THE EFFECTS OF TEACHING CRITICAL THINKING AND READING COMPREHENSION STRATEGIES ON STUDENTS' WRITING IN DEVELOPMENTAL ENGLISH IN A COMMUNITY COLLEGE

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Nancy Carolyn Gregory McLendon

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THE EFFECTS OF TEACHING CRITICAL THINKING AND READING

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Nancy Carolyn Gregory McLendon

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VITA

Nancy C. G. McLendon was born in Dothan, Alabama, on November 27, 1944, to Marian Glover Gregory and Mack Gregory of Abbeville, Alabama. She graduated from Abbeville High School in 1963 and from Samford University in Birmingham, Alabama, in 1967 where she earned a Bachelor of Arts in English and Secondary Education. She then earned a Master of Education degree in reading from the University of South Alabama in Mobile, Alabama, in 1986. She has taught English and reading in public schools for over twenty-two years; eighteen of those are in the Alabama College System.

DISSERTATION ABSTRACT

THE EFFECTS OF TEACHING CRITICAL THINKING AND READING COMPREHENSION STRATEGIES ON STUDENTS' WRITING IN DEVELOPMENTAL ENGLISH IN A COMMUNITY COLLEGE

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The setting for this study was a community college in southeast Alabama, and the purpose was to determine whether the teaching of reading comprehension and critical thinking strategies along with English grammar and writing improved students' writing performance on a final in-class essay. Two intact classes of developmental English students were randomly assigned to a control group or treatment group. The control class received grammar and writing instruction, the same instruction as all English 093 students at the college. The treatment class also received grammar and writing instruction, but the instructor added reading comprehension and critical thinking

instruction for the treatment group. Instruction time was the same for both groups; therefore, the control group received extra grammar exercises in lieu of the critical thinking and reading comprehension instruction. Data analyses revealed a statistically significant difference in the critical thinking scores for the treatment group; however, no statistically significant differences were noted between the two groups on the writing assessment. At posttest, a correlation was found to exist between the treatment group's vocabulary scores on the Nelson-Denny Reading Test and the critical thinking scores. The results, although not statistically significant for reading and essay writing scores, did indicate differences, but the small sample sizes did not yield statistically significant differences for the two. The treatment group's retention in the class was a noticeably higher percentage (63 % for control group and 83 % for the treatment group); however, these differences failed to yield a statistical significance. Further studies are needed in order to explore the possibilities of obtaining statistically significant results with larger sample sizes.

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Style manual used: American Psychological Association Style Manual, 5th Edition

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Computer software used: SPSS 11.5 for data analysis; Microsoft Word 2007 for word processing.

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I. INTRODUCTION

This section presents a brief examination of developmental education in the United States, its history, and the current problems that are relevant to this research project. The history of developmental education in the United States is a long one, but its official beginning was actually in the middle of the twentieth century. Enrollment in America's colleges began increasing steadily after GIs began returning from World War II in the mid-forties. At the same time, two-year colleges started springing up all over the country, and these community colleges began seeing record numbers of students enrolling immediately after high school or returning to college after being in the work force (Casazza, 1999). Enrollment in all of America's degree-granting colleges increased from 8.5 million in fall 1970 to 15.1 million in fall of 2000 (Cox, 2004).

Along with this increase in college enrollment, the number of students needing developmental courses has increased (Cox, 2004). For example, between 1987 and 2000, the percentage of higher education institutions offering developmental courses rose from 72.7% to 75.1% (U.S. Department of Education, 2001). In addition, findings of longitudinal studies indicated that the type of educational deficiency these students possess influences their long-term success in college (Adelman, 1996). According to Maxwell (1997), many four-year colleges and universities offer developmental courses for their students, but most developmental coursework in the United States has been provided by community colleges. Maxwell (1997) also predicted the 15% increase in

community college enrollment that occurred from 1997 to 2007 and stated that two-year colleges would find the increasingly large number of under-prepared students coming through their doors placing a burden on their institutions. Cohen and Brawer (1996) shared this view.

Findings from several studies indicated a need for research in the area of developmental writing. Boylan (2002) noted that some estimates reveal only 10% of all under-prepared college freshmen are likely to complete requirements for a degree without some type of intervention. Furthermore, of the enrolling developmental students in the nation's community colleges, 77% of these students expressed the intention of obtaining a college degree (Boylan, 2002). Although a larger number of studies conducted during the last ten years pointed to an increased interest in developmental education, many of these studies were not conducted specifically in one area, such as reading, English, or math (Crews and Aragon, 2004). Studies pertaining to the relationship of academic achievement in college and persistence with completion of a developmental writing course at the community college level are lacking (Crews and Aragon, 2004). One study that focused on community college developmental writing students found results to be statistically significant regarding cumulative grade point average and the completion of a developmental writing course. The results of this study confirmed a strong relationship between participation in a developmental writing course and short- and long-term academic performance (Crews and Aragon, 2004). However, additional studies in the area of developmental reading and writing are needed to corroborate these findings.

Statement of the Problem

Findings from several studies indicated that writing courses improve students' overall academic success. In addition, research points to the view that the completion of developmental courses tends to improve students' writing. Therefore, good teaching practices necessitate the employment of strategies in developmental writing classes that will assure the best chances for long-term success for students.

Rationale for the Study

Faculty members at the site of this research study, a community college in southeast Alabama, wanted to determine the best method(s) for teaching with developmental reading and writing students who are under-prepared when they enroll in college. For six years prior to the study, the college's English Department faculty had focused on teaching grammar and writing. However, the faculty members of this college wanted to investigate the possibilities for teaching reading comprehension and writing strategies concurrently to Developmental English 093 students to determine if the concurrent teaching of these subjects would improve students' writing in preparation for entrance into English Composition I, the first of the college level composition courses. They also wanted to know if teaching these two subjects together could improve students' reading comprehension, attendance, and retention in the course. These factors were all concerns of the faculty at the college used for this study.

Research Questions

The following research questions directed the research in this study:

1. Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' composition quality as determined by composition quality scores on a final in-class essay?
2. Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' critical thinking skills as determined by critical thinking scores on a final in-class essay?
3. Does the teaching of critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' daily attendance as determined by class attendance records?
4. Does the teaching of critical thinking strategies along with English grammar and composition, in comparison with the standard curriculum of English grammar and composition, improve students' course retention

as determined by class attendance records and official school withdrawal records?

5. Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' reading comprehension as measured by the comprehension section of the Nelson Denny Reading Test?
6. Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' vocabulary level as measured by vocabulary portion of the Nelson Denny Reading Test?
7. What factors explain the critical thinking scores?

I conducted a review the literature concerning developmental reading and writing courses in general, as well as current trends in developmental education. I examined the research specifically dealing with writing and reading instruction and explored possible connections between instruction in writing and reading comprehension and critical thinking strategies. Next, based on current research, I determined if a plan for combining reading comprehension and critical thinking instruction, along with developmental English 093, could improve English 093 students' writing performance. Although the final assessment of the results will include attendance records, students' grades, and a

reading comprehension posttest, the primary determination of the success of the project will focus on an analysis of student scores on a final in-class essay.

Brief History of the Problem

Casazza (1999) stated that many current problems in developmental education were in existence two centuries ago. In fact, for almost 200 years, American colleges and universities have been contending with entering college freshmen who were not prepared to succeed in college level courses (Casazza, 1999). The following anecdote told at Cornell University reveals the confusion and tension of these earlier times.

During the 1830s, a question was raised to Ezra Cornell, founder of Cornell University, by a professor who complained that too many of his students could not read. Cornell told his instructor to teach the students to read if that is what they need, and the instructor replied, "Sir, am I hired then to teach the alphabet?" Cornell retorted, "You teach them whatever they need!" In the 17th century, as many as 10 % of incoming Harvard students during the first years after its founding were reported to lack common writing and spelling skills (Casazza & Silverman, 1996). Because of the many problems displayed by Harvard's incoming freshmen in 1871, Charles Eliot, Harvard's president at that time, complained that too many of these students had "bad spelling, incorrectness as well as inelegance of expression in writing,{and} ignorance of the simplest rules of punctuation" (Weidner, 1990, p. 4). Therefore, Harvard developed an exam to include written composition. Harvard's records indicated that in 1879 as many as 50% of incoming freshmen were failing this exam and administrators admitted these students "on condition" (Weidner, 1990, p. 4).

Shortly after the turn of the last century, colleges and universities at all levels were offering developmental courses. College administrators commonly labeled these classes "remedial" courses. Some colleges even hired full time staff to teach these courses (Barbe, 1951). A review of these past difficulties reveals a main point for today's educators and the public: the need for developmental, or "remedial," courses was present long before the twentieth century. The twentieth century brought more changes in the student population of American colleges, resulting in an even more pressing need for accommodations for students needing developmental courses (Casazza, 1999).

By the 1960s, many college students who lacked basic skills were enrolling in colleges in the United States, especially in two-year institutions (Casazza, 1999). Large numbers of World War II veterans took advantage of the benefits offered them through the GI Bill of Rights. By the fall semester of 1946, over one million veterans had enrolled in America's colleges (Wyatt, 1992). The veteran enrollment helped bring Federal funding that provided money for guidance centers, reading, writing centers, and study skill programs. Soon women enrolled in ever-increasing numbers in colleges and then students from impoverished backgrounds (Wyatt, 1992).

Current Issues in Developmental Education

The period from the 1970s until today is known as the time of the "open door policy" (Casazza, 1999). Cross discussed the characteristics of the "new" students of the 1970s in her classic book, *Beyond the Open Door* (Cross, 1971). Today's educators are familiar with the nontraditional student, but doubts as to the best methods for teaching these students still exist. Therefore, some of today's problems in developmental education have arisen from within the colleges of the United States. The changes in the

United States that brought more students who had not traditionally sought a college education meant an influx of students into the college community, many of whom were under-prepared for academic success. These changes and the increased enrollment resulted in a need for developmental education more than ever.

The problems associated with under-prepared students are faced to some extent by all colleges and universities who offer developmental courses but more often by community colleges because they offer students an open-admissions policy. That is, open-admission colleges allow students to enroll in college regardless of past grades, and the students are required to take developmental courses if placement tests indicate a need for bringing them to college level in math, reading, or English. Therefore, larger numbers of community college students, as many as 55%, needed developmental courses in the late 1980s (U.S. Department of Education, 1989). In 1999, the State of Florida released figures indicating that almost two-thirds of the state's graduating high school students needed some form of remediation before they could attempt college work (Office of Educational Services and Research, Division of Community Colleges, 1999).

As the number of students needing developmental education increased, other problems arose. One difficulty that proponents of developmental education must deal with is the attitude of college professors and teachers who assert that these students should not be in college at all (Almeida, 1991). According to Hutchinson (1985), this problem exists partly because too many faculty members lack the proper training and education for teaching under-prepared students. He further noted that the result has been demoralized faculty members and developmental students who quickly become discouraged and drop out of school. Students who do not drop out often find that the

faculty-student relationship is compromised and somewhat strained because of the lack of student preparedness for college (Hutchinson, 1985).

Another obstacle facing developmental education today is that the current problems in this field of study may not be resolved in the near future. Some research studies indicate that many of the difficulties surrounding the field of postsecondary developmental education actually originate with the lack of academic preparation provided by secondary schools. These problems are not getting any better. One report, the National Association of Educational Progress (NAEP), has raised major concerns among educators as well as the public. The findings of that report found unusually low scores among twelfth graders, especially in reading and writing (U.S. Department of Education, 2000). Students who leave the twelfth grade deficient in reading and writing skills are unable to perform successfully in a college classroom. Casazza (1999) summarized the concerns of those who support developmental education when she stated that, for Americans, developmental education is actually "a social and economic imperative."

Not only does developmental education appear to be "a social and economic imperative" (Casazza, 2001), but correcting some deficiencies may be of extreme importance if college success is to be achieved (Casazza, 2001). That is, some academic deficits may cause students more difficulties in academia than other courses. A report provided by the National Center for Education Statistics (NCES), entitled The Condition of Education of 2002, provided insight as to the importance of correcting particular deficits. Two separate statistical findings revealed that of all academic problems, reading difficulties proved to cause students more impediments in achieving success in college than any other of the developmental courses (U.S. Department of Education, National

Center for Education Statistics, 2002, Indicator 29). In addition, studies described in this report indicated that of the students who had reading difficulties, 42 % were taking three or more developmental courses. On the other hand, of the students who needed to take developmental mathematics, only 16 % of these students also needed a developmental reading course (U. S. Department of Education, 2002).

Furthermore, according to Hennessey (1990), students who have successfully completed a reading improvement course are more likely to be successful in other college classes. He speculated that one possibility for these results is that students who heed their counselor's advice and enroll in a reading course may have possessed higher motivation and goals when they enrolled in college. However, he noted that those students' participation in a reading course might have led to their success. Several studies, therefore, indicate that reading seems to be a critical skill for academic success.

Definition of Terms

Acculturation: As regarding basic writers, the process of basic writers becoming acclimated to the academic culture, or the academic world view, which may be quite different from that of their home culture. Bizzell (1986) stated that basic writers undergo inner conflict as they realize the differences in the two cultures. The students' home culture may actually be somewhat responsible for the basic writers' generating ideas that are quite different from those generated by members of the academic culture. These conflicts within the basic writer must eventually be resolved if the basic writer is to become a member of the academic community. Becoming acclimated, or accustomed to, the academic community does not necessarily mean basic writers must give up their home cultures (Bizzell, 1986).

Basic Writing: A term frequently used since the 1970s in referring to developmental English courses. While developmental courses are sometimes referred to as "remedial," Shaughnessy, a City College of New York professor, coined the term "basic writing" to refer to developmental English courses. She began using this term over thirty years ago to refer to the developmental writing course that she developed to assist the basic writing students who flooded the New York City Community College after the City University of New York lowered their admission standards in 1970 (Shaughnessy, 1977). Her purpose in using the less offensive term, "basic writing," instead of "remedial," was to soften the stigma attached to such courses (Traub, 1995).

COMPASS: This acronym stands for Computer-Adaptive Placement Assessment and Support system and is a computerized placement test that provides important information about individual skills and preparation for college-level courses in mathematics, reading, and writing. Students do not have to complete the test within a certain time limit. It is an adaptive computer-based test, which means that it automatically adjusts the difficulty of the questions to the students' ability level. The ACT Company provides the COMPASS. The ACT Company is a not-for-profit company that provides more services than just college entrance tests. The company shortened the name to ACT in 1996 to reflect the broad range of services and programs it offers beyond college entrance exams (American College Testing, 1999).

Developmental Education: A branch of education sometimes referred to as "remedial" education. This area of college work "supports the academic and personal growth of under-prepared college students through teaching, counseling, advising, and tutoring. The clients of developmental education programs are traditional and

nontraditional students who have been assessed as needing to develop their skills in order to be successful in college" (National Center for Developmental Education, 2007).

It includes, but is not limited to, all forms of learning assistance—including mentoring and supplemental instruction. Developmental education can include personal, academic, and career counseling, as well as academic advisement and coursework (National Center for Developmental Education, 2007.)

Developmental English: Those English courses that are not-for-credit courses, which college students must take if they are not able to perform at college level in English. These courses prepare the student for entrance into English 101.

Open admissions colleges administer an exam to those students scoring below the minimum requirements on the ACT or SAT or other college entrance exams. For example, at the college in this study, the required score for entrance into English 101, English Composition I, the first college level course, is 20 on the ACT. Students who score below this level in English are required to take the COMPASS, a placement test that determines their proficiency level in English, as well as reading and math.

Open Enrollment College: A college that allows a student to enroll if he or she has received a high school diploma or completed the GED, which is a test that enables the student who did not complete high school to receive a certificate. Freshmen at Alabama's community colleges may enroll in English 101 if they attain a certain score that varies from college to college. A score of at least 20 on the English portion of the ACT is required in the college that is the site of this study in order to be exempt from taking a placement test in English. Those not scoring at least 20 on the ACT then must take a placement test. At this college, the COMPASS placement test is administered to

incoming freshmen. They must score at least 62 on the COMPASS, the in order to be eligible for enrollment in English 101. Open enrollment colleges have become more commonplace since the 1960s and 1970s.

Each open-enrollment college determines who takes the COMPASS according to students' scores on the ACT. Each college sets the level for the acceptable ACT score. The college that is the site for this research project sets the acceptable score for college English at 20 on the ACT test. Students scoring below 20 must take the COMPASS in order to override the ACT score.

Critical Thinking

Definitions

Because critical thinking has a number of definitions and encompasses several components that are relevant to this research project, I discuss the various aspects of critical thinking separately in this section. Several definitions of critical thinking are relevant to this research. One definition is that the critical thinking process relates to "one's conscious effort in deciding what to do or to believe by focusing one's thought on it" (Ennis & Norris, 1989). That is, critical thinking has a focus or a purpose. Stebbing (1952), a British scholar, wrote a book on the importance of having a purpose in one's thinking. She stated, "To think logically is to think relevantly to the purpose that initiated the thinking: all effective thinking is directed to an end."

Another definition of critical thinking is Paul's definition, which stated that this type mental activity refers to students' abilities to "enter into thoughts and feelings other than their own" (Paul, 1987). He asserted that the first step in this type of critical thinking is for students to rigorously question "every particle of their own beliefs" and put

themselves into the positions of their opponents (Paul, 1987). Some educators have taken the critical thinking definition another step and have asserted that effective critical thinking leads the writer to substantive writing, {which} "enables the author to take ownership of ideas worth understanding" (Elder & Paul, 2006).

Of import to this study are the definitions presented by Fawcett (2004), author of *Evergreen, a Guide to Writings with Readings*, the textbook used by the treatment group in this study. She described and defined several specific critical thinking skills that students should develop in the writing process. Fawcett emphasized the connection between thinking and writing and quoted a well-known writer, Anne Morrow Lindbergh, who once said, "I think best with a pencil in my hand" (Fawcett, 2004, p. *xx*). Fawcett stated that her textbook assumes that critical thinking embodies the writing process, therefore, is an essential component of effective writing (Fawcett, 2004, p. *xx*).

In addition, she continued to note that several critical thinking processes are at work when students are actively engaged in effective writing. First, she stated that her *Evergreen* text connects the teaching of critical thinking skills with writing when it guides students in learning about the various rhetorical modes of writing; that is, in organizing and categorizing ideas while writing, students are actively engaged in critical thinking (Fawcett, 2004). This text also teaches critical thinking skills in guiding the student, or reader, to differentiate between general and specific ideas, such as deciding on topic sentences, which are general ideas. Supporting details, on the other hand, are specific ideas.

Finally, the author expressed the belief that students learn critical thinking skills when they gain the ability to determine the ordering of ideas within a paragraph—space

order, time order, or order of importance, to list a few (Fawcett, 2004, p. xx). The text guides students through the process of learning these various patterns of organizing ideas within a paragraph or essay. Fawcett's summary of her definitions of critical thinking concluded by stating her belief that when students actively engage in the above activities during the writing process, they are learning to synthesize, analyze, and draw conclusions, necessary components of critical thinking. Rose (1973) concurred with this opinion.

Elements of Critical Thinking

The above definitions described the critical thinking process, but a full understanding of critical thinking requires an examination of the various aspects of critical thinking. A vital part of critical thinking involves clear, logical thinking. These components of critical thinking are essential elements of the reading-writing process.

An essential component of critical thinking involves the ability to distinguish between fact and opinion. Murray (2006) provided clear definitions of fact and opinion relevant to the reading and writing processes. An opinion may be defined as "self-report or feelings of personal judgment" (Murray, 2006). Often opinions may reveal emotions or personal feelings. Statements of opinion may contain clues such as "I think," or "I believe." He further asserted that an opinion, or self-report, may contain adjectives which indicate personal opinion. For example, someone says, "This is a nasty day." The statement is not an objective one that accurately describes the day, but is actually an opinion that reveals an attitude toward the kind of day that he or she is having (Murray, 2006).

Common belief sometimes assumes that one may always be able to observe facts; however, that belief is not necessarily the case. Some facts may not be observable. Therefore, a broader, more general definition of fact, according to Murray (2006) is "any statement about the real world that can be shown to be true, i.e., that is supported by converging evidence". He described four types. The first kind of fact is empirical, which one may verify by observation. For example, the Pacific Ocean is the largest ocean. The next type of fact is that which is analytical in nature. One may usually verify analytical facts by examining their "consistency with the rules of a symbol system" (Murray, 2007). For example, 2 + 2 = 4 is a fact if one is using 10 as the base system in adding these two numbers. Logic verifies analytical facts, and sometimes language agreement verifies these facts.

Finally, evaluative facts are verifiable by value standards. Murray (2007) used the example of the statement that "theft is wrong" is factual, and he based that assertion on the standard of the right to own property. Sometimes people assume that evaluative statements are opinions. These kinds of statements may require an expert opinion, but their correct category is actually that of facts. For example, when a jeweler assesses the value of a diamond, he or she is rendering an expert opinion, which is actually factual because he or she bases the judgment on certain concrete values or qualities that the diamond exhibits on close examination (Murray, 2006). Finally, metaphysical facts are those that one verifies by "revelatory evidence or self-evidence" (Murray, 2007). An illustration of a metaphysical fact is the belief that all men are created equal. This belief does not require outside evidence for acceptance as a fact in order to have just

government; it is accepted as self-evident. The revelatory evidence is found in sacred writings, history, or ancient texts (Murray, 2007).

Students in the treatment group of this study received basic instruction in differentiating fact from opinion. Most of the classroom instruction on determining fact and opinion was from the *Ten Steps to Improving College Reading Skills* (Langan, 2004). The classroom instruction these students received did not delve deeply into the different types of opinions and facts but rather focused on the broader definitions of these two choices.

Significance for Students

Recent research also supports the importance of teaching critical thinking skills for college students. Current literature not only provides several definitions of critical thinking, but the findings in several studies suggest that teachers cannot assume that students know how to think critically; therefore, explicit instruction in this area may be needed. A focus on teaching students *how* to think critically seems to be important. For example, Daud and Husin (2004) reported that when the teaching of critical thinking skills focused on *what* to think, rather than *how* to think, the students did not achieve the expected level of skill in critical thinking (Logan, 1976; Keeley *et al*, 1982; Keeley, 1992). Therefore, many educationalists endorse the explicit teaching of critical thinking skills in order to improve the effective and rational thinking of students (Dudd & Husin, 2004).

Research findings have provided additional specific reasons for teaching critical thinking skills. A substantial body of research seems to indicate a possible link between critical thinking skills and success of developmental students (Chaffee, 1992). Critical

thinking skills are shown to enhance reading and writing skills according to St. Clair (1994-95), and critical thinking skills improve students' attitudes toward learning (Harris & Eleser, 1997). Chall (1996, p. 23) stated that students must learn strategies of "Dealing with more than one point of view." She corroborated the previous statement concerning developmental students' attitudes toward learning and critical thinking. In *The Stages of Reading Development* (1996), Chall pointed out that being able to use critical thinking skills and knowing how to understand another's point of view are both characteristics of Stage 5. She continued to explain that Stage 6 involves moving to a conception of knowledge as "qualitative assessment of contextual observations and relationships" (Chall, 1996, p. 210). Successfully mastering these developmental stages in critical thinking are essential steps in knowing how to analyze, synthesize, and critique information. Students need these skills in almost all subjects they take in college. These critical thinking steps lead to more effective reading and writing, which are essential for success in postsecondary education (Rose, 1973, pp. 140-141).

Since research supports the careful integration of reading and writing skills along with instruction in critical thinking, these components seem to be needed in developmental English and/or reading classes. Reading and writing skills not only rank high on the list of priorities for college success, but as these skills are also a necessity in the work force, developmental program planners should focus on incorporating these skills in the instructional plans. In planning classroom strategies for use in developmental reading classes, teachers can choose from a variety of strategies.

II. REVIEW OF THE LITERATURE

This chapter focuses on a synthesis of the research of the following topics: basic writing, both past and present; developmental reading; integration of reading and writing; precautions for integration of reading and writing; research in developmental education; research on critical thinking; and experimental studies in reading-writing integration in K-12.

Basic Writing Research—1970s to Present

This section traces the development of the changes in the basic writing field in the past 30-40 years in attitudes toward errors and the importance of the role of cultural influences in the field. These changes in the basic writing field have influenced this research project in the area of both errors and culture. Since the early 1970s, basic writing researchers have influenced the attitudes and strategies used by teachers in today's developmental writing classroom. An area of research affecting the basic writing classroom of today is that of attitudes toward student errors.

A second focus in basic writing research has centered on dealing with cultural influences of basic writing students' home culture. Today basic writing researchers' opinions toward the importance of cultural influences and student errors are quite different from those of the 1970s. Basic writing researchers today recognize the importance of dealing with the cultural conflicts within the basic writing student. Most of these researchers realize that these cultural clashes influence these students' attitudes

toward the academic community. The research of basic writing educators from 1970 through the present has influenced this research project in areas regarding student errors, the cultural influences on student errors, and the importance of recognizing the conflicts that may exist within the basic writing student because of cultural differences between his or her home culture and the academic culture.

The first basic writing researcher recognized in the field as a worthy spokesperson for basic writers was Shaughnessy (1977), a professor at City College of New York (CCNY), in the 1970s. The move to give students hope for a new beginning, even though they appeared to have missed their first opportunity in secondary school, began at this college. Many of these earlier enrolling students were minority students. Shaughnessy, (1977) not only coined the term "basic writers," but she also laid the groundwork for developmental English courses throughout the United States when she began studying her students' papers in earnest. She began writing articles and books and encouraged her colleagues in the English Department at CCNY to grant respect to the idea that these students were definitely not stupid, and they could learn to write well if they were given sufficient time with strategies that worked with basic writers.

While she focused more on errors than her successors did, she was a pioneer in that she acknowledged basic writers' inherent ability and the possibility of their success. These ideas were previously unheard of in America's colleges. In her classic *Errors and Expectations*, she defined basic writers as "beginners…who learn by making mistakes" (Shaughnessy, 1977, p. 5). She, to the horror of many of her colleagues, gave basic writers' papers status as "text" (Shaughnessy, 1977, p. 5) and awarded respect to her

students' papers because she gave all of them "close" reading. She stated that basic writers write the way they do because they are basic, or beginning, writers.

In addition to treating these students and their papers with respect, Shaughnessy treated the concept of "error" differently from any writing concepts previously promoted in America's colleges. In *Errors and Expectations* (Shaughnessy, 1977), she gave examples of various kinds of errors in the writing of these students. First, she argued that the content of the papers was comprehensible, and although marred by errors and mistakes, the students' mistakes were quite logical. That is, she insisted that they were adopting the grammar rules they learned with a previous language and were applying them to English in a logical, although often incorrect, manner. With this assertion, Shaughnessy (1977) claimed that basic writers were intelligent, logical thinkers, who deviated from the "norm" of Standard English. She pointed out that the errors of basic writers were logical, and the students tended to show a pattern in their errors. In other words, these students were making errors, not because they were stupid, but because they were unfamiliar with the language patterns of the academic world or Standard English (Shaughnessy, 1977). Additionally, Shaughnessy recognized the role of culture on basic writing students although her views differed somewhat from basic writing researchers who followed her.

One of today's most vocal basic writing teachers and researchers is Lu, author of "Conflict and Struggle: The Enemies or Preconditions of Basic Writing" (1992). She disagreed with some of Shaughnessy's (1977) views, particularly the view that the basic writers' inner conflicts were problems. She asserted also that the basic writers' struggles were not just a matter of the correcting of errors, but were also a matter of the underlying

conflicts, resulting from his or her acculturation process. That is, the basic writer was becoming a member of a very different cultural group, the academic community, and he or she struggled with questions about leaving his or her home culture behind, yet he or she was becoming increasingly uncomfortable in that home culture.

On the other hand, Lu (1992) stated that Shaughnessy (1977) was sympathetic with her students in their struggles to learn the language (dialect) and discourse (style of speaking) of the academic world, but Shaughnessy (1977) insisted that the new culture, the academic culture, would in no way hinder their acceptance by their home culture. She focused on the teaching of grammar in the belief that the writing problems were surface ones, not difficulties that would change or modify the students' cultural identity or create conflict within the student or between him or her and the home culture. Since a number of her basic writing students were not familiar with modern western culture, she recognized that learning a new culture, the culture of the academic world, was part of the process of becoming acclimated to college. She viewed the students' inner conflict between the two cultures as a deficit. However, Shaughnessy (1977) did not help students deal with the struggles they would encounter as they moved through the acculturation process and learned new methods of discourse. Shaughnessy (1977) also placed more emphasis on errors than did later researchers (Lu, 1992).

Shaughnessy's work provided a foundation for later basic writing research in the eighties, nineties, and into the twenty-first century. Many researchers who followed Shaughnessy came to see cultural differences and errors entwined, and they believed a need existed for the academic writing community to recognize and, subsequently, deal with the conflicts within the basic writer. These inner conflicts of basic writers were often

due to the differences between his or her home culture and that of the academic culture. Later researchers also viewed error differently from their predecessors. The problem of errors played a less significant role in basic writing as the twenty-first century approached.

Another well-known writer and teacher who made significant contributions was Elbow. His first book, *Writers without Teachers* (Elbow, 1973) helped pave the way for changes in attitudes and practices in this area of English. In this classic book, he advocated extensive use of free writing and encourages editing and proofing much later in the process. He called this process the "developmental model" of writing (Elbow, 1973, pp. 18-21). This approach tended to build confidence in the writer because the writer focused more on his getting his or her thoughts written first, rather than stopping constantly to rewrite sentences with correct grammar. Elbow's approach was different from past methods, which dealt with editing for correctness early in the process.

Elbow also encouraged the writer to focus on the central idea of his or her writing, which he called the "source of gravity," later in the writing process (Elbow, 1973, pp. 34-36). In his first edition of *Writers without Teachers*, Elbow steered the writer toward focusing on writing as a process (Elbow, 1973, p. 31). The writer focused on the correction of grammar and spelling later, after he or she had done a considerable amount of free writing. Since the process of free writing leads the writer to explore a number of ideas that come to mind, the final draft may not resemble the first. *Writing with Power* introduced the idea that the first stage may be completely different from the final draft (Elbow, 1998, pp. 43-45). Because the writing process is a lifelong one, Elbow encouraged students to refer to what he termed the Yogurt Model, because the writing

student should see himself or herself as one who contains a living culture, which never dies or ends (Elbow, 1998, pp. 139-140).

In "What Happens When Basic Writers Come to College," Bizzell (1986) addressed the importance of recognizing that basic writers' errors often stem from cultural differences, and the mistakes are frequently not surface errors. She stated that they {the errors} are not simply a matter of learning Standard English and discarding one's native dialect. She argued that the grammar or dialect errors may be capable of conveying complex thought, but the problem involves much more than one of dialect. She proposed that the students are familiar with a pattern of organizing information and persuading an audience in a style that is quite different from the academic manner in which students should convey thoughts in college writings. The discourse that they may be familiar with may be more like the discourse of soap operas or lessons from grammar school. Thus, she argued that the dialect and discourse do not simply convey thoughts; they actually generate thoughts. For example, a student familiar with journal writing may use a particular type of discourse for this writing, but that discourse may not be appropriate for another type of college writing (Bizzell, 1986).

Cultural differences are often at the root of many student errors, and these differences may well generate different kinds of thought processes. Bizzell (1986) argued that cultural bases are responsible for many of the different types of thinking generated by basic writers; therefore, basic writing teachers and researchers cannot ignore cultural differences when these differences may give rise to a difference in thinking, as well as dialectic and discourse differences. Additionally, ignoring the differences in the two cultures, and ignoring the conflicts within the student, can cause basic writers to feel they

are abnormal because they have these cultural conflicts. Some basic writers decide to drop out of the academic community because they do not know how to deal with the cultural conflicts between the academic community and the home culture (Bizzell, 1986).

Hull and Rose (1990) agreed with Bizzell (1986) on the idea that ignoring the students' home culture can lead to the basic writing teacher's lack of understanding of student errors. Rose's cultural background caused him to have conflicting feelings about school for years. In "'This Wooden Shack Place': The Logic of an Unconventional Reading," Hull and Rose (1990) traced the thoughts of Robert, a basic writing student in Rose's class who is from an island culture. Robert lived in Los Angeles but was from a lower socio-economic family than many of the middle class students in the class, who interpreted the poem differently from Robert. In talking Robert through a series of questions about the interpretation of several lines of poetry from "And Your Soul Shall Dance," Rose pointed out that Robert's interpretation of several lines was quite different from those of the others in the class because of the differences in his cultural background. For example, the discussion of the girl in the poem wearing a dress from Sears and Roebuck Company led the middle class students to perceive the girl as wearing economical clothes, while Robert saw the girl as doing okay. The huts in the poem may not be that different from those his parents came from, while the middle class students saw this as poverty. In addition, Robert was not familiar with the idea, common in the academic culture, that one does not always analyze objects or places in poetry in depth. The author or poet often placed them in the poem to convey images, "imagistic resonance," in Rose's words. Robert, however, tended to have a strict, legalistic view of the images. As with Shaughnessy's (1977) interpretation of the errors of her students as

“logical,” Rose realized that, frequently, basic writing students do not meet the teacher’s expectations, not because they are lacking in intelligence, but for other reasons. With Rose’s student Robert, the cultural differences caused the student to reach different conclusions on the interpretation of this poem. Cultural differences are important, and in this case, account for what appear to be errors on the part of the student (Hull & Rose, 1990).

A common denominator for all basic writers, according to Adler-Kassner (1999), is “error.” She argued that these errors are not just surface errors, but errors of “conceptualization that lead to errors in content and form as well as surface-level error.” In “Just Writing, Basically: Basic Writers on Basic Writing,” she indicated that her interviews with 16 basic writing students at the University of Michigan-Dearborn revealed that culturally based research in basic writing was needed. She stated that a more recent trend in basic writing is to view the basic writing student as part of a larger culture, such as the academic culture. Like Rose, she realized that not understanding the students’ home culture can lead to thinking the student is not knowledgeable or skilled in interpretation of literature and writing. She further stated, “Shared interpretation, to some degree, is based on shared culture” (Addler-Kassner, 1999). She agreed with Shaughnessy and others when she said, “There is an internally consistent ‘logic’ in their texts that reflects cognitive processes at work, rather than flawed ones” (Addler-Kassner, 1999; Hull & Rose, 1990; Rose, Perl, and Shaughnessy, 1977). Therefore, an understanding of the students’ home culture is necessary in order to understand the possibility of errors in the interpretation of ideas.

A similar viewpoint, articulated by Adler-Kassner (1999), provided a positive outlook on remediation; she stated that she viewed the consistent "logic" of their errors as "non-deficit." The students she interviewed, however, saw themselves as deficient in their thinking and writing (Adler-Kassner, 1999). She viewed her teaching of writing as a process that helped students think. She did not view this process as having a primary goal of finishing a writing product that students produced without errors.

Basic Writing Standards

Several researchers and teachers of basic writing students have advocated recognizing cultural differences in the classroom in order to better understand student errors and provide better instruction. However, an understanding of cultural differences does not necessitate lowering standards for basic writing students. Addler-Kassner, for example, stated that at times the teacher must work with basic writers on errors to produce better sentences (Addler-Kassner, 1999). As a surprise to some who think Adler-Kassner might suggest ignoring errors, she quoted Rose's comment in *Lives on the Boundary* when he told basic writing teachers to set high standards: "Students will float to the mark you set (Rose, 1973, p. 26).

A researcher who would agree with Adler-Kassner's and Rose's admonition to basic writing teachers to keep the standards high is Odell (1995). He presented three assignments of varying difficulty to an audience of teachers and administrators. When he asked them to choose the one they believed to be most appropriate for college students, he was surprised to learn that the audience selected one of the most difficult assignments as the choice. The assignment was actually one completed by a group of third graders. The audience selected another difficult assignment as appropriate for an academically

advanced group of students. However, basic writing students had successfully completed that particular assignment. Odell (1995) argued that we expect the basic writing students under our tutelage to function at a lower than normal (for college students) level; therefore, they live up to whatever we expect of them. He advocated having students do the kind of writing that people in the real world do, and the students can be successful if we expect them to.

Although he did not specifically mention grammar errors, he did emphasize that teachers who teach basic writers should have high expectations. He focused on the fact that the content of the writing should be meaningful and pertinent to the real world. He also advocated bringing the students' community into the writing arena; therefore, the immediate world of the student has a connection to what he or she is writing in the writing classroom.

Additional research supports keeping standards high for learners of all ages and cultures. As early as 1975, a study by Massey, Scott, and Dornbusch found that many teachers had stopped teaching Black children. In other words, they found that many teachers had lowered standards and failed to set high goals for many minority children. These researchers stated, "We have shown that oppression can arise out of warmth, friendliness, and concern. Paternalism and a lack of challenging standards are creating a distorted system of evaluation in the schools" (Massey, Scott, & Dornbusch, 1975, p. 10). As a Black writing teacher, Delpit (1988) stated her concerns about teachers who do not push all students to perform at their highest potential. She advocated taking students' culture and community context into account in the classroom, and she emphasized

that students do not have to give up their home culture. However, she urged teachers to consider that minority students must also be able to perform in a world that demands Standard English, a world that expects them to exit colleges and universities and be able to communicate effectively. As a Black teacher who often conversed and communicated with Black parents, she stated that most Black parents expect schools to "provide their children with discourse patterns, interactional styles, and spoken and written language codes that will allow them success in the larger society" (Delpit, 1988).

The students involved in this research project came to understand that they did not have to make language changes at home, but they did have to perform at the level set by our English Department, which is acceptable Standard English. They understood that the business community expects this standard when they leave college and begin working in the world. For this reason, I did not adjust the rubrics in this research project to allow for cultural differences. The above research cited in this section supported the view of holding to high standards.

As a writing teacher with twenty-two years in the writing classroom, I agreed with Odell (1995), Rose (1973), Addler-Kassner (1999) Delpit (1988), and others who advocated maintaining high standards in the classroom. I considered cultural differences and made allowances for these differences as I taught the classes in this research project. For example, I encouraged discussions about the fact that the language students use at school and at work may be different from the speech they use at home. As I gave explicit instruction in the classroom, I walked around the room as students wrote to assure they understood and followed directions. Basic writers often cannot conduct peer review effectively until they have completed additional writing courses; therefore, I did not ask

the basic writers in this study to review the writing of their peers, a line of thought that Delpit (1988) advocated. My instruction allowed for frequent student-teacher conferences. Furthermore, Delpit (1988) stated that explicitness is quite similar to direct instruction. With clear explicit instruction, students more easily understand the teachers' expectations. When teachers' strategies help to assure that students learn, then teachers do not adjust rubrics or lower standards.

Conclusions

Basic writing proponents have disagreed about the role of culture conflicts being a deficiency or a positive factor. Bruffee (1988) agreed with Shaughnessy (1977) that this inner conflict is a deficit. Lu (1992), however, stated that the inner conflict can lead to better writing for the basic writer. She discussed the views of Trilling (1979), who stated in *The Last Decade* his belief that the students' process into the academic community is a membership in a "new, larger, and more complex community." This induction into membership in the academic community is the role of American education, according to Trilling (1979). The result will be conflict as the student moves from his or her home culture into the academic culture. The process may be painful. Lu mentioned that Rose, as a member of an immigrant family, felt this conflict throughout his college years and into his graduate school years.

Furthermore, Bruffee (1988) saw the goal of basic writing in terms of bringing the student into the academic community's culture. He stated that the basic writers' "local" communities have prepared them for only "the narrowest and most limited" political and economic relations. He also espoused the view that students will be the most useful to society when they have been "reacculturated" as they "gain membership in another such

community." This process is one that must include the learning of its {the new culture} "language, mores, and values" (Bruffee, 1988). Lu (1992) agreed with Bruffee. She emphasized the importance of not leading the basic writing students to see the academic community as a place free of contradictions, for the basic writing student, like Rose and others, may continue to experience feelings of ambivalence and doubt about the transition from one culture to another.

A recent theory on student errors, stated by Gray-Rosendale (2000), is the belief that the errors of basic writing students stem from faulty oral discourse. Once a basic writer herself, she advocated collaborative learning, especially peer review of papers, in the basic writing class in order for students to discuss their ideas orally before trying to put their thoughts onto paper (Gray-Rosendale, 2000, pp. 14-15). She conducted research with her students and found that when students were allowed to work in small groups with other students and move through the necessary thought processes first before trying to write, they produced papers that were "extremely well-conceived intellectually" (Gray-Rosendale, 2000, p. 152). These students' social identities were created through their speech, according to Gray-Rosendale; therefore, peer revision moved students to function better as critical, empathetic readers (Gray-Rosendale, 2000, p. 151).

Because of the basic writing research that began in earnest around 1970, today's basic writing teachers have much for which they can be thankful. The professional journals available for basic writing teachers provide sources of information on the most recent research available in the field. Workshops, conventions, and seminars are available for assistance and knowledge. The research available over the last several years has indicated that errors will be in the writing of these students, but dealing with errors in the

context of their writing seems to work best. Isolated grammar exercises frustrate without providing real improvement. Focusing on teaching critical thinking skills, using collaborative groups, and being aware of cultural differences among students provide support that can lead the basic writing student into the academic community while meeting high standards of accountability in writing.

This research project has been influenced by recent basic writing research, especially that of the last decade. The emphasis on critical thinking and on the importance of student-generation of ideas in this research project takes precedence over having an error-free finished product. Furthermore, the idea that the teaching of critical thinking is an integral part of the teaching of writing influenced the development of this researcher's rubrics, both the essay rubric and the critical thinking rubric. Because of the emphasis on critical thinking, I omitted the grammar section on both rubrics and focused on thinking skills, organization, style, tone, coherence, and other components of effective content. I taught grammar to the students in this project and recognized its importance; however, the generation of clear, logical, coherent ideas took precedence over mechanics in this research project.

Current Research in Developmental Education

Enrollment in remedial courses in mathematics, English, and reading increased during the 1990s, along with higher attrition and failure rates, according to a 1998 report from the Institute for Education Policy. By 2001, forty-two percent of entering freshmen in two-year colleges needed at least one developmental reading course (National Center for Education Statistics, 2001). At the beginning of the twenty-first century, 20 % of freshmen entering four-year institutions needed at least one developmental course (U. S.

Department of Education, 2001). When considering these disturbing facts, one realizes more than ever that those who teach developmental classes need to be certain they are using effective methods in the classroom in order to facilitate student acquisition of the necessary skills.

Reading and writing skills not only rank high on the list of priorities for college success, but these skills are also a necessity in the work force. According to the U.S. Department of Labor, 80 % of the fastest growing jobs in the U.S. require some sort of higher education after high school. All community colleges provide developmental education courses, and community colleges are accessible and adaptable; therefore, they are increasingly the major providers of job training (U.S. Department of Labor, 1995). Increasingly, however, criticisms exist concerning developmental education courses. Parents, students, and lawmakers complain about the costs of courses that do not provide college credit for the student. Students do not like spending several months or an entire year taking courses for which they do not receive credit, and policy makers often threaten to cut off funds for these courses. Open admissions schools report dropout rates of 46 % (American College Testing, 1999), and these high rates provide fuel for the fires of controversy.

On the other hand, research results are positive in reporting success for many students who take college level courses after completing developmental courses. The National Center for Developmental Education reports that students who take developmental courses in English, math, and reading usually continue successfully in their college careers and achieve mastery of the content in academic courses (Casazza & Silverman, 1996). Furthermore, Lewis and Greene (1998) found that students who

complete developmental courses are eventually able to have above-average final course grades and academic grade point averages as high as those students not needing developmental courses. Therefore, research clearly indicates the value for students and for society of providing developmental courses for students who need them.

Reading Comprehension Instruction

Reading is not a passive activity; it demands that students actively engage in a search for meaning (Anderson & Pearson, 1984). One view of active comprehension suggested that active comprehension involves a shift from students answering questions towards students asking questions as they read (Singer, 1980). One vital component of effective reading comprehension is the ability to answer both literal and inferential questions. Many researchers believe that inferential comprehension requires explicit training (Hansen & Pearson, 1983; Pearson, Hansen & Gordon, 1979).

Research completed by McGee and Johnson (2003) found positive effects on comprehension tests for skilled and less skilled readers when they were given explicit inference training. The purpose of the McGee and Johnson (2003) study was to assess the effects of explicit inference training on these readers. The researchers recruited 75 children, aged between 6 years 6 months and 9 years 11 months, who are English first language students in a nondenominational school. Researchers assessed the students, using the Neale Analysis of Reading Ability (NARA) Form 2 for reading level.

The researchers eliminated all but 20 students from the study because they wanted their participants to meet criteria adopted by Yuill and Oakhill (1988), which placed less skilled comprehenders as "having a reading accuracy score above or equal to their chronological age, but a comprehension score below their chronological age and at least 6

months below their reading accuracy score." The students in the skilled comprehenders' group "would have a similar reading accuracy score, that is above or equal, to their chronological age, but a comprehension age that exceeded their chronological age. These remaining students were randomly assigned to2 interventions—10 in each group. They were cross-matched in each of 4 conditions for ability on reading accuracy and comprehension ability.

This research design is a 2 X 2 between-subjects design, and researchers selected this design so that one of the 2 groups of children (skilled or less skilled comprehenders) was given an inference training intervention, and the other group was given comprehension exercises.

Children experienced 2 training sessions per week in groups of 5 in a quiet area of the school for 6 weeks. Each session was approximately 20 minutes in length. The inference training sessions lasted slightly longer in order for the students to generate questions. The examiner specified the material for the groups receiving comprehension exercises in advance. Students were pretested with the NARA (Form 2) before intervention and then posttested with Form 1 of the NARA after the intervention.

The data were analyzed with ANOVA with the two skill groups (skilled and less skilled comprehenders), the 2 intervention methods (inference training and comprehension exercises), and the performance of students on the pre and posttest (NARA, Forms 2 and Form 1). The pretest indicated considerable differences between the 2 groups; however, there was no significant difference between the mean comprehension age of the two skill groups at posttest (P = .55). Both intervention methods raised the comprehension scores of the less skilled comprehenders. Intervention

raised the comprehension ability of all participants (P=.001).

Furthermore, the analysis of the different treatments yielded highly significant results (P = .0224), revealing that the less skilled comprehenders had improved far more than the skilled comprehenders. Additionally, the less skilled comprehenders who received inference training showed the largest increase in mean comprehension age between pre and posttests, increasing from 7 years 6 months at pretest to 9 years 2 months at post intervention assessment—an increase of 20 months. Skilled comprehenders showed a 9-month increase in their comprehension ability.

Researchers cited as a possible weakness that the instructor may have influenced the effectiveness of the intervention because the researcher (instructor) took a lead initially in facilitating both inference training and the completion of comprehension exercises through explicit instruction and example. However, the researcher gradually stepped back as the children became more confident and allowed the students to take over more responsibility for their learning.

Reading-Writing Integration in Developmental Education

By the middle of the 1980s, educators began the move to reconsider the teaching of reading and writing as an integrated process (Bushman & Haas, 2001, p. 81-82). This integration of courses can help the student achieve success in both courses if students can apply the theory and skills learned in one course to the learning of the other course. Several studies supported this theory. For example, *The Journal of Developmental Education* reported that Brazo and Simpson (1995) in their book, *Readers, Teachers, Learners*, called the reading-writing relationship "one of parallel processes that students use to get meaning from text." For years, teachers from the elementary classroom to the

college level have realized that skills taught in isolation often do not transfer from one area to another (Bushman & Haas, 2001, pp. 82-83).

Furthermore, research conducted by Raphael and Englert (1990) indicated, "Both reading comprehension and writing skills improve as students use language, engage in peer editing and peer shaping groups, and internalize the strategies they have learned." These researchers also concluded that by active participation in these learning modes, students realize that reading and writing are processes that are both active and ongoing (Raphael & Englert, 1990). Bushman and Haas (2001, p. 86) concluded that a synthesis of reading-writing research indicates that teachers who nurture the reading-writing connection foster students' development of a sense of responsibility for their own learning and, at the same time, the students become more competent readers and writers. Arendale (2000) also reported that the teaching of linked courses; that is, the integration of a developmental course with another related course is a positive trend in developmental education.

This research-based practice can also help students move more quickly through the developmental courses and possibly shorten the time spent taking noncredit courses. Developmental students in reading, writing, and English classes need teachers who use research-based strategies and approaches in the classroom, and current literature can reveal which strategies and approaches are most successful for these students. Reading and writing skills rank high on the list for successful matriculation through college, and these skills are those required for success in the work force of the twenty-first century.

In a study by Martino and Hoffman (2001), college freshmen with low literacy skills participated in a program that linked developmental reading instruction with

freshman-level biology. Writing was also a part of the program, which researchers named Communicative Reading Strategies Approach, or CRS.

This study was a pretest-posttest design to study the effects of the Communicative Reading Strategies approach. It was employed with 8, from a pool of 33 students, second semester college freshmen who were taking a freshman-level biology course. The Communicative Reading Strategies (CRS) is an approach that integrates all the linguistic processing units and helps the learner organize textual elements into a whole. Writing was also a part of the CRS reading instruction. All participants spoke English as a native language, scored below 21 on the Reading Section of the ACT (American College Test), and scored below a 12th grade level on the Nelson-Denny Reading Test, Form G. Readability of the biology textbook used by the students was 14.0, based on the Fry Readability Formula. The treatment (reading instruction) lasted for 8 weeks, and both the experimental group and the control group received 3 hours per week of instruction but the control group received only skills instruction while the experimental group received CRS instruction with the reading instruction. The CRS involved pairing the reading with a content area course and using all aspects of language--orthographic, phonologic, lexical, syntactic, semantic, and contextual. Posttesting took place after the eighth week of instruction for both groups. The teacher used a reading skills book during instruction, and inferencing was a focus of the instruction. The results indicated that while both groups showed gains in reading scores on the posttest, the experimental group benefited the most.

The results gave credence to much of the current thinking in developmental education today that the teaching of developmental reading is more effective when linked

with a content-area course so that "skills may be directly applied to the content course" (Martino, Norris, & Hoffman, 2001). A number of researchers have supported the idea of the teaching of developmental reading with a content course (Adams & Mikulecky, 1989; Balajthy, Bacon, & Hasby, 1985; Blanc, Debuhr, & Martin, 1983; Bullock, Madden, & Harter, 1987; Elliott & Fairbanks, 1986; Stone, 1991).

Since the Martino and Hoffman (2001) study used collaborative types of classroom activities, the intervention with these activities may be involved in the success of this study and not just the integrating of reading with a content area subject. However, the results are encouraging in light of the fact that similar studies indicate positive effects for integration of reading with other subjects.

A limitation of this study was that the students involved in this research project came from a pool of subjects who volunteered to participate in the study. In addition, this study involved a very small sample size, and future studies need to engage a larger number of students. The authors believed that with future studies, two different instructors should teach the courses. Another limitation was that they view the Nelson-Denny Reading Test as a questionable assessment tool. The authors cite Flippo, Hanes, and Cashen (1991) who asserted that the Nelson-Denny Reading Test should be used for screening purposes only and not for assessment.

Reading and Writing Integration: A Synthesis of the Literature

Considerable research is available regarding reading-writing connections with children in grades one through eight, with fewer studies in reading-writing integration for high school students. Very few experimental studies with college students are available on this topic with college students. Because of the dearth of experimental research in

reading-writing integration with college students, this literature review assessed reading-writing research in the earliest grades and examined studies conducted with students in first grade through high school. The one college study discussed in this literature review used participants who were volunteers. A preference would involve studies that randomly assigned participants to groups or another preferable design, the quasi-experimental group design, which uses intact classes or groups, and the researcher randomly assigns the class or group to a treatment or control group. However, few, if any such studies are available with college students. A need exists for more college level experimental studies that are either quasi-experimental or randomly assigned group designs.

In the September 1997 *Reading Teacher*, Shanahan's "Reading-Writing Relationships, Thematic Units, Inquiry Learning...In pursuit of Effective Integrated Literacy Instruction" reviewed briefly the history of research on reading-writing connections for students from younger to older students. He summarized the benefits and the precautions that exist for teaching reading and writing together. Shanahan concluded, "Reading and writing could be thought of as two separate, but overlapping ways of thinking about the world" (1997). Here Shanahan discussed research by McGinley and Tierney (1989) and explained that they believed that although reading and writing are separate, the processing of information through both avenues of reading and writing increased the learners' chances of understanding. Shanahan expounded on the development of the reading-writing research and further stated that an "awareness of an author's choices is central to effective critical reading (1992). He went on to say that children become aware of the writer's choices very late in their development because these choices are well hidden in text (Olson, 1994). Shanahan called the reader's

attention to a study by McGee and Richgels (1990), who noted that many study skills approaches tried to combine reading and writing activities because of the link between these skills.

Shanahan also pointed out that what readers learn from reading (and writing) changes as the students go through the developmental process and their reading skills advance. He referred to Chall's 1996 *Stages of Reading Development,* which pointed out that after the beginner's focus on word recognition, the developing reader is later able to shift his or her attention to comprehension and interpretation of literature. According to Shanahan (1997), Chall recognized and advocated the combining of these two disciplines throughout literacy education because the developmental lines of reading and writing are so similar. Shanahan's 1997 *Reading Teacher* article also discussed the effects of writing on spelling as he referred to Clarke's (1988) study reported in *Research in the Teaching of English,* which revealed that encouraging invented spelling with second graders improves their reading. This experiment found that the treatment group, those children who were encouraged to use invented spelling in their writing rather than go to the dictionary each time they needed to know the spelling of a word, made significant gains in word recognition skills.

In addition, empirical research with older writers (Nauman, 1990; Shanahan, 1984) revealed that these students' experimentation with organization or structure had a positive impact on reading comprehension; therefore, students' benefits from combining or integrating reading and writing depends on the particular stage of reading development of the student. The studies reported by Shanahan indicated that the teaching of reading and writing together can be a valuable strategy for helping readers and writers develop

their skills effectively (Shanahan, 1997).

Precautions for Reading-Writing Integration

Although consideration of combining reading and writing is logical when considering the positive effects of combining these two learning areas, certain precautions are in order. Shanahan (1997) stated that reading and writing have a uniquely connected integration; however, he urged caution in combining these two disciplines because successful integration of these disciplines does not automatically insure improvement of students' writing skills. He quoted studies by Brophy and Allerman, (1991); Kain, (1993); Shanahan, Robinson, and Schneider, (1995), whose studies revealed that more ambitious forms of reading-writing integration do not insure automatic success. In fact, the complete integration of reading and language arts into one course can result in decreased time on task for both reading and writing. Schmidt: (et al. 1998, p. 313) found in a 1985 study a decreased amount of time spent in language arts and reading when the integration of these disciplines increased.

First Graders

The purpose of this quasi-experiment by Stahl and Pagnucco (1996) and reported in the article, "First Graders' Reading and Writing Instruction--Traditional Process-Oriented Classes" was to research the effects of reading on writing and other subjects. Researchers selected six classes from two schools in a large southeastern city because they were similar in pupil characteristics but very different in teaching styles. One school used a process approach to teaching writing and reading (actually whole language but renamed as a "process approach") and the other school followed a more traditional approach (Stahl & Pagnucco, 1996).

Informal reading inventories used were the QRI, Qualitative Reading Inventory, which gave measures of oral and silent reading, as well as word recognition. Writing samples were collected from all students within the same two-week period and were analyzed using traditional quantitative measures. The researchers expressed surprise that the traditional schools/students scored almost an entire grade level ahead of the process/whole language schools at the end of the six-week period. The researchers stated that they believed that the problem did not lie with the process method but with the laxness of the principal of the process method school. The principal of the traditional school pushed the teachers to provide higher level books for the students than did the process school. Furthermore, the researchers observed considerable "down time" in the process classrooms (Stahl & Pagnucco, 1996).

Researchers found no differences between the two schools on writing samples. One very important finding that is relevant for future research on reading/writing relationships: The researchers found strong relationships between reading level and two of the three writing measures (length and vocabulary). They concluded, therefore, a definite correlation between reading and writing exists that suggests that these two skills grow together. Shanahan and Tierney supported these conclusions. Shanahan and Tierney (1990) further concluded, "Skill in writing is related to skill in reading". The correlations between the reading skills and the writing skills were statistically significant in all schools.

Researchers reported no differences between the process-oriented classes and the traditional classes. The authors expressed surprise at this finding but attributed this finding to the apparent “down time” in the process oriented school and to that principal’s

relaxed attitude toward encouraging the students to proceed to more difficult books as the year progressed rather than the process, or whole language, approach.

One weakness of the study noted by the authors was the lack of a pretest, which they omitted because of the questionable validity of such a test at the beginning of first grade. In this study, teachers posttested all students in both schools. Since the students were in the same school system with the same overall requirements for entering first grade, the researchers assumed the two schools had equivalent beginning levels. Future research would replicate these studies in many different classrooms in different school systems (Stahl & Pagnucco, 1996).

Reading-Writing Integration: A Study with Third Graders

In 1997, Morrow, Pressley, Smith, and Smith conducted a quasi-experimental study with 6 third grade classes (128 students from diverse backgrounds). The purpose of the study was to assess the effect of integrating a literature-based reading program with literacy and science instruction. The researchers used intact classes, but they randomly assigned the classes to control or treatment groups. The study included analysis of data in reading and writing within literacy lessons, as well as the effect of the literature based reading instruction on the students' writing skills. The 128 students (68 girls, 60 boys) were from mixed-ability classes. Approximately, 28 % were on free or reduced lunches, and their socioeconomic status ranged from disadvantaged to middle class.

The intervention began the third week in October and lasted until May. Researchers gave pretests the last week in September, and researchers gave posttests in May. There were 2 experimental groups and 1 control group, and these groups were determined by random assignment. Researchers referred to one treatment group as the

"literacy only" group because they received a literature-based treatment only in their literacy program. That is, the literature-based treatment group read stories from various sources rather than the basal reader used in the past. Previously, students used basal readers exclusively. The control group continued to receive the regular basal reader and science textbook instruction. Subjects in the second experimental group received a literature-based science instruction as well as a literature-based literacy instruction. Both experimental and control groups received the same amount of time on instruction for science and literacy.

The results were favorable in indicating that combining the teaching of reading, writing, and science provided significantly higher results for students. The Analysis of Variance (ANOVA) indicated that the literature/science group scored higher than the scores for the literature only group, indicating that combining of reading and writing with another subject can improve students' writing skills.

Not only did the literacy only group, as well as the literacy and science group, perform better than the control group on all posttests, but the literacy only group also "performed better than the control group in the number of narrative science stories written. They transformed the knowledge gained from the narratives written from the literature treatment and extended it to writing about science in a narrative mode" (Morrow, et. al., 1997). Other results, which are not as pertinent to this study, included the indications that students studying science through trade books, etc. instead of textbooks, not only scored higher on posttests, but reported through interviews that they liked science, while the control group students, reported a significantly larger number of students who disliked science.

A possible limitation was that the "novelty" effect could have been at work with the teachers in the experiment classrooms because they were aware they were conducting a study and were excited about the program they were using. The author mentioned this possibility.

Future studies in this area could include experimental studies in content integration. The teaching of reading or writing, or any content such as science or social studies, appeared to be more effective when educators combine the reading or writing course with other disciplines. In this study, the teaching of writing and reading were combined with the teaching of science effectively. Morrow (1997) suggested further studies that involve "hands on" science instruction tied to the literature instruction. He also suggested a longitudinal investigation in order to assess long-term effects of the integrated instructional model.

Reading-Writing Integration: Middle School Research

Stevens (2003) conducted a study that grew out of a project to develop a model for middle school literacy instruction to reorganize middle school language arts allowing students to work cooperatively, solve problems, and meet social needs of the students. Stevens (2003) reported in "Student Team Reading and Writing: A Cooperative Learning Approach to Middle School Literacy Instruction" that one of his concerns was the dropping of middle schoolers' reading and writing scores as reported by the National Assessment of Educational Progress in 1998. This project focused on the reorganization of language arts in grades 6 through 8, which includes ages 11-14, in 5 large urban schools, a total of 3,916 students. Most of the school's population was minority (80 %), and approximately 67% received free or reduced lunch. Researchers matched schools

based on initial achievement in reading and language arts on the California Achievement Test. They also attempted to match schools on ethnicity and socioeconomic background of the students.

For this study, three comparison schools were used for the control group. The treatment group was the other two schools, and they used a program called Student Team Reading Writing (STRW). The STRW teachers received one week of summer training. Researchers randomly observed these teachers for an entire school year. While a focus of this study was to implement cooperative groups in the project, another goal was to integrate reading and writing as a major focus of the language arts program with the schools receiving the treatment. The reading part of the program consisted of the following principal elements: literature-related activities, direct instruction in reading comprehension strategies, and selection-related reading. For all activities, the teachers used student teams with academic interactions in mixed-ability groupings. In all treatment schools, the teachers taught reading and English as separate subjects, but the same teacher taught these two subjects to the same students in order to take advantage of the natural overlapping of the subjects and to cut down on the departmentalization of the students' classes. In the English classes, teachers taught writing using a process approach. Stevens refers to studies of Raphael, Englert, and Kirschner, (1986); Stevens, Madden, Slavin, and Farnish (1987) whose research indicated, "Using process writing can lead to greatly improved students' writing performance" (Stevens, 2003).

The results indicated that the treatment schools had significantly higher achievement on measures of reading vocabulary, reading comprehension, and language expression. The California Achievement Test, Form F was the posttest that researchers

used. There were no significant differences in language mechanics. The effect sizes (for the three significant main effects) ranged from +.25 to +.38, a quarter to a third of a standard deviation higher on achievement than the comparison classes (Stevens, 2003).

Stevens (2003) pointed out two major limitations of this study. First, the two experimental schools volunteered to participate. Since the school as a whole was eager to participate, although not necessarily every single teacher, some of the success of the project and study could be related to the motivation of the faculty. A second limitation was that this experiment consisted of so many components; therefore, one could not easily determine if any one component caused the success more than another component.

Areas for future research could include extending the application of STRW to other middle schools since the results of this study indicate that the restructuring with STRW was effective in improving achievement for these urban middle schools (Stevens, 2003).

Middle School: Reading-Writing Research

In a 1993 quasi-experimental study published by Simmons, et al (1993), researchers pre and posttested 93 general education eighth graders who were from middle to upper-middle socioeconomic backgrounds. Of the 93 students, 10 had learning disabilities related to language arts and spelling. The control group received instruction in reading narrative text comprehension for a total of 15 days spread across 13 weeks with the teacher explicitly teaching setting, characterization, and plot development. The experimental group received the same number of days of instruction, but the teacher in this group used 10 short stories and note sheets developed by Englert et al. (1991), "think-sheets" with various prompts. Teachers taught the experimental group's integrated

reading and writing in three stages. These stages involved having students learn narrative text structure, learn a writing process, and finally, learn to generate stories.

Results indicated that students receiving the integrated reading and writing instruction outperformed the control group, who received only narrative comprehension instruction. The experimental group's narratives contained more fully developed settings, characters, and attempts to solve the main problem in the story than the control group's narratives. According to the 1992 results of national writing assessments, Mullis, Dossey, Foertsch, Jones, and Gentle (1991) reported that students' poor character development in writing was found to be a significant area needing improvement. The findings of this study were significant enough to warrant further study into the combining of reading and writing to foster writing improvements. The author stated that the sample size of 93 students was very small, and she viewed this size as a limitation. However, the sample size simply may not be representative of middle schoolers around the country. Unanswered questions included whether these writing strategies combined with reading were beneficial for older students (Simmons, 1993).

Effects of Reading Instruction on Argumentative Writing

Gleason Study # 1--Middle School

Since argumentative writing is required in many college courses, mastery of this form of writing is essential for college academic success (Gleason, 1999). Argumentative writing, sometimes referred to as *persuasive* writing, involves using reasoning skills and critical thinking skills. Argumentative writing is one aspect of Freshman Composition (English 101), and is a major component of Advanced Freshman Composition (English 102).

Gleason (1999) developed plans for expanding on past studies in argumentative writing and focused on a 6-week curriculum intervention for middle and high school LD (learning disabled) students. The intervention or treatment focused on teaching students to consider the opposition's viewpoint in their arguments and respond to their viewpoints by countering their arguments point by point. Gleason conducted this quasi-experimental study using three groups of Learning Disabled (LD) students who were all receiving special education that focused on writing skills (Gleason, 1999).

To assess the progress of all groups after the treatment, she used the Adapted Toulmin Scoring criteria, which Knudson (1991) developed and described in the article by Gleason. Her second measure of performance was a scale, which rated students' writing coherence and organization on a scale of 1 to 4. The developers of this scale were Durst, Laine, Schultz, & Vilteer (1990). The control group received basic writing instruction, which did not focus on argumentative writing. Teachers gave one experimental group basic writing instruction that focused on argumentation but did not include instruction on answering the opposition's arguments. The other experimental group received the Expanded version of argument instruction which included explicit instruction in answering the arguments of the opposition (Gleason, 1999).

The instruction lasted for six weeks, and all groups showed some improvement in writing at the posttest; however, the Expanded version group scored higher on their posttest essay than either the control group or the group receiving basic instruction in argumentation writing. The basic argumentative writing group showed significant improvement over the control group. Gleason (1999), however, reported disappointment with several areas of the middle school students' progress in argumentative writing as

many of the students in the experimental group continued to give arguments that were lacking in sufficient evidence for support or made claims that were not specific and left too much for the reader to infer. She believed some of this difficulty with argumentative writing with these LD students was a lack of background knowledge and difficulty in synthesizing pieces of information from various sources.

A Second Gleason Study--High School

Because of lack of enough evidence from the results of the above study, Gleason (1999) decided to conduct a similar study with high school students and argumentative writing. In this second study, Gleason studied both general education students and special education LD (Learning Disabled) students in treatment and control groups. Students were again assigned to a control group that was given basic writing skills, and the experimental group was given the Expanded version of Gleason's curriculum. The Expanded version again focused on argumentative techniques that encouraged students to read and then write about the opposition viewpoint in addition to expressing their own opinions.

However, in this study, Gleason made changes in the assessment tools by making one assessment open-ended. Version 2 of the assessment included supporting statements and lists of facts. Version 3 provided a full list of prompts for students to use as they wrote their essays. The amount of material in the assessment tool was extended over 3 time periods (pre-, mid-, and posttest) and over both groups (control and treatment groups). For comparison purposes, researchers asked general education students to use the 3 versions of the assessment tools in writing an argumentative essay as well as the LD experimental and control groups. The results indicated that the general-education students

took advantage of the information provided on the assessment tool and scored significantly higher than either of the LD groups, including the group that received the intervention treatment. Teachers did not provide the general education students with much information on the assessment tool. The general education students appeared to take advantage of prior knowledge in order to succeed on the assessment while the LD students were unable to access background knowledge.

The interpretation of these results, according to Gleason (1999), was that the ability to generate or use evidence was more useful than providing evidence as part of the assessment tool. A few of the LD students who received the intervention treatment did score higher on the rating scale of the posttest than the general education students, regardless of the level of prompts, but overall the numbers were not statistically significant.

A Third Gleason Study--Middle School

After close examination of the above studies, Gleason (1999) developed a different 6-week curriculum intervention for LD students in three middle schools--completely different from any used in the 2 previous studies. However, the pretest scores were equivalent with participants in the first study. Gleason dropped the Expanded version of the curriculum and altered the basic curriculum. She called the new version used in this third study the Reading-Writing version. The teachers taught students explicitly how to write argumentatively as in the Basic version, but they also taught the students how to read and take notes on specific information they were looking for. Then they taught students how to use planning sheets with these notes to plan their essay. The main difference with this third curriculum version was the use of more explicit

instruction than in previous versions, and the instruction focused more on how to locate, identify, and use information, a characteristic that had been very difficult for these students in the past.

The posttest results indicated that the students in the experimental group using the Reading-Writing curriculum wrote longer and more coherent essays. The experimental group also wrote better-organized essays than the control group. Finally, the students in the experimental group used more evidence gleaned through their readings than the treatment groups in the first two studies. The design of the curriculum employed five different approaches. The first approach was that teachers showed students how to use a process approach to writing. Next, they taught students to understand that text has an underlying structure, and as they began to comprehend how that text is organized, they learned to use that organization to guide the planning of the content of their writing. The third approach was that this curriculum placed supports or several types of scaffolding in place for students. For example, the teacher or peers helped the students connect or link new information to what they already knew, and as the students became more competent in their reading and writing, the teachers gradually withdrew the scaffolding. The fourth approach was that teachers helped students learn to integrate strategies into a whole by linking a particular content topic across several skills so the students could see a direct link between text elements. For example, teachers might show students how to use text-structure identification in reading and carry that reading content into the writing phase of their work, thus seeing the link between reading and writing.

Teachers also introduced students to argumentative writing by providing good models of persuasive writing, and teachers verbally pointed out the elements of the essay:

purpose, audience, title, introductory paragraph with opinion and reasons, etc., and helped students see how these elements helped to produce a good argumentative essay. Fifth, the teachers provided students with plenty of review to assure that the students sustained the level of understanding in their reading and writing.

The Gleason (1999) article describing the three studies was quite comprehensive, and the author gave the reader considerable insight into the reasoning behind the steps taken in each study. Gleason noted that the most significant improvements were in the third study, which incorporated considerable reading and guided research into the curriculum; however, she noted that although the results are statistically significant, neither the author nor the teachers were satisfied with the results from an educational standpoint because the students were still not proficient in their reading and writing skills.

III. METHODOLOGY

This chapter details this research project's methodological design. It is organized in the following six sections: purpose of the study, research design, description of the setting and participants, description of the instruments, data collection, and data analysis procedures.

Overview and Purpose of the Study

Previous research studies have suggested that the teaching of reading and critical thinking skills with writing can positively affect students' writing skills. The purpose of this study was to determine whether college freshmen who receive instruction in reading comprehension and critical thinking strategies, along with instruction in English grammar and writing, have lower attrition rates, fewer absences, and a higher level of writing performance than students who receive instruction only in grammar and writing. The control group received English grammar and writing instruction, and the treatment group received instruction in reading comprehension and critical thinking skills in addition to grammar and writing instruction. The control group received additional grammar instruction and practice; therefore, overall instruction time was equal for the two groups.

The main instrument for assessment of students' writing was a final in-class essay at the end of the semester. I used quantitative measures to compare final in-class composition quality scores and critical thinking scores of the two groups of students. Students who failed to continue attending class but did not initiate the withdrawal process received a grade of *U* for the semester. I recorded final grades, and the Office of

Admissions and Records of the college recorded and kept these grades on students' permanent records.

As researcher and teacher in this study, I measured absences and attrition rates by comparing the daily attendance records, which I maintained for both classes throughout the semester.

This research project used the following questions to direct this study:

1. Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' composition quality as determined by composition quality scores on a final in-class essay?
2. Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' critical thinking skills as determined by critical thinking scores on a final in-class essay?
3. Does the teaching of critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' daily attendance as determined by class attendance records?

4. Does the teaching of critical thinking strategies along with English grammar and composition, in comparison with the standard curriculum of English grammar and composition, improve students' course retention as determined by class attendance records and official school withdrawal records?
5. Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' reading comprehension as measured by the comprehension section of the Nelson Denny Reading Test?
6. Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' vocabulary level as measured by vocabulary portion of the Nelson Denny Reading Test?
7. What factors explain the critical thinking scores?

Research Design

This research is a posttest only quasi-experimental design with one treatment and one control group. The groups were two intact classes of English 093, which had 12 students in each group at the beginning of the semester. I taught these two separate sections of English 093 at different times. I was the researcher and instructor for both

groups. The treatment group met on Mondays and Wednesdays from 9:25 until 10:40. The control group met from 9:25 until 10:40 on Tuesdays and Thursdays. The two groups were similar, having COMPASS scores lower than 60 the previous semester, a fact that required them to register for English 092. After successful completion of English 092, students at this college will register for and take English 093, followed by English 101.

Since the students in both groups took the COMPASS placement test before taking English 092, the COMPASS was not actually a pretest. The test, however, provided an approximate basis for determining the students' skill levels in reading and writing. The mean writing COMPASS score for the control group was 53.7, and the mean score in writing for the treatment group was 41.9. The treatment group's mean score in writing was figured after omitting an outlier score of 6 from the computation. The treatment group had a mean score of 69.5 in reading, and the control group's mean score was 73.7. All of the writing and reading scores were based on a possible 100 points. All students in both groups had completed English 092 with a grade of 70 or above, qualifying them for enrollment in English 093.

Setting and Participants

This study was conducted during the Spring Semester of the 2004-2005 school year at a two-year community college in a rural region of the southeast corner of Alabama. The college listed a student body of 3563 in the spring of 2005, the semester when I conducted the study. Approximately, 70% of the total student body listed their race as Caucasian, while 27% gave their race as African American. Approximately 1% of the students listed their race as Asian, and 1% reported their race as Hispanic. Approximately 1% of the students did not list their race. The male students are 37.8% of

the student body, and females account for 62.2% of the student population (Babb, 2005). The college draws most of its students from Alabama, northern Florida, and southwest Georgia, and it does not charge out-of-state tuition for students who live within 30 miles of the Alabama state line. The college is an open-enrollment school, and any student may enroll in the college if he or she has received a high school diploma or completed the GED, which stands for General Education Development. The GED is the equivalent of a high school diploma, and educators and the public sometimes refer to it as the High-School Equivalency Test (http://mama.indstate.edu/users/bhua/aboutged.htm 2007).

Placement of students into English classes at the college is determined in one of two ways. Students who score at least 20 on the ACT (www.act.org 2007) may enroll in English 101, which is English Composition I and carries a weight of 3 credit hours. The ACT exam stood for American College Testing until 1996. Because this not-for-profit company provides more services than just college entrance tests, the name was shortened to ACT in 1996 to better reflect the broad range of services and programs it offers beyond college entrance exams (2007).

Students who score below 20 on the English portion of the ACT must take the COMPASS, which stands for Computer-Adaptive Placement Assessment and Support System. This placement test is a computerized test that provides important information about individual skills and preparation for college-level courses in mathematics, reading, and writing. Students do not have to complete the test within a certain time limit. It is an adaptive computer-based test, which means it automatically adjusts the difficulty of the questions to the students' ability level. Based on the COMPASS exam score, entering students then register for either English 101, which is English Composition I, for 3 credit

hours or English 092, the first in a series of two developmental English courses. Students scoring 60 or above may register for English 101, while those scoring below register for English 092. After successfully completing English 092, students move into English 093, and when successful, on to English 101, English Composition I, the first of the college-level English courses.

The participants in this study were students enrolled in two sections of English 093, the second in a series of developmental English courses offered at this community college. I randomly assigned the two participating sections of English 093 to the treatment or to the control groups by the toss of a coin. I instructed both sections of these classes, and I administered the two posttests given at the end of the semester.

It should be noted that at the beginning of the semester, the number of participants in each class was n=12. However, by the end of the semester, several students had withdrawn from the college or stopped coming to class for various reasons. I figured the statistical computations with the students who were still enrolled and attending class at the end of the semester. Therefore, the number of participants available for the end-of-semester computations was not the same as the number of students enrolled at the beginning of the semester.

Description of Instruments

The Nelson-Denny Reading Inventory

Form H of the Nelson-Denny Reading Inventory was group-administered as a posttest to both groups in this research. No writing pretest was administered to either group although COMPASS scores in writing and reading taken prior to the students' enrollment in English 092 were available and used in the analyses.

The Nelson-Denny is a standardized instrument for assessing reading vocabulary, reading comprehension, and reading rate. Most educators consider the test useful for testing the reading skills of older students for several reasons. First, it is useful as a screening device because it is concise, practical, and reasonably easy to score. Second, one teacher or instructor can administer the test in less than an hour to a group of students. Generally, the most appropriate use of the Nelson-Denny Reading Test is for screening because researchers address validity by examining the test as a tool in predicting academic success.

Previous forms of the test, forms E and F, are mainly studied as a screening tool. Researchers report fewer studies for validity with Forms G and H. However, the test appears to have face validity even though there are fewer studies examining the actual validity of Forms G and H. In previous forms of the test, Nelson-Denny scores correlate strongly with students' grades. This predictive component is probably the most valuable aspect of using the Nelson-Denny, especially for college freshmen for all forms of the test, even though more educators need more studies with forms G and H at this time (Mental Measurement Yearbook, 2004, pp. 682-686). According to the validity evidence, the Nelson-Denny does not diagnose specific reading problems (Mental Measurement Yearbook, 2004).

Recent studies with forms G and H of the Nelson-Denny indicate its validity in predicting success in medical college. One study analyzed results from tests of 730 medical students from 1994 through 2001. The results revealed strong correlations between current forms of the Nelson-Denny Reading Test, forms G or H, and two other tests commonly used to predict success for students entering medical school, the Medical

College Admission Test (MCAT), and, at the end of the second year, the United States Medical Licensing Examination (USMLE) Step 1. Of the 730 students who took the Nelson-Denny Reading Test during medical school orientation, 572 students were available for the MCAT analyses, and 457 of the 730 took the USMLE Step 1and were available for the completion of the analyses (Haught & Walls, 2004). The researchers conducted the study at a Mid-Atlantic university, and they reported an even stronger correlation between the Medical College Admissions Test (MCAT) verbal reasoning and the Nelson-Denny Reading Vocabulary Scores than did a similar study 15 years earlier at a different university (Haught & Walls, 2004).

The most recent study of Haught and Walls (2004) with the N-D, forms G or H, indicated stronger correlations between the components of the Nelson-Denny Reading test and other tests administered to medical students. (r = .53), the N-D Reading Comprehension (r = .41), and Nelson-Denny Total Score (r = .56). The positive correlation between the Nelson-Denny Reading Rate and the MCAT was smaller but significant (r = .24). The Nelson-Denny Reading Comprehension Score, the N-D, Vocabulary Score, and the N-D Total score were all positively correlated with the MCAT physical sciences and MCAT biological sciences (all $p = <.01$).

Haught and Walls (2004) reported that the N-D Vocabulary and N-D Total scores positively correlate with the United States Medical Licensing Examination (USMLE), taken at the end of the second year of medical school, score (both $p < .01$). These scores showed a significant relationship to the MCAT scores (verbal reasoning, physical sciences, and biological sciences), which were taken prior to admission to medical school. A strong positive relationship existed between the MCAT scores and the USMLE

Step 1 score. Furthermore, a significant relationship existed between the components of the Nelson-Denny Reading Test with components of the MCAT, and the MCAT with the USMLE Step 1 exam. Therefore, the authors suggested that medical schools should consider using an index of reading for a more accurate prediction of success in medical school. Because of the costly investments of time and money of medical programs, these researchers recommended, "a reading test (e.g., Nelson-Denny Reading Test) can yield disproportionate dividends for medical programs" (Haught & Walls, 2004).

Several earlier studies showed a positive correlation between the Nelson-Denny Reading Test (forms E and F) and medical school achievement (Brown, Fishco, & Hanna, 1993). In a 1982 study by Flaherty, Rezler, and McGuire, earlier forms of the Nelson-Denny, forms E and F, were found to predict clinical (reword all of this) reading skills better than the reading subtest of the Medical College Application Test (MCAT). A 1985 study by Jackson and Brooks reported positive correlations between the MCAT and earlier forms (E and F) of the Nelson-Denny Vocabulary.

There are 80 vocabulary items in forms G and H of the Nelson-Denny, and 100 items on forms E and F. The vocabulary questions place a word in the context of a phrase. I took the following examples from the Vocabulary Test of Form H, the form given as the posttest to both groups in this study.

1. To *explain* something is to:

    A. make it clear B. say it C. reveal it D. confuse it E. compare it

2. To be *elastic* is to be:

    F. rigid G. rigorous H. elated I. expandable J. exacting

3. *Similarities* are: A. samples B. likenesses C. differences

D. simplicities E. specialties

Part II, the Comprehension Test, contains 38 items and uses seven reading passages. The items include literal questions, for which students can find the answers within the passage, and inferential questions, which require critical thinking and judgment to analyze, synthesize, and draw conclusions from the material. Following is an example of a portion of a reading passage from the Comprehension Section. The 206-word passage below is a portion of the 610-word passage. Questions following the passage show the variety in types of questions, both literal and inferential.

> We know very little of the person who was said to have written the Iliad and the Odyssey. His name was Homer. The Greeks tell us that he was blind and that, as he got old, he wandered about reciting his verses and getting food and shelter where he could. After he was dead, those who had paid little attention to him realized the power and beauty of what he had written.
>
> The Iliad and the Odyssey were very important in the life of the Greeks. They were more to the Greeks than any poems we know are to us. They were recited by people trained to recite them, and audiences listened to them as they would to plays or music today. Often the rhapsodists, as the reciters of Homer were called, performed before twenty thousand people or more.
>
> To some extent, these poems were like the Bible. In the Iliad and the Odyssey, written a little while before the Jews were beginning to set down the Bible, Homer had described how brave and wise people behaved. He had written beautiful prayers to the gods of the Greeks. He had described how courteous men and women treated their friends and the strangers who came to them.

The following are sample questions from the above reading passage.

1. The audience size mentioned was

    A. five thousand. B. eight thousand. C. twelve thousand.

    D. sixteen thousand. E. twenty-thousand.

2. The reciters of Homer were called

    A. narrators. B. chanters. C. minstrels. D. rhapsodists

    E. interpreters.

3. Who said “Measure is best in all things”?

    A. Paris B. Menelaus C. Priam. D. Odysseus E. Hector.

4. Homer was said to know how to say things

    A. dramatically. B. ironically. B. simply. C. graciously.

    D. fancifully.

5. Points were clarified most frequently by

    A. relating past to present. B. using a story form. C. describing actions. D. listing details. E. quoting authorities.

6. Points in this passage were developed primarily by

    A. concrete illustrations. B. appeal to emotions. C. logical reasoning. D. use of anecdotes. E. cause-effect connections.

Description of Intervention

On the first day of class for Spring Semester 2005, students in both classes received copies of a permission form that Auburn University's Internal Review Board had approved. I explained the research project to the classes. Students were given time to ask questions, and they took the forms home in order to consider their decision. At the

next class meeting, students from both classes returned all forms, giving me permission to use the data gathered from their attendance, tests, homework, and final essay in the research project. No student was under 19 years of age, so no student was required to get parental permission.

The treatment began at the beginning of Spring Semester 2005 and continued until the end of the semester, a total of 15 weeks of instruction. English 093 is a 3 semester-hour course, and actual class time for students in both classes was 1 hour and 15 minutes per session, with two sessions per week, for 37.5 clock-hours of class time. I was the instructor as well as the researcher in this project.

Treatment Group

The treatment consisted of instruction in reading comprehension and critical thinking skills. This instruction was from the reading textbook used by the college's developmental reading program, *Ten Steps to Improving College Reading Skills* (Langan, 2004). I discussed the following topics, which are chapters or sections of chapters, in class. Students completed several exercises in the chapters.

1. Logical thinking: general and specific points
2. Main idea
3. Supporting details
4. Implied main ideas
5. Inferences
6. Relationships I—using transitions as clues to meaning
7. Relationships II—more transitions as clues to meaning
8. Fact and opinion

By employing whole-group instruction and class discussion, I guided the students through the first pages of each chapter, which included the introduction, explanations of skill or strategy to be mastered, and the examples of each strategy or skill. After class discussion of the first pages, the students worked through the practice exercises, and then checked the answers in the back of the book. Every 15 to 20 minutes, I discussed the practice exercises, confirmed students' understanding of answers, and encouraged student questioning of the concepts.

After working through the practice exercises with class discussions, the students proceeded to answer questions from four review tests. The students and I discussed the exercises in whole class discussions or small groups, with students discussing their choices and the concepts behind the exercises. With some lessons, especially those the students found to be more difficult, the students and I read, answered, and discussed the exercises in class discussions. At the conclusion, the students completed 6 mastery tests, which were graded and the scores recorded.

The following questions are sample questions from each section of Chapter 3 "Main Ideas" chapter:

Practice 1

> Each group of words below has one general idea and three specific ideas. The general idea includes all the specific ideas. Identify each general idea with *G* and the specific ideas with an *S*. Look first at the example.
>
> Example:
>
> i.___dogs. ii. ___goldfish. iii.___hamsters. iv. ___pets.

(*Pets*) is the general idea which includes three specific

types of pets: dogs, hamsters, and goldfish.

The following question is from Mastery Test 1 in the same chapter on Main Ideas.

A. In each of the following groups, one statement is the general point, and the other statements are specific support for the point. Identify each point with a *P* and each statement of support with an *S*.

____A. Hungry bears searching for food often threaten hikers.

____B. Hiking on that mountain trail can be very dangerous.

____C. Severe weather develops quickly, leaving hikers exposed to storms and cold.

____D. When it rains, the trail—which is very steep at some points---becomes slippery.

The intervention also involved the use of the writing and grammar text, *Evergreen, a Guide to Writing with Readings* (Fawcett, 2004). This text contains numerous grammar and writing exercises in a workbook, which students use for writing their answers.

A typical example of the lessons in *Evergreen, a Guide to Writing with Readings* is located in Chapter 10, "Comparison and Contrast." The author guides the reader through the process of writing a comparison contrast paragraph. The author begins by giving examples of a comparison paragraph and then asks the student to fill in the blanks and answer questions about the paragraph's development (p. 118). Then the text provides a model paragraph.

In my family, personality traits are said to skip generations, so that might explain why my grandfather and I have so much in common. My grandfather arrived in the United States at sixteen, a penniless young man from Italy looking for a new life and ready to earn it. He quickly apprenticed himself to a shoe cobbler and never stopped working until he retired fifty-three years later. Similarly, when I was fourteen, I asked permission to apply for my first job as a bank teller. My parents smiled and said, "She's just like Grandpa." Though everyone else in my family spends money the minute it reaches their hands, my habit of saving every penny does not seem strange to them. My grandfather also was careful with money, building his own shoe repair business out of nothing. He loved to work in his large vegetable garden and brought bags of carrots and tomatoes to our house on Saturday mornings. Like him, I enjoy the feeling of dirt on my fingers and the surprise of seedlings sprouting overnight. Though I raise zinnias instead of zucchinis, I know where I inherited a passion to make things grow. Only in opportunities, we differed. Although my grandfather's education ended with third grade, I am fortunate to attend college—and hope that education will be my legacy to the generation that come after me---Angela De Renci (Student) (p. 118).

The above paragraph served as a model for writing a comparison paragraph, and the questions that follow (p. 118) served to enforce the concepts behind the writing of the comparison paragraph:

- What words in the topic sentence does the writer use to indicate that a comparison will follow?
- In what ways are the writer and her grandfather similar?

- What transitional words stress the similarities?
- What one point of contrast serves as the punch line for the paragraph?
- Make a plan or an outline of this comparison paragraph (p. 118).

The Fawcett (2004) text contained grammar exercises and instructions for writing paragraphs, which emphasized the process approach to writing. The goal of each chapter was for the student to write several paragraphs for teacher-grading and then complete grammar exercises based on students' and teachers' analysis of their writing. By the end of the semester, students had been exposed to organization and writing of essays. They also had learned to write a thesis statement, or central idea, for each essay.

Additional exercises in the chapter provided practice with using transitions, organization of ideas, topic sentences, and supporting details. An example of one of these exercises (Fawcett, 2004, p. 121) gave a well-written paragraph except for the lack of transitional words or phrases. Following are 7 sentences from a 10-sentence paragraph that asked students to place transitions for clearer reading:

> Directions: Practice 2—This paragraph is hard to follow because it lacks transitional expressions that emphasize contrast. Revise the paragraph, adding transitional expressions of contrast. Strive for variety. Either a cold or the flu can make you miserable, so does it really matter which one you really have? Experts say it does because a cold will go away by itself. The flu can lead to pneumonia and other serious or even deadly problems. A cold usually comes on gradually with little or no fever. The flu comes on suddenly, and its fever can usually spike as high as 104 degrees and linger for three or four days. Someone with a cold might experience mild body aches and

fatigue. The flu often brings severe body aches deep fatigue, chills, and a major headache… (Fawcett, p. 121).

This text also had a checklist at the end of each chapter that served as a reminder and guide for students as they proceeded through the process of writing each paragraph. At the end of Chapter 10 "Comparison and Contrast," the checklist was as follows:

The Process of Writing a Contrast or Comparison Paragraph

Refer to this checklist of steps as you write a contrast or comparison paragraph of your own.

1. Narrow your topic in light of your audience and purpose.
2. Compose a topic sentence that clearly states that a contrast or comparison will follow.
3. Freewrite or brainstorm to generate as many points of contrast or comparison as you can think of. (You may want to freewrite or brainstorm before you narrow the topic).
4. Choose the points you will use and drop any details that are not really part of the contrast or the comparison.
5. List parallel points of contrast or of comparison for both *A* and *B*.
6. Make a plan or an outline, numbering all the points of contrast or comparison in the order in which you will present them in the paragraph.
7. Write a draft of your comparison or contrast paragraph, using transitional expressions that stress either differences or similarities.
8. Revise as necessary, checking for support, unity, logic, and coherence.

9. Proofread for errors in grammar, punctuation, sentence structure, spelling, and mechanics (p. 126).

The reading (Langan, 2004) text and the writing (Fawcett, 2004) text provided models of good writing, both paragraphs and essays. When these textbooks discussed critical thinking skills, they also provided examples of the critical thinking skills. Students wrote 7 paragraphs during the semester and took several grammar quizzes that were based on needs revealed by their writing. By the end of the semester, the students demonstrated their knowledge of writing skills by writing a five-paragraph essay in class. An average grade of 70 or above on all tests and writing assignments was required for passing the course. The college's developmental English policies allowed students to retake tests or writing assignments if they received a grade lower than 70.

Control Group

At the beginning of the semester, 11 students (n = 12) were enrolled in the control group. Of these students, 8 were male, and 4 were female. The text used with the control group was the one used by other English 093 classes at the college, which was a grammar workbook entitled *Shortcuts to Basic Writing Skills* (Blumenthal, 2004). It contained exercises within the text and provided suggestions for paragraph and composition quality, which emphasized and described the writing process. As instructor, I provided explicit instruction on process writing to this group as well as to the intervention group and guided students in both groups through the process of writing seven paragraphs. By the end of the semester, students in the control group demonstrated their knowledge and skill in writing performance by writing an in-class five-paragraph essay.

I explained each grammar lesson to students and gave examples to show how to work each of the exercises before students began the chapter. Students then worked the exercises for each chapter and checked their answers in the answer section of their text. They took a chapter test after completion of the exercises. If students did not show mastery of the chapter with a grade of 70 or above, I allowed the student to study the material and retake a different form of the test before proceeding to the next chapter.

Students completed short writing assignments after each of the 12 chapters. When the students completed the twelve text chapters, I explained the process of composition quality and gave the students practice with organizing and writing an essay in class. The control group received the same amount of instruction for writing paragraphs and essays as the treatment group. However, they did not receive the reading comprehension and critical thinking instruction provided to the treatment group. The control group also completed an in-class essay assignment and took the posttest, Form H of the Nelson-Denney Reading Test, at the end of the semester.

Sample exercises from Lesson 1, "We Must Have Nouns" are as follows:

Directions: To talk or write to other people, we need many different kinds of words. For example, we need names for all the things we see around us.

Underline two words that are the names of things in this room:

wall tree chair moon

Underline two words that are the names of foods:

cloud bread lettuce cement

Underline two words that are the names of living things:

man stone window horse

(Blumenthal, 2004, pp.1, 5, 7, 9).

The writing applications in Blumenthal's (1994) text follow guidelines for process writing, similar to Fawcett's (2004) text. Students answered grammar questions in the first section of the book. If they did not get the correct answer, they were given an opportunity to get the correct answer in another section (called "frame") of the book. For writing assignments, students are to follow Blumenthal's (1994, p. 379) writing process in completing each assignment. These are: (1) prewriting, (2) writing the first draft, (3) evaluating, (4) revising, (5) proofreading, and (6) writing the final version. As instructor, I explained each section to students before they began writing each assignment (pp. 379-386).

The first assignment, "Writing Application A: Using Precise Nouns," gives the directions for writing the first paragraph:

On a separate sheet of paper, write a paragraph about something you have wanted for a long time. Describe exactly what it is that you have wanted and why you have wanted it (Blumenthal, 2004, p. 387, 1994).

Then students evaluated their writing with the following checklist:

Evaluation Checklist: Reread your first draft. Use these guidelines to help you judge the content and organization of your writing.

_____I have used precise nouns in my writing.

_____Each of my sentences is complete.

_____ Each of my supporting sentences refers to the topic sentence.

Further directions to students: Revising, Proofreading, and Writing the final version:

> Use your evaluation to help you revise the first draft of your paragraph. Make sure each of your nouns is as precise as you would like it to be. Then proofread your revised draft. Write your paragraph in final form (Blumenthal, p. 387, 2004).

In grammar exercises, explanations of the writing process, and guidelines for writing paragraphs, the two texts used for the treatment and control group, the Fawcett (2004) text and Blumenthal's (2004) text, were very similar in their approach. Both texts provided grammar exercises for students to work in the text-workbook, and both guided and taught the writing of paragraphs using the process method.

Data Collection and Analysis

Posttests

The instructor administered the posttests and a final in-class essay to both groups of students. The final in-class essay took place during two class periods. At the end of the first writing session, students turned in their rough drafts and any notes made for the essay. At the beginning of the next class, I returned these to the students, and they revised, edited, and turned in a completed essay at the end of the second class. Neither group was allowed to bring notes from outside the classroom to the exam.

I administered a posttest assessment using Form H of the Nelson-Denny Reading Test to both groups of students within one class period. Students wrote their names on the answer sheets. A secretary or student worker then assigned a code for each student and blocked out the names. She kept the code list and names inside a locked drawer for

safekeeping. A second reading teacher at the college then graded the exams using the key provided.

Students taking reading classes at the college are required to score at least 11.5 grade level on comprehension or have a combined score of 12.0 on comprehension and vocabulary in order to pass the developmental reading courses. Since most college textbooks have a reading level at or above this level, the college has set this standard for all college level reading classes. The English 093 classes, however, do not require the Nelson-Denny Reading Test as a prerequisite for passing the course.

Data Analysis

I used several statistical analyses in analyzing the data in this research project. They are as follows: Multiple Analysis of Variance (MANOVA), Analysis of Variance (ANOVA), Chi-Square, a Multiple Regression, and a Cronbach's Alpha. I used some of the analyses for more than one research question.

Critical Thinking Rubric

Because one of the treatments in this research is the teaching of critical thinking skills, I developed a critical thinking rubric to measure the extent to which students appear to employ critical thinking in their writing. For this project, I adapted a rubric from the Critical Thinking project (2007). This rubric scores the critical thinking on a scale of zero to three:

0 = Absence of the skill

1 = Emerging skill

2 = Mastery of the skill

The objectives for the critical thinking skills that were taught are as follows:

1. Distinguishes fact from opinion.
2. Uses denotative language in stating arguments; avoids heavily connotative language.
3. Bases arguments on sound reasoning, avoiding fallacy while presenting sound logic for reasoning.
4. Restricts sources to accountable outlets, screens sources for qualifications and bias.
5. Cites relevant, credible, and convincing evidence to support claims, causal claims established with evidence beyond correlation.

The critical thinking skills that were taught to the treatment group were as follows:

1. Distinguishes fact from opinion.
2. Uses denotative language rather than emotionally loaded words.
3. Avoids fallacious arguments in stating claims.
4. Critically assesses quality of sources and uses reliable sources.
5. Uses relevant, credible, and convincing evidence to support claims.

The complete rubric is in Appendix A.

Composition Quality Rubric

For the purpose of this research, an English 101 rubric provided by the English Department of Troy State University in Dothan was adapted to meet the needs of this study. One area commonly assessed by college English departments is that of grammar or mechanics. Because this study targeted the area of critical thinking skills and reading comprehension, along with writing skills, I omitted the evaluation of the grammar and

mechanics from this essay. The essays were scored from 1, the *lowest*, or *poorest,* quality, to the *highest* possible score of 5, in three areas: content, organization, and style.

The optimal essay standards are as follows:

1. Content: The student has chosen a worthwhile topic, has a clear, evident tone throughout the essay, and uses a wealth of supporting material that is smoothly integrated throughout the essay.
2. Organization: The student's writing is clear, logical, and coherent throughout the text. The material is unified and well-focused throughout the paper. The writer uses appropriate transitional devices throughout the paper.
3. Style: The writer uses excellent choice of words throughout the paper and avoids wordiness, clichés, and slang. The language is rich, polished, balanced, graceful, and energetic. The writer uses a variety of sentence structures.

The complete rubric is in Appendix B.

Graders

For scoring the posttests, which included the writing rubric, the critical thinking rubric, and the Nelson-Denny Reading Test, Form H, I asked 3 experienced English instructors to grade the posttests. Only 1 grader was needed for scoring the objective answers for the Nelson-Denny Reading Test. However, the 3 graders scored the composition quality rubric and the critical thinking rubric of the treatment and control group independently. I asked each grader to refrain from discussing the essays or their grading with each other or anyone else. The secretary or student worker in the English Department typed the essays and gave each student a code number; therefore, the 3

graders did not know students' names, nor did they know to which group an essay belonged.

The following research questions guided the focus of this research project.

Research Question 1

Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' composition quality as determined by composition quality scores on a final in-class essay?

For answering both research questions 1 and 2, a Multivariate Analysis of Variance (MANOVA) was performed to analyze the data (Grimm & Yarnold, 2000). The dependent variables for the MANOVA were the critical thinking scores, which were obtained from the critical thinking rubric. The composition quality scores came from the composition quality rubric. The independent variable for the MANOVA was the teaching of reading and critical thinking strategies to the treatment group. The results of the MANOVA yielded information about both composition quality and critical thinking results. For analyzing the composition quality without the critical thinking scores, I computed an Analysis of Variance (ANOVA). For the ANOVA computation, the dependent variable is composition quality, and the independent variable is the teaching strategy.

Research Question 2

Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison

with the standard curriculum of English grammar and composition, improve students' critical thinking skills as determined by critical thinking scores on a final in-class essay?

The MANOVA computed for Research Question 1 provided answers for Research Question 2, also. The independent variable was the teaching strategy, and the dependent variables were critical thinking and composition quality. I computed a post hoc Analysis of Variance (ANOVA) to determine the results for critical thinking without the composition quality. The independent variable for the ANOVA was the teaching strategy, and the dependent variable was critical thinking.

Research Question 3

Does the teaching of critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' daily attendance as determined by class attendance records?

This research question involved computation with an Analysis of Variance, (ANOVA). This analysis provided an answer to the question of whether or not the teaching of reading and critical thinking strategies reduced students' absences in the class. The dependent variable was the record for absences of each student in both groups. As instructor of both groups, I maintained daily absence records, which the Office of Admissions and Records of the college maintains in its files. The independent variable in the ANOVA analysis was the teaching of reading comprehension and critical thinking to the treatment group.

Research Question 4

Does the teaching of critical thinking strategies along with English grammar and composition, in comparison with the standard curriculum of English grammar and composition, improve students' course retention as determined by class attendance records and official school withdrawal records?

A Chi-square analysis was the choice for determining if the treatment improved student retention. The dependent variable was the number of students who officially withdrew from English 093 before the end of the semester or who received a failing grade because they stopped coming to class. These records are a part of the official college records and the Office of Admissions and Records of the college maintains these records. As the instructor for these two classes, I maintained daily records of grades, attendance, and withdrawals throughout the semester.

Research Question 5

Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' reading comprehension as measured by the comprehension section of the Nelson Denny Reading Test?

For answering this question, I computed the results using an Analysis of Variance (ANOVA), which measured between-subjects effects. I first computed the results of the descriptive statistics for the N-D Vocabulary and Comprehension for the two groups of students and then determined effect size with a Multivariate Analysis of Variance (MANOVA).

Research Question 6

Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' vocabulary level as measured by vocabulary portion of the Nelson Denny Reading Test?

The analysis selected for answering this question was a Multivariate Analysis of Variance (MANOVA), which used four variables in the analysis of the two groups. The variables were as follows: N-D Comprehension, N-D Vocabulary, Composition Quality, and Critical Thinking. I computed the descriptive statistics for the MANOVA for the N-D vocabulary and comprehension scores, and then computed for effect size of vocabulary as the dependent variable.

Research Question 7

What factors best explain the critical thinking scores? For this question, we computed a Multiple Regression Analysis. This analysis, known for its merits of making predictions or explanations for a targeted phenomenon with multiple factors, is the best choice. To explore variables that could contribute to the explanation or prediction of students' critical thinking scores, all variables were included in this analysis. I performed a preliminary analysis to assess the correlation between each potential predictor variable and the predicted variable.

Inter-rater Reliability

Finally, to examine inter-rater reliability of the scores from the three graders in this study, a Cronbach's Alpha was used. This computation is a widely accepted tool for determining reliability among raters or graders (Hair, Anderson, et al., p. 118, 1998).

Summary

Two intact classes of English 093, the second of two developmental English classes at a community college in southeast Alabama, were randomly selected to be either a control group or treatment group at the beginning of the spring semester in 2005. The control group received grammar and writing instruction that all instructors taught to all English 093 students at the college. The treatment group received grammar and writing instruction, but I also taught reading comprehension and critical thinking strategies to the treatment group. Class time was the same for both groups, and the control group received additional grammar instruction in lieu of the critical thinking and reading instruction. At the end of the 15-week semester, I administered a final in-class essay and Form H of the Nelson-Denny Reading Test, to both groups. I used a composition quality rubric and a critical thinking rubric to score the essays. I maintained attendance and attrition records throughout the semester. The following statistical analyses were used in analyzing the data: MANOVA, ANOVA, Chi-Square, a Multiple Regression Analysis, and Cronbach's Alpha.

IV. DATA ANALYSIS AND RESULTS

The purpose of this study was to determine the effects, if any, of combining the teaching of reading comprehension and critical thinking strategies with the teaching of writing in two developmental English classes in a community college. A review of the research on combining writing instruction with instruction in critical thinking and reading comprehension strategies revealed positive effects for such instruction with elementary, middle, and high school students. However, few experimental studies existed that might corroborate the effects of such reading-writing links in college classrooms. This study, therefore, sought to confirm whether the teaching of reading comprehension and critical thinking strategies improved the critical thinking and composition quality performance of developmental English students in a community college.

Review of Research Questions

The following research questions provided a focus for determining the effects of combining reading comprehension and critical thinking instruction with writing instruction in this study:

1. Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' composition quality as determined by composition quality scores on a final in-class essay?

2. Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' critical thinking skills as determined by critical thinking scores on a final in-class essay?
3. Does the teaching of critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' daily attendance as determined by class attendance records?
4. Does the teaching of critical thinking strategies along with English grammar and composition, in comparison with the standard curriculum of English grammar and composition, improve students' course retention as determined by class attendance records and official school withdrawal records?
5. Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' reading comprehension as measured by the comprehension section of the Nelson Denny Reading Test?
6. Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' vocabulary level as measured by vocabulary portion of the Nelson Denny Reading Test?

7. What factors explain the critical thinking scores?

I performed various statistical procedures to assess the significance of the teaching of reading comprehension and critical thinking strategies on the students' composition quality, critical thinking skills, comprehension and vocabulary level, attendance, and retention in this study.

Data Analysis and Results

Research Question 1

Does the teaching of critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' composition quality on a final in-class essay?

This research question targeted the exploration of the differences between each of two continuous dependent variables, students' essay scores, and their critical thinking scores. The one categorical variable was the teaching strategy, in which the experimental group received instruction in reading comprehension and critical thinking strategies with writing instruction, and the control group received English grammar and writing instruction. As indicated in Table 1, there is a statistically significant correlation ($r = .77$) between the two dependent variables, composition quality and critical thinking. Thus, a Multivariate Analysis of Variance (MANOVA) was the appropriate statistical procedure for exploring this research question as well as the second research question (Grimm & Yarnold, 1995).

The dependent variables for the MANOVA were the critical thinking scores obtained from the final in-class essay at the end of the semester and the composition

quality scores from the essay rubric. The independent variable for the MANOVA was the group treatment, the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class to the treatment group, in comparison with the standard curriculum of English grammar and composition taught to the control group.

Table 1 displays the descriptive information regarding the two groups. The treatment group has a higher mean score on composition quality (M= 8.5, SD= 1.9) than that of the control group (M= 7.6, SD= 1.7). The treatment group also has higher critical thinking scores (M = 7.8, SD = 1.5) than the control group (M = 5.8, SD = 1.3).

Table 1

Means and Standard Deviation for Essay Scores and Critical Thinking Scores as a Function of Teaching Strategy

		Composition Quality		Critical Thinking	
Group	n	M	SD	M	SD
Control Group	12	7.6	1.7	5.8	1.3
Treatment Group	12	8.5	1.9	7.8	1.5

In order to analyze the contribution of the two dependent variables, composition quality and critical thinking, a Multivariate Analysis of Variance (MANOVA) was computed. The results of the MANOVA are shown in Table 2.

Table 2

Multivariate Analysis of Variance for Composition Quality Scores and Critical Thinking Scores

Source	Λ	F(2, 16)	*p*	η^2
Group	.50	8.0	.004	.50

The MANOVA results produced results that are statistically significant, $p = .004$. The $p = .004$ level of significance was a significant effect size, $\eta^2 = .50$ (partial eta squared) for both composition quality and critical thinking, (Wilk's $\Lambda = F(2, 16) = 8.0$, $p = .004$, $\eta^2 = .50$. Since a significant effect was found for critical thinking and composition quality together, an Analysis of Variance (ANOVA) was computed to determine the contribution of each variable toward the effect size. Table 3 gives the ANOVA results for composition quality.

Table 3

Univariate Analysis of Variance for Composition Quality Scores and Critical Thinking Scores

	F(1,17)	*p*	η^2
Composition Quality	1.14	.30	.06

As Table 3 indicates, the Analysis of Variance (ANOVA) found that results that were not statistically significant, $p = .06$, which is greater than the .01 level of significance for composition quality. The descriptive statistics indicate that for composition quality, the treatment group's mean scores for composition quality (M = 8.5) were higher than mean scores for the control group (M = 7.6), which indicates a positive trend in the data for the treatment. However, the computation of the ANOVA revealed that the *p* value of .06 was not statistically significant at the .05 level of significance for composition quality.

Research Question 2

Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, have an effect on the critical thinking skills of a final in-class essay? The same two-group MANOVA procedure was also used for answering this question. Table 1 shows the results for scores for both composition quality and critical thinking.

A statistically significant result and a moderate effect size were produced from a two-group MANOVA procedure (Wilk's $\Lambda = .50$, $F(2, 16) = 8.0$, $p=.004$, $\eta^2 = .38$, see Table 2 for details). This result indicates that the treatment teaching strategy influenced students' critical thinking and composition quality when these two dependent variables were analyzed together. However, in order to determine the significance for critical thinking without composition quality, an Analysis of Variance was performed. Table 4 shows the results of this computation for the dependent variable critical thinking.

Table 4

Univariate Analysis of Variance for Composition Quality Scores and Critical Thinking Scores

	F(1,17)	p	η^2
Critical Thinking	10.40	.004	.38

The ANOVA results showed that teaching strategy had a statistically significant effect on critical thinking ($p < .01$), with the emphasis on reading comprehension and critical thinking instruction along with English composition, resulting in greater critical thinking ability, as measured by the blind scoring of the final essay using a critical thinking rubric. The results yield a moderate effect size (Wilk's $\Lambda = .50$, $F(1, 17) = 10.4$, $p = .004$, $\eta^2 = .38$. The results of the ANOVA indicate that the effects of the teaching strategy are statistically significant in favor of the treatment with a moderate effect size η^2 (partial eta squared) = .38.

Research Question 3

Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' daily attendance as determined by class records of absences?

This research question targeted one continuous variable, student's absence, as a function of one categorical independent variable, teaching strategy. An Analysis of

Variance (ANOVA) was able to analyze group differences; therefore, I used an Analysis of Variance (ANOVA) to answer this research question.

As indicated from the descriptive statistics in Table 5, the control group had a trend toward more absences (M = 9.60, SD=8.58) than the treatment group (M = 4.17, SD = 3.64). However, further analysis revealed that this difference did not have statistical significance.

A non-significant result was produced from an ANOVA, $F(1, 20) = 3.99$, $p= .60$, $\eta^2 = .166$. See Table 6. This result indicated that different teaching strategies did not statistically affect students' attendance despite a strong trend favoring the experimental group.

Table 5

Descriptive Statistics for Students' Attendance as a Function of Teaching Strategy

		Absence	
	n	M	SD
Treatment Group	11	4.17	3.64
Control Group	7	9.60	8.58

Table 6

Results from Analysis of Variance for Effects of Teaching Strategies on Student Attendance

Source	SS	F(1,20)	*p*	η^2
Between groups	161.02	4.0	.06	.17

Research Question 4

Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' course retention as determined by class attendance records and official school records

This research question involved two categorical variables, students' retention and the teaching strategies. Because the variables are categorical, a Chi-Square procedure was

an appropriate choice for answering this research question. The Chi-square procedure yielded a non-statistically significant result (X^2 = .116, p = .283). As presented in Table 8, the treatment group has a higher retention rate percentage (83.3%) than the control group (63.6%). That is, the treatment group retained 83.3 % of the students who enrolled in the course, while the control group retained 63.3 % of the students who enrolled in the course. However, this percentage did not make a statistically significant difference on students' retention, given the small number of participants.

Table 7

Prevalence (%) of Students Retention on Different Teaching Groups

	Teaching				
	Control	Treatment	Total	X^2	*p*
				1.16	.283
Dropped Class (n)	4	2	6		
% within teaching	36.4%	16.7%	26.1%		
Retained in Class	7	10	17		
% within teaching	63.6%	83.3%	73.9		
Total	11	12	23		
% within teaching	100%	100%	100%		

Table 8

Results from Analysis of Variance for Teaching Strategies and Student Retention

Source	SS	F(1,20)	p	η^2
Between groups	161.02	4.0	.06	.17

Research Question 5

Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, have an effect on students' reading comprehension as measured by the comprehension section of the Nelson-Denny (N-D) Reading Test? Table 9 shows the results of the descriptive statistics for the N-D Vocabulary and Comprehension for the two groups of students.

Table 9

Descriptive Statistics for Nelson-Denny Vocabulary and N-D Comprehension

	Vocabulary			Comprehension		
Group	N	Mean	SD	N	Mean	SD
Control	6	50.00	17.6	6	52.00	9.3
Treatment	9	38.67	15.3	9	34.89	16.1

I chose a Multivariate Analysis of Variance (MANOVA) to determine if the above values were statistically significant. The results indicated that $p = .036$, a value that was not statistically significant at the .05 level of significance. The results produced a

Wilkes's Λ of F (5.436). The F value of 5.436 is larger than the critical value; therefore, the null hypothesis is a valid one, and no statistical significance was found between the two groups regarding comprehension and vocabulary scores.

Although a trend in the data is present favoring the control group, particularly regarding the N-D reading comprehension, the values did not reach statistical significance. Therefore, because findings of the MANOVA were not statistically significant, the results did not justify computing further analyses.

Research Question 6

Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' vocabulary level as measured by vocabulary portion of the Nelson Denny Reading Test?

The analysis selected for answering this question was the same Multivariate Analysis of Variance (MANOVA), which used two variables in the analysis of the two groups, N-D Comprehension and N-D Vocabulary. Table 9 shows descriptive statistics for the MANOVA for the N-D vocabulary and comprehension scores.

The MANOVA produced results that were not statistically significant at the .01 level of significance, $p = .12$ and a Wilks's Λ of 2.56. Although a trend favoring the control group was present in the data for vocabulary level, the results were not statistically significant; therefore, no further analyses were justified. In other words, the teaching strategy did not affect students' vocabulary scores on the Nelson-Denny Reading Test to a degree that was statistically significant.

Research Question 7

What factors best explain the critical thinking scores? For this question, we computed a Multiple Regression Analysis. This analysis, known for its merits of making predictions or explanations for a targeted phenomenon with multiple factors, is the best choice. To explore variables that could contribute to the explanation or prediction of students' critical thinking scores, all variables were included in this analysis. I performed a preliminary analysis to assess the correlation between each potential predictor variable and the predicted variable. Only those potential predictors with at least a .3 correlation coefficient are included in the Multiple Regression Analysis. The results of the preliminary analysis indicate that only three variables have at least a .3 correlation coefficient with critical thinking. The predictor variables that met this standard are composition quality scores, student absences, and group. These three variables have a greater than .3 correlation coefficient with the criterion variable, which is the critical thinking scores; therefore, they are included in the multiple regression analysis. Composition quality scores, student absences, and group are all included in the Multiple Regression Analysis procedure. Table 10 reports the variable means, standard deviations, and simple correlations between variables.

Table 10

Means, Standard Deviation, and Simple Correlation for Students' Critical Thinking Scores and Its Predictors

Variables	M	SD	1	2	3	4
1 Critical thinking	6.86	1.71	1	.768**	.616*	.-490*
2 Essay		8.09	1.78	1	.250	-.443*
3 Group	.53	.51	.	1	-.382	
4 Absence	5.74	5.50.		1		

Note: *p < .05 **p < .01

As Table 10 indicates, correlation coefficients between two variables range from -.250 to .768, and none of the variables exceed .8. Therefore, the variables included in the analysis are correlated with at least a .3 correlation coefficient; they do not, however, have a correlation coefficient that is higher than .8, which would indicate a correlation coefficient that is too high to be included in this analysis. In other words, if several of the variables are too closely correlated, that situation could make it difficult to determine which variable(s) is (are) more responsible for the outcome, and multicoliniarity would be a problem for this analysis.

An examination of the results of the standard multiple regression reveals that student absences did not significantly contribute to the prediction of the criterion variable; therefore, student absences were excluded from the final model. The final

model, which Table 11 presents, includes the predictors of composition quality scores and group.

Table 11

Multiple Regression Analysis for Predictors of Critical thinking Scores

Source	M	SD	B	β	*p*
CompQual. Score	8.09	1.78	.629	.655	< .001
Group	.53	.51	1.51	.452	.002

The final model, presented in Table 11, indicates a statistical significance regarding the prediction or explanation of critical thinking scores with two predictors, group and composition quality scores, $F(3, 15) = 28.78$, $p < .001$. The two predictors, group and composition quality scores explain 78.2% of the variance of students' critical thinking scores, $R = .884$, $R^2 = .782$, $p < .001$. Standardized Beta Weights, which are indicators of the strength of each predictor in explaining the criterion variable, provide information as to the strength of each predictor in this analysis. Table 11 shows that the Standardized Beta of Composition Quality scores was .655, and the Standardized Beta for Group is .452. Therefore, Composition Quality is a stronger predictor of students' critical thinking scores than group. However, both group and composition quality correlate with critical thinking scores.

Inter-rater Reliability

Three independent graders scored the composition quality rubrics and the critical thinking rubrics, blind to student identities. These teachers were experienced English teachers with a combined total of 45 years teaching experience among the three graders. In order to examine interrater reliability of the three graders in this study, a Cronbach's Alpha was computed. This computation is a widely accepted tool for determining reliability among raters or graders (Hair, Anderson, et al., 1998, p. 118).

Table 12

Cronbach's Alpha for Interrater Reliability

Cases	Valid	19	73.1
	Excluded	7	26.9
	Total	26	100.0

Table 13 displays the results of the Cronbach's Alpha, which found the interrater reliability to be .81, indicating a high level of reliability among the essay graders.

Table 13

Reliability Statistics

Cronbach's Alpha	No. of Items
.81	3

The results of the Cronbach's Alpha indicate a high level of reliability among the three raters, .81, considerably higher than the desired minimum of .7 (Weinfurt, 1995).

V. SUMMARY, DISCUSSION, LIMITATIONS, AND IMPLICATIONS

Summary of Study

The teaching of Developmental English involves preparing the students to write paragraphs that are organized, clear, and logical in preparation for entrance into English Composition I the next semester. This study examines the effects of teaching reading comprehension and critical thinking strategies on English students' writing performance. Specifically, the study seeks to examine whether the reading comprehension and critical thinking strategies have a significant impact on students' writing performance as measured by a final in-class essay using both a writing rubric and a critical thinking rubric. Results on students' attendance and course retention are also measured because these factors are concerns of the faculty at the college where this study was conducted.

Students in the treatment group received explicit instruction in reading comprehension and critical thinking strategies, along with English grammar and writing. The control group received the Standard English grammar and writing instruction that all Developmental English classes at the college received. At the end of the semester, both groups wrote a five-paragraph essay on a topic of their choice. Three graders, experienced English teachers at the college, graded the essays without knowledge of students' names or group assignment. The graders scored the essays with two rubrics, one rubric for composition quality and the other rubric for critical thinking. A Nelson-Denny Reading Test was also administered to both groups at the end of the semester.

The following research questions directed the research in this study:

1. Does the teaching of critical thinking and reading comprehension strategies, along with English grammar and writing in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve the composition quality of students' writing as determined by composition quality scores on a final in-class essay?
2. Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' critical thinking as determined by critical thinking scores on a final in-class essay?
3. Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' daily attendance as determined by class records of absences?
4. Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard

curriculum of English grammar and composition, improve students' course retention as determined by class attendance records and official school records?

5. Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' reading comprehension as measured by the comprehension section of the Nelson-Denny (N-D) Reading Test?
6. Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' reading vocabulary as measured by the vocabulary section of the Nelson-Denny (N-D) Reading Test?
7. What factors best explain critical thinking?

Discussion

Research Question 1

Does the teaching of critical thinking and reading comprehension strategies, along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve the composition quality of students' writing as determined by composition quality scores on a final in-class essay?

This research question aimed at exploring the differences between each of two continuous dependent variables, students' composition quality scores and their critical thinking scores. Since the raters scored the final in-class essay with both the critical thinking rubric and a writing rubric, the essay provided two separate scores, one score for critical thinking assessment and the other score for the composition quality assessment.

A Multiple Analysis of Variance (MANOVA) was computed for the assessment of the first research question, and both the composition quality scores and critical thinking scores were entered into the analysis as the dependent variables. The results indicated statistically significant results for critical thinking and composition quality together, with $p = .004$. The treatment yielded a moderate effect size, $\eta^2 = .50$ (partial eta squared). In other words, the results of the MANOVA indicated that the teaching of reading comprehension and critical thinking strategies improved students' critical thinking and composition quality as measured by the MANOVA using the scores from the critical thinking rubric and the composition quality rubric on the final in-class essay. An examination of the descriptive statistics indicates that the treatment group had higher mean scores in composition quality than the control group. For the treatment group, the mean composition quality score is 8.5, SD = 1.85. The composition quality scores of the control group were lower: M = 7.63, SD = 1.70, indicating a positive trend in favor of the treatment for composition quality on the final essays.

A post hoc computation using an Analysis of Variance (ANOVA) yielded additional information about composition quality. The results of the ANOVA did not yield a statistically significant effect for composition quality. In other words, the effects

of the teaching strategy for composition quality were not statistically significant, $p = .30$, at the .05 level of significance.

Several possibilities exist that may explain the lack of statistical significance despite the trend in the data. One possibility for the lack of statistical significance for composition quality scores is that the sample sizes were rather small with only 17 participants (10 experimental, 7 control). One may speculate that statistical significance and a larger effect size might be obtained by having larger sample sizes.

Research Question 2

Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' critical thinking as determined by critical thinking scores on a final in-class essay?

The overall descriptive statistics yielded by the MANOVA indicated a trend toward higher values in mean scores for the treatment group on both composition quality and critical thinking scores. For the treatment group, the mean composition quality was 7.8, SD = 1.5. The critical thinking scores of the control group were lower; the control group's critical thinking mean was 5.8, SD = 1.3, indicating a positive trend in favor of the treatment for critical thinking on the final essays. As reported previously, the results of the MANOVA indicated statistically significant results for critical thinking and composition quality together, with $p = .004$. Since the results of the MANOVA were statistically significant, this outcome indicates that the teaching of critical thinking and reading comprehension, along with writing instruction, improved students composition quality and critical thinking as measured by the final in-class essay. The treatment was

effective for the experimental group in favor of teaching reading comprehension and critical thinking strategies along with writing in Developmental English class.

For analyzing the critical thinking scores without the composition quality scores, I computed a post hoc Analysis of Variance (ANOVA). The ANOVA indicated that critical thinking yielded strong results for the treatment, $F(1,17) = 10.4$, $p = .005$. The results are statistically significant with a moderate effect size of $\eta^2 = .38$ favoring the experimental group for critical thinking scores.

After reviewing the mean scores for both composition quality and critical thinking, the trend points toward the treatment group's having higher mean scores on both composition quality scores and critical thinking scores, though only the critical thinking is statistically significant.

The principal factor influencing the students' critical thinking scores was probably the critical thinking instruction that the experimental group received. Students received critical thinking instruction from Langan (2004) and from an English grammar textbook (Fawcett, 2004). Langan's (2004) text taught students to distinguish fact from opinion and also covered the use of denotative and connotative language with the importance of avoiding heavily connotative language, especially in academic writing. In addition, I taught the treatment group strategies on avoiding fallacy, while presenting sound logic for reasoning. The exercises and class discussions from Fawcett's (2004, pp. 153-165) text discussed strategies for effective argumentation in writing. I discussed with students the importance of using reliable sources as authority. For example, students learned that they should avoid expressions such as "everyone knows that," "it is common knowledge that," "they all say," "I think," or "I believe."

Fawcett (2004, pp. 153-165) also discussed "Referring to an Authority," providing strategies for finding sources that are credible and reliable. I explained to students the difference between "authority figures" who are actually movie stars or sports heroes and others who have earned the position of authority in a particular field of expertise. Students learned that examples should be relevant to one's topic and should be typical enough to support whatever position the paper is discussing. The text gives an example of avoiding fallacious arguments, e.g., that since a dog once bit your friend, all dogs are dangerous pets (Fawcett, 2004, p. 153). I discussed with students the importance of avoiding fallacious arguments by exaggerating dire consequences if they (the readers) do or do not take a particular action. However, a sound argument helps the reader predict consequences and visualize logical consequences if something does or does not happen (Fawcett, 2004, p. 153). The remaining pages (Fawcett, pp. 154-165) led the students through exercises in critical thinking that encouraged putting these strategies into practice. Langan's (2004) text provides models for appropriate writing of main ideas and supporting details for a well-written paper. I discussed strategies found in the following chapters, "Logical Thinking: General and Specific Points" (Fawcett, 2004, pp 54-68), "Supporting Details" (Fawcett, 2004, pp 91-101), "Implied Main Ideas" (Fawcett, pp. 113-128), and "Inferences" (Fawcett. pp. 144-158). I taught additional guidelines for critical thinking strategies in the chapters entitled "Relationships I" (Fawcett, pp. 168-174) and "Relationships II" (Fawcett, pp. 176-188). In teaching the above strategies, I guided students through the process of using critical thinking strategies in planning and developing paragraphs and essays.

Research Question 3

Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' daily attendance as determined by class attendance records?

The number of absences reported for the treatment group was lower than the number reported for the control group. These figures were noteworthy. For example, for the treatment group, the mean for the absences was $M = 4.17$, while the mean absences for the control group, $M = 9.60$. Thus, the control group had more than twice the average number of absences than did the treatment group. However, an ANOVA computation did not find this trend to be statistically significant, with $p = .06$. In view of the trend in the data, with a larger sample size of students, the ANOVA could yield statistically significant results. The trend suggests that the teaching strategy that combined critical thinking and reading comprehension strategies with English grammar and writing engaged students in learning activities that encouraged better attendance. Possibly the critical thinking and reading comprehension activities in combination with writing activities was more engaging than the Standard English composition regimen.

Research Question 4

Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' course retention as determined by class attendance records and official school records?

As might be expected with a trend toward higher absences in the control group, the control group also had more students who dropped the course or stopped attending class altogether. The treatment group's retention rates in the class were considerably higher if one looks at percentages. The percentage of students retained in the treatment group was 83.3%, while the percentage retained in the control group was 63.6%. Student absences can affect retention because students with frequent absences often fall behind in class assignments and drop the course or stop attending altogether. The treatment group's retention rate was numerically higher than that of the control group.

In spite of these averages and numbers indicating better attendance and retention for the treatment group, when a Chi-Square analysis was performed, the procedure yielded a statistically non-significant result ($p = .28$). Although the treatment group had a 20% higher retention percentage, the results of the Chi-Square analysis were not statistically significant. Because student retention of developmental students is a concern of the college, further studies in this area could prove to be beneficial. In view of the trend toward better retention rates for the teaching strategy, further research is needed with larger sample sizes, which could yield results with statistical significance.

Research Question 5

Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' reading comprehension as measured by the comprehension section of the Nelson-Denny (N-D) Reading Test?

The descriptive statistics indicated that the mean scores on comprehension and vocabulary from the N-D Reading Test were higher for the control group than for the treatment group. Comprehension scores for the control group reported a mean score of 52.0 for the control group (SD = 9.3), and M = 34.89 (SD = 16.1) for the treatment on comprehension. However, a computation with a Multiple Analysis of Variance (MANOVA) yielded results of F = 2.56 and p = .12 that were not statistically significant at the .01 level of significance. Because the results were not statistically significant, the results did not justify further analyses.

A trend was present in the data favoring the control group. Several factors could account for this trend for the control group. Since the two groups came from the same population of students, and one class was randomly assigned to be the treatment group, and the other class was randomly assigned to be the control group, one would expect the two groups to be equivalent at the beginning of the treatment.

A pretest in both reading and writing could have determined if the two groups were equivalent at the beginning of the treatment. COMPASS scores at college entrance suggested some advantage for the control group, though differences were not significant. Without a pretest, a precise level of improvement in reading or writing scores could not be determined with certainty for either group. Any future research that employs a pretest to measure the students' level in writing and reading before beginning the treatment would reveal more about equivalency of the two groups.

An additional factor may be responsible for the trend toward higher control group N-D scores is the type of exercises the control students used. The Blumenthal (2004) text used by the control group required students to read constantly as they worked exercises.

Although I gave explicit instruction at the beginning of every class, Blumenthal (2004) did not allow for class discussions or any activities except reading and answering questions. The time spent in reading the text and answering questions gave the control group additional practice with reading comprehension exercises similar to those on the Nelson-Denny.

Research Question 6

Does the teaching of reading comprehension and critical thinking strategies along with English grammar and composition in a developmental English class, in comparison with the standard curriculum of English grammar and composition, improve students' reading vocabulary as measured by the vocabulary section of the Nelson-Denny (N-D) Reading Test?

As with the comprehension results from the N-D, the vocabulary results, although not statistically significant, indicated a trend in the data in favor of the control group. The mean vocabulary scores for the control group, M = 50.0, (SD = 17.6), while the vocabulary mean for the treatment was M = 38.7, (SD = 15.3).

The limitations of this study, which existed for the comprehension results of the N-D, were the same limitations for the determination of vocabulary results. These limitations were the lack of a pretest and small sample sizes.

Research Question 7

What factors best explain the critical thinking scores? In other words, which variables are better predictors of students' critical thinking scores? The potential contributors were composition quality scores, group assignment, and attendance. Since the results of the standard multiple regression indicated that student absences did not

significantly contribute to the prediction of the criterion variable, student absences were excluded from the final model. Therefore, the principal contributors to the significant critical thinking results were the composition quality scores and group assignment. The two predictors, group and composition quality scores, explained 78.2% of the variance of students' critical thinking scores, $R= .884$, $R^2 = .782$, $p<.001$. Composition quality ($\beta = .66$) was a stronger predictor of students' critical thinking scores than group ($\beta = .45$).

Composition quality and critical thinking were obtained from the same essay; in addition, the same three graders rated critical thinking and composition quality. Group assignment, although not as strong a predictor as composition quality, was the second strongest predictor of critical thinking, a positive result for the treatment. The results indicated that both composition quality and group placement affected students' critical thinking scores as determined by the final in-class essay.

Implications

Implications for Developmental Education

The results of this study indicated several positive trends, which pointed to a need for further research in the teaching of reading comprehension and critical thinking strategies along with writing instruction for developmental English students. The literature review on this subject yielded numbers of successful studies in reading-writing connections with students in grades one through twelve. However, few quantitative studies are available on the college level. Merisotis and Phipps (2000, p. 75) reported, "Research about the effectiveness of remedial education programs has typically been sporadic, underfunded, and inconclusive" (Merisotis & Phipps, 2000, p. 75). Another recent review of research with developmental education students reported, "Relatively

few evaluations of remedial programs have been conducted, and many existing evaluations are useless" (Grubb, 2001, p.1). Considering the paucity of data from experimental research with college students in the area of reading-writing connections, the results of this study suggest that further research in the area of reading-writing and critical thinking with developmental English students is needed.

In searching for quantitative studies in the area of reading and writing with college students, most of the available studies were conducted with volunteers. At this time, a review of current literature on reading-writing connections with developmental college students shows that quantitative research in this area is rare. Additional research on effective strategies for teaching developmental students is needed in order for educators to plan better for developmental English and reading courses in their colleges.

Implications for Student Retention

Many educators agree that developmental education is a field that is necessary (Casazza, 2001), and the history of developmental education goes back to the earliest beginnings of our country (Casazza, 1999). Most proponents of developmental education point out that most students who complete developmental coursework do complete their degrees successfully (Hennessey, 1990; McCabe, 2000; Merisotis & Phipps, 1998;). However, too many of these students do not continue in college for various reasons (Casazza 1999, 2001). In this research project, a comparison of the mean absences for the two groups, along with the higher percentages of retention rates for the treatment, were encouraging. Using a pretest, larger sample sizes, or more than two classes of students in the study were all factors that could contribute to providing results that were more definitive. Further research to determine the best methods for teaching these students is

needed if developmental students are to continue through college successfully (Arendale, 2000). With further quantitative research in reading-writing connections with developmental students, the positive trends reported in this study for the combining of reading and writing can be further assessed to determine how these subjects might best be taught for the most effective student retention and academic success.

Implications for Reading-Writing Integration

Reading and writing are similar processes (McGinley & Tierney, 1989; Shanahan & Tierney, 1990; Chall, 1996), and content area teachers use both in teaching and assessing students regularly. Reading deficiencies can cause major problems for students, more than deficiencies in any other subject area (U. S. Department of Education, NCES, Indicator 29, 2002). Combining the teaching of reading and writing can yield positive results (Nauman, 1990; Shanahan, 1994). Furthermore, Harris & Elsner (1997) found that the teaching of critical thinking skills can improve students' attitudes toward learning.

The literature review discussed in this project revealed considerable evidence for positive effects for students in combining the teaching of reading comprehension and critical thinking strategies with writing. If used effectively in content area classes, teachers can improve comprehension and learning in the content areas. Teachers who teach content area classes can employ these strategies in their classrooms for the benefit of students, and not relegate the teaching of reading-writing-critical thinking strategies just to the English or reading classes. Doing so may be a method for improving student retention and promoting student academic success. In several studies cited in this project, researchers combined reading-critical thinking strategies with the teaching of writing in content classes (Martino & Hoffman, 2001; Morrow, et al., 1997).

Implications for Academic and Job Success

The skills studied in this research project are essential for academic and work-related success. A college education is becoming increasingly necessary for social and economic success (Day & McCabe, 1997; Lavin, 2000; Ntiri, 2001). Furthermore, certain factors enhance students' chances of academic success. Completing a developmental writing course has a positive effect for student success in the academic world (Crews & Aragon, 2004). Hennessey (1990) found that students who successfully complete a reading improvement course are more likely to be successful in other college classes. Writing skills are essential for success in the academic and work world.

In addition to positive results for student success when they receive reading comprehension and writing instruction, critical thinking research yields similar positive results for success related to student acquisition of critical thinking instruction. Research indicates that critical thinking skills enhance reading and writing skill, St. Clair (1994-95). Critical thinking skills improve students' attitudes toward learning (Harris & Eleser, 1997). A substantial body of research seems to indicate a possible link between critical thinking skills and success of developmental students. One source for this research is in Chaffee's (1992) *Teaching Critical Thinking across the Curriculum.* Students also need critical thinking skills for success in the world after graduation. Sawyer (2004) makes an argument for students learning to think critically when he says, "Students will need to learn how to work with and for people and populations very different from themselves. They will need to have developed critical and reflective thinking skills in order to become independent learners and adapt to an ever-evolving economy" (Sawyer, 2004, p. 6). Continued research in reading comprehension instruction, critical thinking instruction,

and writing instruction, particularly with developmental students, is needed to improve these students' chances for success.

Implications: Cultural Differences and Standards

In discussing the history of basic writing, one cannot omit the influence of culture on the basic writing classroom, and particularly cultural influences on basic writers. Since the early 1980s, many educators in basic writing have acknowledged cultural influences among their students. Some of these who discuss and acknowledge this influence are Odell (1995), Rose (1973), Addler-Kassner (1999), as well as Lu (1999). There might be some disagreement among these basic writing experts as to the role that culture plays; that is, are cultural differences a deficit or are they a bonus for students in holding them back or in spurring them on to overcome the struggles within themselves. In spite of the differences in opinions, most basic writing researchers agree that teachers must recognize and deal with cultural differences if the students are to succeed.

Errors and Cultural Differences

Basic writing proponents vary in their approach to student errors on compositions. Some of these educators affected the approach that I adopted in developing the composition quality rubrics. Several basic writing experts suggest that teachers teach grammar in the context of students' writing and deal with errors later in the writing process (Odell, 1995; Addler-Kassner, 1999; & Rose, 1973). Rose even suggests that student interpretations of literary images may be influenced by culture, and the teacher must not jump to conclusions that the student is lacking in ability because of these cultural differences. However, Rose does not advocate lowering of the standards in order to help students deal with cultural differences. In *Lives on the Boundary*, he states,

"Students will float to the mark you set" (1973, p. 26). Neither does Addler-Kassner (1999) advocate lowering standards. She says that at some point, teachers will have to work with students on errors in order to raise the standard of their papers. Shaughnessy (1977) in *Errors and Expectations*, discusses errors and how to deal with them at length.

However, other composition teachers have a slightly different perception of errors. One of these teachers is Gilyard (1990, 1992), who teaches composition and cultural studies at Pennsylvania State University. He believes that cultural standards, especially in language usage, ignore the language patterns and standards of minorities; therefore, he believes in working to make changes in a belief system that holds to Standard English and ignores the speech patterns of minorities. He disagrees that minorities should be forced to change to standards someone else has set. Likewise, Williams (1982) notes that writing teachers pay far more attention to errors on their students' papers than they do to these same errors, which they see frequently in their everyday lives. One who would disagree with Gilyard (1990, 1992) and Williams (1982) is Delpit (1988), who states her concerns about teachers who do not push all students to perform at their highest potential. She does advocate taking students' culture and community context into account in the classroom, and she emphasizes that students do not have to give up their home culture.

Implications for Cultural Expectations and Standards for this Research Project

In this research project, I followed more consistently the views of Delpit (1988) in that I adapted my teaching for cultural differences for both control and treatment groups, and I adhered to practices that would make adjustments for these differences as I taught both groups. For example, I administered direct or explicit instruction to both groups. I

avoided the use of idioms unless I explained in detail the meaning of a particular expression. In teaching a new strategy to students, I guided students through a process that involved several steps, and I usually incorporated collaborative learning into the process. First, I modeled the strategy or activity that I wanted the students to perform. Next, I guided students through the activity or strategy, and then I allowed students to practice or perform the activity in small groups. Finally, students practiced the strategy or activity individually. Rosendale (2000, p.152), once a basic writer herself, states that basic writers need to be able to exchange ideas and work in small groups. She especially advocates peer review prior to writing to give students an opportunity to exchange ideas before writing (Gray-Rosendale, 2000, p.152). She believes this collaborative work encourages students' identity with the academic culture and helps with the acculturation process. With this research project, students in both groups worked collaboratively.

However, with this research project, students in both groups did not conduct peer review of their paragraphs or essays. Delpit (1988) argues that most beginning writers are not equipped to review other people's papers. She views the process of peer review as one in which the teacher is abdicating her responsibility to students who are not yet able to function in this role. With this research project and with all basic writing classes, collaborative work was limited to areas in which students had already achieved a degree of competence, such as completing a chapter review or discussing their brainstorming before writing. In addition, during the course of this project, as well as with other basic writing courses, I discussed with both classes the differences between Standard English and the language they may use at home or with friends. Students realize that Standard English will be expected of them if they are to succeed in the business world. Delpit

(1988) says that arguing about why Standard English is accepted is useless; she says students must learn it and use it to succeed.

However, I told both groups that they do not have to change the language they use with family or with their friends. The discussion arises often in my basic writing classes about the language for home and family vs. academic language. In making teaching adjustments for cultural differences, I help students become comfortable in understanding they are learning and using a new language and a new method of discourse. This process, the acculturation process, says Bruffee (1988), is one that must include the learning of its {the new culture} “language, mores, and values.” In the teaching of basic writing, the teacher’s role is one who helps students with the acculturation process. The students and I discuss the new “language, mores, and values” and the role of Standard English in their future.

Because, like Delpit (1988) I believe that high standards are in the students’ best interest, I did not adjust the rubrics for cultural differences. I discuss the standards I expect them to meet. However, they learn that I will guide them through the learning process, taking a step at a time.

Limitations

This study has several limitations, which this paper discussed briefly with the findings from each research question. The foremost limitation is that of the small sample sizes of the two groups. In comparing the retention percentages of the treatment and control groups, the mean attendance rates for each group, and the overall composition quality and critical thinking scores, the trend is in favor of the treatment group having better retention, attendance, and mean scores. However, when statistical computations

were analyzed in each of the above analyses, only one of the analyses reported findings that were statistically significant. The critical thinking scores were found to be higher for the treatment group and statistically significant when the computation removed the effects of the composition quality scores.

The links between critical thinking, composition quality, attendance, and retention need further exploration in a future research project. With larger sample sizes, the trend toward higher percentages and mean scores for the treatment could yield statistically significant results.

Another limitation is the lack of a pretest. Pretesting at the beginning of the semester with a different form of the Nelson-Denny could have provided a clearer picture as to the reading achievement of the students in both groups before treatment began. A writing assessment, similar to the final in-class essay, could have provided similar information about students' writing abilities before the beginning of the treatment. If the two groups were not equal or equivalent in abilities, and the mean COMPASS scores appear to indicate that possibility, the analyses could better control for these differences in ability.

A final limitation is insufficient time on task for instruction in critical thinking, reading comprehension, and writing in a three-semester hour course. Shanahan (1997) warns that a precaution for combining of reading and writing is that enough time may not be given to either subject. In fact, Schmidt et al (1998, p. 313) found decreased amount of time spent in language arts and reading when completely integrating these disciplines into one course. Since the students registered for an English course, English 093, I was aware that my first responsibility was to assure them adequate instruction and practice in

writing. Therefore, I taught the reading and critical thinking instruction concurrently with writing, yet secondary to the writing instruction. Ideally, the combination of these subjects would be into a five-or six-hour course. That arrangement was not possible in the scope of this study.

Conclusion

Developmental education has come a long way since the day in the 1830s when a Cornell instructor complained that too many of his students could not read, and the college's president promptly replied, "Then teach them to read." When the horrified instructor retorted, "Sir, then, am I hired to teach the alphabet?" Ezra Cornell came back with, "You teach them whatever they need" (Brier, 1984; Casazza & Silverman, 1996, p. 5). Today, developmental education instructors need to heed Cornell's advice, "Teach them whatever they need!" This research project reviews literature that indicates remarkably high academic results for developmental education students when we teach them to read critically (Hennessey, 1990; U.S. Department of Education, Indicator 29, NCES, 2002). The literature indicates, too, that the teaching of critical reading comprehension and critical thinking strategies concurrently with writing positively influence students' writing abilities (Shanahan, 1984; McGee & Richgels, 1990; Nauman, 1990; Shanahn, 1997).

The findings of this research project indicated statistically significant results on one of the analyses dealing with the teaching of reading and writing together. The results indicated that the teaching of critical thinking strategies, along with English grammar and writing in a developmental English class, improves students' writing as determined by the critical thinking rubric used in this study. The teaching of critical reading

comprehension with writing strategies resulted in statistically significant results for students' critical writing. In future studies that correct the noted limitations, researchers may gain results of a more conclusive nature.

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APPENDICES

APPENDIX A

Composition quality Rubric

Student's Name ______________________________ Student's ID #________

Grader's Name______________________________ Wallace Community College, Dothan

Evaluation Sheet

	1 (attains excellence in all four areas)	2 (attains a high level of mastery in all four areas)	3 (must be at least competent in all four areas)	4 Shows some competence in some or all four areas	5 Clearly lacking competence in most or all four areas
Content	Worthwhile topic; originality, and depth; wealth of supporting material, smoothly integrated into the text; tone is evident and maintained throughout.	Content is above average; worthwhile topic; satisfactory depth of development; supporting details for the thesis and topic sentences are specific, concrete, and plentiful.	Worthwhile topic; supporting material for thesis and topic sentences is general and abstract rather than specific and concrete.	Trivial subject; very few supporting details for the thesis and topic sentences.	Consists of unsupported generalities and/or the repetition of commonplace ideas; lacks originality and insight.
Organization	Material is unified and well focused; organization is clear, logical and coherent , effective use of transitional devices throughout paper	Organization is clear, logical, and coherent. Uses transitions between most paragraphs.	Organization is clear, logical, and coherent. Uses transitions between some paragraphs	Not logically organized; no clear organizational pattern. Few, if any, transitions between paragraphs	Paper not written on assigned essay; rambling, disorganized and incoherent. No transitional devices
Style	Excellent selection of word choice; no wordiness, clichés, or inappropriate word choice. Richly varied sentence structure; text is fluid, polished, balanced, graceful, and energetic.	Fluent, clear, and forceful language use; varied sentence; "voice" is apparent. Little or no wordiness, casual, or colloquial language	Ideas are clear, but sentence patterns may be simplistic, overly repetitive,. Language is overly casual or colloquial.	Sentences lack clarity and grace; overly casual, colloquial, or grammatically substandard language; little variety in sentence patterns.	Composed primarily of simple sentences; no sentence pattern variety; extremely casual, colloquial, or substandard language, wordiness and/or clichés present throughout paper

TOTAL POINTS________________

The numbers 1-5 at the top of each column indicate the number of points to be given for each category. Students may acquire from 1 to 5 points (at most) per category. No one area may be weighted heavier than any other area---all are equal in importance in arriving at total points.

APPRENDIX B

Critical Thinking Rubric

The Critical Thinking Rubric

1) Distinguishes fact (whether empirical, analytic, or evaluative) from opinion (self-report).

Absent 0	Emerging 1	Mastering 2
States issues as self-reports (I like, I think, in my opinion), or uses self-reports as descriptions (something is terrible, ugly, wonderful, etc.).	Mixes self-reports with factual claims.	States issues as factual claims, whether empirical (verifiable by observation), analytical (verifiable by language agreement), or evaluative (verifiable by value standards).

2) States arguments in denotative language, eschewing the use of heavy connotative terms to sway with emotion rather than reasons.

Absent 0	Emerging 1	Mastering 2
Relies strongly on emotional words and heavy connotative language to convey content.	Mixes emotional words with denotative language.	States argument in neutral, objective language without using strong connotative terms to sway readers.

3) Avoids fallacious arguments in present claims.

Absent 0	Emerging 1	Mastering 2
Relies mostly on propaganda or fallacious argumentation, e.g, bandwagon, faulty generalization, false causality, testimonial, etc.	Mixture of sound argumentation and fallacy.	Arguments rely on sound reasoning, avoiding fallacy while presenting relevant evidence for claims.

4) Considers the motives and qualifications of sources.

Absent 0	Emerging 1	Mastering 2
Accepts sources uncritically, using sources without accountability, and biased or unqualified authorities.	Some screening of sources with some recognition of qualifications and biases.	Restricts sources to accountable outlets, and screens sources for qualifications and bias.

5) Identifies relevant evidence, and assesses the quality of supporting data/evidence bearing on the issue.

Absent 0	Emerging 1	Mastering 2

APPENDIX C

Auburn University Institutional Review Board Permission Form

HUMAN SUBJECTS
OFFICE OF RESEARCH
PROJECT # 04-204 EP 0501
APPROVED 1-31-05 TO 1-30-06

Auburn University

Auburn University, Alabama 36849-5212

Curriculum and Teaching
College of Education
5040 Haley Center

Telephone: (334) 844-4434
FAX: (334) 844-6789

INFORMED CONSENT FOR

--Research to Evaluate the Effects of Teaching Reading Skills on Writing Skills of College Students in English 093 at Wallace Community College, Dothan, Alabama

You are invited to participate in a research study to determine the best method for teaching English 093. This study is being conducted by Nancy McLendon, Wallace Community College instructor and Ph.D. student at Auburn University. We (I) hope to learn the best method for teaching English 093 grammar and writing skills. You were selected as a possible participant because you have signed up for English 093 at Wallace Community College for Spring 2005.

I will teach the English 093 using two different methods. Both methods are currently in use in similar classes throughout the country. As part of your regular class assignments, you will be required to compose an essay at the end of the semester. Your decision to participate will not influence the type of instruction your course section is receiving nor will it change the regular course assignments required of you. If you decide to participate, you will be agreeing to allow me to use your data from the final essay. The data will be analyzed after your semester grade has been assigned, and in no will the information be used to calculate the grade for the semester. All individual information will remain anonymous. A code name or number will be assigned to each essay in order to identify the student's section. Another instructor will assign this number to each essay after the end of the semester; therefore, no identifying information can be linked to any student.

Current research in the fields of English and reading indicate that students may receive benefits from integrating reading instruction with writing instruction. I cannot promise you that you will receive any of these benefits, but students will not incur any additional expenses or risks as a result of allowing the instructor to collect and analyze the class data for research purposes.

If students decide they do not wish to allow the evaluation of their final essay to be analyzed for research purposes, they may elect to have their essays withheld from the research data collection with no penalty in any manner. Again, the data collection will occur after the end of the semester; therefore, grades of students in this class are not in any way affected by their decision to allow or not allow their essay results to be included in the data collection.

Any information obtained in connection with this study and that can be identified with you will remain anonymous. Information collected through your participation may be published in a professional journal, and/or presented at a professional meeting, etc., and used in the writing of a dissertation to fulfill educational requirements for the Ph.D. program in Curriculum and Teaching. If so, none of your identifiable information will be included.

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Page 1 of 2

(Participant's initials)

Data will be confidential, that is, it may be indirectly identifiable through code lists, participants should be aware that the information will be protected and that all identifying data {or codes} will be destroyed. Students may withdraw from participation at any time, without penalty, and you may withdraw any data which has been collected about yourself, if that data is identifiable.)

Your decision whether or not to participate will not jeopardize your future relations with Auburn University or the Humanities Division at Wallace Community college, Dothan Campus.

If you have any questions, I invite you to ask them now. If you have questions later, you have my phone number and e-mail on the syllabus (334-596-3327) or nmclendon@wallace.edu. I will be happy to answer your questions. You will be provided a copy of this form to keep.

For more information regarding your rights as a research participant, you may contact the Office of Human Subjects Research by phone or e-mail. The people to contact there are Executive Director E.N. "Chip" Burson (334) 844-5966 (bursoen@auburn.edu) or IRB Chair Dr. Peter Grandjean at (334) 844-1462 (grandpw@auburn.edu).

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.

Participant's signature Date Investigator's signature Date

Print Name

HUMAN SUBJECTS
OFFICE OF RESEARCH
PROJECT #04-204EP 0501
APPROVED 1-31-05 TO 1-30-06

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