One thing is clear. Too many high school students are unprepared for college-level writing. Despite improved writing scores on the 2007 National Assessment of Educational Progress, in 2011 only 79% of twelfth graders demonstrated Basic writing skills -- a 3% decline from 2007 (National Center for Education Statistics, 2008, 2011). In addition, performance differences associated with ethnicity persist. Scores for White, Asian, and multi-racial students were higher than scores for Black, Hispanic, and American Indian/Alaska Native students (National Center for Education Statistics, 2011). Score differences by gender were not significant at the Basic level, but females outperformed males in Proficient and Advanced levels.

The continuing demand for remedial writing courses to address students' lack of preparation for college, as well as the challenges those basic writing programs face in accomplishing their goals, are well-documented in the literature (Appleman & Green, 1993; Eves-Bowden, 2001; Fitzgerald, 2003; Uehling, 2003). In a recent study tracking over 200,000 community college students, remedial courses were described as functioning more in a gatekeeping role than as preparation for success at the college level (Pathey-Chavez, Dillon, & Thomas-Spiegel, 2005). Pathey-Chavez and her colleagues concluded that current

remedial writing programs at the college level were insufficient to address writing weaknesses that secondary education has failed to resolve.

A lack of agreement between high school and college instructors about effective writing instruction only exacerbates the problem. According to the ACT National Curriculum Survey 2005-2006, only thirty-three percent of postsecondary writing instructors agreed that state writing standards were effective in preparing students for college-level writing, in contrast to seventy-six percent of high school English teachers (ACT, 2007). These findings seem to confirm claims by Robert Tremmel and William Broz (2002) that a lack of communication between college English Departments and secondary English teachers is contributing to misunderstandings about how to prepare school students for college writing.

Despite the relationship between high stakes testing and instruction emphasized in U.S. schools, few secondary-level writing assessments correlate with the demands of college-level writing (Beck & Jeffery, 2007; Hillocks, 2003). In light of teachers' tendency to teach the skills necessary for passing standardized tests (Anagnostopoulos, 2003; Scherff & Piazza, 2005), the mismatch between high stakes writing assessments and college writing expectations is a serious concern. Beck and Jeffery (2007) have suggested that differences between genre expectations in high school and college contribute to difficulties that students have in adapting their writing to post-secondary demands. Noting a frequent mismatch between state writing assessments and college-level writing expectations, the authors argued that students who are rewarded for substituting narrative or descriptive modes for more complex writing tasks on state writing assessments were more likely to experience difficulty

adjusting to college writing expectations. George Hillocks (2003) and Miles McCrimmon (2005) have similarly challenged the inadequacy of high stakes writing assessments, citing tests that encourage formulaic writing or supply no source material for students to use in formulating arguments. Although 27% of students received Proficient or Advanced writing scores on the 2007 NAEP, those scores may not reflect students' preparation for the sophisticated writing required at the college level. Even at the twelfth-grade level, the NAEP assesses only writing to explain, persuade, or convey experience (National Center for Education Statistics, 2011). What neither high stakes writing assessments nor the research adequately addresses is the degree to which secondary writing instruction is preparing students for composing from multiple sources, the research-based writing often associated with writing at the college level (Addison & McGee, 2010; Bridgeman & Carlson, 1985; Council of Writing Program Administrators, 2005-2014; Melzer, 2003, 2009).

Persistence of Inequities in High School Writing Experiences

Of equal concern is the persistence of inequities in high school writing experiences. Despite evidence of the relationship between a rigorous high school curriculum and high NAEP scores, as well as success in college, rigorous classes continue to be less frequently available to minority and low socioeconomic status students (Adelman, 2006; Nord, et al., 2011). Although the much-discussed results of the 2009 NAEP High School Transcript Study focus on the link between rigor and success in math and science, composition scholars have also suggested the need for more rigor in high school writing instruction, noting the fact that students in low-ability tracks were less likely to receive instruction emphasizing high

academic standards (Applebee, Langer, Nystrand, & Gamoran, 2003; Carbonaro & Gamoran, 2002). In their study of the effectiveness of AP English in preparing students for college writing, Hansen and her colleagues (2006) similarly concluded that students who took AP English courses in high school were better prepared for college writing than those who did not. Nonetheless, inequities in high school writing experiences seem to persist despite evidence of a positive relationship between rigorous academic demands and student progress (Gamoran, 1993; Valli, 1990) and more specific relationships between rigorous writing tasks and improved reading comprehension for students across ability levels (Applebee, 1996; Carbonaro & Gamoran, 2002; Langer & Applebee, 1987).

Reports of differences in the frequency of personal writing and research-based writing are of particular concern. In a study of students in urban and suburban tenth-grade classrooms, Sperling and Woodlief (1997) observed that students at an urban high school with a diverse population, most of whom did not go on to college, were frequently assigned personal writing – a kind of writing less often assigned at the college level (Addison & McGee, 2010; Bridgeman & Carlson, 1985). Students in a suburban high school consisting largely of white, middle-class students, many of whom were accepted in competitive American universities, were more frequently involved in research-based assignments in line with college writing expectations (Sperling & Woodlief, 1997).

A survey of 1,801 students from four high schools in Florida identified similar inequities in the amount of personal and narrative writing related to ability level tracking and state testing requirements. About one third of the students reported never doing personal

writing, while one fourth of the students surveyed did personal writing almost every week. The authors found these differences in frequency of personal writing assignments to be clearly linked to ability-level tracking, with students in high level tracks assigned personal writing less often (Scherff & Piazza, 2005). At one of the four schools included in the study, one fourth of the students reported almost never doing narrative writing; almost half of these students were from the IB program, a rigorous curriculum for advanced students. In contrast to the study by Sperling and Woodlief (1997), Scherff and Piazza (2005) found research-based assignments to be infrequent across ability levels. Nonetheless, only thirty-five percent of students across ability levels reported writing formal research papers once or twice a year (Scherff & Piazza, 2005). Moreover, thirty-five percent of ninth graders and 45% of tenth graders never engaged in any research-based writing, a phenomenon the authors attributed as likely due to state testing requirements at those grade levels. Rather than writing for a variety of purposes, as recommended in the research literature, students in this survey seemed to be writing in response to high stakes testing and writing goals related to ability-level tracking. The authors concluded that more studies were needed to examine further the apparent inconsistencies between effective teaching practices supported by research and the writing practices students are actually being taught in response to high stakes testing (Scherff & Piazza, 2005).

The research literature does not clearly suggest whether the specific inequities Sperling and Woodlief (1997) found in research-based writing among students in suburban middle-class schools and urban, lower socioeconomic status schools are continuing – or the

extent to which they are common throughout U. S. high schools. Although Scherff and Piazza's (2005) study did not clearly define the distinction in their survey questions between writing a research paper and engaging in some research-based writing, the fact that only thirty-five percent of students wrote research papers once or twice a year seems to provide strong evidence that a disturbingly large number of high school students may not be adequately prepared for research writing at the college level. Although Kiuvara, Graham, and Hawken (2009) found more evidence of research papers being assigned, 17% of the teachers they surveyed reported never assigning research papers. More recently, Addison and McGee (2010) provided a more positive assessment of the prevalence of research-based writing at the high school level. While 34% of college faculty reporting assigning research papers to college freshmen and sophomores, and 47% reported assigning research papers to juniors and seniors, research papers were frequently assigned by high school teachers in their survey only at the eleventh- and twelfth-grade years. Nonetheless, although they did not report the percentage of high school teachers assigning research papers, the authors concluded that "high school faculty are following the lead of college faculty and working to prepare students for the types of writing they will encounter in college" (Addison & McGee, 2010, p. 164). What is unclear from the research literature is the percentage of college students who were not assigned research-based writing while in high school.

Self-efficacy and Composing from Multiple Sources

The theoretical framework for this study derives from social cognitive theories of self-efficacy (Bandura, 1977a, 1977b, 1986). Self-efficacy is viewed as a domain-specific

construct that describes individuals' beliefs about their abilities to accomplish a specific task. The current study uses Bandura's (1986) definition of perceived self-efficacy as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391). According to social cognitive theory, self-efficacy beliefs are "a major determinant of people's choice of activities, how much effort they will expend, and of how long they will sustain effort in dealing with stressful situations" (Bandura, 1977a, p. 194). Although other constructs related to ability beliefs can be useful in predicting achievement outcomes (Wigfield & Eccles, 2000), the relationship between the self-efficacy construct and specific tasks renders it most effective for an examination of influences on students' preparation for college-level research-based writing.

In Bandura's (1977b, 1986) conceptualization, self-efficacy can be influenced by past experiences, by vicarious experiences involving the observation of the successes and failures of others, by feedback from credible sources, and by physiological responses to a task. While past successes increase perceptions of self-efficacy, past failures increase feelings of personal inefficacy. High school writing experiences, then, might be expected to play a role in students' beliefs about their ability to succeed at college-level research-based writing tasks.

In academic settings, the relationship between self-efficacy and achievement is of particular interest. When self-efficacy measurements are closely aligned with specific tasks, self-efficacy beliefs have been found to predict academic outcomes (Multon, Brown, & Lent, 1991; Pajares, 1996). The research literature is consistent, moreover, in finding a correlation

between writing self-efficacy and writing achievement (McCarthy, Meier, & Rinderer, 1985; Meier, McCarthy, & Schmeck, 1984; Pajares, 2007; Pajares & Johnson, 1994, 1996; Schunk & Swartz, 1993; Shell, Colvin, & Bruning, 1995; Shell, Murphy, & Bruning, 1989).

Related to writing achievement is the issue of choice. As Schunk (1995) argues, the relationship between self-efficacy and choice is complex since students often lack the ability to make choices about academic assignments. Although academic writing imposes limits related to genre, discourse community conventions, and course-specific goals for writing assignments, students do, nonetheless, have the ability to make choices about how much effort to exert, whether to give up or persist, and whether or not to use effective strategies, including self-regulation, in order to manage complex writing tasks. Self-efficacy functions as an important influence on these choices (Bandura, 1977a, 1986) and thus influences behaviors that contribute to achievement outcome.

Academic achievement is also influenced by the negative association between self-efficacy and task anxiety (Bandura, 1986; Pajares, 1997). Self-efficacy theory addresses the question of why individuals avoid particular tasks even when they have the requisite knowledge and skills for accomplishing them (Bandura, 1986). When individuals avoid stressful activities, their fears become more realistic since they avoid behaviors that would allow them to cope with those fears (Bandura, 1977a). According to Bandura (1986), achievement often requires the testing of several strategies, and individuals with low self-efficacy and high anxiety are more likely to give up when their first attempts yield unsatisfactory results. Goodman and Cirka's (2009) study of college students engaged in

writing tasks requiring composing from multiple sources was consistent with Bandura's discussion. The authors found a significant negative relationship between writing self-efficacy and writing anxiety; that is, as writing self-efficacy increased, writing anxiety decreased. For complex writing tasks common at the college level, failure to persist through time-consuming and often stressful processes can be a formula for failure. As Bandura (1977) explains, "The self-assurance with which people approach and manage difficult tasks determines whether or not they make good or poor use of their capabilities. Insidious self-doubts can easily overrule the best of skills" (p. 35).

When considering the influence of choice and anxiety on writing achievement, the well-documented positive relationships between self-efficacy, effort, persistence, strategy use, and self-regulation are important (Bandura, 1989, 1997; Pajares, 1996, 1997; Pintrich & De Groot, 1990; Shell & Husman, 2008; Zimmerman & Bandura, 1994). Lack of confidence in writing ability and anxiety over research-based writing has been identified as a factor in students' decisions to drop out of first-year college writing courses (Cox, 2009). Similarly, Penrose (2002) found lower academic preparation, lower self-confidence in writing, and lower retention rates among first-generation (FG) students. Consistent with Penrose's observations, Mattern and Shaw (2010) found positive associations between low writing self-efficacy and lower retention rates for the second year of college. These findings should not be surprising given the fact that academic achievement in complex writing tasks at the college level requires engagement in cognitively challenging tasks that require self-regulation and persistence. Improving students' confidence in writing should lead to increased writing

achievement since self-efficacy influences the degree to which individuals “mobilize in pursuit of adopted goals, and how they respond to discrepancies between their performances and what they seek to achieve” (Bandura, 1986). Of additional concern is the observation by Mattern and Shaw that writing self-efficacy was lower for African American, Asian, and Hispanic students than for White students.

Of particular significance to writing instruction is the malleability of self-efficacy. In contrast to fixed psychological constructs, self-efficacy changes in relation to specific task demands, as well as to personal and social contexts (Bandura, 1997). Students may then have strong efficacy for writing in some academic contexts, but not others. Since students’ prior experiences influence their initial domain-specific self-efficacy when encountering a new learning context (Schunk, 1989b), high school writing experiences provide a social context in which initial self-efficacy for college-level research-based writing may be established.

Contextual factors related to a mismatch between high school writing experiences and post-secondary writing goals may then contribute to students’ struggles in adapting to college-level academic writing. Adapting to college-level research-based writing may be particularly challenging for students whose high school writing experiences emphasized writing tasks such as personal, reflective modes. Since students’ beliefs about their abilities to accomplish a given task are a strong predictor of effort, persistence, and use of self-regulation strategies (Bandura, 1986, 1989; Schunk, 1982), students’ beliefs about their ability to succeed with unfamiliar writing tasks may play an important role in adaptive or maladaptive behaviors in new writing contexts. If some students’ high school writing

experiences align more closely with the types of writing assigned at the college level, those students may enter the academic environment of the first-year writing course with a distinct advantage, both in terms of skill development and self-efficacy beliefs.

For research-based writing that must be adapted to diverse disciplinary contexts as students apply writing skills to the conventions of different discourse communities, the concept of *operant efficacy* becomes important: “Operant efficacy calls for continuously improvising multiple subskills to manage ever changing circumstances, most of which contain ambiguous, unpredictable, and often stressful elements” (Bandura, 1986, p. 391). When faced with obstacles, individuals with high self-efficacy exert greater effort; those with low self-efficacy are more likely to experience stress and a sense of failure (Bandura, 1977a, 1986). Perhaps most important for the teaching of writing is the relationship between self-efficacy and skills development: “If some of the subskills [for difficult] tasks are lacking, efficacy-sustained effort promotes their development. Conversely, misbeliefs in one’s inefficacy may retard development of the very subskills upon which the more complex performances depend” (Bandura, 1986, p. 395). Thus, students with low writing self-efficacy may become locked in a cycle of failure as they become overwhelmed by the continuing challenge of adapting their writing to unfamiliar contexts.

Due to the prevalence of research-based writing at the college level and the challenges it poses to many first-year writing students, the relationship between writing self-efficacy beliefs and composing from multiple sources merits specific consideration. Social cognitive theory provides a useful theoretical framework for considering the challenges

students experience for this genre of academic writing. Although overly optimistic assessments of ability can lead to productive task engagement (Bandura, 1986; Pajares, 1996), inaccurate perception of ability can also render the engagement of appropriate writing strategies difficult. Students may inaccurately assess their ability to perform a task when they have mastered some of the skills required for a task but fail to understand that “solving problems typically requires applying multiple cognitive operations” (Bandura, 1986, p. 397). As students approach composing from multiple sources, the complex relationship between self-efficacy and multiple cognitive tasks associated with research-based writing is significant.

Lack of Research on Composing from Multiple Sources

Although time requirements generally associated with research-based writing – both for students who must synthesize information from multiple sources and for teachers who must provide feedback – are a likely factor influencing the infrequency of such tasks at the high school level, the lack of attention to composing from multiple sources in the research literature is puzzling, given the general consensus about the importance and complexity of the writing task. The benefits of tasks requiring both reading and writing for improving thinking skills are well documented (Marshall, 1987; McGinley, 1992; Tierney, O’Flahavan, & McGinley, 1989; Tierney & Shanahan, 1996; Tynjälä, 2001). In particular, composing from multiple sources has been identified as more effective than reading or writing alone for facilitating deep understanding when combined with an argumentative task (Wiley & Voss, 1999).

Although few recent empirical studies have addressed the types of writing assigned at high school and college levels, the research does suggest that research-based assignments, the type of writing requiring students to synthesize information from multiple sources, may be the most commonly assigned writing task at the college level. Bridgeman and Carlson's (1985) survey of faculty across disciplines at 34 universities continues to be frequently cited in the research literature, identifying research-based writing as the most common type of writing assignment at the college level. More recently, Addison and McGee (2010) have identified research papers as the most frequently assigned writing task for students in all four years of college. Recent curriculum changes in AP English Language and Composition, the AP English course designed to help high school students place out of freshman composition at the college level, reflect beliefs about the importance of composing from multiple sources at the college level. In 2008, College Board added a synthesis essay to the AP English Language and Composition Exam, acknowledging the importance of preparing students for research-based writing at the college level. Perceptions about the importance of composing from multiple sources are reflected in College Board's (2011b) recommendation to AP English teachers:

Be sure students understand that the most frequent type of writing they will do in college is source-based argumentation, in which they will be required to consider an array of sources, generate a central argument (or thesis), and develop that argument by entering into conversation with the sources.

Less clear is the extent to which students in non-AP tracks are exposed to instruction for source-based argumentation. If the findings of Scherff and Piazza (2005) and Sperling and Woodlief (1997) are representative of the larger population, then far too many high school students are not being prepared to compose from multiple sources – and those students who do receive instruction in research-based writing are more likely to be in higher ability-level tracks.

Despite the centrality of synthesizing information from multiple sources to research-based writing, a common refrain in the research literature is the scarcity of research about “composing from multiple sources” (Kennedy, 1985; Kirkpatrick & Klein, 2009; Lenski, 1998; Mateos & Solé, 2009; McGinley, 1992; Spivey & King, 1989). Sometimes referred to as *discourse synthesis*, *reading to write*, or *writing from sources*, *composing from multiple sources* refers to the process of selecting, organizing, and connecting information from more than one source text to construct a new text (Spivey & King, 1989). In its simplest form, students might use two sources and compose a summary or comparison/contrast essays. In its more difficult form, students select, organize, and connect information from a larger number of sources (which often contradict each other) in order to construct an original argument. As Susan Lenski (1998) has observed, increased emphasis on inquiry learning has resulted in more interest in the processes students use to transform information from multiple sources into a new product. Nonetheless, recent research continues to refer to writing from sources as “not . . . studied to any great extent” (Mateos & Solé, 2009, p. 436), “under-researched,” and “possibly under-implemented in schools (Kirkpatrick & Klein, 2009, p. 309).

Cognitive Challenge of Composing from Multiple Sources

In addition to general consensus that too little is known about writing from sources, researchers agree that composing from multiple sources is cognitively challenging. Spivey and King (1989) noted the difficulty of the task for secondary students; cognitive demands related to “selecting, organizing, and connecting” information render the task of composing from multiple sources inherently challenging (p. 9). According to Spivey and King, *discourse synthesis*, or composing from multiple sources, requires students to weigh the relative importance of source material, provide new organizational structures, and generate connective tissue to link ideas from multiple sources. Nash, Schumacher, and Carlson (1993) identified six tasks involved in composing from sources: “choosing a topic, locating and evaluating sources, selecting information from sources, and organizing and composing the essay” (p. 159). Their division of the task resembled Spivey and King’s three-step model but added three earlier tasks typically present in authentic assignments requiring students to synthesize sources. The recognition that topic selection, source location, and source evaluation (cognitively demanding tasks in their own right) usually precede the actual task of discourse synthesis highlights the fact that composing from sources is one of the most complex writing tasks student undertake in academic settings. Mateos & Solé (2009) observed that even university students struggled with synthesizing information from sources. In their study of 45 students from four educational levels, only two students, both university students, successfully synthesized information from provided sources.

Contributing to the cognitive demands of composing from multiple sources is the fact that students must engage in task analysis in order to develop appropriate organizational structures. For instance, the organizational demands for integrating sources for summary in expository texts differ from those for comparison/contrast or persuasive writing. Moreover, cognitive demands when synthesizing information from sources with different organizational structures further complicate the task of composing from sources (Kirkpatrick & Klein, 2009; Nash, Schumacher, & Carlson, 1993). In an experimental study with 84 undergraduate students, Nash, Schumacher, and Carlson (1993) found that students composing from sources with the same organizational structures generated essays with better organization than did students using sources with different organizational structures. Since authentic tasks requiring synthesis from multiple sources usually involve sources with different organizational schemes (e.g., chronological, topical), the cognitive demands are high when text selection is not artificially manipulated to ensure similar structure. In view of the predictive ability of “global organization and the use of genre-appropriate text structure” in relation to writing quality (Kirkpatrick & Klein, 2009), these increased cognitive demands related to reading and writing with multiple sources are significant.

When using multiple sources to generate persuasive texts, the cognitive demands are often exacerbated by lack of familiarity with the task. In her case study of six high-achieving eighth-grade students, Susan Lenski (1998) noted the social and cognitive demands of composing from multiple sources as students attempted to relate the assigned task (requiring synthesis and persuasion) to previous writing experiences, evaluate goals of the current

assignment, and consider process and content demands of the writing task. Only one student moved beyond exposition to integrate sources successfully in a persuasive essay; analysis of interview responses revealed this student to have 65% procedural (as opposed to content) goals. She was also the student who asked the most questions during the writing task, frequently seeking confirmation that she was doing the assignment correctly. Procedural goals were more common than content goals for all but one participant, though, suggesting that “how to” questions alone did not explain the difference in her approach to synthesizing sources. Closer analysis of her questions revealed that this student recognized the fact that her previous experiences with composing from multiple sources had only required exposition; her perception that this assignment called for her to integrate information from her sources to compose a persuasive text (a task with which she had experience *without* composing from sources) was reflected in persistent questions as she constructed an understanding of the task demands. The fact that the other five students failed to consider her questions and synthesize sources to generate a persuasive text seemed to reflect their lack of experience integrating sources for tasks other than summary. The teachers of the participants in Lenski’s study, as well as the textbooks they used, conceptualized research in terms of exposition. The fact that much of the existing research on composing from sources addresses the difficulty of generating summaries (a less cognitively demanding task than persuasion) further suggests the significant gap between what is currently known about preparing students for the cognitively demanding synthesis tasks emphasized at the college level.

Ironically, the cognitive demands of composing from sources may contribute to the value of the task. In an experiment with 64 University of Pittsburgh undergraduates, even when students were provided the same information for a writing task, those who viewed the material divided into eight separate sources were more successful in transforming, as opposed to borrowing, information than students who viewed the material as a single source in a textbook (Wiley & Voss, 1999). Increasing the cognitive demand in the University of Pittsburgh study by asking students to generate an argument, rather than a narrative, summary, or explanation, significantly increased the quality of students' essays. Moreover, university students reading from multiple sources and instructed to write arguments were more successful in recognizing logical inferences from the assigned readings and extending their reading to identify situations with underlying similarities to those discussed in reading passages (Wiley & Voss, 1999). In view of the generally acknowledged difficulty of synthesizing information from multiple sources and the equally acknowledged value of combining reading and writing tasks, the lack of attention to composing from sources in the research literature seems odd.

In the last twenty-five years, research has slowly begun to answer some questions about the developmental nature of students' approaches to composing from sources. Younger students have been found to use more linear, or sequential, procedures than the more effective recursive strategies of older students; in addition, older students are more successful at selecting and providing connections between information from sources (Lenski, 1998; Mateos & Solé, 2009; McGinley, 1992). Developmental differences in prewriting strategies

when composing from multiple sources have also been observed (Mateos & Solé, 2009). The complexity of students' approaches to composing from sources has been observed to increase with developmental levels, but the significance of those changes remains unclear. Seventy-five percent of unsuccessful syntheses in Mateos and Solé's (2009) study, for instance, reflected "low complexity" procedures while reading, planning, and composing (p. 445). More complex procedures tended to be associated with more successful products, but results were not conclusive.

Developmental differences have also been associated with students' perceptions of authority when composing from multiple sources. In a case study examining differences in composing from sources at the college level, Penrose and Geisler (1994) noted that a college freshman viewed sources as authoritative and "resisted inserting herself in the text" (p. 515), whereas a more experienced graduate student viewed himself as a participant in a debate in which he weighed evidence presented in sources in order to construct meaning for himself.

Even among students at the same developmental level, differences in processes used to compose from multiple sources have been found to contribute to differences in writing quality. In a case study with seven undergraduate education majors (all junior or seniors), McGinley (1992) observed important differences in participants' approaches to composing from sources. One student seemed to regard the synthesis task as one of reconciling perceived discrepancies in sources and finding the right answer. The result of this approach was an essay consisting of paraphrase and restatement, rather than transformation of ideas to present an original argument. Although college students in McGinley's study demonstrated a

combination of linear and non-linear processes, students who wrote more successful syntheses, transforming rather than merely summarizing information from sources, used more purposeful processes. One student who successfully integrated information from sources to generate an argument used “reading, writing, and thinking activities strategically throughout the task to develop her own stance” (McGinley, 1992, p. 237).

Reading comprehension also has been identified as contributing to students’ ability to compose from multiple sources. According to Spivey and King (1989), proficient readers in 6th, 8th, and 10th grades have been found to be more successful in using location and repetition as clues to determine the importance of information in sources than less proficient readers. Although the ability to select important details when synthesizing information from sources increased with grade level, more significant associations were found between reading ability and success in composing from sources. Spivey and King also found proficient readers to generate more integrated organizational structures and to score higher on holistic measures of quality when composing from multiple sources. Organizational ability was not associated with grade level in their study. The proficient readers in Spivey and King’s study also planned more extensively and spent more time composing from resources. The researchers hypothesized that passivity on the part of less proficient readers might be a factor in their lack of success in composing from multiple sources.

Similarly, Mateos and Solé (2009) identified reading comprehension problems as evident in over 50% of essays written by students who failed or unsuccessfully attempted to synthesize information from sources. Problems with misinterpreting information seemed to

reflect the difficulty of source materials more than the developmental levels of students. Only the 14- to 15-year olds in their study did not demonstrate problems related to reading comprehension, but the difficulty of the texts assigned to be used at that level was “Medium-high,” in contrast to “High” level difficulty of texts for older students in the study and a “Medium-low” difficulty level for the texts assigned to the youngest students in the study (Mateos & Solé, 2009, p. 441). The researchers cautioned, however, that students whose essays did not reflect problems with reading comprehension also struggled to integrate information from sources successfully; thus, the role of reading comprehension in composing from multiple sources remains unclear.

The relationship between reading ability and composing processes of college students has also received some attention in the research literature. In one of the earliest studies on writing from multiple sources, Kennedy (1985) observed six college students in an exploratory study to learn how students used assigned sources. In contrast to earlier studies showing that experienced and inexperienced writers used similar strategies for marking texts, Kennedy found strong relationships between higher reading abilities and complex strategies for marking texts. Kennedy hypothesized that the different results may relate to differences in instructions. In previous studies students were explicitly encouraged to mark texts; in her study, students received no instructions about marking texts. Interestingly, only less fluent readers used prereading strategies to overview the assigned passages. Otherwise, less fluent and fluent readers used similar strategies; the primary difference was in frequency and purposefulness of strategy use. For instance, less fluent readers consulted sources after the

initial reading stage primarily to locate quotations to use in their essays. More fluent readers reread passages and took more notes at more varied points in the process of composing from sources. Overall, fluent readers spent twice as much time planning as less fluent readers. Once they began writing, they returned to the sources less often than weaker readers. Kennedy observed important differences between students who “read the text with pencil-in-hand” and less fluent readers who “were passive processors who read the text with hands tied behind their backs, rarely using study-type strategies or acting upon the texts in an assertive way” (p. 451).

Despite Kennedy’s (1985) acknowledgement of the exploratory nature of her case study and her claim that “[t]his analysis of the reading and writing process barely scratches the surface” (p. 453), little subsequent research has addressed remaining questions about composing from multiple sources. While the public discourse emphasizes a narrative of commitment to preparing an increasingly diverse population for success at the college level, post-secondary remedial writing courses continue to struggle to meet the needs of students whose high school experiences did not prepare them for college writing level (Pathey-Chavez, Dillon, & Thomas-Spiegel, 2005). The extent to which differences in high school writing experiences influence students’ ability to compose from multiple sources and the specific problems that may stem from inequities in high school writing instruction remain unclear.

Research Questions

In order to address an important gap in the research literature, this study examined differences in first-year college students' writing experiences and the relationship between those experiences, their writing self-efficacy, and their success in synthesizing information from multiple sources to generate an effective argument. Three research questions guided the current study:

1. What are the differences, if any, in high school writing experiences among first-year college students in English composition classes?
2. What are the relationships between first-year college students' writing self-efficacy and their high school writing experiences?
3. What differences in students' competencies in composing from multiple sources are evident in purposefully selected essays from first-year college students?

Summary

This chapter has situated the current study in the context of continued concern over the challenge of preparing students for college-level writing, particularly in light of evidence in the research literature suggesting that inequities in high school writing experiences may exist. Bandura's social cognitive theory was presented as the theoretical framework for considering the relationship between writing self-efficacy and students' ability to compose from multiple sources, a cognitively challenging writing task frequently assigned at the college level.

To explore the relationship between high school writing experiences, writing self-efficacy and students' ability to compose from multiple sources, the current study addresses three research questions: *1) What are the differences, if any, in high school writing experiences among first-year college students in English composition classes? 2) What are the relationships between first-year college students' writing self-efficacy and their high school writing experiences? 3) What differences in students' competencies in composing from multiple sources are evident in purposefully selected essays from first-year college students?* By considering these questions, this study should add to the knowledge base about the relationships between high school and college writing and provide useful information for practitioners interested in designing writing instruction to prepare students for the research-based writing that requires composing from multiple sources at the college level. The next chapter presents the study's research design.

CHAPTER III: METHODS

The purpose of the current study was to examine the kinds of writing tasks students are assigned in high school and the relationship between those writing experiences and students' writing self-efficacy and their ability to synthesize information from multiple sources to develop an argument. To that end, this study explored three questions:

1. What are the differences, if any, in high school writing experiences among first-year college students in English composition classes?
2. What are the relationships between first-year college students' writing self-efficacy and their high school writing experiences?
3. What differences in students' competencies in composing from multiple sources are evident in purposefully selected essays from first-year college students?

Research Design

This study used a convergent parallel mixed methods (QUAN + QUAL = complete understanding) design. Quantitative and qualitative data were collected simultaneously, with both types of data equally important for understanding the relationship between high school writing experiences, writing self-efficacy beliefs, and students' ability to compose from multiple sources (Creswell & Plano Clark, 2011).

Setting and Participants

Participants in this study were students in first-year writing courses at a large university in the Southeast with over 34,000 students. In 2013-2014, first-year undergraduate class size was over 4200. Since students at the university represented every county in the

state, all 50 U.S. states, and 94 foreign countries, the research location provided a useful population for studying high school writing experiences from a large number of high schools.

The researcher contacted the director of the First-Year Writing Program (FYWP) and FYWP writing instructors, as well as the university Institutional Review Board (Appendix A), in order to obtain permission for the study and gain access to students. The university offers two first-year writing courses: English 100 and English 101. Students scoring a 5 on the AP English Language and Composition exam, 5-7 with diploma on the International Baccalaureate English A1/A2 Higher Level exam, or 750-800 on the SAT Critical Reading Test may exempt English 101. Students scoring a 4 on the AP Exam, 3-4 with diploma on the IB English A1/A2 Higher Level Exam, or 700-740 on the SAT Critical Reading Test may submit a portfolio for consideration to exempt English 101. Students who do not exempt English 101 use self-placement guidelines to determine whether to enroll in English 100 or English 101. FYWP instructors also assess students' writing during the first week of classes and may recommend placement changes when appropriate. In the fall of 2013, over 2000 students were enrolled in first-year writing courses (4 sections of English 100 and 97 sections of English 101). The researcher was able to access 29 sections of first-year writing, including 1 section of English 100 and 28 sections of English 101. In addition, participants included students enrolled in 1 section of English 101 during the summer of 2013 as part of a summer bridge program designed to help recent high school graduates with the transition to college.

Survey Participants

From the 30 participating sections of first-year writing, 503 of the 596 enrolled students completed the survey phase of the study. Four of these students were enrolled in English 100, and the remaining 499 students were enrolled in English 101. To address ethical concerns, a consent form provided information to students about the voluntary nature of participation and measures for providing anonymity (Appendices B and C).

Survey participants consisted of 267 males (54%) and 236 females (46%). The participants included 387 (76.9%) Whites, 32 (6.4%) Asians, 32 (6.4%) Black/African Americans, 14 (2.8%) Hispanic or Latinos, 5 (1%) American Indians or Alaska Natives, and 1 (.2%) Native Hawaiian or Other Pacific Islander. In addition, 31 (6.2%) participants listed their ethnicity as Other or Mixed Ethnicity. Demographic information is summarized in Table 3.1.

Table 3.1

Demographic Characteristics of Participants (N = 503)

Participants	<i>n</i>	%
Gender		
Male	267	54%
Female	236	46%
Ethnicity		
White	387	76.9%
Asian	32	6.4%
Black/African American	32	6.4%
Hispanic/Latino	14	2.8%
American Indian or Alaska Native	5	1.0%
Native Hawaiian or Other Pacific Islander	1	0.2%
Other or Mixed Ethnicity	31	6.2%
Unreported	1	0.2%

Student-reported average high school unweighted GPA was 3.70; the student-reported average high school weighted GPA was 4.36. Twelfth-grade unweighted average English GPA was 3.66. Students reported an average SAT Critical Reading score of 590 and an average SAT Writing score of 580. Of the 340 students who reported SAT Critical Reading scores, 22 participants (6.6%) scored below 500 on the SAT Critical Reading test; 150 (44.1%) scored between 500 and 590; 158 (46.5%) scored between 600 and 690; and 10 (3%) scored 700 or higher. Of the 325 students who reported their SAT Writing scores, 3 (0.9%) scored below 400; 21 (6.4%) scored between 400 and 490; 158 (48.6%) scored between 500 and 590; 128 (39.5%) scored between 600 and 690; and 14 (4.5%) scored 700 or higher. Thus, the participants in the current study reflected a wide range of ability levels,

at least to the extent that standardized assessments accurately measure ability. Participants' self-reported standardized testing scores and GPAs are summarized in Table 3.2.

Table 3.2

Participants' SAT Scores and GPAs (N = 503)

SAT Score	Mean	(SD)	Minimum	Maximum
Critical Reading <i>n</i> = 340	590	(62.75)	330	780
Writing <i>n</i> = 325	580	(69.02)	300	800
GPA				
12 th -grade unweighted <i>n</i> = 411	3.70	(0.24)	2.7	4.0
12 th -grade weighted <i>n</i> = 444	4.36	(0.40)	2.75	6.30
12 th -grade English unweighted <i>n</i> = 381	3.66	(0.48)	1.0	4.0

Essay Participants

From the 30 sections of first-year writing in which data were collected for the study, students in three sections of English 101 were also asked to complete an essay designed to assess their ability to synthesize information from provided sources and to generate an original argument. Sixty-five students were enrolled in these three sections; 57 participated in the survey and essay data collection.

Data Collection

Instruments

To answer the first research question about differences in high school writing experiences among first-year college students in English composition courses, a survey was used. Students' high school writing experiences were measured by self-report, using common high school writing activities identified on a survey designed by Kiuahara, Graham, and Hawken (2009). The survey, which Kiuahara et al. administered to a random sample of 361 language arts, social studies, and science high school teachers across the United States, included 22 writing tasks. For the current research project, 7 additional writing tasks that Kiuahara et al. identified in open-ended responses to their survey were also included. Three additional writing tasks were also added to reflect technology trends that may not have been captured in previous surveys: online discussion forums, digital storytelling, and multigenre writing. Students were asked to report the frequency of their twelfth grade experiences with the 32 types of writing; an open-ended question allowed students to add types of writing not included on the survey. The 8-point Likert-like scale used by Kiuahara, Graham, and Hawken was used to measure how often students completed each type of writing task, ranging from *never* to *daily*. A combination of open- and close-ended questions was used to indicate demographic information (Appendix D).

To answer the second research question about relationships between first-year college students' writing self-efficacy and their high school writing experiences, two instruments were used. A 28-item instrument constructed by Jones (2008) to measure self-efficacy

related to writing behaviors, writing tasks, and writing skills was used for comparison with responses to the self-report survey of high school writing experiences.

Jones' instrument, designed to reflect the writing demands of first-year college composition and Writing Program Administrators' (WPA) outcomes for first-year college writing, as well as students' responses to challenging writing tasks, uses a 6-point Likert-like scale. Jones' instrument includes three subscales: writing approach, writing tasks, and writing skills. Several survey items were particularly relevant to the focus in the current study on students' preparation for composing from multiple sources. In addition to general questions about writing self-efficacy beliefs, Jones' instrument (Appendix E) includes questions related to students' self-efficacy beliefs for "making connections among a variety of textual sources"; "incorporat[ing] text sources representing points of view different from [students' views]"; generating "a thesis that integrates a variety of information and many perspectives"; "organiz[ing] a lot of material into well developed and clearly arranged paragraphs"; using MLA format, and using library and online resources to locate information to support students' ideas (Jones, 2008, pp. 235-236).

To address the third research question, examining evidence of differences in first-year college students' competencies in composing from multiple sources, purposefully-selected essays written by a subset of study participants in response to a past prompt from College Board's AP English Language and Composition synthesis essay question were used for qualitative analysis. The essay required students to read prepared texts and then use them to construct an original argument (College Board, 2010).

Procedures

Students in first-year writing courses were asked to complete the self-report survey during class early in the semester. The instrument asked students to report high school writing task demands (types of writing and frequency assigned in the twelfth grade), SAT Critical Reading scores, SAT Writing scores, high school GPA, grade in twelfth-grade English, the number of Honors and AP English courses taken in high school, gender, and ethnicity. The survey included both open- and close-ended items (Appendix D). At the same time, students completed a writing self-efficacy self-report instrument (Appendix E). Time for completing the two surveys averaged 15-20 minutes.

After completing surveys about high school writing experiences, students in a subset of 3 sections of English 101 drafted essays in response to the AP English Language and Composition essay prompt (College Board, 2010). Since the AP synthesis essay can reasonably be completed in 55 minutes, it provided a useful instrument for assessing students' understanding of composing from multiple sources without the extended time required for much research-based writing. As in national administration of the AP English Language exam, students were given 15 minutes to read the prepared sources and 40 minutes to draft an essay response. Since the three sections of English 101 in which the writing assessment was administered met biweekly for one hour and forty minutes, data collection for the quantitative and qualitative instruments was completed in a single class session for each section.

Next, a small subset of essays ($n = 8$) was purposefully selected based on types of high school writing experiences identified in the cluster analysis and self-efficacy scores. Maximum variation sampling was used to select cases reflecting the highest and lowest writing self-efficacy from each of the four types of high school writing experiences identified in cluster analysis.

Data Analysis

Procedures

To address the first research question, three types of analyses were conducted. Descriptive statistics were used to describe the data. Differences in students' high school writing experiences were reported in a table with means and standard deviations. The table also included the number of students who reported each level, or frequency, of writing experience (e.g., *never* to *daily*) per semester for each of the writing tasks included in the survey. Exploratory factor analysis was used next to reduce the number of writing tasks and identify underlying types of writing experiences that characterize high school writing. Finally, two-step cluster analysis was used to identify groups of students based on high school writing experiences. Cluster analysis was originally considered in order to allow forming clusters based on categorical and continuous variables. Although categorical variables based on demographic data functioned as swamping variables and were removed from the cluster analysis, two-step cluster analysis resulted in more interpretable results than hierarchical cluster analysis since two-step cluster analysis functions well with a large data set. In addition, while cluster analysis assumes a normal distribution for continuous variables,

two-step cluster analysis works well when assumptions are not met (Norušis, 2008). Since order of cases may affect cluster analysis results, cases were entered in random order. In the first step of the analysis, data were grouped into preclusters; in the second step, these preclusters were used to form hierarchical clusters.

To answer the second research question, examining relationships between students' writing self-efficacy and their high school writing experiences, both descriptive statistics and inferential statistics were used. In Chapter 4, a table was used to report means and standard deviations for each self-efficacy subscale (i.e., writing behaviors, writing tasks, and writing skills) for each type of high school writing experience identified in the cluster analysis. One-way analysis of variance (ANOVA) tests then were used to compare writing self-efficacy results among students with different kinds of high school writing experiences. ANOVA test results, along with post hoc comparisons for significant differences, are reported in Chapter 4 to indicate relationships between types of high school writing experiences and students' scores on the writing self-efficacy instrument.

To address the third research question, a coding scheme based on a combination of *a priori* codes suggested in the research literature (Mateos & Solé, 2009; Nash, Schumacher, & Carlson, 1993; Spivey & King, 1989) and open coding to allow additional codes to emerge during analysis (Creswell, 2007; Strauss & Corbin, 1990) was used to provide further information about the extent to which students' essays reflect an understanding of the skills necessary when composing from multiple sources. Thick, rich description and frequency counts were used to report observations about students' ability to compose from multiple

sources. Essays were treated as individual cases, using cross-case synthesis to identify similarities and differences among the essays and to generate naturalistic generalizations.

Validity/Reliability

A variety of strategies were used to address threats to validity and reliability (Johnson & Turner, 2003). To address content validity for the survey of high school writing experiences, the current study used Kiuahara, Graham, and Hawken's (2009) survey of high school writing activities. Kiuahara and her colleagues pilot tested their survey with language arts, science, and social studies high school teachers and then used a stratified random sampling procedure to identify teachers representing the four geographical regions of the United States. A survey return rate of 51% yielded 361 participants. Their use of close- and open-ended questions with a broad sample of teachers across disciplines provides a valid measure of the kinds of writing that are being assigned in American high schools.

Validity and reliability for the survey instrument (Kiuahara et al., 2009) was not discussed in the original study, which reported descriptive statistics. For the current study, internal consistency of the adapted survey instrument was measured with Cronbach's alpha reliability estimates. Using participants' responses to the items included in the survey of high school experiences, Cronbach's alpha coefficient indicated good internal consistency ($\alpha = .87$). Cronbach's alpha coefficients for the three subscales identified through factor analysis were .85 for Academic Writing, .79 for Non-academic Writing, and .76 for Writing to Demonstrate Knowledge.

By using two-step cluster analysis instead of hierarchical or k-step cluster analysis, several threats to validity were minimized. Although cluster analysis assumes independent variables and normal distribution of continuous variables, the non-random sample should not have impacted validity for cluster analysis since two-step cluster analysis is robust to violations of these assumptions (Garson, 2010; Norušis, 2008). An additional threat to validity in cluster analysis was addressed through analysis within SPSS. Since the order of dataset observations can affect results in two-step cluster analysis, randomization of cases was used (Garson, 2010).

To address validity and reliability of the measurement of students' writing self-efficacy beliefs, three writing self-efficacy scales developed by Jones (2008) were used. Content validity for the scales was established by developing task and skills scales based on the College English I curriculum at a university in the Northeast and the WPA outcomes statement for first year writing. Of particular usefulness to the current research study was Jones' inclusion of several survey items specifically related to skills needed for composing from multiple sources.

To examine test reliability for the original instrument, Jones (2008) administered the scale twice to 18 psychology students, repeating the administration three weeks after the initial data collection. Cronbach's alpha coefficient estimates were .85 for the writing approach subscale, .94 for the writing task subscale, and .93 for the writing skills subscale.

Since reliability measures apply to measures for a specific population, not to the test itself (Tavakol & Dennick, 2001), Cronbach's alpha reliability estimates were calculated for

the participants in the current study. Cronbach's alpha coefficient indicated strong internal consistency for the total 28 survey items ($\alpha = .92$). The three writing self-efficacy subscales exhibited good internal consistency reliability. Cronbach's alphas for writing approach, writing task, and writing skills subscales were .82, .88, and .87, respectively.

For the essay used to evaluate students' ability to compose from multiple sources, content validity was addressed by using the synthesis essay prompt from a previous year's AP English Language and Composition exam – a national exam created by College Board and widely accepted by colleges for placing out of freshman composition. According to College Board, content validity for AP English Language and Composition exam essay questions is achieved by expert review and revision during a process that takes approximately two years. Final drafts of the exam are reviewed by the test development team for validity and reliability (College Board, 2011a; Ewing, Huff, & Kaliski, 2010). For the purposes of the current study, the AP synthesis essay provided an appropriate instrument for measuring participants' ability to compose from multiple sources since students are required to read prepared sources, select information from three or more of those sources to synthesize in an original argument, and connect ideas in a well-organized essay.

Validity and reliability for analysis of the subset of essays used to examine first-year college students' understanding of selecting, organizing, and connecting information when composing from multiple sources used qualitative methods. Thick, rich description was used to allow readers to make decisions about credibility of coding and transferability (Lincoln & Guba, 1985). Although only 8 of the essays were formally coded, the researcher read through

all the essays multiple times and used the full data set for precoding, improving validity through submersion in the research data (Merriam, 1995). Essays used in this phase of analysis were analyzed for patterns related to composing from multiple sources. Since the goal of the analysis was to examine the extent to which skills necessary for effectively composing from multiple sources were present, open coding would provide information about patterns in the data but might overlook evidence of important skills that might be missing in the data set. To balance the need for openness to emerging patterns with questions stemming from the current knowledge base, an *a priori* coding scheme based on the research literature, along with open coding to allow additional codes to emerge from the data, was used (Creswell, 2007). Once patterns emerged, thick, rich description was used to provide more specific information about patterns within the data and their relationship to high school writing experiences. In addition, frequency counts were used to note the number of sources students included in their essays; since this was an easily identifiable characteristic of students' writing, copies of the essays were included in the appendices for verification.

Despite the fact that the current study was not an experimental design, validity threats related to *history* and *maturation* merited consideration. The use of responses from first-year college students to explore the relationship between high school writing experiences and students' ability to compose from multiple sources raises questions about possible changes in writing that may have occurred between high school and college. In addition, the first-year writing course includes instruction in the skills being assessed for this study. To address these concerns and minimize threats related to *history* and *maturation*, data collection

occurred during the first two weeks of the first-year writing courses, before students would have received instruction that might influence their writing self-efficacy or their ability to compose from multiple sources. Validity threats related to *reactive effects* were minimized since essays were used by course instructors as a preliminary sample of students' writing, as well as for data in the current study.

Demographic information has been provided to allow readers to make decisions about generalizability of results from the cluster analysis and ANOVA tests since a non-random sample was used. Two-step cluster analysis is fairly robust to violations of normality, assuming a large sample, usually of 200 or more (Egan, 1984; Garson, 2010). Cluster analysis in the current study included a sample of 440 participants. To increase generalizability of findings from qualitative analysis of students' essays, a subset of essays ($n = 8$) was purposefully selected for maximum variation cases (Flyvbjerg, 2006, Miles & Huberman, 1994), based on results from cluster analysis of the school writing experience survey and writing self-efficacy scores.

Summary

This chapter presented the methodology that was used to explore the relationship between first-year college students' high school writing experiences, their writing self-efficacy, and their preparation for composing from multiple sources. It included the research design, procedures for data collection and analysis, and measures for addressing validity and reliability. This mixed methods study included quantitative analysis of a survey of high school writing experiences and a survey of students' writing self-efficacy, qualitative

analysis of essays requiring students to compose from multiple sources, and merging of the quantitative and qualitative results to provide a better understanding of the relationship between high school writing experiences, writing self-efficacy, and the ability to compose from multiple sources. The next chapter will present results from the quantitative and qualitative analysis and discussion of the study's findings.

CHAPTER IV: RESULTS

Introduction

The aim of the current study was to explore first-year college students' high school writing experiences, their writing self-efficacy, and their ability to compose from multiple sources. A convergent parallel mixed methods design used surveys and essay data to explore three research questions:

1. What are the differences, if any, in high school writing experiences among first-year college students in English composition classes?
2. What are the relationships between first-year college students' writing self-efficacy and their high school writing experiences?
3. What differences in students' competencies in composing from multiple sources are evident in purposefully selected essays from first-year college students?

The study found three types of high school writing tasks and four different types of high school writing experiences and further concluded that those differences are associated with small but significant differences in students' writing self-efficacy. Qualitative analysis of essays revealed five major skills associated with students' success in composing from multiple sources and four approaches to the writing task.

This chapter is organized by two main sections: quantitative and qualitative results. The first section includes 1) information about data screening and demographic data; 2) descriptive statistics, factor analysis findings, and cluster analysis results from the survey of high school writing experiences; and 3) descriptive statistics and one-way ANOVA test

results from the High School Writing Experiences (HSWE) Survey and the Writing Self-efficacy (WSE) Survey. The second section includes discussion of 1) within-case findings and 2) cross-case findings from the qualitative analysis of essay data.

Quantitative Analysis: Survey Results

Over 500 students from 30 sections of first-year college writing at a large university in the Southeast completed the High School Writing Experiences (HSWE) Survey (Appendix D) and a Writing Self-efficacy (WSE) Survey (Appendix E). The first survey, adapted from a survey designed by Kiuahara, Graham, and Hawken (2009), asked students to provide information about the frequency that they were assigned 32 different writing tasks during their senior year of high school. Students used an 8-point Likert-like scale to report the frequency that each type of writing task was assigned, ranging from *never* to *daily*. To measure writing self-efficacy, students completed an instrument constructed by Jones (2008) to respond to three sets of subscale items related to writing behaviors, writing tasks, and writing skills, using a 6-point Likert-like scale.

Data Screening

Accuracy. To minimize errors resulting from data entry, all the data were entered twice into an Excel spreadsheet. To identify data entry errors, the sums of variable entries in the two data entry sets were then compared for each case; non-zero differences were corrected by re-examining the original data. The cleaned up data set was then imported into SPSS. Frequency distributions, histograms, and boxplots were examined to identify out-of-range entries or univariate outliers that might represent errors in data entry. Means and

standard deviations were also examined for plausibility. Questionable entries were then checked against the original data set for accuracy and replaced when data entry errors were identified.

Missing data. Data were examined for cases and variables with large numbers of missing values and for patterns within the missing values. For the High School Writing Experiences (HSWE) survey, 58 of the 503 participants had missing data. One case, in which the participant had omitted responses to one of the two pages of the HSWE survey, failing to respond to 17 of 32 items, was excluded from further analysis. In another case, the participant did not report responses to 9 of 32 survey items. This case was also excluded from further analysis. No other cases were missing data for more than 2 of the 32 items on the HSWE survey.

Although the percentage of missing data for each variable was small (2.2% or less), the fact that “[n]onrandomly missing values . . . are serious no matter how few of them there are” (Tabachnick & Fidell, 2013, p. 62) prompted closer examination of the data. Little’s MCAR test of variables from the HSWE survey indicated that the missing values might not be Missing Completely At Random (MCAR). The chi-square value from the MCAR test was 974.74 ($df = 857$; $sig. = .003$). To further examine patterns of missing data, dichotomous dummy variables and a pattern variable (using a string variable) were created. Seven patterns included more than one missing variable, but each of these patterns was limited to a single case (Appendix F). Thus, in effect, examination of the string variables revealed only

frequency of missing values for individual survey items, rather than any true missing value patterns.

For the Writing Self-efficacy (WSE) survey, 21 of 503 participants had missing data. In four cases, participants omitted an entire page of the survey, resulting in failure to respond to 10 of 28 items in 3 cases and 8 items in 1 case. These four cases were excluded from further analysis. No other cases were missing more than one value, but Little's MCAR test of variables from the WSE survey indicated that the missing values might not be missing completely at random (MCAR). The chi-square value from the MCAR test was 475.26 ($df = 324$; sig. = .000). Since no cases in the reduced data set included more than one missing value, dichotomous dummy variables and a pattern variable were not useful for further examining missing data patterns.

The lack of a MCAR mechanism rendered listwise deletion techniques for handling missing data more problematic since using listwise deletion when MCAR assumption is not met can result in both in a loss of efficiency and biased results (Baraldi & Enders, 2009; Little & Rubin, 2002). Maximum likelihood and multiple imputation have been described as "state of the art" for dealing with missing data when missing values are not MCAR (Schafer & Graham, 2002, p. 173), but both procedures assume multivariate normality and Missing At Random (MAR) data (Baraldi & Enders, 2009). Although empirical tests to determine whether missing values are MAR or Missing Not At Random (MNAR) are not possible since such tests would rely on unobserved data (Baraldi & Enders, 2009; Schafer, 1997; Schafer & Graham, 2002), maximum likelihood and multiple imputation techniques have been

identified as usually better than listwise deletion for handling missing data even when data are MNAR (Baraldi & Enders, 2009; Graham, 2009; Schafer & Graham, 2002). Still, if the percentage of missing data is less than 5%, bias and efficiency loss are probably negligible, and listwise deletion can be effective (Graham, 2009; Schafer & Graham, 2002; Tabachnick & Fidell, 2013).

Tabachnick and Fidell (2013) have recommended running analyses both with estimated missing values and with complete cases, particularly if variables are not missing at random; similar results then can increase confidence in the results of both sets of analyses. For the current analysis, then, both listwise deletion and Expectation-maximization (EM), a form of maximum likelihood estimation that is particularly appropriate for analyses such as factor analysis that do not use inferential statistics and for data sets in which the number of missing values is small (Tabachnick & Fidell, 2013), were used to handle missing data for quantitative analysis. Results of the two methods of handling missing data were then compared.

For demographic data, missing values were more common, particularly for questions about high school GPA and SAT scores. Out of 503 participants, 163 (32.4%) did not report SAT Critical Reading scores; 178 (35.4%) did not report SAT Writing scores. Ninety-two (18.3%) did not report high school unweighted GPA; 59 (11.7%) did not report high school weighted GPA; and 122 (24.3%) did not report twelfth-grade English averages. One participant (0.2%) did not report ethnicity. All participants reported gender. Since the

variables with large percentages of missing data were used for descriptive purposes, data methods for estimating missing values were not used for demographic variables.

Outliers. Data in the HSWE and WSE surveys were examined for univariate and multivariate outliers. Examination of histograms and the Extreme Values table in SPSS did not indicate the presence of univariate outliers in the variables for either survey. When examined together, Mahalanobis distance identified 3 cases that exceeded the critical value of 99.61 (60 *df*, $p < .001$) as multivariate outliers in the complete dataset for the HSWE and WSE surveys. For the HSWE survey data used in factor analysis, Mahalanobis distance indicated 10 additional cases that exceeded the critical value of 62.4962 (32 *df*, $p < .001$) as multivariate outliers. These 13 cases were removed from the dataset.

Normality and linearity. For the survey of HSWE, 4 variables indicated extreme skew (< -2 or > 2) and kurtosis (< -2 or > 2): Memo, Biography, Autobiography, and Digital Storytelling. Four additional variables indicated extreme kurtosis: Short Answer Response, Response to Material Read, Completing Worksheets, and Summary of Material Read. Transformations reduced skew and kurtosis to within ± 2 in all variables except Digital Storytelling. For variables with extreme skew and kurtosis, the inverse transformation performed best for achieving normality. For the four remaining variables with extreme kurtosis, both skew and kurtosis were reduced by the reflected log transformation (Table 4.1). Although transformation did not reduce skewness or kurtosis to within ± 2 for Digital Storytelling, inverse transformation still performed most effectively to normalize the data.

Table 4.1

Data Transformations

	N	Skewness		Kurtosis	
		Statistic	Std. Error	Statistic	Std. Error
Short Answer	486	-1.572	.111	4.626	.221
Short Answer – Reflected log	486	-.204	.111	.359	.221
Response to Material Read	489	-1.429	.110	4.225	.220
Response to Material Read – Reflected Log	489	-.331	.110	.531	.220
Completing Worksheets	487	-1.564	.111	2.142	.221
Complete Worksheets – Reflected Log	487	.226	.111	-.447	.221
Summary of Material Read	488	-1.488	.111	2.757	.221
Summary of Material Read – Reflected Log	488	-.128	.111	.552	.221
Memo	486	2.757	.111	7.301	.221
Memo – Inverse	486	1.874	.111	1.662	.221
Biography	488	2.126	.111	4.227	.221
Biography – Inverse	488	1.350	.111	-.022	.221
Autobiography	487	2.705	.111	8.003	.221
Autobiography – Inverse	487	1.656	.111	.977	.221
Digital Storytelling	486	2.961	.111	8.482	.221
Digital Storytelling – Inverse	486	2.060	.111	2.431	.221

The number of variables included in the HSWE and WSE surveys rendered examination of all possible pairwise scatterplots to assess linearity impractical. Instead, scatterplots for pairs of variables representing strong negative or positive skewing were

examined, both with original variables and variables transformed for normality. No evidence of true curvilinearity was found, so no additional transformations were performed.

The decision of whether to use transformed or original variables for the analysis involved consideration of Tabachnick and Fidell's (2013) observation that transformed variables can be more difficult to interpret and are not always recommended. Still, they recommend using transformations to reduce skewness and kurtosis unless problems such as interpretability result. For the current study, factor analysis, cluster analysis, and ANOVA tests were conducted with transformed variables and then repeated with untransformed variables. Results for all tests were similar but more interpretable with untransformed variables, so final solutions used the untransformed variables.

High School Writing Experiences (HSWE) Survey

In order to answer the first research question, "What are the differences, if any, in high school writing experiences among first-year college students in English composition classes?" the High School Writing Experiences (HSWE) Survey was administered to 503 students enrolled in a first-year college writing course. Three statistical methods were then used to analyze the data. First, descriptive statistics were used to identify differences in the frequency that thirty-two writing tasks were assigned in the twelfth grade. Factor analysis was used next to identify writing tasks that might be grouped together as distinct kinds of high school writing experiences. Finally, cluster analysis was used to group students based on types of writing experiences identified in the factor analysis.

Descriptive statistics. Descriptive statistics suggested that differences in high school writing experiences do exist. While some writing tasks clearly were being assigned more frequently than others, a wide range of writing experiences began to emerge in the data (Table 4.2). Although 29.6% of students, for instance, were assigned online discussion forums at least once a quarter, over 60% were never asked to write in online forums. Over 20% of students were assigned multi-genre writing once a quarter or more often, in contrast to 58.3% who were never assigned this task. More than 28% of students were assigned poetry at least once a month, but 22.7% of students were never asked to write poems. While 35.6% of participants were asked to write short stories once a quarter or more frequently, 43.7% of students were never assigned this task. Literary analysis was a common task; 65.8% of students were assigned this task once a month or more often, but 17.9% of students were assigned it once a semester or less. Similarly, while 42.9% of students were assigned persuasive writing once a month or more often, 18.4% of participants were assigned this task once a year or less.

Table 4.2

HSWE Survey: Frequencies Students Reported Being Assigned Writing Tasks in Twelfth Grade

Writing task	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ week	Sev. times/week	Daily	<i>M</i>	<i>SD</i>
Short answer response (<i>n</i> = 499)	1.2%	0.4%	1.4%	2.4%	8.4%	31.5%	42.3%	12.4%	5.42	1.19
Response to material read (<i>n</i> = 502)	1.2%	0.0%	1.2%	3.2%	12.5%	35.9%	36.5%	9.6%	5.27	1.16
Completing worksheets (<i>n</i> = 500)	5.4%	1.2%	1.8%	4.2%	10.0%	19.2%	37.6%	20.6%	5.23	1.77
Copying text (<i>n</i> = 503)	10.5%	1.2%	2.2%	4.0%	7.4%	15.3%	23.3%	36.2%	5.16	2.22

Table 4.2 continued

Writing task	Never	Once/ Year	Once/ semester	Once/ quarter	Once/ month	Once/ week	Several times/week	Daily	<i>M</i>	<i>SD</i>
Summary of material read (<i>n</i> = 501)	4.8%	0.8%	2.4%	4.2%	18.8%	34.3%	28.3%	6.4%	4.80	1.55
Powerpoint presentation (<i>n</i> = 502)	7.8%	3.6%	9.2%	10.6%	20.7%	12.7%	19.3%	16.1%	4.29	2.08
5-paragraph essay (<i>n</i> = 503)	3.2%	2.2%	4.8%	14.1%	39.2%	23.9%	11.5%	1.2%	4.08	1.36
Literary analysis (<i>n</i> = 503)	3.2%	5.0%	9.7%	16.3%	27.4%	20.7%	13.5%	4.2%	3.97	1.62
Journal entry (<i>n</i> = 502)	28.1%	1.8%	4.6%	6.6%	13.9%	20.7%	14.5%	9.8%	3.46	2.51
Answering document-based questions (<i>n</i> = 499)	20.4%	6.0%	11.4%	14.2%	19.8%	18.8%	8.2%	1.0%	3.01	2.01
Lists (<i>n</i> = 492)	32.7%	1.4%	4.9%	10.4%	20.5%	16.1%	11.4%	2.6%	2.91	2.31
Persuasive essay (<i>n</i> = 501)	10.6%	7.8%	17.8%	21.0%	30.1%	10.2%	2.4%	0.2%	2.93	1.55
Step-by-step instructions (<i>n</i> = 498)	28.1%	4.6%	10.8%	9.8%	17.3%	17.7%	7.0%	4.6%	2.88	2.25
AP timed essay writing (<i>n</i> = 499)	28.5%	5.8%	6.2%	12.0%	20.2%	17.4%	8.8%	1.0%	2.82	2.17
Descriptive essay (<i>n</i> = 500)	16.4%	8.8%	17.4%	18.0%	27.8%	8.6%	2.8%	0.2%	2.70	1.68
Lab report (<i>n</i> = 500)	36.0%	2.6%	6.0%	11.0%	24.2%	16.6%	3.6%	0.0%	2.49	2.09
Poem (<i>n</i> = 502)	22.7%	11.2%	18.7%	19.3%	17.5%	7.8%	2.2%	0.6%	2.33	1.74
Email correspondence (<i>n</i> = 494)	44.3%	3.2%	6.3%	10.1%	13.2%	9.7%	8.9%	4.3%	2.31	2.39
Cause/effect essay (<i>n</i> = 502)	23.7%	9.0%	19.3%	18.7%	22.5%	5.2%	1.6%	0.0%	2.29	1.67
Research paper (<i>n</i> = 501)	5.2%	26.9%	33.9%	16.4%	14.0%	2.2%	1.0%	0.4%	2.20	1.27
Personal narrative (<i>n</i> = 496)	20.0%	15.9%	21.6%	18.8%	17.3%	3.8%	2.4%	0.2%	2.20	1.61
Reflective essay (<i>n</i> = 501)	22.0%	15.4%	20.8%	17.0%	17.6%	4.8%	2.0%	0.6%	2.18	1.67
Book report (<i>n</i> = 500)	35.2%	8.4%	17.4%	18.6%	17.8%	2.0%	0.4%	0.2%	1.84	1.63
Short story (<i>n</i> = 501)	43.7%	8.0%	12.8%	14.2%	13.8%	5.4%	1.8%	0.4%	1.72	1.82
Online discussion forums (<i>n</i> = 501)	60.1%	4.8%	5.6%	7.2%	8.8%	8.8%	3.0%	1.8%	1.47	2.08
Multi-genre writing (<i>n</i> = 501)	58.3%	10.2%	10.8%	7.6%	7.0%	3.8%	2.0%	0.4%	1.16	1.69
Stage/screen play (<i>n</i> = 500)	62.8%	10.0%	11.0%	7.4%	5.4%	1.8%	1.2%	0.4%	0.95	1.50
Business letter (<i>n</i> = 501)	64.7%	13.0%	12.8%	6.4%	2.4%	0.6%	0.2%	0.0%	0.71	1.15
Biography (<i>n</i> = 501)	75.6%	7.2%	9.4%	5.2%	2.2%	0.2%	0.2%	0.0%	0.52	1.06
Memo (<i>n</i> = 499)	83.0%	2.4%	4.8%	4.6%	2.0%	1.8%	1.0%	0.4%	0.52	1.30
Digital storytelling (<i>n</i> = 499)	84.6%	2.6%	4.6%	1.8%	3.8%	1.6%	0.4%	0.6%	0.47	1.27
Autobiography (<i>n</i> = 500)	79.8%	8.8%	6.4%	3.6%	1.0%	0.2%	0.2%	0.0%	0.39	0.90

Scoring: Never = 0; Once/year = 1; Once/semester = 2; Once/quarter = 3; Once/month = 4; Once/week = 5; Several times/week = 6; Daily = 7

Despite these differences, the survey also revealed that some writing activities were more common elements of twelfth-grade writing than others. The most frequent writing tasks reported by students were short answer responses, responses to material read, completing worksheets, and copying texts. More than 70% of participants reported being assigned these writing tasks once a week or more often during their twelfth grade year of high school. The next most common writing tasks were summary of material read, Powerpoint presentations, 5-paragraph essays, and literary analysis, with over 60% of students reporting being assigned these tasks at least once a month in the twelfth grade. (The frequency of Powerpoint presentations raised questions about students' interpretation of this survey item and will be discussed further under Factor Analysis results.) Over half of the participants reported being assigned lists, persuasive writing, step-by-step instructions, AP timed essay writing, descriptive essays, and lab reports at least once a quarter. The remaining writing tasks were reported as being assigned once a semester or less by most students. Of particular interest for preparing students for research-based college writing, only 5.2% of students reported never being assigned a research paper in the twelfth grade. Most students (60.8%) reported being assigned a research paper once a semester or once a year. (Indications by 3.6% of participants that they were assigned research papers once a week or more often suggested students were convoluting frequency of a task being assigned with frequency of working on the task. One student did ask the researcher for clarification on how to respond to the item since she was in a course focusing on research papers and, thus, working on a research paper

on a daily basis. Other students who did not ask for clarification may have indicated being assigned research papers on a frequent basis.)

Factor analysis. While descriptive statistics revealed differences in the frequency that specific writing tasks were assigned in high school, factor analysis facilitated classification of those writing tasks into types of high school writing experiences. Factor analysis is a multivariate statistical procedure that allows the researcher to reduce a large number of variables to a smaller number of factors and to identify underlying constructs for a group of variables – both of which were desirable with the current data set. Although exploratory factor analysis does not result in a single well-fitting solution, choosing between alternatives is facilitated when variables load on one factor and not on others and the solution is interpretable by the researcher (Afifi, May, & Clark, 2012; Fabrigar, Wegener, MacCallum, & Strahan, 1999; Tabachnick & Fidell, 2013). By grouping correlated variables, or writing tasks, factor analysis generated a more manageable number of factors, each reflecting kinds of high school writing experiences common among research participants.

For the final factor analysis solution, Common Factor Analysis using Maximum Likelihood extraction with oblique rotation was performed on the 32 items from the HSWE survey. To begin exploring the data, Principal Component Analysis with listwise deletion and Varimax rotation was first used to evaluate factorability of the dataset and to provide an initial estimate of the number of factors to extract. The scree plot suggested a 3-factor model (Figure 4.1). The KMO Measure of Sampling Adequacy (.891) and Bartlett's test of sphericity ($p = .000$) suggested the appropriateness of conducting factor analysis for the

dataset. A second analysis using Expectation-Maximization (EM) to estimate missing values also suggested a 3-factor model, with components loading on the same components as in Principal Component Analysis with listwise deletion. The component correlation matrix for both evaluations suggested the appropriateness of oblique rotation. Common Factor Analysis was performed with several extraction and rotation techniques. As Tabachnick and Fidell (2013) have noted, “differences in solution are small for a data set with a large sample, numerous variables, and similar communality estimates. In fact, one test of the stability of a FA solution is that it appears regardless of which extraction technique is employed” (p. 638). Consistency among solutions, as well as interpretability of the selected model, led to the selection of the three-factor model using Maximum Likelihood extraction with Direct Oblimin rotation.

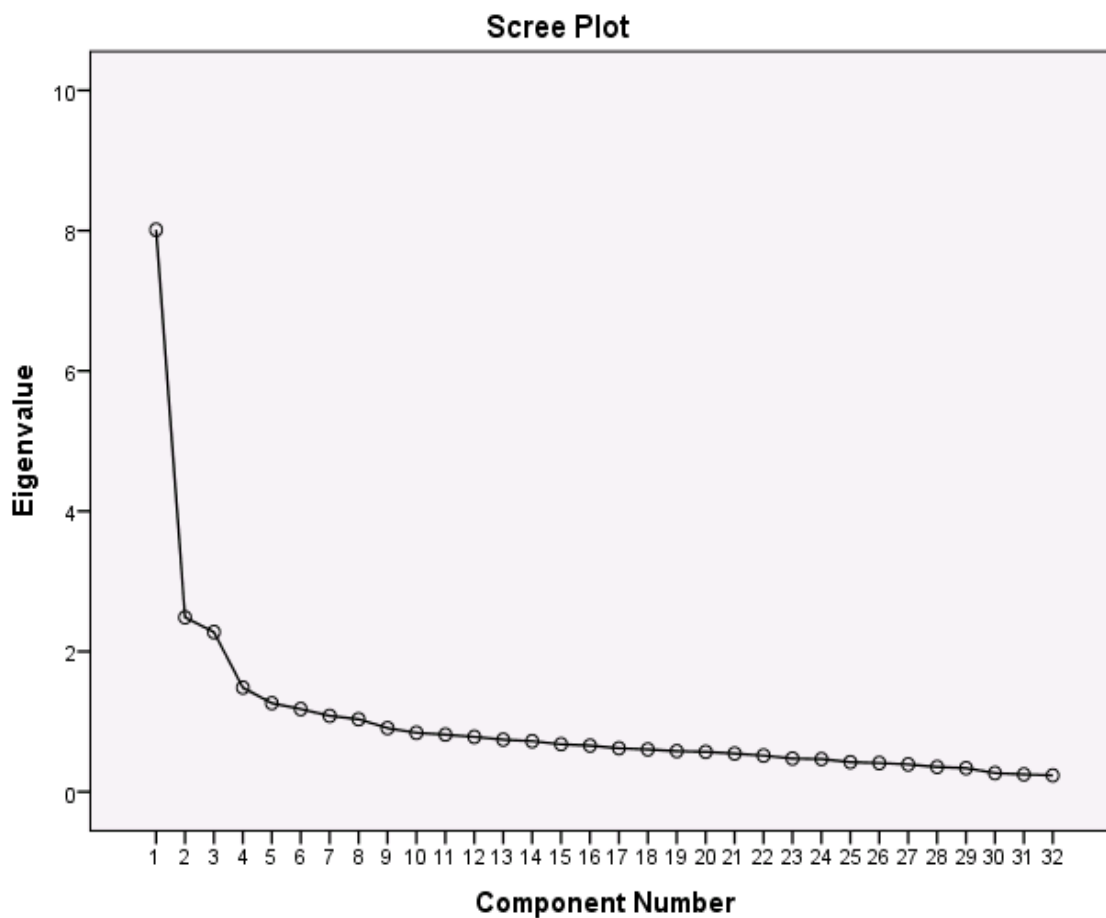


Figure 4.1. Scree Plot with Varimax Rotation.

Using Common Factor Analysis with oblique rotation on the 32 variables from the HSWE survey, 34.15% of the variance was initially accounted for by the 3-factor solution. Six variables did not load on any factor with even a minimal cutoff of .32; these were removed from the analysis. A second factor analysis was run with the remaining 26 variables; this time an additional variable failed to load at the .32 cutoff and was removed. A final factor analysis yielded a factor structure with 25 variables loading on the 3 factors and

now explaining 38.09% of the total variance. Despite the low loadings included in this factor structure, including items with low loadings seemed warranted since factors loaded on only one factor and the solution met the primary criteria for evaluating a factor analysis solution: interpretability. Factor loadings and communalities are provided in Table 4.3.

Table 4.3

Factor Loadings and Communalities (h^2) for 25 items from HSWE Survey (n=441)

Item	Factor 1	Factor 2	Factor 3	h^2
Persuasive Essay	.807			.65
Descriptive Essay	.805			.71
Cause/Effect Essay	.771			.67
Literary Analysis	.675			.42
Five-Paragraph Essay	.534			.30
Reflective Essay	.524			.45
AP Timed Essay	.450			.18
Research Paper	.340			.26
Biography		.865		.67
Autobiography		.837		.62
Memo		.594		.36
Short Story		.487		.36
Digital Storytelling		.472		.23
Business Letter		.444		.22
Poem		.379		.32
Multi-genre Writing		.372		.18
Stage/Screen play		.336		.14
Book Report		.321		.28
Completing Worksheets			.744	.51
Copying Texts			.661	.39
Powerpoint presentation			.587	.37
Lists			.500	.33
Short Answer Response			.487	.33
Step-by-Step Instructions			.442	.33
Summary of Material			.391	.25
Read				

The factor solution suggested three types of high school writing:

1. *Academic Writing Tasks* – Essays and research-based writing
2. *Non-academic Writing Tasks* - Narrative, creative, and business writing
3. *Writing-to-Demonstrate-Knowledge Tasks* – Short answer, completing worksheets, and other informal writing

Academic Writing Tasks included essays and research-based writing. Five items reflected common purposes for essay writing: *persuasion, description, cause/effect, literary analysis, and reflection*. Two other items reflected types of writing typically associated with test preparation and writing under pressure: *five-paragraph essay* and *AP timed essay*. A final item reflected academic writing generally requiring extensive time for development: *research paper*.

Non-academic Writing Tasks included 5 items with clear narrative functions: *biography, autobiography, short story, digital storytelling, and stage/screen play*. Two other items reflected an emphasis on creative writing that may or may not include a narrative function: *poem and multi-genre writing*. One item, *book report*, might encompass a wide range of writing goals, but is likely to include summaries of fiction (narrative) texts. Two items reflected an emphasis on practical, business writing: *memo* and *business letter*.

Although each of these writing tasks might be assigned in academically rigorous environments (and certainly, considerable skill is required to do them well), the common pattern seemed to be the inclusion of tasks often (though perhaps unfairly) considered “non-academic.”

Writing-to-Demonstrate-Knowledge Tasks emphasized informal writing tasks often associated with developing skills and mastering content. Tasks in this category are often associated with writing that is less than a paragraph in length, rather than presenting information in extensive, well-developed texts. Three items clearly reflected the kind of writing Applebee and Langer (2011) have labeled as “writing without composing” (p. 15): *copying text*, *completing worksheets*, and *short answer*. A fourth writing task was more ambiguous. In light of emphasis in 21st century classrooms on communication with integrating visual images with print text, as well as multimedia presentations, *Powerpoint presentation* might have been interpreted as students’ use of technology to generate their own presentations. The frequency with which students indicated that Powerpoint presentations were assigned as writing tasks (over 48% indicated being assigned Powerpoint writing tasks once a week or more often; another 20% said they were assigned Powerpoint writing tasks once a month), however, suggested that students more often had in mind copying text or taking notes from a teacher’s presentation, a task more in line with Applebee’s “writing without composing.” One task, *listing*, suggested another informal writing task often accomplished without the use of complete sentences. Two final tasks, *step-by-step instructions* and *summary of material read* might include more extensive writing than other tasks in this category, but nonetheless seemed related to other writing tasks in the category by their association with demonstrating knowledge.

Cluster analysis. To more fully answer the first research question about differences in high school writing experiences among first-year college students, cluster analysis was

also used. Cluster analysis is a multivariate statistical procedure aimed at classifying objects into homogeneous groups. Group membership is based on shared characteristics (represented by scores on a set of variables) with other group members, as well as dissimilarity from members of other groups. While factor analysis identified three types of high school writing experiences, cluster analysis provided a useful statistical method for grouping *students* according to types of writing assigned in high school. Results of cluster analysis were also used to purposefully select participants' essay for qualitative analysis.

For cluster analysis, factor scores were entered in random order, using summed raw scores for variables loading on each factor as factor scores. Although summed factor scores risk introducing bias by giving equal weight to items regardless of loading values, they produce an easily interpretable solution and have been identified as a reasonable approach for exploratory research (DiStefano, Zhu, and Mindrilă, 2009; Tabachnick & Fidell, 2013). Refined methods (regression and Anderson-Rubin scores), as well as simple raw sum factor scores were used in exploring the data. In the final cluster analysis solution, raw summed scores were more useful than refined factor score methods in providing a clear picture of differences in high school writing experiences across clusters.

Although features in the SPSS two-step cluster analysis procedure were used initially to determine the number of clusters, specifying the number of clusters ultimately resulted in a more interpretable solution. In the initial analysis, comparison of solutions using Schwarz's Bayesian criterion and Akaike's Information criterion for determining clusters resulted in stable group membership with a two-cluster solution. Cluster 1 had lower mean scores on all

three factors than Cluster 2, however, simply distinguishing students who wrote frequently from those who wrote less often in high school, regardless of writing tasks assigned.

Specifying a four-cluster solution resulted in a more nuanced solution. All three factors influenced the solution, with Factor 1 (*Academic writing*) the most important determinant of cluster membership and Factor 2 (*Non-academic writing*) the least important determinant of cluster membership. Mean factor scores were then used to interpret clusters (Table 4.4). Cluster 1 had factor scores above the mean for the combined clusters, as well as the highest means among the four clusters, on all three factors and was labelled *Intensive Writing*. Factor 2, labeled *Academic Writing*, had mean scores below the combined mean for the second and third factors, but scored above the combined mean for *Academic Writing*. Cluster 3, labeled *Infrequent Writing*, had means below the combined mean, as well as the lowest means among the four clusters, on all three factors. Cluster 4 had a mean score above the combined mean only for *Writing to Demonstrate Knowledge* and consequently was labeled with the name from that factor.

Table 4.4

Mean Factor Scores and Variances for Clusters

Cluster	Academic Writing		Non-academic Writing		Writing to Demonstrate Knowledge	
	Mean	SD	Mean	SD	Mean	SD
1	31.45	6.20	19.97	8.36	37.71	4.57
2	28.39	4.58	7.18	3.99	27.34	6.91
3	13.74	4.59	4.22	2.94	19.72	6.59
4	16.35	4.58	7.78	4.67	33.96	4.76
Combined	23.02	9.06	10.37	8.29	30.65	8.65

Cluster 1: Intensive writing. In addition to having the highest factor scores on all three factor analysis subscales (Academic, Non-academic, and Writing to Demonstrate Knowledge writing tasks), Cluster 1, or *Intensive Writing* group members ($n=137$), had the highest means on every writing task included in the factor analysis except the *AP timed essay* (Table 4.5). Although they were assigned Writing to Demonstrate Knowledge tasks (e.g., completing worksheets, copying text, short answer response, summary of material read) most often, they also were frequently assigned Academic Writing tasks (e.g., literary analysis, five-paragraph essays, persuasive essays). Although these students were assigned writing tasks labeled Non-academic less often than Academic or Writing to Demonstrate Knowledge writing tasks, they were assigned these tasks (e.g., short stories, poetry, digital storytelling, multi-genre writing, business letters) substantially more often than students in other groups.

Table 4.5

Cluster Means

	Cluster 1 <i>Intensive Writing</i> <i>n=137</i> (28.1%)	Cluster 2 <i>Academic Writing</i> <i>n=119</i> (24.4%)	Cluster 3 <i>Infrequent Writing</i> <i>n=94</i> (19.3%)	Cluster 4 <i>Writing to Dem. Knowl.</i> <i>n=138</i> (28.3%)	Combined Cluster Means <i>n=488</i> (100%)
Factor 1: Academic Writing Tasks					
Persuasive Essay	4.04	3.70	1.58	2.04	2.92
Descriptive Essay	3.99	3.58	1.16	1.63	2.67
Cause/Effect Essay	3.64	3.07	0.87	1.33	2.31
Literary Analysis	4.77	4.71	2.90	3.07	3.92
Five-Paragraph Essay	4.72	4.59	3.15	3.57	4.06
Reflective Essay	3.57	2.48	1.13	1.25	2.18
AP Timed Essay	3.69	4.06	1.57	1.75	2.84
Research Paper	3.07	2.23	1.48	1.75	2.19
Factor 2: Non-academic Writing Tasks					
Biography	1.25	0.24	0.09	0.22	0.48
Autobiography	1.02	0.11	0.11	0.14	0.37
Memo	1.40	0.03	0.05	0.35	0.49
Short Story	3.28	1.10	0.56	1.41	1.69
Digital Storytelling	1.24	0.08	0.13	0.25	0.45
Business Letter	1.35	0.48	0.33	0.55	0.71
Poem	3.68	1.91	1.01	2.09	2.28
Multi-genre writing	2.15	0.71	0.76	0.76	1.13
Stage/Screen Play	1.68	0.62	0.28	0.79	0.89
Book Report	2.99	1.91	0.93	1.26	1.83
Factor 3: Writing to Demonstrate Knowledge Tasks					
Completing Worksheets	6.05	4.97	3.54	5.82	5.23
Copying Text	5.99	4.70	3.66	5.91	5.21
Powerpoint Presentations	5.45	3.55	2.70	4.87	4.29
Lists	4.43	2.04	1.01	3.55	2.94
Short answer Response	5.92	5.54	4.35	5.62	5.44
Step-by-Step Instructions	4.62	1.83	1.05	3.31	2.87
Summary of Material Read	5.50	4.86	3.54	4.99	4.82

Cluster 2: Academic writing. Cluster 2, or the *Academic Writing* group ($n=119$), was the only cluster with higher factor scores on the Academic Writing subscale than on the other two subscales (Table 4.5). Although students in the *Intensive Writing* cluster were assigned

almost every writing task more often than students in other clusters, *Academic Writing* group members were assigned AP Timed Essays more often than any other cluster. Similar to *Intensive Writing* group members, they were assigned literary analysis more often than any other task on the Academic Writing subscale. In addition, they were assigned all Academic Writing tasks more often than students in Cluster 3 or Cluster 4. While they were assigned most Non-academic writing tasks (e.g., digital storytelling, short stories, business letters, poetry) less often than Cluster 1 or Cluster 4 group members, they were assigned biography and book reports more often than students in any cluster except the *Intensive Writing* cluster.

Cluster 3: Infrequent writing. Cluster 3, or the *Infrequent Writing* group ($n=94$), was characterized by little writing of any type. They were assigned Writing to Demonstrate Knowledge tasks such as short answer response, copying text, and completing worksheets most often. Five-paragraph essays were the most frequently assigned Academic Writing task for this cluster, though they were assigned even these tasks less often than any other clusters. They were assigned poetry more often than any other task on the Non-academic Writing subscale, but their factor score of 4.22 (in contrast to 19.97, 7.18, and 7.78 subscale factor scores from other clusters) reflected the virtual absence of creative or even business writing from their twelfth-grade writing experience.

Cluster 4: Writing to demonstrate knowledge. Cluster 4, or *Writing to Demonstrate Knowledge* group members ($n=138$), were assigned tasks in Factor 3 (e.g., copying text, completing worksheets, short answer response, summary of material read) more often than any other kind of writing. With a factor score of 33.96, Cluster 4 group members were

assigned Writing to Demonstrate Knowledge tasks only slightly less often than the students in the *Intensive Writing* cluster, who scored 37.71 on Factor 3. Students in the *Writing to Demonstrate Knowledge* cluster were assigned Academic Writing tasks less often than members of the *Intensive Writing* or the *Academic Writing* groups. Like students in the *Infrequent Writing* cluster, students in Cluster 4 were assigned five-paragraph essays more often than any other Academic Writing task. They were assigned most writing tasks in the Non-academic Writing factor more often than students in the *Academic Writing* group. While their mean factor scores were greater than combined cluster means for all seven Writing to Demonstrate Knowledge writing tasks, their mean factor scores were below the combined cluster means for every individual writing task in the Academic and Non-academic Writing categories.

Although demographic characteristics were not found to be useful in determining cluster membership and were removed from the cluster analysis procedure, post hoc comparisons did yield interesting differences in writing experiences related to cluster membership (Table 4.6). Students in the *Intensive Writing* and *Academic Writing* clusters were more likely (47.7% and 57%, respectively) to have taken AP English Language and Composition during high school than students in *Infrequent Writing* (35.6%) and *Writing to Demonstrate Knowledge* (30.1%) clusters. A similar pattern held for participation in AP English Literature and Composition. Over 42% of students in the *Intensive Writing* cluster and 53.5% of students in *Academic Writing* cluster participated in AP English Literature in high school, in comparison with 33.3% of student in the *Infrequent Writing* cluster and only

14.7% of students in the *Writing to Demonstrate Knowledge* cluster. Measures of academic performance (high school GPA, 12th grade English averages, and SAT scores) did not yield similar patterns in the clusters.

Table 4.6

Cluster Demographics

Characteristic	Cluster 1 <i>Intensive Writing</i>	Cluster 2 <i>Academic Writing</i>	Cluster 3 <i>Infrequent Writing</i>	Cluster 4 <i>Writing to Demonstrate Knowledge</i>
	<i>n</i> = 137 (28.1%)	<i>n</i> = 119 (24.4%)	<i>n</i> = 94 (19.3%)	<i>n</i> = 138 (28.3%)
Gender				
Male	68 (49.6%)	67 (56.3%)	47 (50.0%)	76 (55.1%)
Female	69 (50.4%)	52 (43.7%)	47 (50.0%)	62 (44.9%)
Ethnicity*				
White	106 (77.4%)	84 (70.6%)	74 (78.7%)	117 (84.8%)
Hispanic or Latino	5 (3.6%)	4 (3.4%)	3 (3.2%)	2 (1.4%)
Black or African American	7 (5.1%)	9 (7.6%)	7 (7.4%)	4 (2.9%)
Asian	6 (4.4%)	9 (7.6%)	5 (5.3%)	9 (6.5%)
American Indian or Alaska Native	2 (1.5%)	1 (0.8%)	1 (1.1%)	1 (0.7%)
Other	11 (8.0%)	11 (9.2%)	3 (3.2%)	5 (3.6%)
Academics – Mean scores				
High School GPA - unweighted	3.74	3.68	3.71	3.70
High School GPA – weighted	4.44	4.35	4.33	4.30
Twelfth Grade English Average:	3.66	3.65	3.68	3.66
SAT Critical Reading Score	586.77	599.17	590.14	587.20
SAT Writing Score	578.68	598.42	580.44	568.69
Participation in AP English				
AP English Language & Comp.	47.7%	57.0%	35.6%	30.1%
AP English Literature & Comp.	42.3%	53.5%	33.3%	14.7%

*Totals for ethnicity may not equal n for cluster membership since not all students provided demographic data.

High School Writing Experiences (HSWE) and Writing Self-Efficacy (WSE) Surveys.

In order to answer the second research question, “What are the relationships between first-year college students’ writing self-efficacy and their high school writing experiences?” Jones’ (2008) Writing Self-efficacy (WSE) Survey was administered to the same group of students who completed the High School Writing Experiences (HSWE) Survey. Descriptive statistics and one-way analysis of variance (ANOVA) tests were then used to analyze the data.

Descriptive statistics. Comparison of cluster membership with mean scores on the WSE Survey suggested a relationship between frequency and types of writing tasks assigned in the twelfth grade and writing self-efficacy (Figure 4.2). Students in the *Intensive Writing* cluster had the highest WSE mean score ($\mu = 4.35$, $sd = 0.60$), followed by students in the *Academic Writing* cluster ($\mu = 4.21$, $sd = 0.61$), the *Writing to Demonstrate Knowledge* cluster ($\mu = 4.14$, $sd = 0.59$), and finally the *Infrequent Writing* cluster ($\mu = 4.08$, $sd = 0.72$).

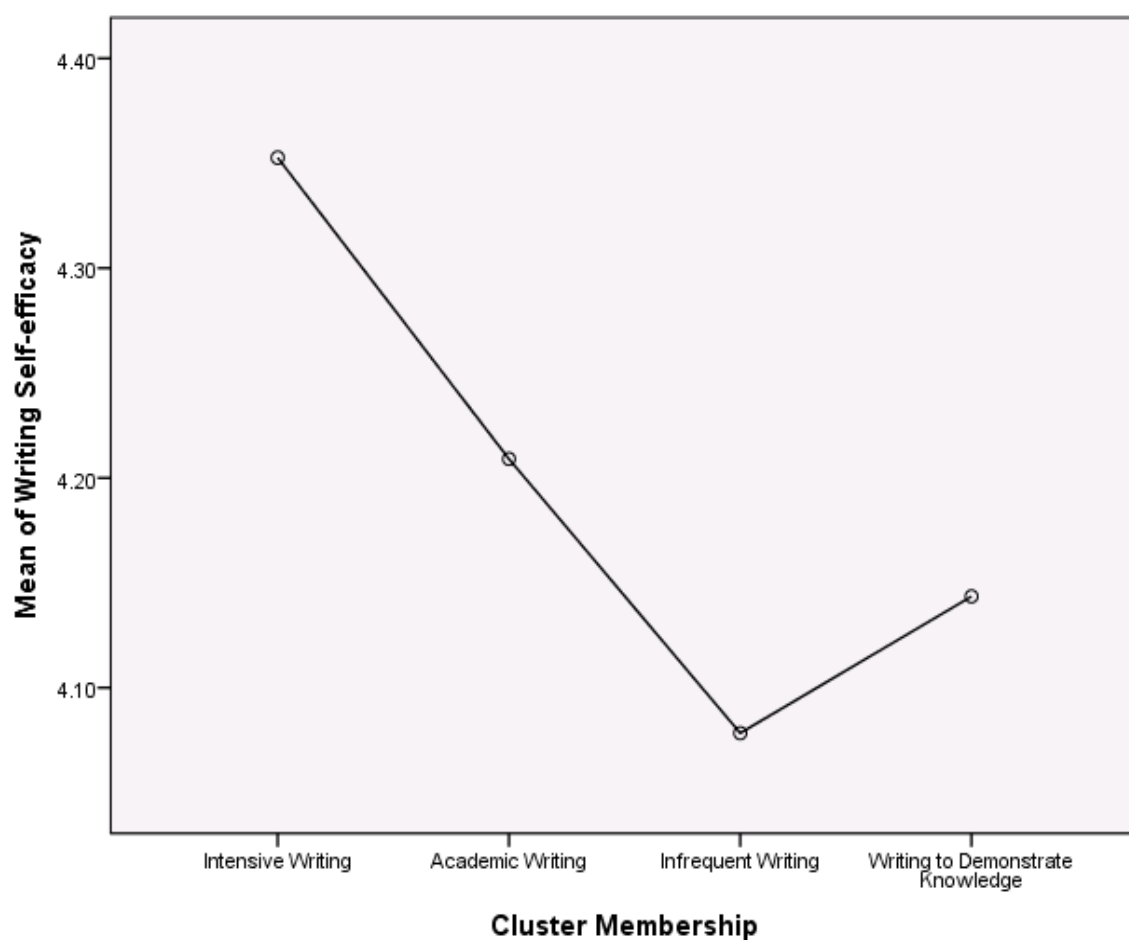


Figure 4.2. Comparison of Writing Self-efficacy Subscale Mean Scores by Cluster Membership.

Examination of WSE Survey subscales reinforced the pattern suggested by overall mean scores for the WSE Survey (Table 4.7). Students in the *Intensive Writing* cluster had the highest mean scores on all three WSE subscales while students in the *Academic Writing* cluster had the second highest scores on all three subscales. Students in the *Writing to Demonstrate Knowledge* cluster reported the next-to-lowest mean scores on all three WSE

subscales. Students in the *Infrequent Writing* cluster had the lowest mean scores on all three subscales. Despite the clear relationships between kinds of high school writing experiences and writing self-efficacy, examination of individual subscale items revealed common characteristics of self-efficacy across clusters.

Table 4.7

Writing Self-efficacy Results by Cluster

	INTEN. WRITING <i>n</i> =137 Mean (SD)	ACAD. WRITING <i>n</i> =119 Mean (SD)	INFREQ. WRITING <i>n</i> =94 Mean (SD)	WRITING TO DEM. KNOWL. <i>n</i> =138 Mean (SD)	COMB. CLUSTER MEANS <i>n</i> =488 Mean (SD)
Writing Behaviors Subscale	4.59 (0.80)	4.42 (0.83)	4.39 (0.94)	4.40 (0.80)	4.46 (0.84)
Writing Tasks Subscale	4.34 (0.70)	4.21 (0.71)	3.97 (0.83)	4.06 (0.74)	4.16 (0.75)
Writing Skills Subscale	4.52 (0.67)	4.39 (0.69)	4.20 (0.79)	4.33 (0.74)	4.37 (0.73)
Combined Writing Self-efficacy Survey Mean Score	4.35 (0.60)	4.21 (0.61)	4.08 (0.72)	4.14 (0.59)	4.21 (0.63)

Writing behaviors subscale items. When Writing Behaviors Subscale (WBS) item mean scores were ranked from greatest to least, several consistent patterns emerged in the data. Students in all four clusters reported their highest mean scores for WBS item 4, or persisting with writing assignments until completion (Figure 4.3). All four clusters reported their ability to address problems in their writing (WBS item 10) as their area of next highest self-efficacy. Persevering in response to initial problems (WBS item 3), confidence in

carrying out writing plans (WBS item 1), and handling unexpected writing problems (WBS item 7) tracked together similarly for all four clusters as areas of more moderate self-efficacy. Perseverance in response to unpleasant writing tasks (WBS item 5) reflected greater variation among clusters, with students in the *Academic Writing* cluster reporting mean scores below those for WBS items 1 and 7, in contrast to students in the other three clusters, who reported greater self-efficacy for unpleasant writing tasks than for WBS item 7. Students in all four clusters reported their general security about their writing ability (WBS item 9) among their lowest mean scores. Across groups, however, students' lowest three WBS mean scores were for settling down to work when they should (WBS item 2), starting a writing assignment as soon as it was assigned (WBS item 6), and trying harder in response to failure (WBS item 8).

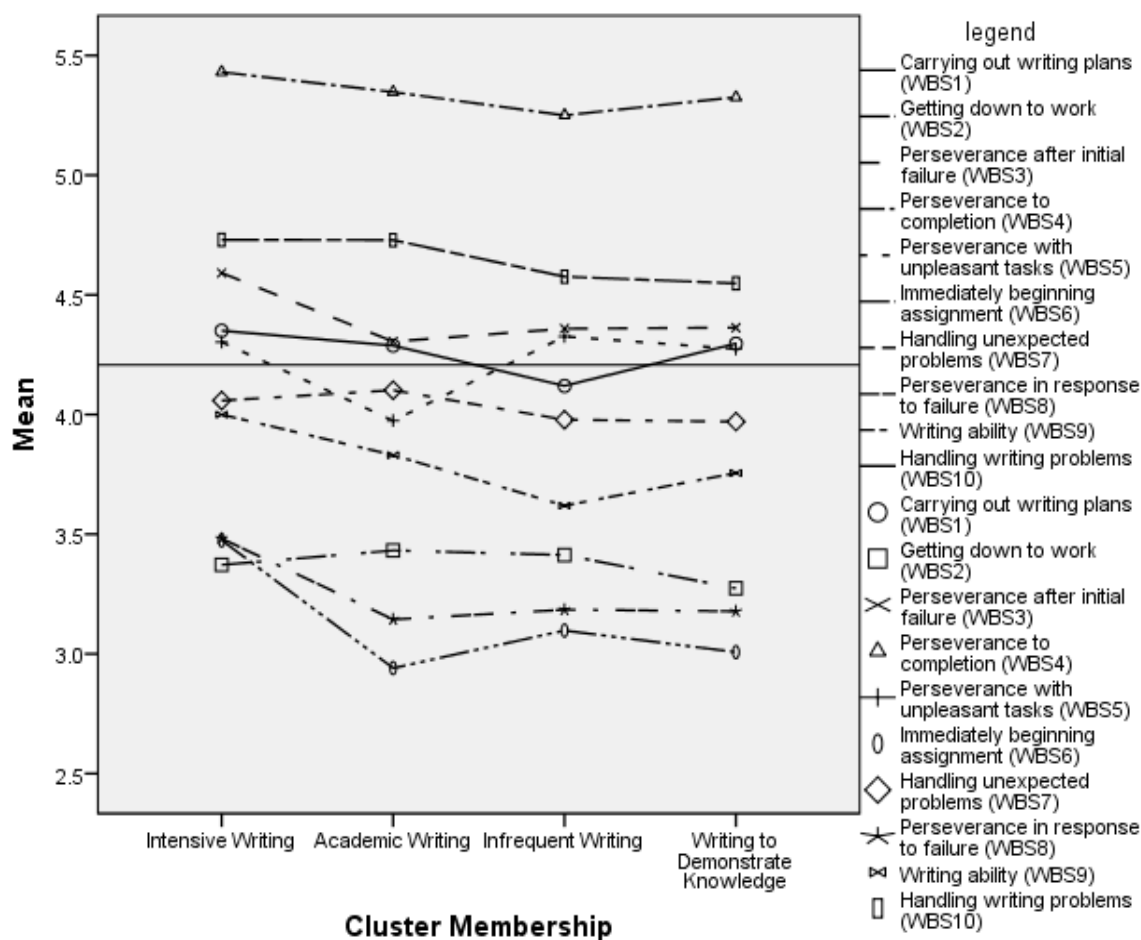


Figure 4.3. Writing Behavior Subscale Comparison.

Writing tasks subscale items. When examined individually, mean scores for items on the Writing Tasks Subscale (WTS) reflected a smaller range (3.73 to 4.56) than WBS or WSS items (2.94 to 5.43 and 3.78 to 4.84, respectively). Thus, WTS items fell within more moderate self-efficacy mean scores (Figure 4.4), in contrast to WBS and WSS items, which were included among students' highest and lowest self-efficacy scores (Figures 4.3 and 4.5).

Across clusters, WTS item mean scores fell into two groups. Students reported higher self-efficacy for writing cause/effect essays (WTS item 7); writing papers for an English professor (WTS item 1); writing papers for any professor (WTS item 2); and writing persuasive essays integrating textual sources with different viewpoints (WTS item 5). Students in all four clusters reported lower self-efficacy for writing summaries (WTS item 6); making connections among textual sources (WTS item 3); writing critiques or analyses (WTS item 4); and writing comparison/contrast essays (WTS item 8).

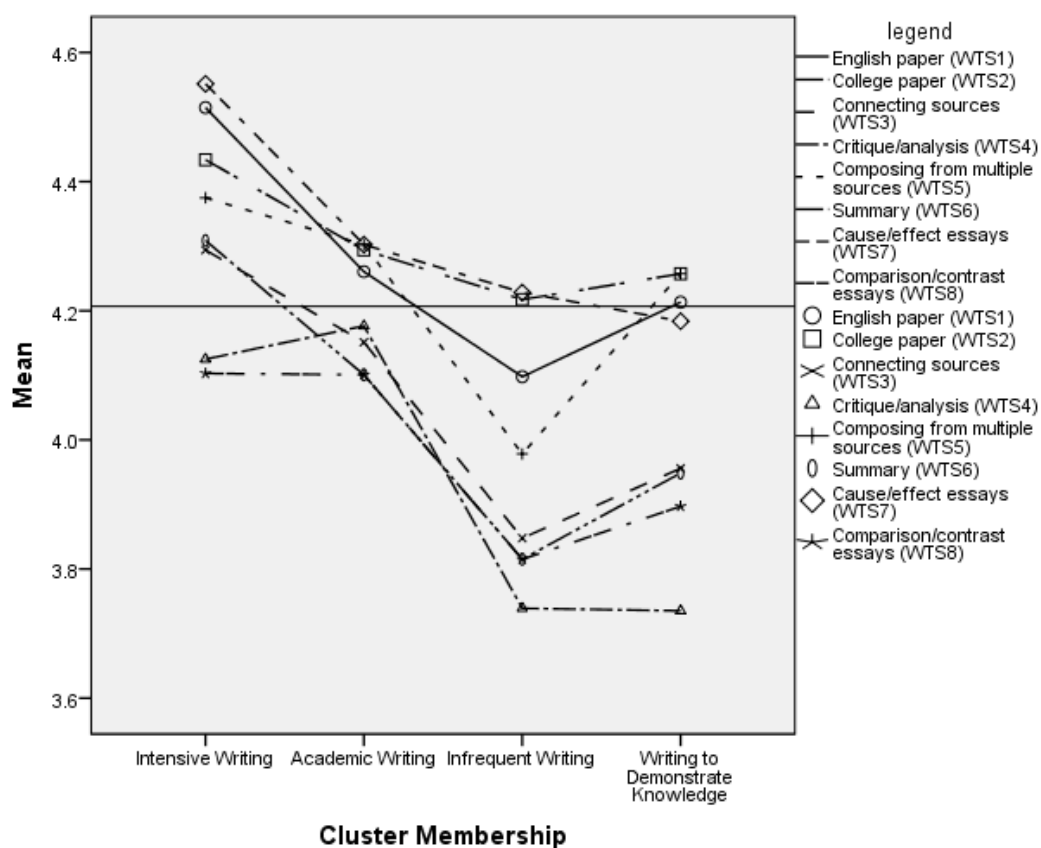


Figure 4.4. Writing Tasks Subscale Comparison.

Writing skills subscale items. On the Writing Skills Subscale, students across clusters consistently included three items among areas of high self-efficacy and four items as areas of lower self-efficacy. Three other items reflected more variation among the clusters, but generally were reported as areas of moderate self-efficacy in comparison to other WSS items. Across all four clusters, students reported locating sources (WSS item 9); proofreading (WSS item 1); appropriate word choice (WSS item 3); and using MLA format (WSS item 6) as areas of high self-efficacy, relative to other writing skills. In all four groups, students identified writing and connecting sentences (WSS item 2) as an area of moderate self-efficacy, in comparison to other WSS items. Students in the *Infrequent Writing* cluster reported low self-efficacy for maintaining a personal voice while addressing writing conventions (WSS item 8), while students in the other three groups reported this skill among items of more moderate self-efficacy. Students in all four clusters reported writing introductions and conclusions (WSS item 7); integrating information and varied perspectives in a thesis statement (WSS item 4); and organizing their writing in clearly focused paragraphs (WSS item 5) as their weakest skills. Students across clusters identified confidence in their writing process (WSS item 10) as their area of lowest self-efficacy for the WSS items.

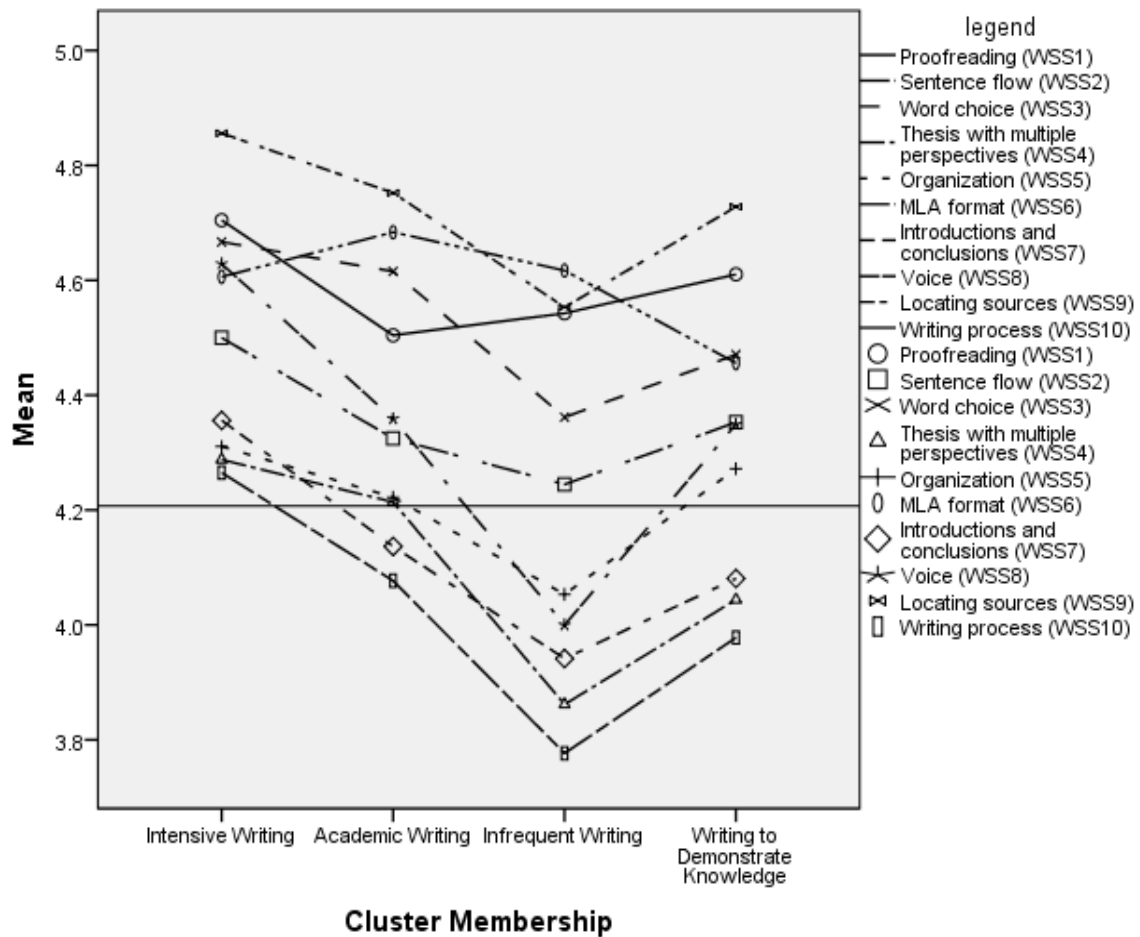


Figure 4.5. Writing Skills Subscale Comparison.

One-way analysis of variance (ANOVA). To determine whether or not statistically significant differences in writing self-efficacy existed among the clusters, a series of one-way analysis of variance (ANOVA) tests were conducted. ANOVA tests indicated that the clusters did not differ significantly on the Writing Behaviors Subscale ($F_{[3, 474]} = 1.80; p = .146$). However, the clusters did differ significantly on the Writing Tasks Subscale ($F_{[3, 476]}$

= 5.95, $p = .001$) and on the Writing Skills Subscale ($F_{[3, 474]} = 3.86; p = .010$). A summary of results is provided in Table 4.8 below.

Table 4.8

ANOVA Results for WSE Survey Subscales

Writing Self-efficacy Subscales	Cluster 1 <i>Intensive Writing</i> <i>n=137</i> Mean (SD)	Cluster 2 <i>Academic Writing</i> <i>n=119</i> Mean (SD)	Cluster 3 <i>Infrequent Writing</i> <i>n=94</i> Mean (SD)	Cluster 4 <i>Writing to Demonstrate Knowledge</i> <i>n=138</i> Mean (SD)	<i>F</i>	<i>p</i>
<i>Writing Behaviors Subscale</i>	4.60 (0.80)	4.42 (0.83)	4.39 (0.94)	4.39 (0.81)	1.80	.146
<i>Writing Tasks Subscale</i>	4.34 _{ab} (0.70)	4.21 (0.71)	3.97 _a (0.83)	4.05 _b (.074)	5.95	.001
<i>Writing Skills Subscale</i>	4.52 _a (0.67)	4.39 (0.69)	4.19 _a (0.79)	4.33 (0.75)	3.86	.010

Note: Subscripts within rows indicate significantly different means at the .05 level.

ANOVA tests, means, and standard deviations indicated small, but significant, relationships between high school writing experiences and writing self-efficacy. For all three WSE Survey subscales, students in the *Intensive Writing* cluster had the highest mean scores and students in the *Academic Writing* cluster had the second highest scores. Students in the *Infrequent Writing* cluster had the lowest mean scores on the Writing Tasks Subscale and the Writing Skills Subscale. While students in the *Writing to Demonstrate Knowledge* and the *Infrequent Writing* clusters tied for the lowest mean score on the Writing Behaviors Subscale,

the *Writing to Demonstrate Knowledge* cluster had the next-to-lowest mean scores on the other two WSE Survey subscales.

In order to identify which clusters differed significantly on the WSE Survey, post hoc tests were conducted using Scheffé's (1953) method. On the Writing Tasks Subscale, significant differences were found between the *Intensive Writing* cluster and the *Infrequent Writing* cluster ($p = .003$) and between the *Intensive Writing* cluster and the *Writing to Demonstrate Knowledge* cluster ($p = .015$). No significant differences were found between the *Intensive Writing* cluster and the *Academic Writing* cluster ($p = .579$). The *Academic Writing* cluster did not differ significantly from the *Infrequent Writing* group ($p = .134$) or the *Writing to Demonstrate Knowledge* cluster ($p = .390$). There were no significant differences between the *Writing to Demonstrate Knowledge* cluster and the *Infrequent Writing* group ($p = .882$).

Significant differences were also found on the Writing Skills Subscale between the *Intensive Writing* cluster and the *Infrequent Writing* cluster ($p = .012$). The *Intensive Writing* cluster did not differ significantly with the *Academic Writing* group ($p = .573$) or the *Writing to Demonstrate Knowledge* cluster ($p = .219$). The *Academic Writing* group did not differ significantly with the *Infrequent Writing* cluster ($p = .289$) or the *Writing to Demonstrate Knowledge* cluster ($p = .943$). Similarly, the *Writing to Demonstrate Knowledge* group did not differ significantly with the *Infrequent Writing* cluster ($p = .572$).

To further explore differences in writing self-efficacy among the clusters additional one-way ANOVA tests were conducted for subscale items from the WSE survey. Despite the

absence of a significant difference among clusters on the Writing Behaviors Subscale, one significant difference was found when individual subscale items were examined more closely. Six of eight items on the Writing Tasks Subscale differed significantly by cluster, while four of ten items on the Writing Skills Subscale included significant differences among clusters.

Writing behaviors subscale ANOVA results. For the Writing Behaviors Subscale (WBS) a significant difference was found only for WBS Item 6: When I decide to do an assignment that requires writing, I go right to work on it ($F_{[3, 478]} = 4.68; p = .003$). Significant differences were not found for WBS item 1: When I make plans to do a writing assignment, I am certain I can make them work ($F_{[3, 480]} = 1.26; p = .287$) or WTB item 2: One of my problems in writing is that I cannot get down to work when I should ($F_{[3, 480]} = 0.44; p = .722$). Four subscale items related to perseverance on writing tasks. No significant differences were found among clusters for WBS item 3: If I cannot do my written work the first time, I keep trying until I can ($F_{[3, 479]} = 1.77; p = .152$); WBS item 4: I give up on written assignments before completing them ($F_{[3, 479]} = 1.21; p = .307$); WBS item 5: When I have unpleasant work to do, I stick to it until I finish it ($F_{[3, 479]} = 1.47; p = .221$); or WBS item 8: Failure to write well just makes me try harder ($F_{[3, 480]} = 2.51; p = .058$). Two subscale items concerned handling writing problems. No significant differences were found among clusters for WBS item 7: When unexpected problems with writing occur, I do not handle them well ($F_{[3, 480]} = 0.52; p = .666$) or WBS item 10: I do not seem capable of dealing with most problems that come up in completing written work ($F_{[3, 479]} = 1.26; p =$

.288). An additional item asked about students' general writing self-efficacy; no significant differences were found for WBS item 9: I feel insecure about my ability to do written work ($F_{[3, 480]} = 1.21; p = .304$). A summary of ANOVA results for the Writing Behavior Subscale items is provided in Table 4.9 below.

Post hoc tests using Scheffé's (1953) method provided more specific information about the one Writing Behaviors Subscale item with significant differences among clusters. For WBS item 6: When I decide to do an assignment that requires writing, I go right to work on it, significant differences were found between the *Intensive Writing* cluster and the *Academic Writing* cluster ($p = .012$), as well as between the *Intensive Writing* cluster and the *Writing to Demonstrate Knowledge* cluster ($p = .028$). No significant differences were found between the *Intensive Writing* cluster and the *Infrequent Writing* cluster ($p = .138$). Moreover, no significant differences were found between the *Academic Writing* cluster and the *Infrequent Writing* cluster ($p = .907$) or the *Writing to Demonstrate Knowledge* cluster ($p = .983$). Similarly, there were no significant differences between the *Infrequent Writing* cluster and the *Writing to Demonstrate Knowledge* cluster ($p = .985$).

Table 4.9

ANOVA Results for Writing Behaviors Subscale Items

Writing Behaviors Subscale *Item was reverse coded.	Cluster 1 <i>Intensive Writing</i> n=137 Mean (SD)	Cluster 2 <i>Acad. Writing</i> n=119 Mean (SD)	Cluster 3 <i>Infreq. Writing</i> n=94 Mean (SD)	Cluster 4 <i>Writing to Dem. Knowl.</i> n=138 Mean (SD)	<i>F</i>	<i>p</i>
<i>When I make plans to do a writing assignment, I am certain I can make them work. (WBS Item 1)</i>	4.36 (0.99)	4.30 (1.07)	4.10 (1.14)	4.26 (0.93)	1.26	.287
<i>One of my problems in writing is that I cannot get down to work when I should.* (WBS Item 2)</i>	3.37 (1.42)	3.44 (1.44)	3.40 (1.52)	3.24 (1.42)	0.44	.722
<i>If I cannot do my written work the first time, I keep trying until I can. (WBS Item 3)</i>	4.59 (1.00)	4.29 (1.22)	4.33 (1.23)	4.35 (1.21)	1.77	.152
<i>I give up on written assignments before completing them. * (WBS Item 4)</i>	5.44 (.81)	5.34 (0.87)	5.23 (1.10)	5.29 (0.93)	1.21	.307
<i>When I have unpleasant written work to do, I stick to it until I finish it. (WBS Item 5)</i>	4.31 (1.19)	3.99 (1.38)	4.29 (1.41)	4.24 (1.36)	1.47	.221
<i>When I decide to do an assignment that requires writing, I go right to work on it. (WBS Item 6)</i>	3.49 _{ab} (1.30)	2.94 _a (1.32)	3.08 (1.38)	3.01 _b (1.25)	4.68	.003
<i>When unexpected problems with writing occur, I do not handle them well. * (WBS Item 7)</i>	4.07 (1.20)	4.09 (1.23)	3.95 (1.45)	3.93 (1.22)	0.52	.666
<i>Failure to write well just makes me try harder. (WBS Item 8)</i>	3.50 (1.24)	3.16 (1.19)	3.16 (1.20)	3.17 (1.17)	2.51	.058
<i>I feel insecure about my ability to do written work. * (WBS Item 9)</i>	4.01 (1.54)	3.83 (1.54)	3.64 (1.68)	3.74 (1.51)	1.21	.304
<i>I do not seem capable of dealing with most problems that come up in completing written work.* (WBS Item 10)</i>	4.74 (1.12)	4.73 (1.11)	4.55 (1.17)	4.53 (1.06)	1.26	.288

Note: Subscripts within rows indicate significantly different means at the .05 level.

Writing tasks subscale ANOVA results. ANOVA tests indicated that the clusters differed significantly on six items from the Writing Tasks Subscale (WTS). Significant differences among clusters were found for WTS item 1: Write a good paper for a professor in English ($F_{[3, 480]} = 4.27; p = .005$). Significant differences were also found for two items specifically related to using textual sources in writing: WTS item 3: Write an essay that develops an idea by making connections among a variety of textual sources ($F_{[3, 478]} = 5.09; p = .002$) and WTS item 5: Write a persuasive essay that incorporates text sources representing points of view different from yours ($F_{[3, 480]} = 3.33; p = .020$). Two additional types of essays differed significantly among clusters: WTS item 4: Write an essay that provides a critique or analysis of another essay ($F_{[3, 480]} = 5.53; p = .001$) and WTS item 7: Write an essay that persuasively analyzes the causes or effects of a particular event, concept, or belief ($F_{[3, 480]} = 4.19; p = .006$). Clusters also differed significantly on WTS item 6: Write a summary of a long essay that effectively captures the essence of it ($F_{[3, 479]} = 4.73; p = .003$). No significant differences among clusters were found for WTS item 2: Write a good paper for a professor in any course ($F_{[3, 480]} = 1.92; p = .125$) or for WTS item 8: Write an essay that compares and contrasts two authors, events, pieces of art, or concepts in order to reach a larger conclusion about that subject ($F_{[3, 479]} = 1.70; p = .167$). A summary of ANOVA results for the Writing Tasks Subscale items are provided in Table 4.10 below.

Table 4.10

ANOVA Results for Writing Tasks Subscale Items

<i>Writing Tasks Subscale</i>	Cluster 1 <i>Intensive Writing</i> <i>n=137</i> Mean (SD)	Cluster 2 <i>Academ. Writing</i> <i>n=119</i> Mean (SD)	Cluster 3 <i>Infreq. Writing</i> <i>n=94</i> Mean (SD)	Cluster 4 <i>Writing to Dem. Knowl.</i> <i>n=138</i> Mean (SD)	<i>F</i>	<i>p</i>
<i>Write a good paper for a professor in English (WTS Item 1)</i>	4.53 _a (0.92)	4.26 (0.94)	4.11 _a (1.03)	4.21 (0.93)	4.27	.005
<i>Write a good paper for a professor in any course (WTS Item 2)</i>	4.45 (0.87)	4.29 (0.89)	4.19 (0.97)	4.25 (0.85)	1.92	.125
<i>Write an essay that develops an idea by making connections among a variety of textual sources (WTS Item 3)</i>	4.31 _{ab} (0.94)	4.15 (1.03)	3.85 _a (0.97)	3.96 _b (0.96)	5.09	.002
<i>Write an essay that provides a critique or analysis of another essay. (WTS Item 4)</i>	4.13 _a (1.06)	4.18 _b (1.10)	3.77 (1.18)	3.72 _{ab} (1.13)	5.53	.001
<i>Write a persuasive essay that incorporates text sources representing points of view different from yours (WTS Item 5)</i>	4.39 _a (1.02)	4.30 (1.03)	3.96 _a (1.16)	4.24 (1.03)	3.33	.020
<i>Write a summary of a long essay that effectively captures the essence of it (WTS Item 6)</i>	4.30 _{ab} (0.93)	4.10 (1.06)	3.82 _a (1.12)	3.95 _b (1.01)	4.73	.003
<i>Write an essay that persuasively analyzes the causes or effects of a particular event, concept, or belief (WTS 7)</i>	4.57 _a (0.95)	4.30 (0.94)	4.23 (1.06)	4.18 _a (0.97)	4.19	.006
<i>Write an essay that compare and contrasts two authors, events, pieces of art, or concepts in order to reach a larger conclusion about that subject (WTS 8)</i>	4.12 (1.19)	4.10 (1.10)	3.84 (1.31)	3.89 (1.16)	1.70	.167

Note: Subscripts within rows indicate significantly different means at the .05 level.

Post hoc tests using Scheffé's (1953) method provided more specific information about significant differences among the clusters on Writing Tasks Subscale items. For WTS item 1: Write a good paper for a professor in English, significant differences were found between the *Intensive Writing* cluster and the *Infrequent Writing* cluster ($p = .014$). No significant differences were found between the *Intensive Writing* group and the *Academic Writing* cluster ($p = .179$) or the *Writing to Demonstrate Knowledge* group ($p = .064$). No significant differences were found between the *Academic Writing* cluster and the *Infrequent Writing* cluster ($p = .711$) or the *Writing to Demonstrate Knowledge* group ($p = .984$). Similarly, no significant differences were found between the *Writing to Demonstrate Knowledge* group and the *Infrequent Writing* group ($p = .873$).

For subscale items specifically related to using textual sources in writing, several significant differences were found in relation to comparisons with the *Intensive Writing* group. For WTS item 3: Write an essay that develops an idea by making connections among a variety of textual sources, significant differences were found between the *Intensive Writing* cluster and the *Infrequent Writing* cluster ($p = .008$) and between the *Intensive Writing* cluster and the *Writing to Demonstrate Knowledge* cluster ($p = .034$). No significant differences were found between the *Intensive Writing* group and the *Academic Writing* cluster ($p = .662$). In addition, there were no significant differences between the *Academic Writing* group and the *Infrequent Writing* group ($p = .172$) or the *Writing to Demonstrate Knowledge* cluster ($p = .466$). No significant differences were found between the *Writing to Demonstrate Knowledge* group and the *Infrequent Writing* cluster ($p = .883$). For WTS item

5: Write a persuasive essay that incorporates text sources representing points of view different from yours, significant differences were found between the *Intensive Writing* cluster and the *Infrequent Writing* cluster ($p = .025$). On the other hand, no significant differences were found between the *Intensive Writing cluster* and the *Academic Writing* cluster ($p = .927$) or the *Writing to Demonstrate Knowledge* cluster ($p = .713$). No significant differences were found between the *Academic Writing* group and the *Infrequent Writing* cluster ($p = .133$) or the *Writing to Demonstrate Knowledge* group ($p = .977$). In addition, no significant differences were found between the *Writing to Demonstrate Knowledge* cluster and the *Infrequent Writing* group ($p = .256$).

For two types of essays, significant differences were found only in relation to two clusters. For WTS item 4: Write an essay that provides a critique or analysis of another essay, significant differences were found between the *Intensive Writing* cluster and the *Writing to Demonstrate Knowledge* cluster ($p = .031$). Similarly, significant differences were found between the *Academic Writing* cluster and the *Writing to Demonstrate Knowledge* cluster ($p = .015$). No significant differences were found between the *Intensive Writing* group and the *Academic Writing* cluster ($p = .988$) or the *Infrequent Writing* group ($p = .124$). Significant differences were not found between the *Academic Writing* cluster and the *Infrequent Writing* group ($p = .069$). No significant differences were found between the *Writing to Demonstrate Knowledge* cluster and the *Infrequent Writing* cluster ($p = .993$). For WTS item 7: Write an essay that persuasively analyzes the causes or effects of a particular event, concept, or belief, significant differences were found between the *Intensive Writing*

cluster and the *Writing to Demonstrate Knowledge* cluster ($p = .012$). No significant differences were found between the *Intensive Writing* group and the *Academic Writing* group ($p = .191$) and the *Infrequent Writing* group ($p = .088$). In addition, there were no significant differences between the *Academic Writing* group and the *Infrequent Writing* cluster ($p = .968$) or the *Writing to Demonstrate Knowledge* cluster ($p = .787$). There were also no significant differences between the *Writing to Demonstrate Knowledge* cluster and the *Infrequent Writing* group ($p = .979$).

For WTS item 6: Write a summary of a long essay that effectively captures the essence of it, significant differences were found between the *Intensive Writing* cluster and the *Infrequent Writing* cluster ($p = .008$) and between the *Intensive Writing* cluster and the *Writing to Demonstrate Knowledge* cluster ($p = .050$). No significant differences were found between the *Intensive Writing* group and the *Academic Writing* group ($p = .495$). Moreover, the *Academic Writing* cluster did not have significant differences with the *Infrequent Writing* group ($p = .277$) or the *Writing to Demonstrate Knowledge* group ($p = .716$). Similarly, the *Writing to Demonstrate Knowledge* group did not have significant differences with the *Infrequent Writing* group ($p = .831$).

Writing skills subscale items ANOVA results. For six items on the Writing Skills subscale, clusters did not differ significantly. No significant differences were found among clusters for WSS item 1: Proofread your essay for spelling, punctuation, and grammar errors ($F_{[3, 479]} = 1.03$; $p = .381$); WSS item 2: Write with concise, clear sentences that “flow” together ($F_{[3, 480]} = 1.40$; $p = .242$); or WSS item 3: Write using words that are appropriate

and effective in an academic essay ($F_{[3, 478]} = 2.23; p = .084$). For three items of particular importance for college-level research-based writing, there were no significant differences. Clusters were not significantly different on WSS item 5: Organize a lot of material into well developed and clearly arranged paragraphs that have a clear focus ($F_{[3, 479]} = 1.17; p = .322$); WSS item 6: Use MLA format correctly to format your paper and cite sources ($F_{[3, 480]} = 0.62; p = .605$); or WSS item 9: Use the library and internet to find information that will help you develop and support an idea in an essay ($F_{[3, 480]} = 1.52; p = .209$).

Significant differences among clusters were, however, found in four Writing Skills Subscale (WSS) items. Clusters differed significantly for WSS item 4: Come up with a thesis that integrates a variety of information and many perspectives ($F_{[3, 480]} = 3.30; p = .020$) and WSS item 7: Create introductions that engage the reader and conclusions that pull all your thoughts together effectively ($F_{[3, 480]} = 3.01; p = .030$). Clusters also differed significantly for WSS item 8: Write in a way that meets academic guidelines yet still conveys your own voice ($F_{[3, 478]} = 7.57; p < .001$) and WSS item 10: Have a writing process that you feel confident will lead to effective essays ($F_{[3, 480]} = 4.16; p = .006$). A summary of ANOVA results for the selected WSE Survey subscale items is provided in Table 4.11 below.

Table 4.11

ANOVA Results for Writing Skills Subscale Items

<i>Writing Skills Subscale</i>	Cluster 1 <i>Intensive Writing</i> <i>n=137</i> Mean (SD)	Cluster 2 <i>Academ. Writing</i> <i>n=119</i> Mean (SD)	Cluster 3 <i>Infreq. Writing</i> <i>n=94</i> Mean (SD)	Cluster 4 <i>Writing to Dem. Knowl.</i> <i>n=138</i> Mean (SD)	<i>F</i>	<i>p</i>
<i>Proofread your essay for spelling, punctuation, and grammar errors (WSS Item 1)</i>	4.72 (1.15)	4.47 (1.28)	4.54 (1.09)	4.61 (1.12)	1.03	.381
<i>Write with concise, clear sentences that “flow” together” (WSS Item 2)</i>	4.50 (1.01)	4.30 (1.03)	4.24 (1.01)	4.35 (1.06)	1.40	.242
<i>Write using words that are appropriate and effective in an academic essay (WSS Item 3)</i>	4.65 (0.91)	4.60 (0.91)	4.36 (0.99)	4.47 (0.90)	2.23	.084
<i>Come up with a thesis that integrates a variety of information and many perspectives (WSS Item 4)</i>	4.28 _a (0.92)	4.20 (1.05)	3.86 _a (1.14)	4.05 (1.15)	3.30	.020
<i>Organize a lot of material into well developed and clearly arranged paragraphs that have a clear focus (WSS Item 5)</i>	4.30 (0.97)	4.21 (1.00)	4.05 (1.18)	4.26 (1.03)	1.17	.322
<i>Use MLA format correctly to format your paper and cite sources (WSS Item 6)</i>	4.61 (1.25)	4.66 (1.34)	4.62 (1.38)	4.46 (1.34)	0.62	.605
<i>Create introductions that engage the reader and conclusions that pull all your thoughts together effectively (WSS Item 7)</i>	4.36 _a (1.10)	4.13 (1.03)	3.94 _a (1.11)	4.08 (1.07)	3.01	.030
<i>Write in a way that meets academic guidelines yet still conveys your own voice (WSS Item 8)</i>	4.63 _{ab} (0.89)	4.35 (1.14)	4.00 _a (1.07)	4.35 _b (0.89)	7.57	.000
<i>Use the library and internet to find information that will help you develop and support an idea in an essay (WSS Item 9)</i>	4.84 (1.03)	4.74 (0.98)	4.55 (1.02)	4.73 (1.04)	1.52	.209
<i>Have a writing process that you feel confident will lead to effective essays (WSS Item 10)</i>	4.27 _a (0.95)	4.06 (1.12)	3.78 _a (1.19)	3.97 (1.10)	4.16	.006

Note: Subscripts within rows indicate significantly different means at the .05 level.

Post hoc tests revealed further information about clusters with significant differences on the Writing Skills Subscale. For WSS item 4: Come up a with a thesis that integrates a variety of information and many perspectives, Scheffé's (1953) post hoc test revealed significant differences between the *Intensive Writing* cluster and the *Infrequent Writing* cluster ($p = .036$). No significant differences were found between the *Intensive Writing* cluster and the *Academic Writing* cluster ($p = .949$) or the *Writing to Demonstrate Knowledge* group ($p = .369$). The *Academic Writing* cluster did not differ significantly with the *Infrequent Writing* group ($p = .149$) or the *Writing to Demonstrate Knowledge* group ($p = .738$). No significant differences were found between the *Writing to Demonstrate Knowledge* cluster and the *Infrequent Writing* group ($p = .623$).

For WSS item 7: Create introductions that engage the reader and conclusions that pull all your thoughts together effectively, Scheffé's (1953) post hoc test found significant differences between the *Intensive Writing* cluster and the *Infrequent Writing* cluster ($p = .043$). No significant differences were found between the *Intensive Writing* cluster and the *Academic Writing* cluster ($p = .413$) or the *Writing to Demonstrate Knowledge* cluster ($p = .222$). The *Academic Writing* cluster did not differ significantly with *Infrequent Writing* group ($p = .673$) or the *Writing to Demonstrate Knowledge* group ($p = .990$). No significant differences were found between the *Writing to Demonstrate Knowledge* cluster and the *Infrequent Writing* group ($p = .818$).

For WSS item 8: Write in a way that meets academic guidelines yet still conveys your own voice, the homogeneity of variances assumption was not met, so the Games-Howell post

hoc test was used to examine differences among clusters more closely. Significant differences were found between the *Intensive Writing* cluster and the *Infrequent Writing* group ($p < .001$) and the *Writing to Demonstrate Knowledge* group ($p = .041$). No significant differences were found between the *Academic Writing* cluster and the *Intensive Writing* cluster ($p = .123$), the *Infrequent Writing* group ($p = .104$), or the *Writing to Demonstrate Knowledge* cluster ($p = 1.00$). Clusters did not differ significantly between the *Writing to Demonstrate Knowledge* cluster and the *Infrequent Writing* cluster ($p = .050$).

For WSS item 10: Have a writing process that you feel confident will lead to effective essays, Scheffé's (1953) post hoc test revealed significant differences between the *Intensive Writing* cluster and the *Infrequent Writing* group ($p = .009$). No significant differences were found between the *Intensive Writing* cluster and the *Academic Writing* group ($p = .475$) or the *Writing to Demonstrate Knowledge* ($p = .151$). There were also no significant differences between the *Academic Writing* group and the *Infrequent Writing* group ($p = .312$) or the *Writing to Demonstrate Knowledge* group ($p = .936$). Finally, the *Writing to Demonstrate Knowledge* cluster did not differ significantly with the *Infrequent Writing* group ($p = .618$).

In summary, post hoc testing indicated that the most frequent significant differences for Writing Self-efficacy Survey subscale items were between the *Intensive Writing* cluster and the *Infrequent Writing* cluster, followed by differences between the *Intensive Writing* cluster and the *Writing to Demonstrate Knowledge* cluster. The *Intensive Writing* cluster had no significant differences with the *Academic Writing* cluster. Similarly, the *Academic Writing* cluster and the *Writing to Demonstrate Knowledge* cluster had no significant

differences with the *Infrequent Writing* cluster. One significant difference was found between the *Academic Writing* cluster and the *Writing to Demonstrate Knowledge* cluster.

Summary of Quantitative Results

Descriptive statistics for the High School Writing Experiences (HSWE) survey revealed that, although there are some common trends in high school writing tasks, differences in high school writing assignments do exist. Of particular importance to the current study was the fact that almost all students were assigned a research paper, a task requiring composing from multiple sources, at least once a year. On the other hand, more striking contrasts were found in frequency of writing tasks like multi-genre writing, online discussion forums, poetry, short stories, literary analysis, and persuasive writing.

Multivariate statistical methods provided further information about the range of high school experiences among study participants. Factor analysis resulted in a three-factor solution for types of high school writing tasks. Types of high school writing included Academic Writing (essays and research-based writing), Non-academic Writing (narrative, creative, and business writing), and Writing to Demonstrate Knowledge tasks (short answer responses, completing worksheets, and other informal writing). Cluster analysis suggested four types of high school writing experiences. Students in Cluster 1, or the *Intensive Writing* group, were assigned all three types of high school writing more frequently than students in other clusters. Students in Cluster 2, or the *Academic Writing* group, were assigned Academic Writing tasks almost as often as students in the *Intensive Writing* cluster and were assigned *Non-academic Writing* less frequently than students in all but one cluster. Students

in Cluster 3, or the *Infrequent Writing* group were assigned all three types of writing tasks less often than students in any other clusters. Students in Cluster 4, or the *Writing to Demonstrate Knowledge* cluster were assigned informal writing tasks like short answer and completing worksheets more often than Academic or Non-academic Writing tasks.

Descriptive statistics for the Writing Self-efficacy (WSE) instrument suggested a relationship between high school writing experiences and writing self-efficacy. Students in the *Intensive Writing* cluster scored higher than other clusters on all three WSE subscales (Writing Behaviors, Writing Tasks, and Writing Skills). Students in the *Academic Writing* cluster had the next highest writing self-efficacy scores on all three subscales, followed by students in the *Writing to Demonstrate Knowledge* cluster. Students in the *Infrequent Writing* cluster had the lowest writing self-efficacy scores on all three writing subscales.

One-way analysis of variance (ANOVA) tests revealed small but significant differences among clusters for writing self-efficacy. While the clusters did not differ significantly on the Writing Behaviors subscale, significant differences were found on the other two measures of writing self-efficacy. Post hoc testing revealed significant differences between the *Intensive Writing* cluster and the *Infrequent* and *Writing to Demonstrate Knowledge* clusters for the Writing Tasks subscale. Significant differences were also found between the *Intensive Writing* cluster and the *Infrequent Writing* cluster for the Writing Skills subscale. ANOVA results for individual survey items found further significant differences for one of ten items on the Writing Behaviors subscale, six of eight items on the Writing Tasks subscale, and four of ten items on the Writing Skills subscale.

Qualitative Analysis: Essay Results

For the qualitative component of the current study, 57 students from 3 of the 30 participating sections of first-year writing responded to the 2010 AP English Language and Composition synthesis essay prompt, which required students to integrate information from three of six provided sources to support their positions about issues that should be considered in using technology in education (College Board, 2010). As in the national administration of the AP exam, students were advised to spend approximately 15 minutes reading the sources and 40 minutes drafting their essays. Essays were then analyzed for patterns reflecting students' skills in composing from multiple sources, rather than scoring with AP guidelines.

In order to answer the third research question about differences in students' competencies in composing from multiple sources that are evident in purposefully selected essays from first-year college students, *a priori* codes suggested in the research literature and open coding of all 57 essays in the dataset were used to identify skills distinguishing students' ability to compose from multiple sources. Five categories emerged from that analysis: *Selection*, *Evaluation*, *Organization*, *Connection*, and *Documentation*. When selecting sources, students needed to choose details from at least three of the six provided sources, considering the amount of information needed to support their own positions and to accurately represent the authors' ideas. Evaluation of sources involved considering the kinds of information contained in texts (e.g., fact, opinion, anecdote), as well as the authority/credibility of the authors. When organizing their essays, students needed to construct claim/support patterns to develop clear and coherent arguments in the context of an

ongoing conversation reflected in their sources. Connection involved both syntactical flow as students worked through the mechanics of integrating sources in their own arguments and more sophisticated moves to position their sources as in conversation with each other. Finally, students needed to document their sources to avoid plagiarism, using in-text or parenthetical citations, and to provide clear source boundaries to distinguish their own ideas from those of the sources they were citing.

For fine-grained analysis, two essays, reflecting maximum variation in writing self-efficacy, were chosen from each of the four clusters identified in the quantitative analysis (Appendix G). A combination of thick, rich description and frequency counts is used in this section to report within-case findings and cross-case findings in the subset of eight essays.

Within-case Findings

In this section, essays are presented as representative of individual cases, along with information about students' writing self-efficacy to further contextualize observations about their ability to compose from multiple sources. The five categories that emerged from the research literature and through open coding of the full dataset are used to organize discussion of individual cases. A summary of each case then follows.

Case #22: Intensive writing cluster. The writer of Essay #22 had the lowest writing self-efficacy (3.86) of students in the *Intensive Writing* cluster. Results for survey questions specifically related to composing from multiple sources are provided in Table 4.12 below.

Table 4.12

Case #22 Writing Self-efficacy for Composing from Multiple Sources

Writing Self-efficacy Survey Item		Score
WTS Item 3	Write an essay that develops an idea by making connections among a variety of textual sources.	4
WTS Item 5	Write a persuasive essay that incorporates text sources representing points of view different from yours.	4
WSS Item 4	Come up with a thesis that integrates a variety of information and many perspectives.	3
WSS Item 5	Organize a lot of material into well developed and clearly arranged paragraphs that have a clear focus.	4
WSS Item 6	Use MLA format correctly to format your paper and cite sources.	4

Selection. To develop her argument that “some methods and techniques [of using technology in school] are useful and some are not,” the writer of Essay #22 selects details from three sources (Sources A, B, and C). Using one source per paragraph in the body of her argument, the writer selects two details from her sources for the purpose of providing examples of technology use for evaluation and one detail to comment on the impact of quick access to information on the modern environment.

The purposes of the student writer’s selections from her sources are valid, but she has more difficulty determining the amount of information to include from her sources. Although the writer selects details that help her to develop three issues to consider in integrating technology in education, the brevity of her selections results in a lack of precision when integrating information from her sources. For instance, stating that “[t]he gadgets spoken of in Source B” provide students instant feedback ignores the fact that Source B included

discussion of two types of gadgets: both PDAs and “infrared gadgets,” the latter of which is the gadget that provides immediate feedback. Adding “infrared” to her reference to gadgets would have provided a clearer presentation of her source. A second, and more significant, problem occurs in her agreement with Source C’s description of the world today as “an information-rich, time-compressed environment.” By embedding the quote from Source C in her argument about the laziness of students today, without providing the context for her quotation, she risks suggesting to the reader that Source C shared her concern with the relationship between the fast pace of modern life and children’s laziness, whereas the emphasis in the original text is on technology stifling creativity.

While such distortions may reflect the challenges of writing under time pressure, rather than the writer’s misunderstandings about the need for precision in selecting details for integration in her argument, a more serious concern is the choice of only three brief details from her sources to integrate in her discussion. The writer seems to select details in order to introduce issues to discuss, rather than ideas reflecting the stance of any of her sources on the debate she is entering. The failure to select such details suggests the author’s lack of awareness of argument as entering an ongoing conversation about a controversial issue, or at least that her sources might have anything substantial to offer to that conversation.

Evaluation. Essay #22 includes little evidence that the writer recognizes the usefulness of evaluating sources to identify facts that might function as evidence supporting her argument or opinions that might call for response. While the author integrates three sources in her evaluation of factors schools should consider in decisions about using

technology, she avoids the more sophisticated moves requiring attention to facts and opinions connected to a larger debate about technology in schools.

Rather than enter into an authentic conversation based on evaluation of the ideas contained in her sources, she simplifies the task of composing from multiple sources, instead only alluding briefly to details in those sources to develop her own position in isolation. In her first two references to source material, the writer refers to anecdotal information about the use of “gadgets spoken of in Source B” and the use of eBooks at a high school discussed in Source A. The third source reference is a brief quotation from Source C, including information about modern society that might be considered common knowledge. While the effective word choice (“we live in an information-rich, time-compressed environment”) may have influenced her selection of the quote from Source C, the writer misses the opportunity to enter a conversation with her source, omitting any reference to the author’s argument about that environment (that it stifles the imagination).

Organization. Following an introduction noting the positive and negative potential for technology in society at large, the writer establishes her position that some, but not all, uses of technology in education are beneficial. She then organizes her argument around three considerations: 1) practicality and effective use, 2) educational benefit, and 3) over-reliance leading to laziness. In the second paragraph, Source B is used to illustrate a practical and effective use of technology (providing students immediate feedback). However, her observation that much technology in schools ends up as “wall decorations” includes no illustrations or elaboration, missing the opportunity to weave specific examples from her own

experiences into the conversation. In the third paragraph, the writer addresses an educational benefit by arguing that eBooks like those mentioned in Source A might benefit students by holding their attention. In the fourth paragraph, a quotation from Source C describes the fast pace of life that that writer argues is a factor contributing to students' laziness. A final paragraph attempts to restate the three main points of the essay and concludes that, "if used properly," technology can be beneficial in education.

While the student is successful in unifying each body paragraph around a single claim, a lack of elaboration weakens her argument and renders the flow of ideas slightly unfocused. For instance, the student's assertion that technology in the classroom is often unused feels tacked on to the end of the paragraph about the benefits of technology for providing immediate feedback. Moving on without elaboration to a discussion in the next paragraph of the potential benefits of eBooks creates an abrupt shift. Reorganizing the discussion to separate positive and negative comments about technology in education might produce a more coherent argument. Still, while the writer's order of details might be refined, her restatement of her main ideas in the final paragraph reflects a formulaic, but nonetheless reasonably clear, organization of her argument.

Connection. In terms of syntactical flow, the writer of Essay #22 demonstrates understanding of strategies for integrating source material in her text. References to sources are blended smoothly in her own sentences using both in-text and parenthetical citations. In contrast, connections between claims and her supporting ideas and her sources are sometimes weak. For instance, the writer fails to clarify why using a website instead of a dictionary to

look up a word is a reflection of laziness, rather than efficiency, or how living in what Source C describes as “an information-rich, time-compressed environment” contributes to that laziness.

Although the student fulfills the writing prompt’s instruction to synthesize sources to evaluate issues educators should consider before using technology in the curriculum, connections between ideas from her sources are weak. While the intended connection seems to be that the sources all relate to issues to consider before using technology in education, the reference to one source per body paragraph contributes to a structure that presents a series of issues, rather than connected concerns. Noticeably absent from the essay is any attempt to group details from more than one source to develop a single issue. The sources enter a conversation only to the extent that they each offer a new matter for consideration.

Documentation. The writer demonstrates an understanding of conventions for documenting sources. While the limited use of one brief quotation does not provide an opportunity to demonstrate awareness of the nuances of documentation conventions, her careful attention to placement of in-text and parenthetical citations suggests a command of conventions for avoiding plagiarism. A missing quotation mark at the beginning of the quote in the fourth paragraph seems more likely the result of writing under time pressure than a misunderstanding of punctuation conventions.

Using parenthetical and in-text citations, the student successfully clarifies boundaries between her ideas and ideas from her sources. In the third paragraph, for instance, the placement of a parenthetical citation in the middle of the sentence, following reference to

technology used at Empire High School, makes it clear that the evaluation of the usefulness of eBooks that follows is her own idea, not an argument from Source A. In the fourth paragraph, an in-text citation introduces a quotation, which is followed by the conjunction *so*, suggesting that the conclusion to follow is her idea, not one included in her source material. The writer also subtly indicates her agreement with the idea she is quoting with her introductory tag, “As described in Source C, . . .” Whether the claims in the second paragraph about the usefulness of gadgets for providing feedback are the writer’s own or are being repeated from Source B is less clear, but the distinction is not of major importance. The absence of a signal to provide a source boundary suggests that the claim is either her own observation about the technology mentioned in Source B or a claim from the source with which she agrees.

Case #22 Summary. The writer of Essay #22 integrates details from her sources to generate a formulaic essay emphasizing her own position about technology in education. Selecting three details from her sources to incorporate in her argument, she presents a simplistic argument that fulfills the expectation she sets up in her introduction to discuss some ways of integrating technology in school that are useful and some that are not. While her presentation of three issues to consider in making decisions about technology in education suggests that she would write an argument competently enough for the kinds of standardized writing tasks often written under time pressure in high school, her discussion lacks the elaboration that might reflect awareness of the complexity of the conversation she is supposed to be entering. Her use of sources suggests, instead, that she views her sources as

material to reshape in the service of her own argument, decontextualized from the authentic conversation she might have entered. On the surface, the organization seems reasonable, but a closer look suggests that her ideas are presented with little connection to each other or to the sources that could have spurred a more substantial argument. Her competent documentation of her sources prevents the essay from being marred by plagiarism, but her apparent narrow understanding of the complex moves expected when composing from sources limits her success in the essay.

Case #60: Intensive writing cluster. The writer of Essay #60 had the highest writing self-efficacy (5.11) of students in the *Intensive Writing* cluster. Results for survey questions specifically related to composing from multiple sources are provided in Table 4.13 below.

Table. 4.13

Case #60 Writing Self-efficacy for Composing from Multiple Sources

Writing Self-efficacy Survey Item	Score
WTS Item 3 Write an essay that develops an idea by making connections among a variety of textual sources.	6
WTS Item 5 Write a persuasive essay that incorporates text sources representing points of view different from yours.	6
WSS Item 4 Come up with a thesis that integrates a variety of information and many perspectives.	5
WSS Item 5 Organize a lot of material into well developed and clearly arranged paragraphs that have a clear focus.	5
WSS Item 6 Use MLA format correctly to format your paper and cite sources.	4

Selection. To develop his argument that “heavy reliance on technology [in schools] can cause issues with writing, reading, and thinking,” the writer of Essay #60 selects brief quotations from three sources (Sources D, E, and C). Using one source per paragraph in the body of his essay, the writer selects details that function as examples of negative effects of using technology.

While the quotations selected reflect key issues addressed in the sources, the writer does not include sufficient summary of the context of those quotations to avoid distortion and weakening of the primary arguments in those sources. As an example of the negative impact of technology on writing, the writer selects Johnson’s observation in Source D that his handwriting has become labored as he has become more reliant on typing. In an oversight repeated in many of the essays students wrote for this prompt, however, the writer fails to observe that Johnson “accept[ed] this condition gladly” and concluded that the choice of tools (“ink and paper” or “zeros and ones”) made no difference in his identity. Ignoring the context and generalizing from Johnson’s experience to school children, the student writer concludes that “[i]t would be a shame for a school to provide students such great technologies and yet let their basic writing skills slip away.” Using a professional writer’s confession of his deteriorating penmanship as evidence of technology’s negative effect on handwriting might be a reasonable move, but to avoid distortion, the writer would need to at least acknowledge that Johnson did not see the loss of handwriting skills as a shameful consequence of using technology, as the student attempts to portray it.

Limited detail selection from Source E results in another kind of distortion by incompletely representing the author's argument. While the writer correctly conveys Gelernter's frustration that the wealth of sources available online has not resulted in students reading classics by Mark Twain, Shakespeare, or Wordsworth, the student fails to explain the reasons suggested by Gelernter – that “skill-free children are overwhelmed by information even without the Internet” and that they are distracted by easy access to worthless information competing for students' already limited attention. Thus, Gelernter's position that the Internet is one more resource to distract students from worthwhile resources that should command their attention is reduced in Essay #60 to the claim that students fail to read the classics *in spite of* easy access. The ideas from Gelernter that would more clearly support writer's claim that technology may hinder learning are ignored.

Similarly, sparse detail to contextualize the quote from Source C results in weak support for the student's claim that technology in schools hinders students' ability “to process information, make decisions and generate novel ideas.” Without summarizing the reasons Dyson provided for her claim that technology “may seriously mess up children's informational metabolism – their ability to process information for themselves,” the student, in effect, supports his claim with a “because Source C said so” sort of logic. In the absence of credentials suggesting Dyson's expertise on the issue, the quotation adds interest to the student's essay, but little in the way of support.

In all three quotations, the student writer fails to demonstrate understanding of the value of brief summary to explain and accurately represent the ideas in his sources. Although

the writer selects information relevant to his own argument, his brief quotations require his readers to consult the sources for themselves in order to determine how the sources support his argument – or, in the case of the quotation from Source D, do not support it.

Evaluation. Details in Essay #60 do suggest the writer's awareness of the need to evaluate types of sources he chooses to incorporate in his own text. His use of the verb *believed*, for instance, in referring to the authors of Sources E and C indicates his recognition that the authors are expressing opinions. Absence of reasons (either the reasons provided by the sources or his own ideas) to support those opinions, however, suggests a failure to evaluate the credentials of his sources. While he notes that the author of Source E is a computer scientist, he does not seem to consider the possibility that a computer scientist may not be qualified to make claims about the literature students are (or should be) reading or the influence of technology on those choices. While Gelernter's claims might be accepted as common assumptions, the writer misses the opportunity to strengthen his argument by anticipating rebuttal or providing evidence to support Gelernter's claims. Similarly, the writer seems to assume Dyson's authority to make claims about the impact of technology on students' "ability to process information for themselves," failing to provide evidence to support her claim or to anticipate counterclaims related to the potential of technology to inspire creativity and imagination.

The student appropriately treats author Stephen Johnson's discussion as anecdotal evidence of an individual whose professional credentials render his personal experience particularly relevant to the question of technology's influence on handwriting. On the other

hand, he is less successful in evaluating the content of the argument woven into Johnson's anecdotal experience. The student seems to need to read more carefully in order to evaluate Johnson's attitude toward using a computer as a tool for composing.

Organization. Beginning his essay with acknowledgement of the historical benefits of technology to society, the writer of Essay #60 closes his introductory paragraph with his argument that "a heavy reliance on technology [in schools] can cause issues with writing, reading, and thinking." Despite weaknesses in contextualizing the quotations from his sources, the writer organizes his argument with a claim/support pattern, introducing a negative effect of technology in each body paragraph and then attempting to support his claims with examples or relevant claims from his sources. Although more careful selection and evaluation of details from his sources would strengthen his argument, the writer is making logical rhetorical moves, following each of his claims with examples and opinions he seems to view as credible support for the negative influence of technology on writing, reading, and thinking.

The writer has organized body paragraphs by skills negatively impacted by excessive use of technology, but the use of a single source to support each idea results in an essay that fails to reflect the complexity of the conversation embedded in his sources. The writer does enter into a limited conversation with his sources, agreeing with the claims he perceives them to be making, but he fails to add anything substantial to the conversation, instead treating the brief references to his sources as sufficient to support his claims and closing each body

paragraph with a warning about the danger of allowing technology to hinder students' development of writing, reading, or thinking skills.

Connection. In this essay, the writer demonstrates awareness of strategies for integrating source material in his own syntactical units, using both in-text and parenthetical citations to refer to his sources without distracting from the sentence flow. Connections among the ideas introduced in his sources are loose, but not random. Threaded throughout the writer's argument is an emphasis on *excessive* technology use in education as the factor hindering students' development of the related skills of writing, reading, and thinking. In his thesis statement, the writer refers to "heavy reliance on technology," a thought echoed in his repetition of "too much" technology use as the danger in the second and third paragraphs. The need for a balanced approach to technology is emphasized in the second paragraph by the writer's assertion that students should be taught to write "with and without technology." In his conclusion, the writer reiterates his position that technology is not inherently "a bad thing." Thus, while the writer fails to integrate sources in a complex conversation about individual learning issues, he does connect them in a larger conversation about negative consequences of excessive technology use in education.

Documentation. The writer's documentation of his sources suggests familiarity with conventions for crediting ideas. Using both in-text and parenthetical citations to surround quotations, the author seems aware of the need to create clear boundaries between content from his sources and his own ideas. A few instances of redundant citations merit attention, but given the constraints of writing under time pressure, these are minor concerns. By

referring more specifically to source authors by name, the parenthetical citations in the second sentences of the second and third paragraphs could be eliminated without creating confusion since the quoted material is presented in a single sentence without added commentary. Nevertheless, the text flows clearly without distracting the reader with awkward citations.

In addition to his careful use of in-text and parenthetical citations to create source boundaries, the writer demonstrates familiarity with conventions for indicating alterations to an original text. In the third paragraph, the writer correctly uses ellipsis to indicate omitted content, correctly placing the final period after the parenthetical citation. Although he uses parentheses rather than square brackets in the fourth paragraph to indicate a word he has added to clarify a pronoun used in the original text, he is aware that sources must be quoted precisely and that changes need to be clear to the reader. A missing comma following an attributive tag in the third paragraph is likely to be an oversight, rather than unfamiliarity with documentation conventions, since a similar pattern in the previous paragraph is punctuated correctly.

Summary of Case #60. Overall, the writer of Essay #60 is successful in organizing an argument about negative effects of excessive technology use in education with a claim/support pattern. Using one source per paragraph, he seems to view sources as material to use exclusively to support his position – choosing only details that provide reasons educators should be cautious about overusing technology in the classroom – and ignoring references to potential educational benefits that he might have used to anticipate rebuttal to

his argument. While he recognizes the differences between facts and opinions, his failure to evaluate the authority of his sources or to select details that will avoid distortion of the original argument limits his success in entering an ongoing conversation about technology in schools. By laying out a series of negative consequences of using technology in schools, he succeeds in providing connections, albeit simple ones, between his ideas. In addition, his competence in documenting his sources gives his essay a polished effect. While his argument comes across as the work of a confident writer, his failure to engage with his sources in a more substantial way suggests a lack of awareness of the kind of dialogue expected in composing from multiple sources at the college level.

Case #23: Academic writing cluster. The writer of Essay #23 had the lowest writing self-efficacy (2.93) of students in the *Academic Writing* cluster. Results for survey questions specifically related to composing from multiple sources are provided in Table 4.14 below.

Table 4.14

Case #23 Writing Self-efficacy for Composing from Multiple Sources

Writing Self-efficacy Survey Item	Score
WTS Item 3 Write an essay that develops an idea by making connections among a variety of textual sources.	3
WTS Item 5 Write a persuasive essay that incorporates text sources representing points of view different from yours.	2
WSS Item 4 Come up with a thesis that integrates a variety of information and many perspectives.	1
WSS Item 5 Organize a lot of material into well developed and clearly arranged paragraphs that have a clear focus.	1
WSS Item 6 Use MLA format correctly to format your paper and cite sources.	6

Selection. To answer the question, “how much technology is too much?” the writer of Essay #23 selects brief details from three sources (Dyson, Gelernter, and Johnson). The writer includes one source in his first body paragraph and two in his second body paragraph. In order to refute the idea that technology saves time, in the second paragraph the writer summarizes Dyson’s claim that technology takes up more time. To support his claim that technology “could adversely affect [students’] reading and writing skills,” in the third paragraph the writer repeats Gelernter’s claim that American students ignore the classics and Johnson’s admission that writing has become more difficult for him than typing.

Although the writer selects details from his sources that help support his two main claims, the brevity of his references results in an argument that sometimes misrepresents the authors he is citing. For instance, although Dyson provides a complex discussion to support her claim that technology *takes* more time than it saves, the student writer presents Dyson’s decontextualized assertion as sufficient to contradict the belief that technology saves time: “However, this goal has backfired because technology actually takes up more time (Dyson).” Subsequent examples added by the student (being distracted by social media or games) do not reflect Dyson’s support for her claim. While Dyson anticipates rebuttal to her claim by providing an elaborate explanation of how time-saving technology results in a net loss of time, the student writer adds a simplistic example of distractions wasting time – not at all reflecting Dyson’s sophisticated claim about changes in the way human beings *think* about time.

Similarly, in referring to Johnson's discussion of typing's influence on his handwriting, the student repurposes Johnson's discussion, implying (as Johnson clearly does not) that typing a paper will lead to less well-conceived composition. The student's claim that "[t]he thought processes of typing and writing differ greatly and . . . writing a paper takes a lot more thought than merely typing one," although similar in language to Johnson's admission that he has "to *think* about writing [by hand]," is not at all part of the same conversation as Johnson's discussion of changes in his composing process. Johnson views handwriting as a tedious and outdated tool for composition, unlike the student who expresses concern over students who would prefer typing a paper to writing it by hand and the state of declining writing skills.

Evaluation. The writer's lack of awareness of the amount of support needed to accurately represent his sources seems to stem from his failure to evaluate the types of claims they contain. The writer treats Dyson's opinion as fact, simply following a summary of her claim with a parenthetical reference. Rather than responding to Dyson by agreeing, disagreeing, or qualifying her claim, the writer moves to recommend an appropriate response to Dyson's claim. Without including details to suggest why the reader should accept Dyson's position on the subject of time and technology, the student simply concludes, "Before schools consider bringing more technology into the classrooms, perhaps they should reconsider." Failure to evaluate Gerlenter's authority for making claims about the influence of technology on dwindling interest in the classics continues the pattern of accepting sources at face value, rather than considering the possibility that their claims might invite debate. The

student similarly places excessive weight on the anecdotal experiences of writer Steven Johnson, as if the personal experience of one writer is sufficient evidence that most students would rather type than hand-write a paper. Like many students in this study, the writer fails to observe that Johnson did not consider the loss of handwriting a significant problem. Rather than evaluate the nature of the information provided in his sources and the contexts of his sources' claims, the writer ignores possible counterarguments, instead presenting a simplistic and rather one-sided perspective on technology in schools.

Organization. The writer chooses a four-paragraph scheme to organize his response to the question posed in his introduction: "how much technology is too much?" Arranging his ideas to emphasize his argument, he organizes his essay by two ideas: 1) technology takes more time than many people realize, and 2) it may negatively impact reading and writing skill development. Although he does not present Dyson's ideas fully enough in his second paragraph to enter into an authentic conversation with her about the relationship between technology and time, his addition of examples of technology that wastes time suggests some attempt to weave his own ideas together with a claim from one of his sources. Similarly, in the third paragraph, his reference to two sources to support his ideas about the effects of technology on reading and writing demonstrates at least a basic understanding of composing from multiple sources as an act of selecting and reorganizing information from related discussions, not just obligatorily stringing together references from a required number of sources. A final paragraph reiterates the two ideas developed in his second and third

paragraphs and concludes by asking whether the consequences of increased technology use in schools justify the risks.

Connection. When integrating source material in his text, the writer's combination of one-sentence summaries of information from his sources with parenthetical citations results in generally fluid syntactical structures. In the third paragraph, the writer's redundant combination of an in-text and parenthetical citation in a single-sentence summary of Johnson's decreasing writing skills results in a more clunky integration of his source, but the awkward connection does not obfuscate the writer's meaning.

The student misses the opportunity to connect his references to distractions in his second and third paragraphs, but the two body paragraphs are nevertheless connected by their development of negative influences of technology in school. The connection of two sources in the third paragraph is a strength of this essay, but the writer combines them with a rather simple additive connector, viewing the two sources as examples of two skills threatened by excessive use of technology. To move from discussion of Gelernter's observation about reading to Johnson's discussion of writing, the writer simply observes, "Writing skills have *also* [emphasis added] greatly suffered from excessive amounts of technology."

Documentation. The writer's use of in-text and parenthetical citations for each reference to his sources provides evidence that he understands the needs to credit his sources. On the other hand, whether carelessness or the constraints of writing under time pressure are to blame, his reference to Gelernter includes plagiarism, lifting 14 words directly from his

source, changing only the word *one* to *a*, when he observes that “many American high school students have never read a Mark Twain novel or Shakespeare play.”

Summary of Case #23. The writer of Essay #23 succeeds in demonstrating at least a basic understanding of strategies for integrating source material to develop an argument. By pulling decontextualized ideas from his sources, however, the writer fails to enter an authentic ongoing conversation or to convey the complexity of questions about technology use in education. Failure to evaluate the authority of his sources, or to supply details to support their claims, further limits the persuasiveness of the writer’s argument. While the student recognizes a similarity between two of his sources, the connection is simplistic, noting only that technology could harm writing, as well as reading. An example of plagiarism, whether intentional or not, further distracts from the overall success of the essay.

Case #52: Academic writing cluster. The writer of Essay #52 had the highest writing self-efficacy (5.18) of students in the *Academic Writing* cluster, as well as in the subset of study participants who responded to the essay prompt. Results for survey questions specifically related to composing from multiple sources are provided in Table 4.15 below.

Table 4.15

Case #52 Writing Self-efficacy for Composing from Multiple Sources

Writing Self-efficacy Survey Item	Score
WTS Item 3 Write an essay that develops an idea by making connections among a variety of textual sources.	4
WTS Item 5 Write a persuasive essay that incorporates text sources representing points of view different from yours.	5
WSS Item 4 Come up with a thesis that integrates a variety of information and many perspectives.	6
WSS Item 5 Organize a lot of material into well developed and clearly arranged paragraphs that have a clear focus.	6
WSS Item 6 Use MLA format correctly to format your paper and cite sources.	5

Selection. The author of Essay #52 selects brief details from three sources (Sources B, E, and F) to develop her argument about the negative consequences of excessive technology use in education, using one source per paragraph in the body of the essay. A quotation from Source B is integrated in her text in order to highlight the differences between current and traditional teaching practices. A claim from Source E about the unimportance of technology for providing information is used to support her own claim that students don't need more sources of information, and a reference to the cartoon in Source E is used to present a possible negative consequence of over-reliance on technology.

This student writes forcefully, but decontextualizes details from their sources. For instance, in borrowing Delaney's phrase "in ways they never have before" to describe how students learn with new technology-based approaches to instruction, the writer omits any details that would clarify that Delaney's reference to the rapidly changing methods of

instruction seems positive in its appraisal of current practice. According to Delaney, technology is being used by “[p]ioneering teachers”; no details suggest criticism of the changes in education – unlike the student writer’s appropriation of Delaney’s words. In addition, the student’s insistence that “[i]nsufficient data is not the root of the problem,” followed by a parenthetical citation attributing the idea to Source E, suggests more certitude than the original source. While Gelernter shares the student writer’s belief that students do not need more access to information, he softens his claim by observing merely that he has not encountered “one parent or teacher or student or principal or even computer salesman who claimed that insufficient data is the root of the problem.” His assertion, like the student writer’s is forceful; on the other hand, noting the lack of belief in an idea is not quite the same as boldly claiming it to be false and tacking on a parenthetical citation suggesting that the evidence is contained in Source E. A final reference to Source F briefly describes the image depicted in the cartoon but fails to clarify that she is referring to a picture or to explain her interpretation of the wordless cartoon.

Notably absent from her essay is any indication that differing perspectives represented in her sources might open up a more nuanced debate about technology in education. Instead she seems to select details that she can weave into her own discussion with virtually no reference to their original contexts. By disconnecting her references to sources from the original conversations, she creates an argument that feels more like a monologue than a conversation.

Evaluation. While the writer of Essay #52 includes the required three references to her sources, her use of those sources does not suggest careful reading and evaluation. Since the idea she quotes from Source B could easily be paraphrased, her use of Delaney's phrase "in ways they never have before" suggests that she has quoted Source B because she views the word choice as effective, not because she recognized the tone of Delaney's discussion or the value of the mentioning the specific changes in education that he introduces. In repeating the claim that "[i]nsufficient data is not the root of the problem" from Source E, she treats the opinion of Gelernter (and the parents, teachers, students, and computer salesmen he mentions, none of whom have indicated to Gelernter that insufficient data are a problem) as a fact. While Gelernter makes the case that is almost as forceful as the student writer's, he carefully presents his opinion as supported by the absence of contradiction, not as fact. The difference is subtle, but important.

Organization. The strength of this writer's essay is her organization. Although arguably employing a formulaic five-paragraph framework, the writer clearly establishes her negative response to excessive use of technology in the classroom, supporting that idea with what she views as three problems: 1) "a greater void in communication with the students"; 2) "the [faulty] idea that technology is the only answer"; and 3) "an ominous view for the future." Each of her three body paragraphs then begin with clear claims, referencing the issues introduced in her thesis, and elaborating on the reasons she views each issue as problematic. Her conclusion reiterates her position without becoming redundant, with an articulate call for a more balanced use of technology in schools.

Within the body paragraphs, the writer provides reasonable support for her ideas. In opposing excessive use of technology for communication, she argues that constant “talking through a screen” and completing assignments online hinders the development of authentic communication skills. To counter the assumption that technology provides needed access to information, she argues that traditional resources (libraries and the world “right outside their window”) offer the same educational benefits as technology. To support her warning of an ominous future dominated by technology, she implicitly makes the case that technology spoon feeds students information, rather than offering the intellectual challenges education should provide. Though lacking in elaborate support or anticipation of rebuttal, the essay is unified and confident, suggesting a student comfortable with the fundamentals of organizing an argument.

Connection. The writer of Essay #52 is successful in synthesizing sources syntactically in her text. In Paragraph 2, her insertion of a brief quotation from Source B flows seamlessly in the middle of her sentence. In Paragraphs 3 and 4, her references to Sources E and F, though decontextualized, also flow smoothly in her text.

On the other hand, like many of the essays students wrote, connections between sources were loose. While the connection between paragraphs was the series of problems with excessive use of technology in education, the author made no attempt to show a more nuanced conversation between her sources. The problem with loose connections was compounded by the fact that the student repurposed details from her sources without addressing the fact that her use of details differed from their use in the original texts. Thus,

the student missed the opportunity to engage in a rich conversation with her sources, noting her agreement or disagreement with an ongoing debate. Although her argument was well-organized and assertive, it did not demonstrate awareness of argument as contextualized in a larger conversation.

Documentation. The writer did demonstrate awareness of conventions for citing her sources, but her documentation was not without problems. In her second paragraph, she uses a parenthetical citation to document the source of her quotation, but places it after her own conclusion that using technology in new ways “must cease before it gets too out of hand,” misleading the reader by suggesting that the conclusion is from Source B. Another problem occurs in Paragraph 3, where her observation that “[i]nsufficient data is not the root of the problem” is close enough to the original “insufficient data is the root of the problem” that quotation marks and square brackets to indicate her alteration to the text would have been a better choice to avoid plagiarism. Her vague reference to Source F in a parenthetical citation following her question, “Will one simply look at a screen at the same image found right outside their window?” leaves the reader unsure of the content in Source F. Without description or summary of the cartoon in Source F, the writer fails to clarify whether Source F raises the question she presents in her text or whether the source contains a reference to an image outside their window. The fact that the source is a cartoon requiring interpretation is completely ignored in the student writer’s text.

Summary of Case #52. The writer of Essay #52 seems a confident writer who uses sources to develop a forceful argument. The weakness of her essay stems from her tendency

to decontextualize her sources, repurposing details to function in her own discussion. While the essay flows well, the writer fails to enter into authentic conversation with her sources, instead showing little interest in a complex debate that more careful consideration of her sources might help her to see.

Case #71: Infrequent Writing Cluster. The writer of Essay #71 had the lowest writing self-efficacy (2.68) of students in the *Infrequent Writing* cluster, as well as the lowest writing self-efficacy in the sample of 57 essays. Results for survey questions specifically related to composing from multiple sources are provided in Table 4.16 below.

Table 4.16

Case #71 Writing Self-efficacy for Composing from Multiple Sources

Writing Self-efficacy Survey Item	Score
WTS Item 3 Write an essay that develops an idea by making connections among a variety of textual sources.	2
WTS Item 5 Write a persuasive essay that incorporates text sources representing points of view different from yours.	2
WSS Item 4 Come up with a thesis that integrates a variety of information and many perspectives.	5
WSS Item 5 Organize a lot of material into well developed and clearly arranged paragraphs that have a clear focus.	2
WSS Item 6 Use MLA format correctly to format your paper and cite sources.	3

Selection. The writer of Essay #71 includes references to three sources (Sources D, A, and E) to build her argument that “[i]ncorporating technology into our school system is the only way to keep up with the fast paced world.” Including one quotation in her introduction,

she then selects one idea from her sources for each of her two body paragraphs. Her selections do not demonstrate an understanding of the amount of summary needed to explain the source details she uses to support her claims. In her first reference to one of her sources, the writer notes simply that “Source D mentions how it is a strange feeling to write on paper.” Without further summary of the context of Johnson’s discussion of his evolving preference for typing over hand-writing a text, or mention of the fact that the author was a professional author whose experiences might merit more attention than just any anonymous discussion of writing preferences, the writer fails to clarify the significance of her observation. In Paragraph 2, she draws attention to the replacement of traditional textbooks with laptop computers, but fails to clarify that the students will be using iBooks, a detail that seems important to her claim that using laptops “has all the advantages of having textbooks, plus the extra component of outside information and activities.”

Evaluation. Although Essay #71 does not include clear evidence that the writer is evaluating the credibility of her sources, she avoids the trap many students fall into of treating non-expert opinion as authoritative. Noting that “Source A mentions a school that is changing the way its students learn,” the writer appropriately treats the example at Empire High School as anecdotal information and then responds with her own assessment of the value of using laptops instead of traditional textbooks. In Paragraph 3, her reference to Gelernter as one of a group of critics who see the negative impact of technology on the culture appropriately positions him as a participant in the debate about technology, but not necessarily as an expert on the subject. Making a move to establish her own place in the

debate, she then counters that “these critics only focus on the negatives and the advantages are innumerable.” While the student might have strengthened her discussion by commenting on the credentials of Johnson as a professional writer speaking about the influence of technology on the writing process – or the fact that Gerlenter’s credentials as a computer scientist do not necessarily qualify him as an expert on the impact of the internet on education – the student appropriately treats the details she has selected from her sources as ideas for response, rather than as factual information to support her position.

Organization. The writer of Essay #71 begins with a strong assertion that integrating technology in schools is necessary to keep up in a “fast paced world.” After elaborating briefly on the pace of change, she closes her introductory paragraph with a clear statement of her position: “The internet is the future and to keep up with competition [sic], people need to learn how to use it to access relevant information and to communicate effectively.” She then elaborates on the use of technology to access information in the second paragraph, noting that Empire High School’s use of laptops provides students important access to information and helps them learn more about technology. In an attempt to develop her claim that technology is a valuable communication tool, she elaborates on the business and social applications of technology in her third paragraph.

In Essay #71, weak organization and development of the student’s ideas distracts from her argument. For instance, addressing critics’ concern about “useless information and propaganda” on the internet, she counters that “when used responsibly, it can educate our youth and save lives.” The rationale for her placement of a discussion of the quality of

information on the internet and its value in education and saving lives in a paragraph about business and social applications for communicating is unclear. Without further support or explanation, it seems tacked on, without reference to the ideas introduced in the opening paragraph, the rest of the third paragraph, or the conclusion. Similarly, a brief reference to Source D's discussion of handwriting feels dropped into the introductory paragraph, irrelevant to the preceding claim that technology in schools is necessary to "keep up with the fast paced world."

Inconsistency between the ideas emphasized in the introduction, the body, and the conclusion exacerbate more local organizational problems. In the final paragraph, she reiterates her claim that using technology in education is essential for accessing information, but her claim that "[i]t is incorporated with almost every job and activity" repeats an idea developed only by vague references in the body of the essay to business and social networking. The ideas introduced in the opening paragraph (that "people need to learn how to use [technology] to access relevant information and to communicate effectively") are only partially developed in the body of the essay. The discussion of technology as a tool for networking does relate, though, narrowly to the potential of technology for communication. Criticism of less useful information available on the internet seems irrelevant, or at least out of place; Gelernter's criticism seems more pertinent to the student's discussion of using laptops in school than to details about business and social networking. While the reader might mentally reorganize the writer's discussion to make sense of the jumbled details, poor organization creates a sense that the student is having difficulty controlling her argument.

Connection. Syntactically, the writer of Essay #71 successfully uses simple attribution formulas to introduce ideas from her sources. The first two references to her sources (“Source D mentions that”; “Source A mentions a school that”) could be improved by varying the attributive tags, but, in terms of sentence flow, the paraphrases are nonetheless integrated smoothly in her own text. Her reference to “Gelernter from Source [sic] A” is slightly awkward, suggesting that Gelernter is *from* his article, rather than the author of it, but the word choice is not overly distracting.

While references to her sources are integrated syntactically in her own text, connecting ideas is more problematic. The student’s abrupt reference in her opening paragraph to Source D’s discussion of his deteriorating handwriting reflects the overlapping nature of skills needed when composing from multiple sources. Selecting more detail from Source D might have better contextualized her comment, clarifying the connection the writer sees between loss of handwriting skills and her interest in the necessity to embrace technology to keep up with competition. In terms of organization, the source reference seems out of place or irrelevant, but the underlying problem may be more related to the student’s failure to demonstrate a valid connection between ideas.

Subsequent references to her sources within the body of the essay make more sense, but problems with organization and connection again overlap. A reference in her third paragraph to Gelernter’s charges that the internet is full of useless information that will drown students might easily have been contrasted with her discussion in the second paragraph of the situation at Empire High School, where laptops are being used to provide

access to more information. Instead, the student includes her discussion of Gelernter's ideas in paragraph about business and social uses of technology, without ever explaining the connection between business and social networking, information overload, and propaganda.

Using one source per paragraph, the writer provides no evidence of considering her sources in conversation with each other, other than to the extent that they all relate to a general debate about benefits and risks of using technology. The student's failure to see the possible connection between the ideas she uses from Source E and Source A results in a confusing organization, rather than a conversation reflected in the relationship between issues introduced in two of her sources. The discontinuity in her discussion is further reflected at the end of the third paragraph, where the student's claim that technology can "save lives" has no connection either to her previous claims or to the ideas from her sources.

Documentation. For the most part, the writer of Essay #71 avoids plagiarism by using in-text citations to refer to her sources. In her third paragraph, however, her vague reference to "[c]ritics [who] argue that technology has diminished our culture and attention span" without identifying the critics or the source that provided this information suggests unintentional plagiarism – or an exaggerated group of authorities. If the writer is aware of critics other than Gelernter who make such claims, she needs to cite them. While Gelernter does address these issues, the sources do not provide evidence that he represents a group of critics. Following that claim with the observation that "Gelernter . . . even goes on to say our youth will drown in the useless information and propaganda the internet provides" suggests a distortion of how many critics she really had to include in the conversation. Perhaps the

plural “critics” was really *one* critic? While the student’s claim is probably valid – Gelernter very well may represent a larger group of critics – representing Gelernter’s interest in “culture and attention span” as the concern of a larger group of critics suggests a lack of awareness of the precision expected when documenting sources for academic writing.

Summary of Case #71. The writer of Essay #71 establishes a clear argument in her thesis statement with two reasons that students need to learn to use technology if they plan to keep pace in the modern world. Overlapping problems with selecting, evaluating, organizing, connecting, and documenting sources, however, illustrate the complexity of the task students undertake when they are composing from multiple sources. While the student author selects details similar to those many students included in their essays, she has difficulty determining the kinds of information she needs to include if her source material is to function as support for a logical argument. Like many students, she fails to recognize the usefulness of evaluating her sources in terms of the authors’ credentials for making claims about the influence of technology on education. Although she organizes the body of her essay with two paragraphs to develop her two main ideas, she has trouble focusing her discussion, and ideas that don’t clearly fit too often distract the reader from her main points. Weak connections between ideas exacerbate the organizational problems. Although she demonstrates an awareness of the need to cite her sources, a lack of precision in attributing ideas weakens her documentation.

Case #17: Infrequent writing cluster. The writer of Essay #17 had the highest writing self-efficacy (4.86) of students in the *Infrequent Writing* cluster. Results for survey

questions specifically related to composing from multiple sources are provided in Table 4.17 below.

Table 4.17

Case #17 Writing Self-efficacy for Composing from Multiple Sources

Writing Self-efficacy Survey Item	Score
WTS Item 3 Write an essay that develops an idea by making connections among a variety of textual sources.	5
WTS Item 5 Write a persuasive essay that incorporates text sources representing points of view different from yours.	5
WSS Item 4 Come up with a thesis that integrates a variety of information and many perspectives.	5
WSS Item 5 Organize a lot of material into well developed and clearly arranged paragraphs that have a clear focus.	5
WSS Item 6 Use MLA format correctly to format your paper and cite sources.	5

Selection. The writer of Essay #17 selects information from all six sources to develop the argument he articulates in his concluding paragraph: “All in all, technology is a great invention, but it may not be the best for using in schools.” Using two sources per paragraph in the body of his argument, he selects details from his sources for a variety of functions. In the second paragraph, he uses sources to introduce problems created by technology. In the third paragraph, he selects details that reflect current practices in education for response. In the fourth paragraph, the writer selects from his sources opinions about the negative impact of technology.

While most of the writer's references to his sources accurately reflect the ideas in the original texts, his reference to Source D in his second paragraph is more problematic.

Although the student attempts to contextualize his comments about Johnson's deteriorating handwriting, lack of precision in his summary results in distortion. Besides the fact (ignored by many student writers) that Johnson's argument was that the loss of handwriting was a fact, but not a problem, the writer of Essay #17 erroneously attributes the idea that "cursive has become a forgotten language" to Johnson. While Johnson does discuss his own transition as a writer to someone who prefers typing and now has trouble composing with pen and paper, extending his very personal account of his development as a writer to the population as a whole is an overgeneralization. Johnson may or may not agree that his experience is common, but it is not a claim he makes in the excerpt from his book provided in Source D.

Evaluation. While the writer of Essay #17 integrates both anecdotal information and opinions from his sources in his argument, evidence that the writer has considered the need to evaluate his sources is lacking. In addition to distorting the meaning of Johnson's discussion about technology's impact on his handwriting, he treats opinions as factual information, offering no evidence to support or explain Source C's claim that individuals now "think shorter" or Source E's claim that most kids today have never read a classic book. While it might be argued that both of these ideas are common assumptions requiring no support, their use as evidence to support the student's claim that technology "takes up time," is weak. If they are common knowledge, the writer does not need sources to provide the ideas, and a subtle shift in language (e.g., from "Source C states that" to "As Source C states" or "As

Source C argues”) would clarify that the writer is repeating an idea he found in a source without implying that the source has authority or evidence that renders the claim more weighty than it is.

A final claim that “[t]hese six sources of information outline this problem” is both ambiguous and a misrepresentation of the sources. Preceded by claims that technology may not be a good choice in school and that online textbooks are not effective for all students, the antecedent for “this problem” is unclear. While it seems most likely that the student is referring to the more general claim about technology use in school, the suggestion that all six sources “outline” problems with using technology seems a distortion of the sources, undermining the student’s attempt to move back and forth between ideas in his sources and his own views in the body of the essay.

Organization. The student writer organizes his essay with a five-paragraph structure. In addition to presenting two sources in each body paragraph, he attempts to pull his ideas together in his conclusion by noting that “technology is a great invention, but it may not be the best for using in schools” and referring again to his sources by observing that “[t]hese six sources of information outline this problem.” Absence of explicit claims throughout the essay results in weak organization of his ideas, but claims that unify the discussion are nonetheless implied. In the introduction, the writer introduces increasing reliance on technology among children and in school, but makes no claim about the significance of that trend on education. By drawing attention to reduced personal interaction and growing dependence on technology,

he leaves the reader to infer that the writer sees increased technology as a negative development – though his position on how educators should respond is unclear.

The body of the essay requires similar inferences about the writer's claims. The second paragraph begins with a reference to Source D's discussion of handwriting and ends with a brief reference to the cartoon in Source F, but the idea that human beings are becoming too reliant on technology may be inferred from the discussion. Similarly, the third paragraph presents examples of technology being used in schools from two sources without an explicit claim to unify the examples. While the paragraph begins with a claim about online textbooks, the movement to a discussion of online language practice is not completely unrelated, and the reader can infer the writer's concern that online resources have important disadvantages. The final body paragraph is more successful in introducing the claim that technology "takes up time," and then using opinions from the sources that support that claim.

Connection. In terms of syntactical connections, the writer demonstrates an understanding of strategies for integrating source material in his text. Relying mostly on summary or paraphrase, the writer blends details from his sources smoothly. The writer's reference to Source D includes a subtle move that establishes his agreement with his source: "Just as Soure [sic] D states, . . ." Although the writer is too quick to treat opinion as factual information, the problem comes from failure to support source claims with the authors' credentials or reasons and evidence to back their claims. The information from the sources is effectively integrated into the student writer's text with phrases like "According to Source B" and "Source C states that . . ." When referring to the cartoon in Source F and anecdotal

information about current educational practices, the writer contextualizes his references with sufficient description or explanation, avoiding the problem found in many essays in which writers drop references to sources into their texts, assuming that readers will not only have read the sources, but will remember details that connect it to the student writer's argument.

To a large extent, the problems in organization previously noted seem less related to the student writer's inability to organize information than to his failure to make explicit connections between his sources. On one hand, the student does seem to see the sources as in conversation with one another, grouping related details from two sources into each paragraph. The writer, however, leaves the reader to supply the connections between the sources. In the second paragraph, for instance, the reference to the cartoon depicting a child watching TV rather than going outside to see the same scene feels tacked on to the writer's longer discussion of declining handwriting skills. A topic sentence noting that human beings are becoming too reliant on technology would have provided the connection between the two sources that the writer probably had in mind and helped the reader to follow the writer's argument more easily. A connection between students using online textbooks and online foreign language exercises would be easy enough to supply in the third paragraph. Instead, the student moves abruptly from a claim that online textbooks are not appropriate for everyone to a discussion of the temptation to cheat with online language exercises. The student does attempt to connect the two examples with the claim at the end of the paragraph that, though the desire to use technology to connect to students' lives is understandable, "in

school and learning technology isn't always the best option." The implication is that both online textbooks and online language exercises help to connect to students' lives.

In the fourth paragraph, the writer moves from an initial claim that technology "takes up time" to the idea that "[w]orking online doesn't always allow for one to put together effective writing samples" before shifting to discussion of the impact of information overload on attention spans. While the idea of time seems a common thread throughout the paragraph, the lack of a claim clearly connecting the ideas results in the sense that the writer probably has a valid point that is not yet making it to the page.

Documentation. The student uses in-text citations to credit his sources. By placing the in-text citations at the beginnings of references to each source, initial boundaries between the writer's own ideas and ideas from sources are clear. Boundaries for the details that follow the introduction to his sources are more ambiguous. While the writer tends to introduce an idea from a source and then follow it with elaboration, he does not consistently clarify whether the elaboration consists of his own idea or ideas from his sources. The source boundaries are clearest in his third paragraph where he summarizes the use of online textbooks described in Source A and then refers back to his source a second time with "They believe this transition will help get students more engaged in learning" before shifting to a recommendation about what schools should do before implementing electronic textbooks. He makes a similar move in his fourth paragraph, where he refers a second time to his source, noting that "It also states that" The boundaries are nebulous more often than clear, however. Parenthetical citations to close out references to individual sources or explicit

references to his own opinions (e.g., I argue that, Source A makes a valid point) might have provided clearer source boundaries in combination with the in-text citations the student used to introduce his sources.

Summary of Case #17. The writer of Essay #17 generates a formulaic, but loosely connected essay, leaving readers to supply connections between ideas. By grouping ideas from two sources in each of his body paragraphs, he demonstrates some understanding of the fact that his sources are in conversation with each other. Absence of clear claims, however, leaves the reader to infer the connections, as well as the specific claims he is attempting to develop. Weaknesses in his essay seem related to problems selecting and evaluating source materials. Without considering the authority of his sources for making claims about technology in education, he relies too heavily on decontextualized details from his sources that are less convincing when integrated in his own essay than in the original text. A misreading of Johnson's discussion of handwriting results in a distortion repeated in many essays, suggesting that Johnson shared the student writer's concern that deteriorating handwriting was a significant problem to be addressed. Although the student recognizes the need to cite his sources, he does not demonstrate awareness of the strategies writers use to clarify shifts from source material to their own ideas.

Case #65: Writing to demonstrate knowledge cluster. The writer of Essay #65 had the lowest self-efficacy (3.07) of students in the *Writing to Demonstrate Knowledge* cluster. Results for survey questions specifically related to composing from multiple sources are provided in Table 4.18 below.

Table 4.18

Case #65 Writing Self-efficacy for Composing from Multiple Sources

Writing Self-efficacy Survey Item		Score
WTS Item 3	Write an essay that develops an idea by making connections among a variety of textual sources.	3
WTS Item 5	Write a persuasive essay that incorporates text sources representing points of view different from yours.	4
WSS Item 4	Come up with a thesis that integrates a variety of information and many perspectives.	2
WSS Item 5	Organize a lot of material into well developed and clearly arranged paragraphs that have a clear focus.	2
WSS Item 6	Use MLA format correctly to format your paper and cite sources.	3

Selection. The writer of Essay #65 selects details from three sources (Sources A, B, and C) to develop his argument that schools making decisions about technology should consider “the types of technology and how it’ll be used, and most importantly how it’ll affect the students’ learning.” The student includes ideas from two sources in his second paragraph, one source each in his third and fifth paragraphs, and no sources in his fourth paragraph. He first uses anecdotal details from Source A and Source B in the second paragraph to establish ways that technology is currently being used in classrooms. In the third paragraph, he references Source B again, providing another example of current technology use in education. Source C is then quoted in the fifth paragraph, introducing a possible problem with educational uses of technology.

Primarily selecting quotations from his sources to explain current educational practice, the writer provides sufficient detail to accurately represent the practices described in

his sources. A quotation introducing a potential problem with technology is well selected, speaking for itself, and the student writer effectively uses ellipsis to omit unnecessary examples without distorting the original text.

Evaluation. The writer's heavy reliance on examples from his sources about current educational practice raises few questions about the credentials of his sources' authors. On the other hand, some acknowledgement that Dyson's concern about "children's informational metabolism" is simply an opinion would give greater credibility to the student's essay.

A major weakness in Essay #65 seems to stem from the writer's failure to evaluate the kinds of information provided in his sources to determine how they might be used to support a rich argument about the questions educators must consider before integrating technology in the curriculum. Although the student writer does use examples from his sources to address the first idea in his thesis ("the types of technology and how it'll be used"), the essay does not move substantially beyond a report on ways technology is being used in education. After presenting examples of uses of technology in the classroom in his second and third paragraphs, the writer notes in his fourth paragraph that educators need "to choose which one of their many uses has the most positive outcome" and then adds a noncommittal note that "some believe technology helps the children of today learn" and "other's [sic] believe that technology is the reason why students struggle."

Reporting that computers and laptops are the most common technology and observing that these resources provide access to information available on the internet, the student then continues to discuss portable devices like cellphones and PDAs. The thesis statement

suggests that a discussion of how such tools affect learning will follow, but the student writer leaves this level of evaluation to the reader, simply observing in his concluding paragraph that “[e]ducators need to evaluate whether the inclusion of technology will actually hurt a students’ [sic] learning potential, rather than help it.” His final claim that the answer may be specific to individual students is not prepared by any discussion of such differences within the body of the essay. Rather than use his sources to contextualize a conversation that he might enter, the student writer seems to view sources as facts to lay out and leaves the evaluation of controversial ideas to others.

Organization. The failure to view his sources as part of a larger conversation that he might enter is further reflected in the organization of Essay #65. The introduction works well, establishing the context for the writer’s discussion of technology use in education and closing with a thesis statement that provides three issues to consider when making decisions about integrating technology in education: 1) types of technology; 2) uses of technology; and 3) effects of technology on learning. The second paragraph then begins with a claim that computers or laptops are the most popular type of technology being used in education. Within the second paragraph, the student shifts to a discussion of online assignments and online classrooms, ideas that might be considered “uses of technology” related to the “types of technology” emphasized in the paragraph. The third paragraph then presents portable devices as an additional kind of technology and notes briefly how these devices are commonly used.

On the surface, the fourth paragraph seems to move the argument toward the writer's third concern; that is, how technology affects learning. The writer begins by closing out the discussion of types of technology and ways to use it by claiming that educators must choose the technology that produces "the most positive outcome." The writer moves to the final paragraph of the essay, however, without having developed this claim with any substantive ideas. A quote often cited throughout students' essays introduces the problem of "mess[ing] up children's informational metabolism," but the analogy is not developed. Instead the writer tosses the responsibility for decision-making back to educators without having ever developed reasons that the technology from which educators should choose might lead to problems, individualized or otherwise. Instead of developing a substantial argument, the essay seems organized to present the framework for an argument that never materializes.

Connection. In terms of syntactical flow, the student writer demonstrates an understanding of strategies for integrating quotations in his own text, selecting details that embed naturally in his sentences. Quotations in the second and fifth paragraphs might have been more effectively integrated with connecting phrases like "For instance" to clarify the use of the material quoted as an example of the idea in the previous sentence, but the stand-alone quotes make sense in context, avoiding awkward moments of disjuncture often found in student texts.

Connections between sources are loose, but reasonably logical. In the second paragraph, the writer combines a reference to kinds of technology being used in education (computers and laptops) with potential uses (accessing information, completing online

assignments, earning degrees online). The third paragraph uses sources to present additional tools (portable devices) with their uses (science experiments and student feedback). A quote from Source C in the final paragraph presents a broad problem that might be a concern with any of the technology tools introduced in previous paragraphs.

The primary problem related to connecting ideas in Essay #65 stems from the student writer's failure to synthesize details from his sources with a strong, explicit *argument*. That is, the writer seems to understand the need to connect ideas, but not the purpose for connecting them. Two quotes from Source A in the second paragraph serve to explain how Empire High School is using laptops. The student even attempts to weave his own ideas with those from his sources, following the explanation of practices at Empire High School with the observation that laptops would give students access to the internet, which "has great resources, tools, and information for any type of student." Following a quote about teachers' use of online assignments, the writer adds his own examples of technology use, noting the use of collaboration in online classrooms and the availability of online degrees.

The third paragraph similarly weaves together the student writer's ideas about portable devices being used to download educational apps with references to clickers and PDAs from Source B. The quotation about "children's informational metabolism" in the final paragraph is integrated with the writer's claims that overuse of technology could be harmful and that the Internet has "accustomed society to be always entertained & stimulated as well." The synthesis primarily functions to report on technology use in education, however, and the move in the final paragraph toward synthesizing ideas to evaluate possible problems with

using technology in education comes too late and lacks the specific details that might move the essay significantly beyond an informational report to substantive argument.

Documentation. The writer of Essay #65 successfully uses parenthetical citations to avoid plagiarism, but his understanding of the nuances of citation conventions is less clear. For each of his five quotations, he places the periods within the parentheses instead of following the parenthetical citations. Another error is found in the final paragraph, where he uses three periods instead of the four needed for an ellipsis that includes the end of a sentence. While such minor errors could be the result of working under time pressure, the frequency and consistency of the errors suggests that the writer has not mastered punctuation conventions for citing sources.

The writer's reliance on quotation marks and parenthetical citations when citing sources renders source boundaries sufficiently clear. While the student could have used transitional phrases to signal the shift to his own ideas, he does successfully introduce quotations with his own introductory comments, and examples that follow the quotes are distinct enough from the quoted material to reinforce the idea that the parenthetical citations mark the end of the material borrowed from one of the source texts.

Summary of Case #65. The writer of Essay #65 demonstrates an understanding of the need to weave together ideas from his sources, but fails to integrate those sources in an argument that moves substantially beyond an informational report. Though the introduction makes it clear that the student understands that his task is to write an argument, he uses his sources primarily to establish the current state of technology use in education, rather than to

engage in a substantive conversation with his sources. The quotation from Source C about the dangers of technology to students’ “informational metabolism” is insufficient to move the essay toward argument, and the student writer fails to recognize the moves that his source makes when he provides evidence to support his own claims. The writer does not seem aware of the ongoing conversation that is already present in his sources or recognize his own authority to enter the debate. Instead, he weaves together details from his sources, demonstrating technical writing competence, without evidence of the more complex skills writers use when they synthesize sources for developing arguments.

Case #26: Writing to demonstrate knowledge cluster. The writer of Essay #26 had the highest writing self-efficacy score (5.07) of students in Cluster 4, or the *Writing to Demonstrate Knowledge* group. Results for survey questions specifically related to composing from multiple sources are provided in Table 4.19 below.

Table 4.19

Case #26 Writing Self-efficacy for Composing from Multiple Sources

Writing Self-efficacy Survey Item	Score
WTS Item 3 Write an essay that develops an idea by making connections among a variety of textual sources.	6
WTS Item 5 Write a persuasive essay that incorporates text sources representing points of view different from yours.	4
WSS Item 4 Come up with a thesis that integrates a variety of information and many perspectives.	6
WSS Item 5 Organize a lot of material into well developed and clearly arranged paragraphs that have a clear focus.	6
WSS Item 6 Use MLA format correctly to format your paper and cite sources.	6

Selection. The writer of Essay #26 selects ideas from four sources (Sources A, B, C, and E) to develop her argument that, despite the distractions technology introduces, “the positives, like speed, advanced structure, and research opportunities, are honestly too good to pass down.” In her first and third body paragraphs, she includes references to one source per paragraph. In her second body paragraph, she selects details from three sources to develop a sophisticated argument about the problems and the benefits of using technology in education. In the essay’s second paragraph, the writer integrates one idea from Source A to represent a common belief with which she disagrees. In her third paragraph, she first selects ideas about problems with using technology in education from two of her sources and then counters with her perspective on the relative importance of those problems. She selects a claim about the positive benefits of technology from a third source to reflect her own position. In the fourth paragraph, she selects an idea from Source B that echoes her claim about the opportunities technology provides.

Excerpts from this student’s sources are well selected to sum up an essential issue in the debate on using technology in education. By selecting details that do not require explanation, she keeps the focus on her argument and, for the most part, avoids distortion of the ideas presented in the original text. An imprecise paraphrase of Source E’s complaint that most American students have not read the classics does, however, misrepresent Gelernter’s argument. While the student may believe that technology is responsible only for the fact that students have not read “tangible copies” of the classics, Gelernter was arguing that information overload was distracting students from reading the classics at all.

Evaluation. Unlike many students who treated the opinions in the sources as factual information, the writer of Essay #26 provides clear indications that she recognizes the difference and views her task as including the right to weigh in on those opinions. After first appropriately treating Dyson’s statement about the constancy of change as an idea needing no further support, she identifies Dyson’s concerns about distractions that waste time as an opinion by introducing a quote from Source C with “according to Dyson” and noting that she disagrees with the way “Dyson and others may see the distractions.” Rather than repeat the weakness found in so many essays of treating unsubstantiated ideas about “information metabolism” and declining interest in the classics as indisputable facts, the student writer instead notes her partial agreement with the authors and then counters with her opinion that these problems do not outweigh the benefits. Again appropriately treating another idea from a source as an opinion, the student clarifies her agreement with the source: “I believe Source A summarizes the advanced nature of technology in the classroom well” Her final quote treats the idea that technology is changing the way educators interact with students as fact, not needing further comment as to her agreement or disagreement. The writer demonstrates a strong ability to distinguish between ideas that invite debate and claims that are likely to be commonly accepted as true.

The writer demonstrates her ability to evaluate her sources not only by entering into debate with them herself, but also by showing the sources as in conversation with one another. Her acknowledgement of the validity of claims in Sources C and E is followed by agreeing with a statement in Source A that she positions as expressing a more important

educational benefit than the problems outlined in the other sources. Even in her second and fourth paragraphs, in each of which she includes reference to only one source, those sources are embedded in a larger conversation, rather than being presented as the primary focus of the paragraph.

Organization. Organizing her argument is more problematic for the writer of Essay #26. A clear thesis at the end of the first paragraph introduces expectations for the body of the essay that are not fulfilled completely successfully. The student writer begins the essay body logically, elaborating on the acknowledgement in her thesis statement that “technology presents many distractions.” The writer begins with examples supporting the idea that technology is distracting and then includes a claim from Source C summarizing the problem that technology wastes more time than it is worth. Countering that she views the distractions “as a solution,” she closes the paragraph by preparing the reader for a discussion of the positive benefits of “information and accessibility.”

References to “advanced instruction,” a “sped up . . . process,” and “research [that] has gotten easier” suggest that the third paragraph is structured to develop all three major ideas introduced in her thesis statement (“speed, advanced structure, and research opportunities”), though not in the same order as originally presented. Advanced instruction is not quite the same as advanced structure, however, and the student never clarifies how the two might be connected or elaborates on how technology contributes to either.

Reference in the fourth paragraph to “the great opportunity presented” by technology repeats the idea of opportunity introduced in the thesis statement, but the student discussed

research in the third paragraph, so the opportunity here seems a new idea not introduced in the thesis statement. Discussion of student interactions and healthy fear of technology follows, wandering away from the ideas introduced in the opening paragraph.

Faster research and distractions reappear in the concluding paragraph, along with a statement about changed human interaction that seems to reflect ideas included in the fourth paragraph and introduced in the opening sentence of the essay (though not in the thesis statement). Rather than contributing to a unified essay, the loose organization of ideas leaves the reader not quite sure which ideas the writer intended to emphasize.

Despite the loose organizational structure, the writer does build an argument organized by her ideas about technology, rather than by sources. While the rationale for grouping ideas in the third and fourth paragraphs is not completely clear, the sources are embedded in a complex discussion of technology in education, rather than being presenting one by one as topics for independent paragraphs.

Connection. Syntactically, the writer of Essay #26 successfully integrates source material in her own text. Using brief quotations and paraphrases, the student demonstrates an understanding of varied strategies for weaving source material into her text. In her first quote from Source C in her second paragraph and a quote from Source B in the fourth paragraph, the writer blends the words from her sources in noun clauses in her own sentence. In a second quotation in the second paragraph, she integrates a verb phrase from Source C in her text. A quotation from Source A is prepared in her third paragraph with a statement about her agreement with the source and the use of a colon to prepare the reader for the quotation that

follows. By condensing other ideas from her sources in the third paragraph, she successfully weaves ideas from two sources into an introductory subordinate clause, acknowledging two ideas that she then counters in the sentence's main clause.

While the organization of her essay renders connections between the ideas in the body of the essay and her thesis ambiguous, the writer is more successful in synthesizing her sources to present them in a conversation with one another. The syntactical sophistication that allows her to weave together problems from Sources C and F and then refute their significance in the second half of the sentence is further built upon when she presents an idea from Source A as summarizing her counterargument. References to her own opinion (e.g., "I see," "I wholeheartedly agree," "I believe"), as well as strongly worded reflections on the ideas from her sources (e.g., "This has never been more true.") emphasize the writer's own engagement in a conversation with her sources.

Documentation. The writer avoids plagiarism by using a combination of in-text and parenthetical citations to document her sources. Explicit, first-person statements about her own position help to provide clear source boundaries. Her use of square brackets for a quotation in her third paragraph and ellipsis in her fourth paragraph demonstrates her understanding of conventions for altering sources when integrating them in her own text. Correctly placed commas with the two parenthetical citations in her third paragraph, as well as the colon preceding her quote from Source A in the same paragraph, suggest her awareness of citation conventions that many research participants had not yet mastered.

Summary of Case #26. Although not flawless, Essay #26 demonstrates its author's command of many of the sophisticated moves required to develop an argument when composing from multiple sources. Unlike many students, who selected sources to establish the state of current educational practice or who pulled decontextualized details from their sources, the writer of Essay #26 demonstrates skill in selecting ideas from her sources that reflect on ongoing conversation about the benefits and risks associated with using technology in education. Recognizing the opinion-based nature of her source material, she confidently enters the conversation, acknowledging valid claims, as well as putting them in perspective with her own counterclaims. Her essay further demonstrates her ability to distinguish between ideas requiring evidence and sources that are useful because of their articulate statement of an idea less likely to require support.

While the writer has more difficulty organizing her essay so that ideas in the thesis statement, as well as the rest of the introduction, prepare the reader for the organization in the body of the essay, it is unclear whether the problem reflects a skill deficit or the realities of working quickly on a timed writing task. Repetition of key words suggests that the writer is attempting to fulfill the expectations she raises in the introduction, but getting tangled up in the process. Attention to nuances of punctuation and strategies for establishing source boundaries, particularly when working under time pressure, suggests a mastery of citation conventions that allows automaticity and precision.

Within-case Findings Summary

While students synthesized information from their sources to generate arguments with varying levels of success, the complexity of composing from multiple sources was clearly illustrated in students' efforts. With a sample of essays representing a wide range of high school writing experiences and maximum variation in writing self-efficacy within each group, no student texts represented full mastery of the skills needed for college-level research-based writing. The complexity of the five skills examined in the within-case analysis was reinforced by the number of subskills required of students, as well as the overlapping nature of the skills needed to synthesize sources in a substantial argument.

Selection and evaluation. Selecting and evaluating sources were overlapping skills (Figure 4.6) that often influenced the quality of students' essays. In selecting information from their sources, students needed to consider the number of sources to use, the quantity of material to extract, as well as the specific details that could be synthesized in their texts without misrepresenting the original text. Decisions about whether to summarize, paraphrase, or quote material required sensitivity to the nature of the material being used and whether or not it would stand alone without explanation in their own texts. Evaluating sources involved recognizing the difference between anecdotes, facts, and opinions, as well as recognition that not all opinions are equally authoritative.

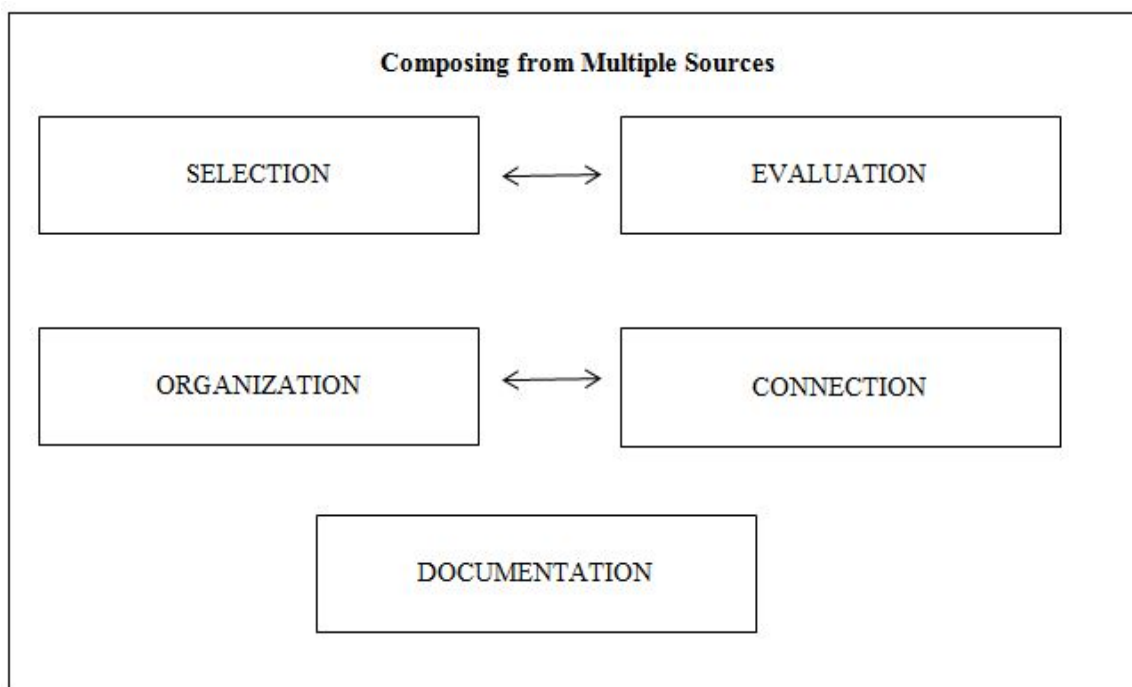


Figure. 4.6. Skills for Composing from Multiple Sources.

Organization and connection. Similarly, evidence of students' understanding of organization overlapped with details reflecting their ability to connect ideas. In organizing their ideas, students needed to generate a thesis integrating multiple perspectives with their own and then support their positions with a clear and unified claim/support pattern. Students were more often successful in connecting details from their sources syntactically than in connecting their own ideas to a wide conversation, or even recognizing the way in which their sources were in conversation with each other. Even essays that included more than one source in a paragraph often treated sources simply as examples of similar practices, rather than as reflections of the kinds of difficult issues educators must weigh in response to ever-

changing tools available for the classroom. Essays that organized their ideas as clear arguments were often formulaic – perhaps a reflection of trying to organize ideas quickly under time pressure. Even students who framed their discussions with a logical claim/support pattern provided little elaboration on their ideas, resulting in reasonably competent, but somewhat superficial, arguments. Unifying their arguments while integrating multiple perspectives from their sources posed a particular challenge for students. Even among the better essays, students most often seemed determined to force details from their sources to shore up their own arguments, whether or not they misrepresented the ideas in the original texts.

Documentation. All the essays included sufficient in-text or parenthetical citations to demonstrate the writers' awareness of the need to document their sources. Nuances related to punctuation conventions and strategies for clarifying distinctions between sources and the writers' own ideas were less consistent, demonstrating again the complex set of skills required for composing from multiple sources.

In light of problems identified in all eight essays, high writing self-efficacy scores did not indicate students' mastery of the skills needed when composing from multiple sources. Students' perceptions of their writing ability were, nonetheless, related to their success with the writing task, and high self-efficacy scores were associated with the stronger essays in the set. The next section will use cross-case analysis to examine patterns that emerged in the data.

Cross-case Findings

Despite the fact that none of the students demonstrated complete mastery of the skills needed for constructing a research-based argument, their efforts reflected the complexity of the task, and their overall perceptions about their writing ability, though mitigated by high school writing experiences, were generally consistent with their writing performance. The low self-efficacy student from the *Infrequent Writing* cluster wrote the weakest of the eight essays. The student with low writing self-efficacy in the *Writing to Demonstrate Knowledge* group was more successful in synthesizing sources, but the essay did not integrate multiple perspectives to generate an argument. Students in the *Academic Writing* group and the *Intensive Writing* cluster demonstrated greater skill in composing from multiple sources, organizing and synthesizing ideas from their sources to develop arguments about technology in education, with the higher self-efficacy students from these two groups writing more successful essays than the low self-efficacy students. Though their high school writing experiences were more limited, the two other students who reported the highest writing self-efficacy for their clusters wrote essays that moved beyond argument, synthesizing multiple perspectives in essays that began to reflect more authentic conversations with their sources.

Examination of the frequency count for sources used and their placement in the essays provided a useful tool for beginning to consider important differences in synthesizing sources among the essays (Table 4.20). All the students in the sample met the writing prompt's requirement that they integrate material from at least three sources in their texts. Two writers included more than three sources in their texts, and two included more than one

reference to a single source. Most students integrated source material in the body of their essays, but one student included a source reference in the introductory paragraph. Using four- or five-paragraph frameworks for their essays, students most often used one source per body paragraph. One essay included a body paragraph without reference to any sources, but then closed the essay with a reference to one source in the final paragraph. Only one student included reference to three sources in one body paragraph. The tendency of students to reference one source per body paragraph reflected the absence in most essays of evidence that students viewed sources as part of a conversation with each other.

Table 4.20

Comparison of Numbers of Sources Integrated in Student Essays

	Case #22 Cluster 1 WSE:3.86	Case #60 Cluster 1 WSE: 5.11	Case #23 Cluster 2 WSE:2.93	Case #52 Cluster 2 WSE: 5.18	Case #71 Cluster 3 WSE: 2.68	Case #17 Cluster 3 WSE: 4.86	Case #65 Cluster 4 WSE: 3.07	Case #26 Cluster 4 WSE:5.0 7
Intro.	0	0	0	0	1	0	0	0
Par. 2	1	1	1	1	1	2	2	1
Par. 3	1	1	2	1	1	2	1	3
Par. 4	1	1	0	1	0	2	0	1
Par. 5	0	0	-	0	-	0	1	0
Total	3	3	3	3	3	6	3*	4*

*Referred to one source in 2 paragraphs, so total number of sources used is less than total number of source references.

Clusters: Cluster 1 = Intensive Writing; Cluster 2 = Academic Writing; Cluster 3 = Infrequent Writing; Cluster 4 = Writing to Demonstrate Knowledge

Upon closer examination, four general approaches to the writing task emerged in the data: 1) Out-of-Control Essays; 2) Source-Dominated Essays; 3) Writer-Dominated Essays, and 4) Conversation-Dominated Essays.

Out-of-control essay: Case #71. Essay #71 was written by a student in Cluster 3, or the *Infrequent Writing* group. This writer had the lowest writing self-efficacy (2.68) of the 57 students who responded to the writing prompt.

Essay #71 is the weakest of the eight essays; the writer simply seems overwhelmed by the writing task. Although the student extracts three details from her sources, she seems unsure of what to do with them. In her introduction, she awkwardly inserts a comment about writing on paper feeling strange in between a statement about how fast technology is invented and another statement about needing “to keep up with competition” [sic]. Her first body paragraph elaborates on technology use at Empire High School, but her reference to Gelernter’s concern about information overload in the third paragraph is irrelevant to the writer’s topic sentence, which introduces work and social applications for technology. Interrelationships between the skills needed for composing from multiple sources are illustrated by incoherent discussion that seems to suffer from careless selection, organization, and connection of source material. Imprecise source attributions might be attributed to working quickly under time pressure, but in combination with other weaknesses in the essay, these problems compound the sense that the student is overwhelmed by her task.

Source-dominated essay: Case #65. The writer of Essay #65 had the lowest self-efficacy (3.07) of students in the *Writing to Demonstrate Knowledge* cluster. The major characteristic of this essay was the writer’s failure to recognize his own authority to enter a debate about the appropriate role of technology in education. Instead, emphasis on the kinds of technology tools available and their possible uses results in an essay that avoids discussion

of how teachers might make decisions about whether or not particular tools are appropriate for the classroom. Although the author provides three issues to consider before using technology in schools, the body of the essay quickly shifts to an informational report about current practice. The student's list of possible technology tools and applications does not develop his claim that teachers should consider "types of technology and how it'll be used," but his treatment of the possibilities seems more like a shopping list than a nuanced discussion of the issues underlying choices about which technology to use.

Despite the fact that the writer attempts to refocus his discussion to argument in the fourth paragraph, his assertion that "it's important . . . to choose which [technology use] has the most positive outcome" and his claim that "some believe technology helps the children of today learn, [and] other believe [it] is the reason why students struggle" fail to move the essay from report to substantive argument. A quote from Source C in his final paragraph about the negative effects of technology on children's "informational metabolism" begins to move beyond the technology resource report, but lacks support. The author adds a related claim that "the Internet has accustomed society to be always entertained & stimulated as well," but the lack of elaboration, as well as the lack of clear connection to the ideas presented in the body of the essay, renders this attempt to insert argument at the tail-end of the essay unsuccessful. While the educational practices summarized in the body of the essay might well merit consideration when making decisions about using technology in schools, the student writer fails to identify the complexities embedded in his sources that would allow him to move beyond report and enter an authentic conversation with his sources.

Writer-dominated essays: Case #s 23, 22, 52, and 60. The essays in this category were written by students in the *Intensive Writing* cluster and the *Academic Writing* cluster. The writer of Essay #22 (3.86) had the lowest writing self-efficacy among students in the *Intensive Writing* cluster, in contrast to the writer of Essay #60, who had the highest writing self-efficacy (5.11) in the same group. The writer of Essay #23 had the lowest self-efficacy (2.93) of students in the *Academic Writing* cluster, while the writer of Essay #52 (5.18) had the highest writing self-efficacy in the *Academic Writing* cluster, as well as the highest self-efficacy in the larger sample of 57 students. A common characteristic of these essays was writing in which the student's argument dominated.

The writer of Essay #23 (*Academic Writing* group, low self-efficacy) integrates details from his sources to generate an argument, though the writer is less successful than other students in the *Intensive Writing* and *Academic Writing* clusters. The primary weakness in Essay #23 stems from overlapping problems evaluating and selecting details to use in building an argument. Treating opinions in his sources as authoritative or factual, the writer fails to include evidence to support the claims he borrows from his sources or to even hint that he recognizes their ideas as opinions with which he is free to agree or disagree. Had his sources been scholarly, evidence-based discussions of technology in schools, the writer's argument might have been more convincing. While he demonstrates understanding of at least some of the obvious connections between his sources, lack of support for his claims weakens his argument. Although the quality of his sources varies (e.g., Dyson supports her assertions with reasons, while Gelernter simply presents claims.), the student writer presents

decontextualized claims from his sources without evidence of his awareness that their ideas might be questioned. Still, the essay moves beyond out-of-control or source-based writing and reflects an understanding of the fundamentals of synthesizing sources for argument.

The writer of Essay #22 (*Intensive Writing* cluster, low self-efficacy) generates a competent, if formulaic, argument that “technology can be a great tool if used effectively.” Addressing the practicality of technological tools and the degree to which “the technology will increase the student’s ability to grasp concepts” in her second and third paragraphs, she incorporates examples of technology currently used in education as practices for evaluation. A quote related to modern obsession with time in the fourth paragraph provides elaboration on the student’s claim that “the incredibly fast and simple access to information” in our culture has led to laziness among youth. While the essay is not marred by major problems in organizing or connecting ideas, it stops short of exploring the complexities of the conversation implicit in her sources or positioning her own argument in the context of a wider debate.

The writer of Essay #52 (*Academic Writing* cluster, high self-efficacy) argues with confidence, but like the two previous writers, makes no moves toward engaging in a complex conversation with her sources. Snippets from her sources seem forced into her argument with little interest in their original context. A puzzling quote in her second paragraph flows in her sentence, but it adds nothing to her argument, leaving the reader scrambling to the source to see if she has summarized or paraphrased the surrounding text as well as borrowing the phrase, “in ways they never have before” from Source B. In the third paragraph she treats an

opinion from Source E that “[i]nsufficient data is not the root of the problem” as fact, following the claim with a parenthetical citation, as if she were citing an idea supported by research from one of her sources. She fits a reference to the cartoon depicting a child watching a television image of the same scene shown outside a nearby window into a paragraph questioning what the future holds, but failure to elaborate further on the image suggests that the source is tucked into her argument to fulfill the requirement of using three sources, rather than because she considered it as introducing an idea meriting more substantial consideration. While the sources might have influenced the direction of the student’s argument, the essay provides no evidence that the writer was particularly interested in the opinions of the authors. While she weaves sources into her text effectively, their integration seems superficial.

The writer of Essay #60 (*Intensive Writing* cluster, high self-efficacy) generates a confident, well-organized essay and demonstrates awareness of the fact that his sources include opinions, not evidence-based claims or factual information. Unlike most writers in the sample, he attempts to provide credentials for his sources, contextualizing Johnson’s observations about his handwriting as the ideas of a writer and Gelernter’s opinions about the negative effects of the internet on education as the informed beliefs of a computer scientist. Although he fails to push further to consider why a writer’s experiences might or might not generalize to school children or what kind of expertise a computer programmer might have about the impact of technology on education, he is at least making moves that reflect understanding of what the inclusion of authors’ credentials can do to strengthen an argument.

This failure to push back against his sources results in an essay that is competently produced, but which falls short of substantive argument. Using sources to support his own argument, he accurately notes what his sources believe without providing evidence that it might be useful to contrast their beliefs to each other or to include beliefs that might conflict with his own in order to build a more nuanced argument. He succeeds in synthesizing sources and in building an argument, but he does not enter an authentic conversation with his sources.

Conversation-dominated essays: Case #s 17 and 26. The writer of Essay #17 had the highest writing self-efficacy (4.86) of students in the *Infrequent Writing* cluster. The writer of Essay #26 reported the highest writing self-efficacy (5.07) of students in the *Writing to Demonstrate Knowledge* cluster. These essays reflected the students' ability to make more subtle connections between their sources than the largely additive connections found in the Writer-Dominated essays. Though more sophisticated in their understanding of composing from multiple sources, these essays are not without flaws.

Essay #17 weaves together details from two sources in each of the body paragraphs, making reasonable choices of details to integrate in each paragraph, but relies heavily on the reader's ability to infer the connections between his ideas. While the introductory paragraph lacks a clear thesis, the reader can infer the writer's interest in dependence on technology as a problem compounded by reliance on it in school. At first glance, reference to Source D's discussion of deteriorating handwriting and the cartoon in Source F seem unrelated, but, again, the reader might infer the connection: in both examples, human beings are becoming too reliant on technology. The writer moves without transition from a discussion of textbooks

in the third paragraph to comment on online foreign language practice. While a clear claim connecting the two issues at the beginning of the paragraph would have helped the reader follow the argument, the writer does finally reach a claim that unifies his discussion in the final sentence of the paragraph. An explicit claim introduces the fourth paragraph, but source boundaries begin to break down in this section, requiring the reader to check to original sources to identify which ideas are the author's own and which come from his sources.

In Essay #17, the writer ignores the complexity of the conversation in his sources when he refers to his sources in his final paragraph to support his claim that technology has a negative impact on education: "These six sources of information outline this problem." To suggest that all six sources were in opposition to using technology in schools is a misrepresentation of their ideas to shore up his own argument. Nonetheless, the student's attempt to weave his own viewpoint together with his sources in the body of the essay does suggest a writer who recognizes the way in which his sources speak to each other.

Essay #26 was, by far, the most successful of the eight essays selected for qualitative analysis. In short, this student writer demonstrated a sophisticated understanding of the skills required for composing from multiple sources and generated an impressive essay in which she entered into authentic conversation with her sources.

Weaving together five details from four of her sources, the writer develops a nuanced essay in which she subtly communicates the opinion-based nature of her sources and places them in conversation with each other. Moreover, the student smoothly shifts from acknowledgement of the validity of her sources' claims to rebuttal by noting that benefits of

using technology in education outweigh the problems. Careful selection of details results in an essay that does not leave the reader pushing back or demanding evidence. While loose connections between claims and support weaken the essay, it is unclear whether the problem is a serious organizational problem or simply an issue that could be cleaned up with more time to refine her language. Whether the problems reflect the difficulty of organizing and unifying ideas under time pressure or more significant writing problems, they reflect the fact that successfully composing from multiple sources in order to enter the kind of substantive conversation expected at the college level is a complex task likely to challenge even those students who seem to understand what they are trying to accomplish.

Summary of cross-case findings. Maximum variation sampling based on students' high school writing experiences, their writing self-efficacy, and their ability to compose from multiple sources suggested four approaches to the essay prompt. The low self-efficacy student from Cluster 3, or the *Infrequent Writing* group, seemed overwhelmed with the complexity of the writing task and wrote an essay that might be described as *Out-of-Control*. A second kind of essay was identified as *Source-Dominated*. The writer of the source-dominated essay reported the lowest writing self-efficacy for students in Cluster 4, or the *Writing to Demonstrate Knowledge* group. Rather than synthesize sources to help develop his own position on technology in education, this student wrote an essay that emphasized reporting, not argument. Four essays were characterized as *Writer-Dominated Essays*. The two students from Cluster 1, or the *Intensive Writing* group, and the two students from Cluster 2, or the *Academic Writing* group, were included in this category. These students

wrote competently and, in some cases, confidently developed arguments in which their own positions dominated. Source material seemed to be forced into their arguments, however, rather than used to enter an ongoing conversation with their sources. Two essays, written by the student with the highest writing self-efficacy in the *Infrequent Writing* cluster and by the student with the highest writing self-efficacy in Cluster 4, or the *Writing to Demonstrate Knowledge* group, were described as a *Conversation-Dominated Essay*. Of the two, Essay #26, written by the high self-efficacy student in the *Writing to Demonstrate Knowledge* group, was more successful, but both students did attempt to weave sources together in an authentic conversation. Although these essays were not flawless, the students demonstrated awareness of the more sophisticated moves often required for college-level writing, synthesizing perspectives from their sources with their own ideas to enter into an authentic conversation about technology in education.

Although students' performance on the assigned writing task were not completely predictable, cross-case analysis of essays purposefully selected to represent maximum variation in writing self-efficacy for students with four different types of writing experiences suggested that high school writing experiences and writing self-efficacy do matter when students are faced with complex writing tasks requiring synthesis of multiple perspectives with their own. Chapter Five will provide further discussion of the quantitative and qualitative results, including implications of those findings and suggestions for future research.

Summary of Qualitative Findings

Qualitative analysis with *a priori* and open coding of 57 essays in the dataset revealed five skills that distinguished students' skill in composing from multiple sources: *Selection*, *Evaluation*, *Organization*, *Connection*, and *Documentation*. Fine-grained analysis of eight essays purposefully selected based on maximum variation sampling revealed the complexity of the skills needed for the writing task; none of the students demonstrated complete mastery of composing from multiple sources. Within-case findings showed the overlapping nature of skills that contributed to the complexity of the writing task. Cross-case findings revealed four approaches to the writing task: *Out-of-Control Essays*, *Source-Dominated Essays*, *Writer-Dominated Essays*, and *Conversation-Dominated Essays*. While results were not completely predictable, cross-case findings did suggest a relationship between high school writing experiences, writing self-efficacy, and students' success with the writing task. For each cluster, students with the highest writing self-efficacy demonstrated stronger skills in composing from multiple sources than students with low writing self-efficacy.

Summary

This chapter provided results from quantitative and qualitative analysis in order to understand the relationship between first-year college students' high school writing experiences, their writing self-efficacy, and their preparation for composing from multiple sources. It included results from data screening, descriptive statistics for survey data, factor analysis results, cluster analysis results, analysis of variance (ANOVA) test results, as well as findings from Within-case and Cross-case analysis of essay data. The next chapter will

present discussion of the quantitative and qualitative findings, including implications for teaching writing, limitations of the current study, and suggestions for future research.

CHAPTER V: DISCUSSION

The purpose of the current study was to examine first year college students' high school writing experiences and to understand how those experiences were associated with their writing self-efficacy and their preparation for composing from multiple sources. To that end, the study used a convergent parallel mixed methods design, collecting quantitative and qualitative data concurrently, analyzing them separately, and then merging the results to answer the following research questions:

1. What are the differences, if any, in high school writing experiences among first-year college students in English composition classes?
2. What are the relationships between first-year college students' writing self-efficacy and their high school writing experiences?
3. What differences in students' competencies in composing from multiple sources are evident in purposefully selected essays from first-year college students?

Quantitative research methods were used to address the first two research questions. To evaluate differences in students' high school writing experiences, quantitative analysis used survey data about the frequency that first year college students were assigned specific writing tasks in the twelfth-grade. Descriptive statistics were used to compare students' high school writing experiences, and factor analysis was used to identify common types of high school writing experiences. Cluster analysis was then used to group students in relation to the types of high school writing identified in factor analysis. To identify relationships between high school writing experiences and writing self-efficacy, survey responses to questions

about students' writing self-efficacy, including writing behaviors, writing tasks, and writing skills, were examined. Descriptive statistics and one-way ANOVA tests were used to explore patterns in the data. The quantitative analysis revealed that differences did exist in first-year college students' high school writing experiences and that those differences were associated with small but significant differences in writing self-efficacy.

In order to address the third research question about differences in students' skills in composing from multiple sources, qualitative methods were used to explore essay data from a subset of survey participants. Opening coding of 57 essays yielded five themes for closer analysis in a subset of 8 essays. Two essays were chosen from each group identified in cluster analysis to represent maximum variation in writing self-efficacy among the four clusters, providing information about the range of skills demonstrated within each cluster in the essay data. Close analysis revealed four approaches to composing from multiple sources among the eight essays.

Quantitative analysis identified three kinds of writing tasks commonly assigned at the high school level and four patterns of high school writing experiences that were then associated with students' writing self-efficacy. Factor analysis yielded a three-factor solution, with the following types of common high school writing tasks: *Academic Writing*, *Non-academic Writing*, and *Writing-to-Demonstrate-Knowledge*. Cluster analysis then grouped students into four clusters: 1) an *Intensive Writing* cluster that was assigned all three types of writing more frequently than students in other clusters; 2) an *Academic Writing* cluster that was most often assigned academic writing tasks (essays and research-based writing); 3) an

Infrequent Writing cluster that was assigned all three types of writing less often than students in the other clusters; and 4) a *Writing-to-Demonstrate Knowledge* cluster that was most often assigned writing tasks in which the primary focus was not the writing task itself (e.g., short answer, copying text, completing worksheets). Students who wrote most frequently in high school and who were most often assigned academic writing tasks reported higher writing self-efficacy than students who did not write frequently and students who were most often assigned writing tasks that did not emphasize skill in composing. One-way ANOVA tests indicated small but significant relationships between high school writing experiences and writing self-efficacy for writing tasks and writing skills.

Qualitative analysis drew attention to the complexity of writing tasks requiring students to compose from multiple sources. Even stronger essays reflected difficulty organizing and integrating information from different perspectives with their own in a unified argument. Within-case analysis examined five types of skills needed to compose from multiple sources: 1) Selection; 2) Evaluation; 3) Organization; 4) Connection; and 5) Documentation. Cross-case analysis revealed the four following types of responses to the task of composing from multiple sources: 1) Out-of-Control; 2) Source-Dominated; 3) Writer-Dominated; and 4) Conversation-Dominated.

In this chapter, discussion centers on how the current study contributes to a deeper understanding of differences in high school writing experiences and how those differences are related to first-year college students' writing self-efficacy and their skills in composing from multiple sources. The following sections contextualize the findings from the current

study with the existing literature on high school writing experiences, writing self-efficacy, and composing from multiple sources. Discussions of implications for teaching, limitations of the current study, and suggestions for future research conclude the chapter.

Differences in High School Writing Experiences

Consistent with earlier research, the current study concluded that differences in high school writing experiences do exist. In contrast to previous research, however, the current study did not identify groups of students for whom personal writing was emphasized. While Sperling and Woodlief (1997) found that students in an urban high school with a diverse student population were more frequently assigned personal writing than a largely white, suburban, middle-class population, and Scherff and Piazza's (2005) research showed differences in personal and research-based writing assignments related to ability level tracking, participants in the current study did not identify personal writing as a commonly assigned task. Over 75% of participants were assigned personal narratives once a quarter or less (most students wrote narratives once a semester or less). Almost 80% of participants were never assigned autobiographies, and most students wrote poetry once a semester or less. Like the suburban students in Sperling and Woodlief's study, participants in the current study were assigned research-based writing in high school; only 5.2% of the student never wrote a research paper during their senior year in high school.

Participants in the current study may, in fact, have been similar to the suburban, advanced students headed for challenging universities and students in high-ability tracks in the previous studies. In the fall of 2013, the average SAT critical reading and math score for

freshmen at the university where the current research was conducted was 1244. While study participants reported SAT critical reading scores ranging from 330 to 780 and SAT writing scores from 300 to 800, the average SAT critical reading score reported by study participants was 590, and the average SAT writing score reported was 580. Even for the academically competitive students in this study, nonetheless, important differences in high school writing experiences did emerge in the data.

Participants in Cluster 1, or the *Intensive Writing* group, simply stated, wrote frequently in high school. While they were most frequently assigned tasks like completing worksheets, copying text, short answer responses, and writing summaries of material read, they also devoted a lot of time in the twelfth grade to more substantial academic writing. When considering writing tasks grouped together by factor analysis as Factor 1, or Academic Writing tasks, these students, like the students in all four clusters, were most often assigned literary analysis and five-paragraph essays. They were, however, assigned these tasks, and every other type of essay except AP Timed essays, more frequently than students in the other three clusters. Cluster 1 mean factor scores on Academic Writing tasks (persuasive essays, descriptive essays, cause/effect essays, literary analysis, five-paragraph essays, reflective essays, AP timed essays, and research papers) ranged from 3.07 to 4.77, indicating that these students frequently wrote academic essays representing a wide range of modes during their final year of high school. A mean factor score of 3.07 for research papers, moreover, suggests that composing from multiple sources was a substantial component of these students' high school writing experiences.

These students were also assigned non-academic writing tasks (biographies, autobiographies, memos, short stories, digital storytelling, business letters, poetry, multi-genre writing, stage/screen plays, and book reports) substantially more often than students in the other clusters. Among the tasks grouped together as Non-academic Writing tasks by factor analysis, poetry and short stories were the most commonly assigned tasks for Cluster 1 participants. Over 50% of study participants reported being assigned poetry once a semester or less, and almost 65% reported being assigned short stories once a semester or less (44% were never assigned short stories). Students in the *Intensive Writing* cluster, on the other hand, had mean scores (3.68 and 3.28, respectively) over three times the mean scores of students in the *Infrequent Writing* cluster (1.01 and 0.56, respectively) for these writing tasks. In fact, while Non-academic Writing tasks were the least commonly assigned type of writing for all four clusters, the mean score for the *Intensive Writing* cluster was higher for Non-academic Writing tasks (19.97) than mean factor scores for Cluster 3 on Academic, Non-academic, or Writing to Demonstrate Knowledge tasks (13.74, 4.22, and 19.72, respectively). Of particular interest were two writing tasks that have become topics of wide interest in professional development in recent years: digital storytelling and multi-genre writing. While over 80% of study participants reported never being assigned digital storytelling, and almost 60% said they were never assigned multi-genre writing during the twelfth grade, students in Cluster 1 were much more likely to be assigned these writing tasks than other study participants (Table 4.5).

The students in Cluster 1 were not only assigned analytical, argumentative, and research-based writing more often than other students; they were also assigned narrative, expressive, and business writing, as well as tasks like notetaking, short answer, and completing worksheets, more often than other students. The range and frequency of writing tasks that these students were assigned in high school reflected a rich high school writing experience, requiring them to use writing for creative and informational purposes, as well as a tool for critical thinking and content mastery.

Cluster 2, or the *Academic Writing* group, was the only cluster to score higher on the Academic Writing subscale than on the other two writing subscales. Reflecting the academic focus of this cluster, the one writing task that they were assigned more often than participants in the *Intensive Writing* cluster was AP timed essays. They were also more likely than participants in Cluster 1 to have taken AP English Language & Composition (57% vs. 47.7%) or AP English Literature & Composition (53.5% vs. 42.3%) during high school. Although they were assigned every other individual writing task less frequently than Cluster 1 participants, their mean score was close behind Cluster 1 for academic writing tasks, and they were assigned all eight academic writing tasks more frequently than participants in Cluster 3 or Cluster 4 (Table 4.5). They were also the only cluster that reported being assigned literary analysis with approximately the same frequency as copying text (mean scores of 4.71 and 4.70, respectively). Students in all three other clusters reported more substantial differences in the frequency these two types of writing were assigned, with copying text consistently more frequent. For academic writing, Cluster 1 and Cluster 2 were

assigned tasks with similar frequency (mean factor scores of 31.45 and 28.39), in contrast with Clusters 3 and 4 (mean factor scores of 13.74 and 16.35).

Cluster 2 was distinguished not only by the academic writing that they were assigned most often, but also by the writing tasks they were assigned less often than other groups. Students in Cluster 2 wrote less often overall than Cluster 1 participants, but the substantial difference came from reduced attention to expressive, narrative, and business writing, as well as to writing tasks like short answer responses, completing worksheets, and copying text. Participants in Cluster 2 were assigned each of the seven Writing-to-Demonstrate Knowledge tasks less frequently than students in Cluster 1 or Cluster 4. In addition, they were assigned all but two of the Non-academic Writing tasks (biography and book report) less often than students in Cluster 1 or Cluster 4. Cluster 2 participants' high school writing experiences reflected almost no attention to expressive or creative writing tasks or to business writing. The only students to write short stories and poetry less often than students in Cluster 2 were members of Cluster 3, or the *Infrequent Writing* group. The mean factor scores for digital storytelling, multi-genre writing, and memos were lower for Cluster 2 participants than for any of the clusters. While students in Cluster 2 had a less diverse high school writing experience than students in Cluster 1, academic writing seemed the non-negotiable part of the curriculum for these two clusters. Essays and research papers remained a strong emphasis for both groups. Interestingly, the type of essay assigned least often to students in the *Academic Writing* cluster was reflective essays, perhaps the most personal of the essays included among Academic Writing tasks.

Participants in Cluster 3, or the *Infrequent Writing* group, were distinguished less by the kinds of writing tasks they were assigned than by the fact that they were assigned academic writing, non-academic writing, and writing-to-demonstrate knowledge less frequently than students in the other three clusters. In fact, Cluster 3 students reported the lowest mean scores on 22 of the 25 individual writing tasks included in the three-factor solution for types of high school writing. They were assigned memos, digital storytelling, and multi-genre only slightly more frequently than students in Cluster 2, the *Academic Writing group*. Like students in Clusters 1 and 4, they were most frequently assigned short answer responses, copying text, completing worksheets, and summaries of material read. They were assigned even these tasks, however, less frequently than students in any other cluster. Among academic writing tasks, these students were assigned five-paragraph essays most often. While students in Cluster 3 were more likely than students from Cluster 4 to have taken AP English Language & Composition or AP English Literature & Composition (35.6% vs. 30.1% and 33.3% vs. 14.7%, respectively), they were assigned AP timed essays less than students in any other cluster.

Participants in Cluster 4, the *Writing to Demonstrate Knowledge* group, were distinguished not just by the fact that they were most often assigned writing for which the composing process itself was not a focus, but by the fact that they were assigned these kinds of writing tasks more than twice as often as academic or non-academic writing (with mean factor scores of 33.96, 16.35, and 7.78, respectively). Like students in all four clusters, creative, expressive, and business writing were infrequently assigned for students in Cluster

4. Nonetheless, although Cluster 4 mean factor scores for non-academic writing tasks were substantially lower than mean factor scores for Cluster 1, they had higher mean factor scores than students in the *Academic Writing* cluster or the *Infrequent Writing* cluster on 7 of the 10 non-academic writing tasks (Table 4.5). For academic writing tasks, mean factor scores were more similar to students in the *Infrequent Writing* cluster than to other groups. Like students in the *Infrequent Writing* cluster, they were assigned five-paragraph essays more often than literary analysis.

While differences in high school writing experiences were evident among study participants, reasons for those differences were less clear. Unlike the findings of Sperling and Woodlief (1997), demographic differences related to ethnicity did not seem to explain the data. Such differences might exist in a broader population, but for the students in this study, the most notable difference related to demographics was the fact that Black or African American and Hispanic or Latino students were less likely to be among those in Cluster 4, or the *Writing to Demonstrate Knowledge* group, than in the other clusters (Table 4.6). White students were more likely to be in the *Writing to Demonstrate Knowledge* cluster, followed by the *Intensive Writing* cluster, while equal numbers of Asian students were found in the *Academic Writing* cluster and the *Writing to Demonstrate Knowledge* cluster. These differences were smaller, however, than differences related to advanced placement courses in English. Differences related to ability-level tracking, as noted in Scherff and Pizza's (2005) study may have contributed to differences among the clusters. Fifty-seven percent of students in the *Academic Writing* cluster reported taking AP English Language & Composition in

high school, contrasted with 47.7% in the *Intensive Writing* group, 35.6% in the *Infrequent Writing* group, and 30.1% in the *Writing to Demonstrate Knowledge* cluster. A similar pattern held for students who took AP English Literature & Composition in high school. Among the *Academic Writing* cluster, 53.5% took AP English Literature, as opposed to 42.3% in the *Intensive Writing* group, 33.3% in the *Infrequent Writing* group, and 14.7% in the *Writing to Demonstrate Knowledge* group.

These statistics suggest that students in high-ability tracks may have been more likely to have high school writing experiences characterized by frequent, diverse writing tasks or by an emphasis on academic writing. This possibility, however, was complicated by the absence of large differences among clusters in the means for SAT critical reading and SAT writing scores. To the extent that ability is measured by such standardized testing, ability differences among the clusters were small – and not necessarily predictable. Students in the *Infrequent Writing* cluster, for instance, reported higher SAT critical reading and SAT writing scores than students in the *Intensive Writing* cluster or the *Writing to Demonstrate Knowledge* cluster. Still, the fact that students in the *Academic Writing* cluster were more likely to participate in AP English courses and reported the highest SAT critical reading and SAT writing scores of the four clusters reinforces the idea that ability-level tracking may have contributed to differences in high school writing experiences among study participants.

Relationships between High School Writing Experiences and Writing Self-efficacy

Descriptive statistics and one-way ANOVA tests revealed clear associations between high school writing experiences and writing self-efficacy among research participants. For

the combined writing self-efficacy scores and each of the three writing self-efficacy subscales, students in Cluster 1, or the *Intensive Writing* group, had the highest mean scores. Students in Cluster 2, or the *Academic Writing* group, had the second highest mean scores on all three subscales and the measure of overall writing self-efficacy. Students in Cluster 4, or the *Writing to Demonstrate Knowledge* group, had the third highest mean scores for all three subscales and the combined writing self-efficacy score, while Students in Cluster 3, or the *Infrequent Writing* group, consistently indicated the lowest writing self-efficacy of the four clusters.

Students with the highest writing self-efficacy, then, wrote frequently and were assigned a wide range of writing tasks in high school. Students in Cluster 1, or the *Intensive Writing* group, were assigned academic, non-academic, and writing-to-demonstrate-knowledge writing tasks more frequently than students in other clusters. Students with the second-highest writing self-efficacy were assigned a narrower range of writing tasks in high school, but were assigned academic writing almost as often as students in Cluster 1. Even the Cluster 4 students, who were assigned much less academic writing than students in Cluster 1 and Cluster 2, had higher self-efficacy than students in Cluster 3, or the *Infrequent Writing group*, reinforcing the importance of writing frequency as an important influence on students' writing self-efficacy.

Post hoc tests for ANOVA results provided more nuanced information about the relationships between kinds of writing tasks and the frequency of high school writing on participants' writing self-efficacy. For the Writing Behaviors Subscale, differences in

students' responses reached the level of statistical significance for only one item: WBS item 6 ("When I decide to do an assignment that requires writing, I go right to work on it.").

Students in Cluster 1, the *Intensive Writing* group, were significantly more likely to settle down to work immediately than students in Cluster 4, the *Writing to Demonstrate Knowledge* group, or students in Cluster 2, the *Academic Writing* group. Responses from students in the *Infrequent Writing* group were not significantly different from students in any of the other three clusters, suggesting that only high school writing experiences including frequent and diverse writing assignments made a difference in how quickly students believed they would tackle writing assignments. At least when presented with questions about their writing behaviors without connection to specific writing tasks, students in the current study expressed more similarities than differences in self-efficacy.

The lack of statistically significant differences among the clusters on other Writing Behaviors Subscale items rendered the commonalities in the data more interesting than differences related to high school writing experiences. Across clusters, students reported the highest self-efficacy for persisting until they had completed writing assignments. Students across clusters reported handling problems in writing, carrying out writing plans, and persisting in response to initial problems among their highest self-efficacy for writing behaviors. Students in all four clusters reported their lowest scores on writing behaviors for getting started on writing tasks as soon as they were assigned, working when they should, and trying harder in response to failure. While procrastination on writing assignments might be common among study participants, then, most students believed they could handle most

writing problems. Their lack of confidence in their ability to respond to writing failure, however, reinforces the importance of high school writing experiences that prepare students for the kinds of writing tasks and skills needed for college writing.

For the Writing Tasks Subscale, post hoc tests identified statistically significant differences in writing self-efficacy between Cluster 1, the *Intensive Writing* group, and Clusters 3 and 4, the *Infrequent Writing* group and the *Writing to Demonstrate Knowledge* group. Moreover, statistically significant differences were found between students in Cluster 1 and students in Clusters 3 and 4 on four subscale items. Students in the *Infrequent Writing* group reported significantly lower self-efficacy than *Intensive Writing* group members for writing a good paper for an English course, writing an essay making connections between multiple textual sources, writing a persuasive essay incorporating text sources with points of view different from their own, and writing an effective summary of a long essay. Students in the *Writing to Demonstrate Knowledge* cluster reported significantly lower self-efficacy than students in the *Intensive Writing* group for writing an essay making connections between multiple textual sources, writing an essay providing a critique or analysis of another essay, writing an effective summary of a long essay, and writing cause/effect analysis. In terms of preparing students for research-based writing common at the college level, it seems important to note that synthesizing information from multiple text sources was an area of significantly lower self-efficacy for students in the *Infrequent Writing* group and the *Writing to Demonstrate Knowledge* cluster. Perhaps equally noteworthy was the fact that no statistically significant differences were found between students in the *Intensive Writing*

cluster and the *Academic Writing* cluster for self-efficacy on the Writing Tasks Subscale. Still, the consistency with which students in the *Intensive Writing* group reported higher self-efficacy across all eight writing tasks included in the survey suggests that a more diverse high school writing experiences may contribute to higher writing self-efficacy.

For the Writing Skills Subscale, statistically significant differences were found between the *Intensive Writing* group and the *Infrequent Writing* cluster. For writing skills that might be needed across diverse writing tasks, then, frequency of writing during high school seemed the most important element of students' high school writing experiences. Post hoc results further indicated statistically significant differences for four subscale items. Students in the *Infrequent Writing* and the *Writing to Demonstrate Knowledge* clusters reported significantly lower self-efficacy than students in the *Intensive Writing* cluster for maintaining a personal voice in academic writing. Students in the *Infrequent Writing* cluster also reported significantly lower self-efficacy than *Intensive Writing* cluster members for generating a thesis integrating information and perspectives from multiple sources; for pulling their ideas together with effective introductions and conclusions; and for using an effective writing process. The importance of all three of these skills to research-based writing frequently assigned at the college level suggests that students who wrote infrequently in high school are likely to be less prepared to manage complex writing tasks commonly assigned in college.

In evaluating the influence of high school writing experiences on writing self-efficacy, it seems important to note that none of the clusters were distinguished by a heavy emphasis on personal writing in high school, and only 5.2% of participants never were

assigned a research paper in their senior year of high school. Students in the *Academic Writing* group were assigned more academic writing tasks than other types of writing. In the other three clusters, academic writing was more common than non-academic writing, even though writing tasks like copying texts and short answer responses were the most frequently assigned kinds of writing. What remains unclear are questions about whether the dichotomy between personal and academic writing described by Sperling and Woodlief (1997) or the reservation of research-based writing for higher-ability tracks observed by Scherff and Piazza (2005) persist. For the students in the current writing sample, at least, a high school writing curriculum emphasizing academic over non-academic writing may have contributed to writing self-efficacy, thus explaining the lack of significant difference in their self-efficacy on the Writing Behaviors Subscale.

The fact that perseverance in response to failure was reported among the lowest writing self-efficacy scores for students across clusters raises questions about how well students might handle frustration when writing tasks in college pose problems for which their high school writing experiences did not prepare them. While moderate self-efficacy across clusters for behaviors related to solving problems encountered in writing suggests that the students in the current study tend to have the confidence they need for success in college writing, the lower writing self-efficacy found among students in the *Infrequent Writing* cluster and the *Writing to Demonstrate Knowledge* cluster, particularly in relation to specific writing tasks and skills related to composing from multiple sources, suggest that these

students may be less prepared for success in complex research-based writing tasks common at the college level.

In light of past research demonstrating positive relationships between self-efficacy, effort, persistence, strategy use, and self-regulation (Bandura, 1989, 1997; Pajares, 1996, 1997; Pintrich & DeGroot, 1990; Shell & Husman, 2008; Zimmerman & Bandura, 1994) and studies suggesting a connection between low writing self-efficacy and students' decisions to drop out of first-year writing or even college (Cox, 2009; Penrose, 2002; Mattern & Shaw, 2010), the small but significant relationships between high school writing experiences and writing self-efficacy identified in this study suggest that students in the *Intensive Writing* cluster and the *Academic Writing* group may be more successful when encountering challenging writing tasks like composing from multiple sources than students who wrote infrequently in high school or students who were most often assigned writing tasks like notetaking, short answers, or completing worksheets. Although students did not differ significantly when surveyed about writing behaviors in general, the task-specific nature of self-efficacy suggests that differences in self-efficacy for specific writing tasks and skills might result in less effort, persistence, and problem-solving behavior when students attempt research-based writing commonly assigned at the college level.

For challenging writing tasks such as composing from multiple sources, students need the *operant efficacy* that, according to Bandura (1986), will allow them to persist in developing a complex set of subskills. The fact that students in all four clusters reported low self-efficacy for persisting in the face of failure draws attention to the importance of helping

students to avoid failure. To the extent that high school writing experiences contribute to writing self-efficacy that encourages problem-solving behavior and persistence, students who are frequently assigned a diverse range of writing tasks and those who write less often, but who are frequently assigned essays and research-based writing, are most likely to succeed in the kind of writing tasks that dominate college writing.

Composing from Multiple Sources

Regardless of the relationships among high school writing experiences, writing self-efficacy, and students' ability to compose from multiple sources, one of the clearest findings from the qualitative analysis was the fact even the best essays reflected students' difficulty with the task of composing from multiple sources. Consistent with the prior literature (Kilpatrick & Klein, 2009; Mateos & Solé, 2009; Nash, Schumacher, & Carlson, 1993; Spivey & King, 1989), the essays examined in the current study demonstrated the complexity of the skills needed when synthesizing sources to generate an original text.

Synthesizing sources to generate an *argument* provided a challenge that not all students met with success. Questions about the role of developmental differences in students' ability to compose from multiple sources are raised by the contrast between Lenski's (1998) observation that eighth-grade students tended to struggle to synthesize sources for persuasive purposes and Wiley & Voss' (1999) finding that adding argument to a synthesis task improved the quality of university students' essays. The current study suggests that, in addition to developmental differences, previous writing experiences and writing self-efficacy play a role in students' ability to synthesize sources to generate an argument. In the current

study, students with lowest writing self-efficacy from the *Infrequent Writing* cluster and the *Writing to Demonstrate Knowledge* group had difficulty integrating sources to develop a coherent argument. On the other hand, the high self-efficacy students from the *Infrequent Writing* cluster and the *Writing to Demonstrate Knowledge* group, as well as the four students from the *Intensive Writing* and *Academic Writing* clusters all demonstrated at least a basic understanding of the skills needed for synthesizing sources to generate an argument.

The current study also expanded upon Penrose and Geisler's (1994) discussion of the difficulty a first-year college student had in recognizing her own authority to enter a conversation with her sources. Of the students in the current study who successfully integrated sources to develop an *argument*, only two demonstrated awareness of composing from multiple sources as an opportunity to enter into a conversation with their sources. In contrast, the student with lowest writing self-efficacy from the *Writing to Demonstrate Knowledge* cluster more closely resembled the freshman in Penrose and Geisler's case study, integrating sources in an essay consisting more of informational report than argument. Even among the students who generated arguments, details from the sources sometimes seemed forced into their arguments without concern for the original authors' positions. While students from the *Academic* and *Intensive Writing* clusters wrote arguments with varying degrees of success, even these students did not engage in authentic, substantive conversations with their sources. Surprisingly, the two students who demonstrated awareness of their sources as in conversation with each other were from the *Infrequent Writing* group and the *Writing to Demonstrate Knowledge* cluster. While writing experiences prior to the senior

year of high school may have influenced these students' performance, their essays also reinforce the association between high writing self-efficacy and success in composing from multiple sources.

Consistent with previous research, the current study raised questions about a link between reading comprehension and students' difficulty integrating information from sources (Mateos & Solé, 2009; Spivey & King, 1989). While the sources provided to students did not reflect particular textual complexity, students' frequent misrepresentations of the ideas in their sources suggested that weaknesses in reading comprehension may have been a factor in the quality of their essays. While some distortions in referring to their sources were a result of including too little context to clarify the ideas they were summarizing, other misrepresentations seemed associated with failure to understand their sources. For example, although Johnson, the author of Source D, did discuss the influence of technology on his deteriorating handwriting skills, he did not imply, as some students suggested, that handwriting equals writing or that students should stop typing papers before writing becomes a lost art.

Even the student who was most successful at entering an authentic conversation with her sources had problems related to misreading the original text. On the other hand, the nature of her distortion suggested that time pressure may have been a factor in reading comprehension problems. With more time, the student writer might have reconsidered her claim that Gelernter viewed technology as responsible for students' failure to read "tangible copies" of the classics. If anything, technology makes it easier for students to access the

classics; Gelernter's concern was that students were overwhelmed with options, not missing out on holding traditional copies of books in their hands. To be fair, all the misreadings may have been influenced by writing under the timed, on demand context, though the fact that college level research-based writing often involves its own time-related pressures – and far more complicated source texts – suggests that students may continue to struggle with the kind of close, careful reading needed when composing from multiple sources.

The current study did not find clear associations between these sorts of distortions and high school writing experiences or writing self-efficacy. Whether the distortions were the result of time pressure or more serious reading problems, they did serve as a reminder of the complexity of the task students were being asked to undertake. Moving beyond report or writer-dominated argument requires students to do more than weave together ideas from their sources. They must also read and consider their sources carefully, entering into a conversation with the arguments their authors are actually making, not repurposed or misunderstood versions of the original texts.

Implications for Teaching Writing

This study may provide useful information to guide curriculum decisions at the high school level and to help college instructors understand the diverse writing experiences, self-efficacy beliefs, and skills in composing from multiple sources that students bring to the college setting. In addition, its findings may be of use in encouraging more productive conversations between first-year college writing instructors and secondary English teachers

who, after all, work toward the common goal of equipping students for academic success at the college level.

While teaching trends continually shift in English education, one constant is the pressure to find enough time for writing in the curriculum. At the high school level, the need to include the study of literature and writing in a single course makes the task all the more challenging. Despite the wide range of approaches to college writing (Fulkerson, 2005), the prevalence at the college level of research-based writing (Addison & McGee, 2010; Bridgeman & Carlson, 1985; Council of Writing Program Administrators, 2005-2014; Melzer, 2003) increases the importance of understanding experiences that help prepare students for college writing, and more specifically, for composing from multiple sources.

A major finding from the current study is the fact that differences in high school writing experiences do exist, and these differences are associated with small but significant differences in students' writing self-efficacy. An additional important finding is the fact that differences in high school writing experiences and students' writing self-efficacy may play at least some role in the ways that students conceive of composing from multiple sources and in their success when synthesizing multiple perspectives with their own ideas.

In contrast to findings of Sperling and Woodlief (1997) and the more recent research of Scherff and Piazza (2005), no groups of students in the current study reported high school writing experiences dominated by personal writing. Unlike the findings reported by Patterson and Duer (2006) that 25% of teachers of college-bound students did not require the research paper, almost all students in the current study wrote research papers during high school. The

higher writing self-efficacy from students in the *Intensive Writing* and *Academic Writing* clusters suggests that frequent writing in high school, including a strong emphasis on academic essays and research-based writing, may result in more efficacious writing behaviors needed for challenging college writing tasks requiring synthesis of sources. While students in the *Intensive Writing* group, those who were assigned the most personal and creative writing in high school, reported the highest writing self-efficacy, reducing non-academic writing from the curriculum did not result in significant differences in writing self-efficacy between students in these two groups. Personal and creative writing, then, might offer a more well-rounded writing experience that gives students slightly more confidence in their writing, but reducing the number of such assignments does not appear to result in great harm.

While the differences among students with a diverse high school writing experiences and those who emphasized academic writing were not significant, other differences in writing self-efficacy among the students clearly indicated the importance of considering the frequency and types of writing tasks included in the high school curriculum. A curriculum emphasizing the kind of writing tasks Applebee and Langer (2011) have dubbed “writing without composing” (e.g., fill in the blank, short answer, notetaking) and a curriculum that includes little writing of any type both are more likely to disadvantage students who will need strong self-efficacy to respond to the increasing cognitive demands of composing from multiple sources at the college level.

The qualitative phase of the current study reinforced the importance of high school writing experiences and writing self-efficacy in preparing students for college writing and also demonstrated the complexity of the relationship between high school writing experiences and writing self-efficacy. While the associations between high school writing and students' beliefs about their writing skills may help educators design a curriculum responsive to the needs of more students, the current study did not point to a simple formula for preparing all students for composing from multiple sources at the college level.

While high school writing experiences alone are insufficient to predict students' beliefs about their writing or their actual skills, the examination of essays from students with the lowest and highest writing self-efficacy in each cluster supported the idea that some writing experiences are more likely than others to prepare students for college writing. Perhaps the clearest finding was the inadequacy of high school curriculum that included only infrequent writing. The student with the lowest writing self-efficacy from the *Infrequent Writing* group generated an essay that seemed simply out of control. While the student with highest self-efficacy from the *Infrequent Writing* group did attempt to synthesize sources in a conversation with each other, this writer struggled with organizing and connecting his ideas with clear claims and providing boundaries between his own ideas and those from his sources.

Perhaps not surprisingly, the student with lowest writing self-efficacy from the *Writing to Demonstrate Knowledge* cluster did not have much greater success with the task. He understood basic strategies for weaving sources together, but he failed to move beyond an

informational report. While synthesizing sources to provide objective information is a task that students may be assigned at the college level, it is not the most common task involving composing from multiple sources at the college level (Melzer, 2009).

Among the four students in the *Academic Writing* and *Intensive Writing* clusters, self-efficacy seemed more important than differences in high school writing experiences. Students with richly varied high school writing experiences (*Intensive Writing* cluster) and those whose high school writing emphasized essays and research-based writing (*Academic Writing* cluster) were generally competent in integrating material from their sources to generate coherent arguments. Among these four students, however, the two with lower writing self-efficacy wrote weaker essays than students with the highest self-efficacy.

Perhaps one of the most important observations from the qualitative phase of this study was the lack of evidence that high school students understood that composing from multiple sources at the college level often requires more than reporting the facts or manipulating evidence to support the writer's own position. While the essay prompt instructed students to use information from their sources to support their own arguments, the most sophisticated argument from the set of eight essays included an argument in the context of an ongoing conversation with the writer's sources. Somewhat surprisingly, the student who demonstrated the greatest skill in engaging in a meaningful conversation with her sources was from the *Writing to Demonstrate Knowledge* cluster. Although a high school writing curriculum emphasizing tasks such as note-taking and short answer might not be expected to prepare a student for the more cognitively challenging task of entering an

authentic conversation with her sources, it is worth noting that the most successful essay was written with a student with high writing self-efficacy. Whether writing experiences prior to the twelfth grade or experiences unrelated to the formal high school curriculum contributed to her success is unclear; nevertheless, her self-confidence in her writing skills was appropriate.

The lack of students' meaningful engagement with their sources raises further questions about what a high school writing curriculum should accomplish. Perhaps students who are at least comfortable synthesizing sources to develop their own arguments will be ready for the next step and adapt quickly to the increased demands for entering an authentic conversation with their sources at the college level. For the most part, the students in the *Intensive Writing* and *Academic Writing* cluster seem better prepared for college writing than other students. On the other hand, would more emphasis on evaluating sources, purposefully selecting details to accurately reflect the authors' ideas, and carefully connecting their own ideas with an existing conversation lead to students who were better prepared for the more rigorous expectations of composing from multiple sources at the college level? The current study suggests that at least some high school students are ready for more challenging writing expectations.

Limitations

Although the research design for this study provides information about writing experiences from a large number of high schools, the non-random sample limits generalizability of the findings. Moreover, the study does not provide information about *why*

differences in high school writing experiences may exist. In addition, by using first-year college students as participants in the study, the researcher was able to obtain information about a wide range of high school writing experiences, but the time lag between high school and the time of the study must be acknowledged as a potential problem as participants tried to remember the types of writing assigned in high school. To minimize memory problems, this study considered writing experiences during the twelfth-grade year only. Students' ability to compose from multiple sources, however, is a skill that develops over many years. Future research would be needed to determine the relationship between earlier writing experiences and writing skills demonstrated at the beginning of a first-year college writing course. The use of self-report data is also a limitation of the current study, but students' perceptions of their high school writing experiences should nonetheless provide valuable information that teacher reports and observations in a few research sites would not provide.

Suggestions for Future Research

Findings from this study indicate that differences in high school writing experiences do exist and, more importantly, do contribute to differences in students' writing self-efficacy and their ability to compose from multiple sources. Additional research is needed to determine why such differences in high school writing exist. The students in the current study may, moreover, be similar to the higher ability-level tracks observed in earlier studies (Sperling & Woodlief, 1997; Scherff & Piazza, 2005). Whether or not the writing experiences reported in this study represents the range of writing experiences for all high

school students is a question meriting further study. Would students at a less competitive university or a two-year college, for instance, report similar high school writing experiences?

In addition, the current study was conducted in the fall of 2013, before curriculum changes related to Common Core altered much of high school writing instruction. Future research might compare the results in this study with high school writing experiences, writing self-efficacy, and writing skills of students whose high school writing has been influenced by recent trends in high school writing instruction.

While qualitative analysis in the current study examined essays representing maximum variation in writing self-efficacy, future research might explore more typical cases to determine the most common influences of high school writing experiences and writing self-efficacy on students' ability to compose from multiple sources.

Conclusion

While high school and college instructors alike continue to wrestle with the question of what writing instruction is most important for our students, it remains important that we engage in our own conversation about the connections between what we do at both levels. The difference between the majority of the essays examined for qualitative analysis in the current study and the essay that engaged most substantively with its sources seems to go beyond mere writing proficiency. In a society in which far too many of us listen too little and ask too few questions of ourselves or others, perhaps we need a curriculum that encourages students to read more closely, evaluate conflicting ideas more carefully, and reconsider our own positions in light of the views of others. Taking time to find common ground and to

reflect on differences is important in a world that is becoming both smaller and more divided. As technology continues to function both as a positive and a negative force for connecting individuals from communities separated geographically, as well as politically and ideologically, training students to engage in conversations, rather than arguments, is a task worthy of our attention at the high school and college levels. Preparing students for college writing entails far more than teaching students how to weave together source material or how to integrate attributive tags in their text. Perhaps composing from multiple sources is a commonly assigned writing task at the college level because it encourages students to do more than demonstrate writing proficiency – it requires critical inquiry and reflection that is essential to meaningful discourse.

The current study suggests that the kinds of writing we assign at the high school level do influence students' beliefs about their writing ability. While the factors that influence confidence and competence in writing are complex, students who write infrequently in high school and those for whom writing consists mainly of the kinds of tasks Applebee and Langer (2011) have aptly labeled as “writing without composing” are less likely to have the strong self-efficacy beliefs needed when facing challenging writing tasks like composing from multiple sources. A high school curriculum emphasizing academic writing, including essays and research-based writing, is more likely to contribute to students' confidence that they are prepared for the challenging tasks associated with college-level writing. While the current study did not identify a group of students for whom personal writing was common, it did nonetheless find that students' whose high school writing experiences included

expressive writing tasks may have some advantage in terms of self-efficacy beliefs over other students. While the differences in beliefs about whether or not high school students are well-prepared for college writing call for more discussion among instructors at the secondary and post-secondary levels, this study highlights the benefits of providing students frequent opportunities to engage in academic, as well as creative and expressive, writing tasks at the high school level.

REFERENCES

- Abu-Bader, S. H. (2010). *Advanced and multivariate statistical methods for social science research with a complete SPSS guide*. Chicago: Lyceum.
- Achieve. (2005). *Rising to the challenge: Are high school graduates prepared for college work? A study of recent high school graduates, college instructors, and employers*. Washington, D. C.: Author.
- ACT. (2007). *Rigor at risk: Reaffirming quality in the high school core curriculum*. Iowa City, IA: Author.
- ACT. (2009). *ACT national curriculum survey*. Iowa City, IA: Author.
- ACT. (2013). *ACT national curriculum survey 2012: Policy implications on preparing for higher standards*. Iowa City, IA: Author.
- Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college*. Washington, D.C.: U.S. Department of Education.
- Addison, J., & McGee, S. J. (2010). Writing in high school/writing in college: Research trends and future directions. *College Composition and Communication*, 62(1), 147-179. Retrieved from <http://www.ncte.org/prox.lib.ncsu.edu/library/NCTEFiles/Resources/Journals/CCC/0621-sep2010/CCC0621Writing.pdf>
- Afifi, A., May, S., & Clark, V. A. (2012). *Practical multivariate analysis* (5th ed.). Boca Raton: CRC Press.
- Allison, P. (2002). *Missing Data*. Thousand Oaks, C. A.: Sage.

- Anagnostopoulos, D. (2003). Testing and student engagement with literature in urban classrooms: A multi-layered perspective. *Research in the Teaching of English, 38*, 177-212. Retrieved from <http://www.jstor.org.prox.lib.ncsu.edu/stable/40171636>
- Applebee, A. (1996). *Curriculum as conversation: Transforming traditions of teaching and learning*. Chicago: University of Chicago Press.
- Applebee, A. N. , & Langer, J. A. (2006). *The state of writing instruction in America's schools: What existing data tell us*. Albany, NY: Center on English Learning & Achievement. Retrieved from <http://www.albany.edu/aire/news/State%20of%20Writing%20Instruction.pdf>
- Applebee, A. N., & Langer, J. A. (2011). A snapshot of writing instruction in middle schools and high schools. *The English Journal, 100*(6), 14-27.
- Applebee, A. N., Langer, J. A., Nystrand, M., & Gamoran, A. (2003). Discussion-based approaches to developing understanding: Classroom instruction and student performance in middle and high school English. *American Educational Research Journal, 40*, 685-730. Retrieved from <http://www.jstor.org.prox.lib.ncsu.edu/stable/3699449>
- Appleman, D., & Green, D. E. (1993): Mapping the elusive boundary between high school and college writing. *College Composition and Communication, 44*, 191-199. Retrieved from <http://www.jstor.org.prox.lib.ncsu.edu/stable/358838>
- Bandura, A. (1977a). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191-213. doi:10.1037/0033-295X.84.2.191

- Bandura, A. (1977b). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1989). Perceived self-efficacy in exercises of personal agency. *The Psychologist*, 2, 411-424. Retrieved from <http://ehis.ebscohost.com.prox.lib.ncsu.edu/ehost/pdfviewer/pdfviewer?sid=5580ffcf-5aed-4cea-acad-a8f4d4d546c0%40sessionmgr15&vid=2&hid=8>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Baraldi, A. N., & Enders, C. K. (2009). An introduction to modern missing data analyses. *Journal of School Psychology*, 48, 5-37. doi:10.1016/j.jsp.2009.10.001
- Beck, S. W., & Jeffery, J. V. (2007). Genre of high-stakes writing assessments and the construct of writing competence. *Assessing Writing*, 12, 60-79. doi:10.1016/j.asw.2007.05.001
- Berkenkotter, C. (1991). Paradigm debates, turf wars, and the conduct of sociocognitive inquiry in composition. *College Composition and Communication*, 42(2), 151-169. Retrieved from <http://www.jstor.org/stable/358196>
- Bridgeman, B., & Carlson, S. B. (1985). A survey of academic writing tasks. *Written Communication*, 1(2), 247-280. doi:10.1177/0741088384001002004
- Britton, J., Burgess, T., Martin, N, McLeod, A., & Rosen, H. (1975). *The development of writing abilities (11-18)*. London: Macmillan.

- Brockman, E., Taylor, M., Crawford, M. K., & Kreth, M. (2010). Helping students cross the threshold: Implications from a university writing assessment. *English Journal*, 99(3), 42-49.
- Brockman, E., Taylor, M., Kreth, M., & Crawford, M. K. (2011). What do professors really say about college writing? *English Journal*, 100(3), 75-81.
- Carbonaro, W. J., & Gamoran, A. (2002). The production of achievement inequality in high school English. *American Educational Research Journal*, 39(4), 801-827. Retrieved from <http://www.jstor.org/prox.lib.ncsu.edu/stable/3202447>
- College Board. (2010). *AP English language and composition 2010 free-response questions*. Retrieved from http://apcentral.collegeboard.com/apc/public/repository/ap10_frq_eng_lang.pdf
- College Board. (2011a). *Course & exam development*. Retrieved from <http://professionals.collegeboard.com/testing/ap/about/development>
- College Board. (2011b). *Student Performance Q&A: 2011 AP English Language and Composition Free Response Questions*. Retrieved from http://apcentral.collegeboard.com/apc/public/repository/ap11_english_language_qa.pdf
- Costello, A. B., & Osborne, J. W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research & Evaluation*, 10(7), 1-9. Retrieved from <http://pareonline.net/pdf/v10n7.pdf>

- Council of Writing Programs Administrators. (2005-2014). *WPA outcomes statement for first-year composition (v3.0)*. Retrieved from <http://wpacouncil.org/positions/outcomes.html>
- Cox., R. D. (2009). "It was just that I was afraid": Promoting success by addressing students' fear of failure. *Community College Review*, 37(1), 52-80.
doi:10.1177/0091552109338390
- Creswell, J. W. (2007). *Qualitative inquiry & research design: Choosing among five perspectives*. Thousand Oaks, CA: Sage.
- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research*. 2nd ed. Los Angeles: Sage.
- Dickson, A. C., Mejía, J. A., Zorn, J., & Harkin, P. (2006). Responses to Richard Fulkerson: "Composition at the turn of the twenty-first century." *College Composition and Communication*, 57(4), 730-762. Retrieved from <http://www.jstor.org/stable/20456914>
- Dillman, D. A., & Eltinge, J. L., Groves, R. M., & Little, R. J. A. (2002). Survey nonresponse in design, data collection, and analysis. In R. M. Groves, D. A. Dillman, J. L. Eltinge, & R. J.A. Little (Eds.), *Survey nonresponse* (pp. 3-26). New York: John Wiley & Sons.
- DiStefano, C., Zhu, M., & Mindrilă, D. (2009). Understanding and using factor scores: Considerations for the applied researcher. *Practical Assessment, Research & Evaluation*, 14(20), 1-11. Retrieved from <http://pareonline.net/pdf/v14n20.pdf>

- Durst, R. K. (1990). The mongoose and the rat in composition research: Insights from the RTE annotated bibliography. *College Composition and Communication*, 41(4), 393-408. Retrieved from <http://www.jstor.org/prox.lib.ncsu.edu/stable/357930>
- Egan, O. (1984). Cluster analysis in educational research. *British Educational Research Journal*, 10(2), 145-153. Retrieved from <http://www.jstor.org/stable/1500750>
- Emig, Janet. (1971). *The composing processes of twelfth graders*. Urbana, IL: National Council of Teachers of English.
- Eves-Bowden, A. (2001). What basic writers think about writing. *Journal of Basic Writing*, 20(2), 71-87.
- Ewing, M., Huff, K., & Kaliski, P. (2010). Validating AP exam scores: Current research and new directions. In P. M. Sadler, et al. (Eds.), *AP: A critical examination of the advanced placement program*. Cambridge, MA: Harvard Education Press.
- Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, 4(3), 272-299. doi: 10.1037/1082-989X.4.3.272
- Fitzgerald, S. H. (2003). Serving basic writers: One community college's mission statements. *Journal of Basic Writing*, 22(1), 5-12.
- Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry*, 12(2), 219-245. doi: 10.1177/1077800405284363

- Fulkerson, R. (2005). Composition at the turn of the twenty-first century. *College Composition and Communication*, 56(4), 654-687. Retrieved from <http://www.jstor.org.prox.lib.ncsu.edu/stable/30037890>
- Gamoran, A. (1993). Alternative uses of ability grouping in secondary schools: Can we bring high-quality instruction to low-ability classes? *American Journal of Education*, 101, 1-22. Retrieved from <http://www.jstor.org.prox.lib.ncsu.edu/stable/1085693>
- Garson, G. D. (2008). *Factor analysis*. Retrieved from <http://www.2.chass.ncsu.edu/garson/pa765/factor.htm>
- Garson, G. D. (2010). *Cluster analysis*. Retrieved from <http://faculty.chass.ncsu.edu/garson/PA765/cluster.htm>
- Goodman, S. B., & Cirka, C.C. (2009). Efficacy and anxiety: An examination of writing attitudes in a first-year seminar. *Journal on Excellence in College Teaching*, 20(3), 5-28.
- Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *The Annual Review of Psychology*, 60, 549-576. doi:10.1146/annurev.psych.58.110405.085530
- Hansen, K., Reeve, S., Gonzalez, J., Sudweeks, R. P, Hatch, G. L., Esplin, P., & Bradshaw, W. S. (2006). Are advanced placement English and first-year college composition equivalent? A comparison of outcomes in the writing of three groups of sophomore college students. *Research in the Teaching of English*, 40, 461-501. Retrieved from <http://www.jstor.org.prox.lib.ncsu.edu/stable/40171711>

- Haswell, R. H. (2005). NCTE/CCCC's recent war on scholarship. *Written Communication*, 22, 198-223. doi:10.1177/0741088305275367
- Hillocks, Jr., G. (1986). *Research on written composition: New directions for teaching*. Urbana, IL: National Conference on Research in English.
- Hillocks, Jr., G. (2003). Fighting back: Assessing the assessments. *English Journal*, 92(4), 63-70. Retrieved from <http://www.jstor.org/stable/3650459>
- Johnson, B., & Turner, L. A. (2003). Data collection strategies in mixed methods research. In A. Tashakkori, & C. Teddlie (Eds.). *Handbook of mixed methods in social and behavioral research* (pp. 297-320). Thousand Oaks, CA: Sage.
- Jones, E. (2008). Predicting performance in first-semester college basic writers: Revisiting the role of self-beliefs. *Contemporary Educational Psychology*, 33, 209-238. doi:10.1016/j.cedpsych.2006.11.00
- Juzwik, M. M., Curcic, S., Wolbers, K., Moxley, K. D., Dimling, L. M., & Shankland, R. K. (2006). Writing into the 21st century: An overview of research on writing, 1999 to 2004. *Written Communication*, 23, 451-476. doi:10.1177/0741088306291619
- Kennedy, M. L. (1985). The composing process of college students writing from sources. *Written Communication*, 2, 434-456. doi:10.1177/0741088385002004006
- Kieffer, K. M. (1999). An introductory primer on the appropriate use of exploratory and confirmatory factor analysis. *Research in the Schools*, 6(2), 75-92.

- Kirkpatrick, L. C., & Klein, P. D. (2008). Planning text structure as a way to improve students' writing from sources in the compare-contrast genre. *Learning and Instruction, 19*, 309-321. doi:10.1016/j.learninstrucd.2008.06.001
- Kiuhara, S. A., Graham, S., & Hawken, L. S. (2009). Teaching writing to high school students: A national survey. *Journal of Educational Psychology, 101*(1), 136-160. doi:10.1037/a0013097
- Langer, J. A. (1987). Musings . . . : Red herrings in language research: Qualitative versus quantitative methods. *Research in the Teaching of English, 21*(2), 117-119. Retrieved from <http://www.jstor.org/stable/40171105>
- Langer, J., & Applebee, A. (1987). *How writing shapes thinking: A study of teaching and learning*. Research Report No. 22. Urbana, IL: National Council of Teachers of English.
- Lenski, S. D. (1998). Strategic knowledge when reading in order to write. *Reading Psychology, 19*(3), 287-315.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.
- Little, R. J. A., & Rubin, D. B. (2002). *Statistical analysis with missing data*. 2nd ed. Hoboken, N. J.: Wiley Interscience.
- MacArthur, C. A., Graham, S., & Fitzgerald, J., eds. (2006). *Handbook of writing research*. New York: The Guilford Press.

- Mateos, M, & Solé, I. (2009). Synthesizing information from various texts: A study of procedures and products at different educational levels. *European Journal of Psychology of Education, 24*(4), 435-451. Retrieved from EBSCOhost.
- Mattern, K. D., Shaw, E. J, & Xiong, X. (2009). *The relationship between AP exam performance and college outcomes*. Research Report No. 2009-4. New York: College Board.
- Mattern, K. D., & Shaw, E. J. (2010). A look beyond cognitive predictors of academic success: Understanding the relationship between academic self-beliefs and outcomes. *Journal of College Student Development, 51*(6), 665-678. doi:10.1353/csd.2010.0017
- McCarthy, P., Meier, S., & Rinderer, R. (1985). Self-efficacy and writing: A different view of self-evaluation. *College Composition and Communication, 36*, 465-471. Retrieved from <http://www.jstor.org.prox.lib.ncsu.edu/stable/357865>
- McCrimmon, M.(2005). High school writing practices in the ages of standards: Implications for college composition. *TETYC, 33*(2), 248-60. Retrieved from <http://www.ncte.org>
- McGinley, W. (1992). The role of reading and writing while composing from multiple sources. *Reading Research Quarterly, 27*(3), 226-248. Retrieved from <http://www.jstor.org.prox.lib.ncsu.edu/stable/747793>
- Meier, S., McCarthy, P. R., & Schmeck, R. R. (1984). Validity of self-efficacy as a predictor of writing performance. *Cognitive Therapy and Research, 8*(2), 107-120.
- Melzer, D. (2003). Assignments across the curriculum: A survey of college writing. *Language and Learning across the Disciplines, 6*(1), 86-110.

- Melzer, D. (2009). Writing assignments across the curriculum: A national study of college writing. *College Composition and Communication*, 61(2), W240-W260.
- Merriam, S. B. (1995). What can you tell from an N of 1?: Issues of validity and reliability in qualitative research. *PAACE Journal of Lifelong Learning*, 4, 51-60.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: A sourcebook of new methods* (2nd ed.). Thousand Oaks, CA: Sage.
- Morse, J. M. (1991). Approaches to qualitative-quantitative methodological triangulation. *Nursing Research*, 40, 120-123.
- Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology*, 38(1), 30-38. doi: 10.1037/0022-0167.38.1.30
- Nash, J. G., Schumacher, G. M., & Carlson, B. W. (1993). Writing from sources: A structure-mapping model. *Journal of Educational Psychology*, 85(1), 159-170. doi: 10.1037/0022-0663.85.1.159
- National Center for Education Statistics. (2008). *The nation's report card: Writing 2007: National assessment of educational progress at grades 8 and 12*. Retrieved from <http://nces.ed.gov/nationsreportcard/pdf/main2007/2008468.pdf>
- National Center for Education Statistics. (2011). *The nation's report card: Writing 2011: National assessment of educational progress at grades 8 and 12*. Retrieved from nces.ed.gov/nationsreportcard/pdf/main2011/2012470.pdf

- National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform*. Washington, D. C.: U. S. Department of Education. Retrieved from EBSCOhost.
- National Commission on Writing. (2003). *The neglected "R": The need for a writing revolution*. New York: College Board.
- National Commission on Writing. (2004). *Writing: A ticket to work . . . or a ticket out*. New York: College Board.
- National Commission on Writing (2006). *Writing and school reform*. New York: College Board.
- Nord, C., Roey, S., Perkins, R., Lyons, M., Lemanski, N., Tamir, Y., Brown, J., Schuknecht, J., & Herrold, K. (2011, April). *America's high school graduates: Results from the 2009 NAEP high school transcript study*. Retrieved from <http://nces.ed.gov/nationsreportcard/pubs/studies/2011462.asp>
- Norušis, M. J. (2008). *SPSS 17.0: Statistical procedures companion*. Upper Saddle River, N. J.: Prentice Hall.
- Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research, 66*, 543-578. Retrieved from <http://www.jstor.org.prox.lib.ncsu.edu/stable/1170653>
- Pajares, F. (1997). Current directions in self-efficacy research. *Advances in Motivation and Achievement, 10*, 1-49.

- Pajares, F. (2007). Empirical properties of a scale to assess writing self-efficacy in school contexts. *Measurement & Evaluation in Counseling & Development, 39*(4), 239-249. Retrieved from <http://ehis.ebscohost.com.prox.lib.ncsu.edu/ehost/pdfviewer/pdfviewer?sid=b0f36254-1bd8-46f8-ba44-551426103e04%40sessionmgr111&vid=2&hid=110>
- Pajares, R., & Johnson, M. (1994). Confidence and competence in writing: The role of self-efficacy, outcome expectancy, and apprehension. *Research in the Teaching of English, 28*, 313-331. Retrieved from <http://www.jstor.org.prox.lib.ncsu.edu/stable/354541>
- Pajares, R., & Johnson, M. (1996). Self-efficacy beliefs and the writing performance of entering high school students. *Psychology in the Schools, 33*, 163-175. doi: 10.1002/(SICI)1520-6807(199604)33:2<163::AID-PITS10>3.0.CO;2-C
- Pathey-Chavez, G. G., Dillon, P. H., & Thomas-Spiegel, J. (2005). How far do they get? Tracking students with different academic literacies through community college remediation. *TETYC, 32*(3), 261-277.
- Patterson, J. P., & Duer, D. (2006). High school teaching and college expectations in writing and reading. *The English Journal, 95*(3), 81-87. Retrieved from <http://www.jstor.org.prox.lib.ncsu.edu/stable/30047049>
- Penrose, A. M., & Geisler, C. (1994). Reading and writing without authority. *College Composition & Communication, 45*(4), 505-520. Retrieved from <http://www.jstor.org.prox.lib.ncsu.edu/stable/358762>

- Penrose, A. M. (2002). Academic literacy perceptions and performance: Comparing first-generation and continuing-generation college students. *Research in the Teaching of English, 36*, 437-467. Retrieved from <http://www.jstor.org.prox.lib.ncsu.edu/stable/40171585>
- Pintrich, P., & De Groot, E.V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology, 82*, 33-40. doi:10.1037/0022-0663.82.1.33
- Reise, S. P., Waller, N. G., & Comrey, A. L. (2000). Factor analysis and scale revision. *Psychological Assessment, 12*(3), 287-297. doi: 10.1037/1040-3590.12.3.287
- Schafer, J.L. (1997). *Analysis of incomplete multivariate data*. London: Chapman & Hall.
- Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods, 7*(2), 147-177. doi:10.1037//1082-989X.7.2.147
- Scheffé, H. (1953). A method for judging all contrasts in the analysis of variance. *Biometrika, 40*, 87-104.
- Scherff, L., & Piazza, C. (2005). The more things change, the more they stay the same: A survey of high school students' writing experiences. *Research in the Teaching of English, 39*, 271-30. Retrieved from <http://www.ncte.org>
- Schunk, D. H. (1982). Verbal self-regulation as a facilitator of children's achievement and self-efficacy. *Human Learning, 1*, 265-277.

- Schunk, D. H. (1989) Self-efficacy and cognitive skill learning. In C. Ames & R. Ames (Eds.). *Research on motivation in education. Vol. 3: Goals and cognitions* (pp. 13-44). San Diego: Academic Press.
- Schunk, D. H., & Swartz, C. W. (1993). Goals and progress feedback: Effects on self-efficacy and writing achievement. *Contemporary Educational Psychology, 18*, 337-354.
- Shell, D. F., Colvin, C., & Bruning, R.H. (1995). Self-efficacy, attributions, and outcome expectancy mechanisms in reading and writing achievement: Grade-level and achievement-level differences. *Journal of Educational Psychology, 87*, 386-398. doi:10.1037/0022-0663.87.3.386
- Shell, D. F., & Husman, J. (2008). Control, motivation, affect, and strategic self-regulation in the college classroom: A multidimensional phenomenon. *Journal of Educational Psychology, 100*, 433-459. doi:10.1037/0022-0663.100.2.443
- Shell, D.F., Murphy, C. C., & Bruning, R. H. (1989). Self-efficacy and outcome expectancy mechanisms in reading and writing achievement. *Journal of Educational Psychology, 81*, 91-100.
- Smagorinsky, P., ed. (2006). *Research on composition: Multiple perspectives on two decades of change*. New York: Teachers College Press.
- Sperling, M., & Woodlief, L. (1997). Two classrooms, two writing communities: Urban and suburban tenth-graders learning to write. *Research in the Teaching of English, 31*, 205-239. Retrieved from <http://www.jstor.org/prox.lib.ncsu.edu/stable/40171273>

- Spivey, N. N., & King, J. R. (1989). Readers as writers composing from sources. *Reading Research Quarterly*, 24(1), 7-26. Retrieved from <http://www.jstor.org/stable/748008>
- Stake, R. (1995). *The art of case study research*. Thousand Oaks, CA: Sage.
- Strauss, A., & Corbin, J. M. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Boston: Pearson.
- Tavakol, M., & Dennick. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2, 53-55. doi: 10.5116/ijme.4dfb.8dfd
- Tierney, R. J., & Shanahan, T. (1996). Research on the reading-writing relationship: Interactions, transactions, and outcomes. In R. Barr, M. L. Kamil, P. B. Mosenthal, & P. D. Pearson (Eds.). *Handbook of reading research* (vol. 2, pp. 246-280). New York: Longman.
- Tremmel, R., & Broz, W. (2002). *Teaching writing teachers of high school English and first-year composition*. Portsmouth, NH: Boynton, 2002.
- Tynjälä, P. (2001). Writing, learning, and the development of expertise in higher education. In P. Tynjälä, L. Mason, & K. Lonka (Eds.). *Writing as a learning tool: Integrating theory and practice* (pp. 37-56). Dordrecht: Kluwer Academic Press.
- Uehling, K. S. (2003). Creating a statement of guidelines and goals for Boise State University's basic writing course: Content and development. *Journal of Basic Writing*, 22(1), 22-34.

U. S. Department of Education. (2005, January 25). *Scientifically based evaluation methods*.

Retrieved from <http://www2.ed.gov/legislation/FedRegister/finrule/2005-1/012505a.html>

Valli, L. (1990). A curriculum of effort: Tracking students in a Catholic high school. In R. N.

Page & L. Valli (Eds.). *Curriculum differentiation: Interpretive studies in U. S. secondary schools* (pp. 45-65). Albany: State University of New York Press.

Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of achievement motivation.

Contemporary Educational Psychology, 25, 68-81. doi:10.1006/ceps.1999.1015

Wiley, J., & Voss, J. F. (1999). Constructing arguments from multiple sources: Tasks that

promote understanding and not just memory for text. *Journal of Educational Psychology*, 91, 301-311. doi:10.1037/0022-0663.91.2.301

Yin, R. K. (2003). *Case study research: Design and method* (3rd ed.). Thousand Oaks, CA:

Sage.

Zimmerman, B.J., & Bandura, A. (1994). Impact of self-regulatory influences on writing

course attainment. *American Educational Research Journal*, 31(4), 845-862.

Retrieved from <http://www.jstor.org/prox.lib.ncsu.edu/stable/1163397>

APPENDICES

Appendix A: IRB Approval

North Carolina State University is a land-grant
university and a constituent institution of the
University of North Carolina

Office of Research and Innovation
Division of Research Administration

NC STATE UNIVERSITY

Campus Box 7514
Raleigh, North Carolina 27695-7514

919.515.8754 (phone)
919.515.7721 (fax)

From: Jennifer Ofstein, IRB Coordinator
North Carolina State University
Institutional Review Board

Date: June 5, 2013

Title: High School Writing Experiences, Writing Self-Efficacy, and Composing from
Multiple Sources: A Mixed Methods Study

444

IRB#: 3319

Dear Sonya,

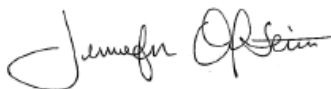
The research proposal named above has received administrative review and has been approved as exempt from the policy as outlined in the Code of Federal Regulations (Exemption: 46.101. b.1/b.2). Provided that the only participation of the subjects is as described in the proposal narrative, this project is exempt from further review. This approval does not expire, but any changes must be approved by the IRB prior to implementation.

NOTE:

1. This committee complies with requirements found in Title 45 part 46 of The Code of Federal Regulations. For NCSU projects, the Assurance Number is: FWA00003429.
2. Any changes to the research must be submitted and approved by the IRB prior to implementation.
3. If any unanticipated problems occur, they must be reported to the IRB office within 5 business days.

Please forward a copy of this letter to your faculty sponsor, if applicable.
Thank you.

Sincerely,



Jennifer Ofstein
NC State IRB

Appendix B: Participant Consent Form – Survey and Essay Participants

Dear Participants,

The following information is provided for you to decide whether you are willing to participate in a research study being conducted as part of my doctoral studies at North Carolina State University. The purpose of this study is to understand the relationship between high school writing experiences, writing self-efficacy, and students' preparation for composing from multiple sources, a type of writing commonly assigned at the college level. The study will use two types of data: survey data and an essay requiring students to read several brief sources and then synthesize information from those sources to generate an original argument. Your writing instructor may choose to use your response to the essay prompt to provide an initial assessment of your writing skills. If so, your instructor will provide specific information about how the essay will affect your grade in this class. Neither the information from the survey nor your decision about participation in the study will affect your grades for this course. Your participation in the study is completely voluntary but will provide useful information for educators interested in improving teaching practices to prepare more students for college-level writing.

For this study, there will be only one or two points of data collection. Participants in classes that meet twice a week will complete the survey and the essay during the same class period. Participants in classes that meet four times per week will complete the survey during one class period and complete the essay in the following class period. Participants will first complete a brief survey about their high school writing experiences. The second part of the study will involve reading and synthesizing information from several brief sources to draft an argumentative essay. You will be given 55 minutes to respond to the essay prompt. It is recommended that you spend about 15 minutes reading the sources and then spend the remaining 40 minutes planning and drafting your essay response. Your participation in the study will not require additional time beyond the initial data collection for the survey and the essay.

Participants' essays will be photocopied for the researcher's use. Each essay will then be given a code number to match it to your survey response, and your names will be removed from the copies of the essays to provide your anonymity. Your instructor will keep the original copy of each essay for assessment as part of this course.

Do not hesitate to ask questions about the study either during data collection or at a later date. I will be happy to share my findings with you after the study is completed. However, your name will not be associated with the research findings, and your identity as a participant will remain anonymous. You may contact me for further information at samassen@ncsu.edu.

There is no known risk associated with this study. By participating in this study, you will have the ability to contribute to the knowledge base about effective writing instruction and to influence future teaching practices.

Your signature indicates your consent to participate in this research study with full knowledge of the nature and purpose of the procedures. A copy of this consent form will be provided for you to keep.

Signature of Participant

Date

Sonya Massengill, Ph.D. Student, North Carolina State University

Appendix C: Participant Consent Form – Survey Only Participants

Dear Participants,

The following information is provided for you to decide whether you are willing to participate in a research study being conducted as part of my doctoral studies at North Carolina State University. The purpose of this study is to understand the relationship between high school writing experiences, writing self-efficacy, and students' preparation for composing from multiple sources, a type of writing commonly assigned at the college level. For this part of the study, survey data will be collected. Neither the information from the survey nor your decision about participation in the study will affect your grades for this course. Your participation in the study is completely voluntary but will provide useful information for educators interested in improving teaching practices to prepare more students for college-level writing.

For this study, there will be only one point of data collection. Participants will complete a brief survey about their high school writing experiences. Your participation in the study will not require additional time beyond the initial data collection in class today.

Do not hesitate to ask questions about the study either during data collection or at a later date. I will be happy to share my findings with you after the study is completed. However, your name will not be associated with the research findings, and your identity as a participant will remain anonymous. You may contact me for further information at samassen@ncsu.edu.

There is no known risk associated with this study. By participating in this study, you will have the ability to contribute to the knowledge base about effective writing instruction and to influence future teaching practices.

Your signature indicates your consent to participate in this research study with full knowledge of the nature and purpose of the procedures. A copy of this consent form will be provided for you to keep.

Signature of Participant

Date

Sonya Massengill, Ph.D. Student, North Carolina State University

Appendix D

Survey of High School Writing Experiences
(Adapted from Kihara, Graham, & Hawken 2009)

Directions: For each of the types of writing below, circle the appropriate response to indicate the frequency of assignments in your twelfth-grade year of high school.

Short answer response (Ex.: Answering specific questions related to academic tasks)	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Response to material read (Ex.: Open-ended personal responses to reading assignments)	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Completing worksheets	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Summary of material read	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Journal entry	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Lists	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Step-by-step instructions (Ex.: "How-to" instruction for completing a process)	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
5-paragraph essay	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Persuasive essay	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Literary analysis	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Cause/effect essay	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Descriptive essay	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily

Reflective essay (Ex.: Reflection about a person who has been an important influence in your life)	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Copying text (Ex.: Copying notes from a Powerpoint presentation)	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Powerpoint presentation	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Personal narrative (Ex.: Essay or story about a personal experience)	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Research paper	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Email correspondence	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Short story	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Poem	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Book report	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Memo	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Biography	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Autobiography	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Business letter	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Stage/screen play	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Lab report	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
AP timed essay writing	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Answering document-based questions (Ex.: Discussion of historical documents)	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Online discussion forums	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily

Digital storytelling	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily
Multi-genre writing <i>(Ex.: Writing assignment combining poetry, reflection, and informational report)</i>	Never	Once/ year	Once/ semester	Once/ quarter	Once/ month	Once/ Week	Several times/week	Daily

Other:

List other types of writing activities and the number of times each type of writing was assigned during the twelfth-grade year.

Description of Writing Task	Frequency
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____

Demographic Information

Gender:

_____ Female

_____ Male

Ethnicity:

_____ American Indian or Alaska Native

_____ Asian

_____ Black or African American

_____ Hispanic or Latino

_____ Native Hawaiian or Other Pacific Islander

_____ White

_____ Other: _____ (Specify)

High School GPA (unweighted): _____

High School GPA (weighted): _____

GPA in 12th grade English (unweighted): _____

Number of Honors English courses in high school: _____

AP English courses taken in high school:

AP English Language and Composition: _____

AP English Literature and Composition: _____

SAT Critical Reading Score: _____

SAT Writing Score: _____

Appendix E

Writing Self-Efficacy Measures (Jones, 2008)

I. Writing behaviors scale

Instructions: Please indicate the extent to which you agree or disagree with each of the following statements by circling one number on the scale below each item.

1. When I make plans to do a writing assignment, I am certain I can make them work.

1	2	3	4	5	6
strongly disagree					strongly agree

2. One of my problems in writing is that I cannot get down to work when I should.
3. If I cannot do my written work the first time, I keep trying until I can.
4. I give up on written assignments before completing them.
5. When I have unpleasant written work to do, I stick to it until I finish it.
6. When I decide to do an assignment that requires writing, I go right to work on it.
7. When unexpected problems with writing occur, I do not handle them well.
8. Failure to write well just makes me try harder.
9. I feel insecure about my ability to do written work.
10. I do not seem capable of dealing with most problems that come up in completing written work.

II. Writing tasks scale

Instructions: On a scale of 1 (no chance) to 6 (completely certain), how confident are you of being able to successfully communicate, in writing, what you want to say in each of the following writing tasks?

1. Write a good paper for a professor in English.
2. Write a good paper for a professor in any course.
3. Write an essay that develops an idea by making connections among a variety of textual sources.
4. Write an essay that provides a critique or analysis of another essay.
5. Write a persuasive essay that incorporates text sources representing points of view different from yours.
6. Write a summary of a long essay that effectively captures the essence of it.
7. Write an essay that persuasively analyzes the causes or effects of a particular event, concept, or belief.
8. Write an essay that compares and contrasts two authors, events, pieces of art, or concepts in order to reach a larger conclusion about that subject.

III. Writing skills scale

Instructions: On a scale of 1 (no chance) to 6 (completely certain), how confident are you that you can perform each of the following writing skills?

1. Proofread your essay for spelling, punctuation, and grammar errors.
2. Write with concise, clear sentences that “flow” together.
3. Write using words that are appropriate and effective in an academic essay.
4. Come up with a thesis that integrates a variety of information and many perspectives.
5. Organize a lot of material into well developed and clearly arranged paragraphs that have a clear focus.
6. Use MLA format correctly to format your paper and cite sources.
7. Create introductions that engage the reader and conclusions that pull all your thoughts together effectively.
8. Write in a way that meets academic guidelines yet still conveys your own voice.
9. Use the library and internet to find information that will help you develop and support an idea in an essay.
10. Have a writing process that you feel confident will lead to effective essays.

Appendix F - HSWE Survey – Missing Variable Patterns

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid XX-----X----- -----X---	1	.2	.2	.2
X----- -----	3	.6	.6	.8
--X-XXX----- X-XX--X--X-	1	.2	.2	1.0
--X----- -----	2	.4	.4	1.4
--X-----X----- -----	1	.2	.2	1.6
--X----- -----	1	.2	.2	1.9
----XX----- -----	1	.2	.2	2.1
----X----- -----	9	1.9	1.9	3.9
----X----- -----	3	.6	.6	4.5
-----X----- -----	2	.4	.4	4.9
-----X----- -----	1	.2	.2	5.1
-----X----- X-----	1	.2	.2	5.3
-----X----- -----	2	.4	.4	5.8
-----X----- -----X---	1	.2	.2	6.0
-----X----- -----X---	1	.2	.2	6.2

-----XXXXXX XXXXXXXXXXXX	1	.2	.2	6.4
-----X----- -----	6	1.2	1.2	7.6
-----X-X-- -----	1	.2	.2	7.8
-----X-- -----	7	1.4	1.4	9.3
-----X -----	2	.4	.4	9.7
----- X-----	1	.2	.2	9.9
----- -X-----	1	.2	.2	10.1
----- --X-----	1	.2	.2	10.3
----- ---XX-----	1	.2	.2	10.5
----- ---X-----	1	.2	.2	10.7
----- ----X-----	1	.2	.2	10.9
----- -----X-----	1	.2	.2	11.1
----- -----X--	1	.2	.2	11.3
----- -----XX~	1	.2	.2	11.5
----- -----X~	1	.2	.2	11.7
-----	429	88.3	88.3	100.0
Total	486	100.0	100.0	

Appendix G: Essay Transcripts

Essay #17

In a world where children are becoming more “tech-savvy” life has definitely become more easy-going but as a result, face-to-face interaction occurs little to none. Textbooks in schools are being turned into online books and today’s generation can’t live life without without it depending on technology.

Just as Source D states, cursive has become a forgotten language. Having to write essays by hand proves to be a difficult task in itself without the aid of a computer. When it comes to pen and paper, writing anything longer than a phone number seems impossible. Soon enough, handwriting will look similar to scribbles forced out by a student at the beginning of the school year after a long summer – forgotten. The cartoon in Source F fast forwards to life in the future when instead of stepping outside to take a breath of fresh air, humans will see the same scenery on a TV screen.

A specific effect on the invasion of technology on the education field is that on textbooks. According to Source A, Empire high school has gone paperless as far as books are concerned. Online textbooks or “ibooks” have taken their place. They believe this transition will help to get students more engaged in learning. Before making such a change, schools should assess how well students perform with and without hard copies of text. Not all students are well-suited with working online for graded assignments despite what technology they use in their free time. According to Source B, teachers are posting foreign language practices online. In theory, this may seem like a great way to save on paper but at the same time students may be more tempted to make use of online translating systems. Paper and pencil journals allow for the teacher to access a student’s personal knowledge on a foreign language – not the computer’s. It is understandable that schools may wish to use the latest softwares to connect to a modern student’s life, but in school and learning technology isn’t always the best option.

Not only does technology allow for cheating, it also takes up time. Source C states that humans now “think shorter” but and live longer. Although technology was invented to make lives hassle-free, they cause just as much frustration. People are fitting more into their schedules and spending more time on computers. It also states that video and audio images online can be compared to eating processed foods – not necessarily a good thing. Working online doesn’t always allow for one to put together effective writing samples. Source E states that although a multitude of information is available online, most kids have never read – let alone picked up a classic book. Even without the aid of technology there is too much information. Everything from magazines to videogames. This has an impact on the attention span of children, not great for school-age children.

All in all, technology is a great invention, but it may not be the best for using in schools. Online textbooks may be great for some students but not all. These six sources of information outline this problem. Technology is taking over, but it can be stopped from reaching the education realm.

Essay #22

Technology has done wonders for today's society from prolonging lives to the spreading information worldwide. Although, it is said your greatest strength can also be your greatest weakness, which could be found true with technology and all the information it makes available. With that being said school systems around the country are trying to submerge their students in all these technological advancements; some methods and techniques are useful and some are not.

Before spending thousands of dollars on the latest and greatest a school should consider the practicality of an item and how a teacher could effectively use it. The gadgets spoken of in Source B allow the teacher to ask their students a question and almost instantly receive feedback. Therefore the teacher could see if the concept at hand was truly understood by all. However throughout my years in the public education system I have seen many new gadgets that serve merely as wall decorations.

Since students are the "center" of the education system schools should really observe if the technology will increase the student's ability to grasp concepts. So many kids these days do spend lots of their time looking at a screen of some type so maybe an environment full of electronic books, like Empire High School (Source A), would attract the student's attention better than a hardcover textbook.

Sadly due to the incredibly fast and simple access to information much of the youth has become inherently lazy. The fact of the matter is looking up an unknown word on a website takes half the amount of time it takes to look it up in the dictionary. As described in Source C, we live in an "information-rich, time-compressed environment" so time is truly of the essence with everyone. With so much technology everywhere that so many people rely on daily, when technology fails consequently so do the people.

I think technology can be a great tool if used effectively. A school system really needs to focus on how user-friendly the gadget is and how easy a teacher can incorporate it into their lesson plans. The schools need to make sure they are not in fact hindering their student with the inability to live in the real, but instead give them an edge in the global society. Technology provides a multitude of opportunities but only if used properly, after all you wouldn't use a hammer to screw.

Essay #23

Young people across the world are being raised in a society whose main focus is technology. No matter where we go – from any fast food restaurant to the nearest school – we cannot escape the overwhelming abundance of technology that is right at our fingertips. But how much technology is too much?

The overall goal of technology is, debatably, to save people time so that they can achieve more things in a single day. However, this goal has backfired because technology actually takes up more time (Dyson). Before schools consider bringing more technology into the classroom, perhaps they should reconsider. For instance, if a high school allowed students

to access a lap top at all times for the purpose of saving time for other assignments, students are likely to spend more time on the laptop. This is caused by the excessive amounts of distractions that are readily available on laptops, including social media websites and computer games. Allowing students full access to laptops at school would, in the long run, end up costing students precious time that could be spent learning and completing assignments.

Additionally, allowing students to use too much technology in school could adversely affect their reading and writing skills. By being so distracted by the amount of technology that is available, many American high school students have never read a Mark Twain novel or Shakespeare play (Gelernter). These men helped shape literature and, unfortunately, their immortal works are being overtaken by new technology. Writing skills have also suffered greatly from excessive amounts of technology. Writing, meaning putting pen to paper, has dwindled down so much that even authors such as Steven Johnson has a difficult time writing as compared to typing (Johnson). By allowing students to use more technology, most would choose typing a paper rather than writing it. The thought processes of typing and writing differ greatly and, in my own experiences, writing a paper takes a lot more thought than merely typing one.

Before schools consider bringing more technology into classrooms, it is vital that they realize the numerous distractions that technology causes and the fact that students' reading and writing skills suffer as a result. Are these consequences really worth it just to allow students to use more technology?

Essay #26

Technology, for better or for worse, has changed the way we, as humans, interact with one another. Today, it seems as though iPhones and laptops are integrated with old fashioned styles of living. This integration has made its way into schools around the country, quickening learning and research, while also hindering focus and learning. Although technology presents many distractions to a student, the positives, like speed, advanced structure, and research opportunities, are honestly too good to pass down.

Due to its overwhelming abyss of information, the Internet has created a distraction dilemma in and out of the classroom. People today are constantly on their phones, myself included. Driving has become a hazard and socializing face to face is a lost art. The Internet and technology for sure has altered the classroom, too. In Source C, Dyson explains how "change is a constant." Technology, according to Dyson, "takes our time" instead of being worth our time. While Dyson and others may see the distractions as a problem, I see them as a solution. Too many students nowadays are falling asleep in lectures, getting handcramps from note taking, and losing concentration out of sheer boredom. Technology has its distractions, yes, but its information and accessibility cannot be disputed.

Today's classrooms are full of technology: projectors, computers, smartphones, and tablets alike! With all of this, teachers have found that technology has advanced instruction and has sped up the process over time. As a full-student, I wholeheartedly agree.

PowerPoints allow instructors to put information into an organized, concise way. Moreover, research has gotten easier with the access to millions of articles, periodicals, websites, and journal entries on the web. While it is true that children's informational metabolism may be affected negatively (Source C), and that many students have never actually read a tangible copy of classic American literature (Source E), the truth is that the technology factor, as a whole, is advancing the classroom, not hindering it. Regardless of whether the book is on a screen or on a page, it is still the same piece of work. I believe Source A summarizes the advanced nature of technology in the classroom well: "Students [are] more engaged in learning." This has never been more true.

With technology enveloping instruction in the classroom, students and teachers alike have recognized the great opportunity presented before them. Delaney, in Source B, notes that "educators are beginning to interact with students . . . in ways they never have before." The potential technology has is without a doubt overwhelming. However, fear is good. Fear is what drives for problems to be solved, for crises to be overcome, and for new information to be discovered. In the classroom, the potential technology has is great. Students can get involved. New learning abilities can be utilized. Technology is always being updated, and we should utilize it to the best of our abilities.

Technology presents many factors in all of the facets of life. Since its birth inside the classroom, students have gotten more involved. Instructors have noticed interactions like never before. Research has gotten faster, better, and more efficient. And while the distractions are there regardless, technology in the classroom is truly worth the risk. Lives will be changed and the way humans interact will be worth the challenge. One thing is certain: technology is here to stay, so we might as well use what it has to offer.

Essay #52

Is a problem in today's society the lack of information available at one's fingertips? The answer is no. In fact, the real problem may be similar to the crisis of an information overload, and the means of how one receives this information. A particular example of this problem in everyday life is children in school and their easy access to technology. By permitting this excessive use of technology, it creates a greater void in communication with the students, the idea that technology is the only answer, and finally an ominous view for the future.

Communication with today's younger generation is tough enough already with the constant use of text messaging and online messaging. How can they experience real life communication if all they have grown up with is technology and talking through a screen? By letting children complete assignments and activities online for school work, it hinders them from understanding the true value of real communication. These students have been introduced to schoolwork "in ways they never have before", and it must cease before it gets too out of hand (Source B).

The idea that students need more information and can obtain it only through technology is absurd. Indeed, it does allow great access to much information, but so can a library or the

use of communication with other people. Insufficient data is not the root of the problem (Source E). Students must be taught a balance between the world at their fingertips and the world right outside their front door, because each of them equally bursts with the same amount of opportunity.

What will the future hold if technology overtakes? Schooling is the one promise children have to learn and get an education, so they must be challenged and cannot have everything handed to them through technology. What will the future be like? Will one simply look at a screen at the same image found right outside their window (Source F)? Or can the people take action starting in schools by regulating the amount of technology used?

Today's society must contain the information overload and cut back on the excessive use of technology, especially in schools. If it is mandated early that there must be a balance, then there will be a balance. By urging real communication and the use of other available options, the future of the world will stray away from the ominous technology crisis and move towards a brighter and more advanced place and state of mind.

Essay #60

Technology is an uncontrollable force that will continue to improve and expand as long as the human race is still living. Throughout history technology has done wonders for people such as cars for travel, machines for harvesting, and of course bringing the world together through the internet. While all the benefits of technology are appreciated, too much could be a bad thing. A school should be careful because a heavy reliance on technology can cause issues with writing, reading, and thinking.

Typing too much has a negative impact on the way a person writes. As one author wrote, "even jotting down a note with pen and paper feels strained" (Source D). The same author later goes on to describe how their handwriting literally deteriorated as they began to type almost everything. Children should still be taught to and be capable of writing, with and without technology. It would be a shame for a school to provide students such great technologies and yet let their basic writing skills slip away.

Possible even more important than writing, providing too much modern technology in schools may have negative effects on the students. One computer scientist wrote "American high school students have never read one Mark Twain novel or Shakespeare play . . ." (Source E). This particular scientist believed regardless of high-speed connections to infinite books and information through the internet, students do not nor will they read them. Reading and especially critical reading are key to education in schools, and technology may hinder that learning block.

Another factor that should be important to any school is thinking; the abilities to process information, make decisions and generate novel ideas. One author believed technology to be impairing the thinking skills of people today, especially children. "It (technology) may seriously mess up children's informational metabolism – their ability to process information for themselves" (Source C). If schools want their students to think and process the

information they are being taught they should be wary of using too much technology while teaching.

Technology however is by no means a bad thing, it makes many tasks easier and faster. Schooling is just not a task that should be made easier and faster (on the students part). In order to truly learn and develop good skills students must write, read, and think for themselves without the automatic – processed – assistant to do these things for them.

Essay #65

It is undeniable that technology is a key part of today's society. Every home, and almost every room, has a television in it; most people have their own cellphone & computer. But technology has made a slower entrance into the education system. Although, most essays & writing assignments are required to be word-processed, the idea of "going to the computer lab" during a normal school day isn't very common. For some schools with adequate funding, that is something that's beginning to change. Many educators believe that including more technology in the curriculum will get students more involved & interested, which would lead to them being more successful. When making a decision about the role of technology, a school should think about the types of technology and how it'll be used, and most importantly how it'll affect the students' learning.

The most popular technology, especially from an education standpoint, would be computers or laptops. Most students already use a computer for their homework, so it is logical for them to use a computer often at school as well. Empire High School in Arizona "issued iBooks – laptop computers by Apple Computer Inc – to each of its 340 students." (Source A) This school is very committed to making "laptops the key ingredient of the cake ... to truly change the way that schools operated." (Source A) Having a laptop at school with them, students would have access to the Internet. The Internet has great resources, tools, and information for any type of student. "Teachers are getting their classes to post writing assignments online so other students can easily read & critique them." (Source B) Many schools have created kinds of online classrooms where students do homework and electronically interact with one another. People can now get their high school & college degree completely online, without ever sitting in an actual classroom.

Another way of integrating technology into education is through cellphones and other portable electronic devices. Apps can be downloaded to help someone with any subject. Some teachers will use the "clicker" system to tally students' answers. Teachers are "passing out PDAs to use in scientific experiments and infrared gadgets that let students answer questions in class with the touch of a button." (Source B)

With the abundance of technology at educators' fingertips, it's important for them to choose which one of their many uses has the most positive outcome. While some believe technology helps the children of today learn, others believe that technology is the reason why students struggle.

Today's youth have grown up with technology, with the ability to access almost anything on the Internet. This information-saturated lifestyle that these kids are accustomed

to, could be harmful. "Being fed so much processed information ... may seriously mess up children's informational metabolism." (Source C) The invention of the Internet has accustomed society to be always entertained & stimulated as well. Educators need to evaluate whether the inclusion of technology will actually hurt a students' learning potential, rather than help it. Often the answer will be different for not only each student, but also with each technological resource made available.

Essay #71

Incorporating technology into our school system is the only way to keep up with the fast paced world. New technology is invented faster than it ever has before. Source D mentions how it is a strange feeling to write on paper. More and more of today's work and social life is being transferred online. The internet is the future and to keep up with competition, people need to learn how to use it to access relevant information and to communicate effectively.

Source A mentions a school that is changing the way its students learn. Students at Empire high school will be using laptop computers instead of textbooks. This has all the advantages of having textbooks, plus the extra component of outside information and activities. The students are not only learning about their curriculum, but also about technology and the internet.

The internet has many work applications, but it also has many social applications. More people are meeting online than ever before. Business men and women are networking, single men and women are meeting their potential soul mates, and teenagers are creating social events to make new friends. Critics argue that technology has diminished our culture and attention span, and Gelernter from Source E even goes on to say our youth will drown in the useless information and propaganda that the internet provides. However, these critics only focus on the negatives and the advantages are innumerable. Yes, some people will mishandle the new technology being developed, but when used responsibly, it can educate our youth and save lives.

The internet's recent appearance has given almost everyone access to information that would never have been available to them before. It is incorporated with almost every job and activity. To stop using the internet and the technologies associated with it would be to cripple ourselves. To compete in the new global network of people, education of this new technology is a necessity.