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# A retrospective study of the impact of a writing process program on the academic achievement of second, third, fourth, and fifth grade students

Myra Gamble

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The University of San Francisco

A RETROSPECTIVE STUDY OF THE IMPACT OF A WRITING PROCESS  
PROGRAM ON THE ACADEMIC ACHIEVEMENT OF SECOND, THIRD, FOURTH,  
AND FIFTH GRADE STUDENTS

A Dissertation  
Presented to  
The Faculty of the School of Education  
Learning and Instruction Department

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

By  
Myra Gamble

San Francisco  
May, 2007

This dissertation, written under the direction of the candidate's dissertation committee and approved by the members of the committee, has been presented to and accepted by the Faculty of the School of Education in partial fulfillment of the requirements for the degree of Doctor of Education. The content and research methodologies presented in this work represent the work of the candidate alone.

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## Dedication

My heartfelt thanks go out to the following people without whom this study could not have been completed.

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## CHAPTER ONE

### Statement of the Problem

Most students in the US are unable to master writing skills at their grade level. On the latest writing assessment (2002) administered by the National Assessment of Education Progress (NAEP) more than half the students who took the test scored below grade level (Persky, Daane, & Jin, 2002). Results were similar for the California Standardized Test (CST) in English Language Arts. Results of the CST revealed that less than half of the students were able to meet the standards for their grade level in writing (California Department of Education, 2004). Students are graduating from high schools without adequate writing skills.

In 2002, the National Commission on Writing in America's Schools and Colleges was established by The College Board, a nonprofit organization composed of more than 4,300 schools and colleges. The establishment of the Commission was motivated by the Board's plans to add a writing assessment to the Scholastic Achievement Test (SAT®) and the concerns of educators and business management that the level of writing in the US is not at the level it should be. The addition of a writing assessment on the SAT® is an attempt to emphasize the importance of writing. The charge of the Commission was to create an agenda to improve writing in US schools. The 2003 report, titled *The Neglected R: The Need for a Writing Revolution* (National Commission on Writing, 2003), concluded that the teaching of writing is not receiving the attention it should and schools are not putting an emphasis on writing. At the elementary school level, 97% of the students reported spending three hours or less per week on writing assignments (National Assessment of Educational Progress, 1998).

For more than 25 years, writing research and instruction have been guided by the National Writing Project (NWP), a professional development movement which has had far-reaching influence on how students in United States' classrooms are taught to write (Sperling & Freedman, 2001). The National Writing Project (NWP) began as the Bay Area Writing Project (BAWP), established in 1974 at the University of California, Berkeley. The BAWP is a collaborative program of the University of California and Bay Area schools dedicated to improving the teaching of writing through professional development programs. In 1978, the BAWP expanded to other states, creating the NWP (Gray & Meyers, 1978; Pritchard & Honeycutt, 2005). The BAWP continues to be the flagship site.

The influence of the NWP has brought about such a major change in the teaching of writing that Hairston (1982) referred to this change as a paradigm shift (Dyson & Freedman, 1991; Sperling & Freedman, 2001). Traditional ways of teaching writing were overturned in favor of the "writing process." The traditional attitude toward writing instruction had been that writing could not be taught at all (Young, 1978). Before the advent of the NWP and the "writing process" approach to instruction, students wrote according to a set pattern and teachers edited students' papers, hoping the students would pick up information on how to write. The attitude of educators was that competent writers know what they are going to say before they write it, the composing process is linear, and teaching editing is teaching writing (Emig, 1977).

In sharp contrast to the traditional model of writing instruction the NWP advocates the teaching of writing using the "writing process." The "writing process," the term used in this study, is sometimes referred to as process writing or a process approach

to writing. It is a recursive, five-step method of teaching writing, with students moving back and forth between the five steps. Based on a model of composition by Flower and Hayes (1980), these five steps are: (a) prewriting, (b) writing, (c) conferring, (d) editing, and (e) publishing.

The five steps are defined as follows: The first step, prewriting, is any activity related to the current writing lesson which occurs before the children write. Prewriting activities may include generating topics for writing through class discussion or the use of a graphic organizer to plan the day's writing. During the second step, writing, students write independently while the teacher moves from student to student offering assistance and guidance as needed. The third step, conferencing, takes place when a student has a conference with another student or the teacher. For example, a student may read a writing piece to the teacher or to another student and the student or teacher will make suggestions on content, grammar, punctuation, or discuss what to do next. The fourth step, editing, refers to children editing this piece of writing. They may correct mistakes on grammar, punctuation and spelling, or they may make structural changes to their writing. The fifth step, publishing, refers to a child's edited story being displayed (either in book form or on the wall) for others to read. While presented in a linear five-step sequence, students within a classroom are not all working on the same step at the same time.

The writing process changed the way teachers taught writing. Instruction became more integrated as teachers began to include spelling, punctuation, grammar, and vocabulary instruction in the teaching of writing (Hairston, 1982). Teachers are now expected to do much more direct teaching of skills and strategies, to present models of

quality writing, and to conference with students. Editing occurs during the writing process rather than afterward during the grading of written pieces.

Despite its popularity, very few quantitative studies have been done on the effectiveness of teaching the writing process, especially at the elementary level. The National Assessment of Educational Progress (NAEP) conducts quantitative writing research, but this research is limited to grades 8 and 12 (Indrisano & Squire, 2000).

Even in the early days of the writing process, little quantitative research was conducted at the elementary level. Hillocks (1986) conducted a meta-analysis of writing instruction and found only 2 of 73 studies of elementary students which were scientifically rigorous. More recently, one quantitative study conducted by The Academy for Educational Development (Fanacsali & Silverstein, 2002) concerned schools' involvement in the NWP and the effect this involvement had on the writing achievement of third and fourth-grade students. However, the study lacked random assignment and control groups. Pre-and-post measures of writing, using school-based writing prompts were used to determine achievement. The results of the study showed that over a three-year period, most students showed gains in writing from baseline to follow-up measures, but without a control group, it is impossible to determine if these gains in writing scores were a result of instruction or simply maturation. To examine the writing process more carefully, this was a quasi-experimental study and controlled for prior achievement.

Not only is there little quantitative research on the effectiveness of the writing process, there is little research on the way in which teachers implement the writing process. Because there are no set protocols to the writing process, considerable variation exists in the components that are taught. In a review of research-based applications for

the writing class, Baker, Gersten, and Graham (2003) noted that little is known about the instructional strategies teachers use in writing instruction. Clear connections need to be made between teacher instruction and student achievement in order to determine which components have an impact on student learning. Quantitative research which correlates frequency of teacher behavior and components of instruction with student achievement increases understanding of how students learn to read and write. Therefore, not only was this study quantitative; it measured achievement using standardized test scores and included covariates to control for initial differences in order to determine the impact of the writing process, and attempted to examine relationships between components of the writing process and student achievement.

#### *Purpose of This Study*

The purpose of this study was twofold. The primary focus of this study was to determine the relationship between writing instruction and student achievement, by conducting a quantitative, retrospective study at the elementary level. This study was conducted in a school district in which some but not all teachers received instruction in a writing process program titled Every Child a Reader and Writer (ECRW) over the past five years. Language arts scores from the California Standards Test (CST) were collected and analyzed for all students in second through fifth grades. Scores of students whose teachers had varying degrees of ECRW training were compared.

The second purpose of this study was to examine the relationships between components of writing instruction and student achievement by examining data over three years of writing instruction. This was accomplished by administering a group questionnaire to teachers to determine which ECRW components they included in writing

instruction and how they taught these components. Frequency of use of these components was related to student achievement in an attempt to determine to what degree use of specific components of the writing process were related to student achievement.

### *Significance of the Study*

There are two reasons this study is significant. First, this study used *quantitative* measures to relate writing instruction to academic achievement. Most of the existing research on writing in the elementary grades consists of observation and anecdotal evidence. These researchers make conclusions about what children do when they write, but this research is not conducive to identifying the writing ability of students or the relationship between writing instruction and academic achievement. This study examined the influence of the writing process by examining students' standardized test scores in language arts, and correlating these with the type of writing instruction the students received.

The second way in which this study is significant is that it was a long-term study which measured the achievement of students over three years and related this to the number of years of teacher training in writing and the number of years students received instruction in ECRW. Most of the longitudinal studies conducted on writing at the elementary level have focused on the ways in which students' writing develops over time, with no relation to achievement (Berninger, Abbott, Graham, & Richards, 2002; Calkins, 1981; Graves, 1981). It takes time for teachers to develop their craft when teaching a new program. This study examined students' achievement at each grade level included in the study which allowed the study of the differences between grade levels in the influence of writing instruction on achievement.

### *Theoretical Rationale*

This study of the writing process is based on the work of Graves (1981) who was one of the first researchers to examine the writing process. He defined the writing process as: “a series of operations leading to the solution of a problem. The process begins when the writer consciously or unconsciously starts a topic and is finished when the written piece is published.” (p. 4). He described the process as involving “significant subprocesses of topic selection, rehearsing, information access, spelling, handwriting, reading, organizing, editing, and revising” (p. 4).

His study of how children develop as writers led to seven hypotheses about what teachers should do when teaching writing (Graves, 1981). The first hypothesis stated that the behaviors of writers are idiosyncratic and variable. Based on this hypothesis, instruction should be a response to the writing behavior and developmental level of the student, with the teacher teaching to the needs of the student. The second hypothesis stated that teachers should observe clusters of behavior before making decisions about writers. The teacher should observe how the child lays out the writing on the page, the processes the child uses, and the information the child writes before making a decision on what to teach the student. The third hypothesis was that scope and sequence have little relevance to how writers develop. Students’ development is not necessarily based on age and students do not develop at the same pace. The fourth hypothesis was that students should write daily, write longer pieces, and write at the same time every day. The fifth hypothesis was that a conference approach is the best way to teach the variable writer. Working one to one with a student on his/her writing is the best way to meet the student’s needs and work at his/her level of ability. The sixth hypothesis was that children should

be allowed to choose 80% of their topics because this teaches them how to choose a topic and they learn more about the writing process. The seventh hypothesis was that skills are best taught within the context of writing.

The theory of Graves (1981) is crucial to any study of the writing process because his conclusions of the positive effects of the writing process on writing achievement led to the widespread use of the writing process in classrooms. His studies of how children develop in their writing led to pedagogical inquiry of which components to include in the teaching of the writing process. Graves suggested that teaching should be based on observations of students' needs, but the teacher must make a decision on techniques to use and how to include writing conventions when teaching the specifics of writing. The "how-to" books and articles on the writing process which were written by Graves (1981, 1982, 1983, 1989) and his colleague, Calkins (1983, 1986, 2003; Calkins, Hartman, & White, 2005) greatly influenced writing instruction throughout the US and the world (Sperling & Feedman, 2001). The writing and instructional components which were examined in this study through a teacher questionnaire are the components included in lessons written by Graves and Calkins. The instructional components include modeling, mini-lessons (a 5-15 minute lesson, using direct instruction), and conferencing. The writing components are grammar, spelling, and punctuation, which are combined into one category, in this study, called conventions

### *Background and Need*

Writing is required in a wide variety of service industries, including finance, insurance, real estate, construction, and manufacturing (National Commission on Writing, 2004). Service industries, such as finance, insurance, and real estate are

expected to create 20.5 million new jobs in this decade (Berman, 2001). In order for graduating college seniors to be successful in the job market they must possess adequate writing skills (National Commission on Writing, 2004).

Schools are not preparing students for today's job market (National Commission on Writing, 2004). In a survey of business leaders, more than 40% of responding firms reported that they offer training in writing for employees who need it at an average cost of \$940 per employee. Many corporations do not even hire applicants who do not possess adequate writing skills (National Commission on Writing, 2004).

The latest writing scores (2002) available for the National Assessment of Education Progress (Persky, Daane, & Jin, 2002) revealed that students do not possess adequate writing skills. Seventy-two percent of the fourth-grade students, 74% of eighth-grade students, and 77% of twelfth-grade students scored at the basic level or below on the writing assessment. NAEP writing scores range from 0-300, where basic is a score of 115-175, proficient is a score of 176-224, and advanced is a score of 225-300. Because basic is defined as partial mastery of prerequisite knowledge and skills that are necessary for proficient work at that grade level, the NAEP scores mean that well over half of the students who took the assessment are performing below grade level in writing.

Scores of California fourth and eighth-grade students (twelfth-grade scores were not reported by state) who participated in the NAEP were even more alarming. Seventy-seven percent of the fourth graders and 77% of the eighth graders who took the test scored at or below the basic level.

Students in grades second through fifth are required to take the California Standards Test (CST) in English Language Arts. The students are tested in six areas: (a)

word analysis and vocabulary, (b) reading comprehension, (c) literacy response, (d) written conventions, (e) writing strategy, and (f) writing applications. Three of the six areas assess writing skills. Students must score at the proficient or advanced level in order to be considered not at-risk for failure. The California Standards Test scaled scores range from approximately 150-600. Scores from 300-349 are at the basic performance standard. Scores of 350 or higher are at or above the proficient performance standard.

The 2004 CST results reveal that less than half of the elementary students who took the Language Arts CST achieved a total score at the proficient or advanced level. In second grade, 35% of the students scored at the proficient or advanced level. In third grade, 30% of the students scored at the proficient or advanced level. At fourth grade 39% scored at the proficient or advanced level, and at fifth grade, 41% of the students scored at the proficient or advanced level. Although the percentage of students scoring at the proficient and advanced level increased consistently from the third to fifth grade, the scores dropped to 36% at the proficient and advanced level in sixth grade (California Department of Education, 2004).

Students are unable to perform at grade-level on standardized writing tests indicating a need for an improvement in writing instruction in the schools. The writing process is the standard method used to teach writing so it is surprising how little quantitative research is available on the writing process, given how poorly students are performing on standardized writing tests. Much of the research on the writing process is anecdotal and provides information on the development of writing skills, but does not provide specific evidence of what accelerates the development. Although information on

how children develop writing abilities is valuable, it is important to understand the specifics of instruction which lead to an increase in writing performance.

The NWP periodically commissions studies to find out the effectiveness of their programs, but the only achievement measures are the rubrics designed by the NWP; there are no control groups and measures do not include standardized writing tests. The most recent published study of the NWP was conducted by The Academy of Educational Development (Fanascali & Silverstein, 2002) and was a three-year study which measured achievement of third and fourth graders whose teachers participated in the NWP. The researchers concluded that the NWP writing process program is effective in increasing the writing ability of students, but without controls, it is not possible to know how much of the effect in achievement is due to natural development or if this achievement leads to higher standardized test scores.

The NWP study also does not supply information on what components of the writing process were included in instruction or what teaching techniques were employed and to what degree. All of the teachers involved in the study were trained in the NWP program, but it was noted in the report that there were no strict protocols on how to teach the writing process because teaching is based on the changing needs of students so variations in teaching may very well have existed.

One of Graves' (1981) seven hypotheses of how teachers should teach writing was that the teaching should be based on the instructional needs of the students. These instructional needs are determined through teacher observation, leading to much variation in the way the writing process is implemented. The format of the writing process is based on the research and suggestions of Graves (1981) and his colleague, Calkins (1981).

Their landmark study, *The New Hampshire Project* (Calkins, 1981; Graves, 1981) was one of the most influential studies of the writing of elementary students. Graves and Calkins studied how children learn to write by conducting a case study in which they observed 16 students split into two groups of eight for four days a week over two years. One group was observed from the beginning of first grade to the end of second grade. Another group was observed from the beginning of third grade to the end of fourth grade. The researchers sometimes sat with the children and questioned them as they wrote. They observed that just like adults, children go through the five stages of the writing process in a recursive manner as they compose.

The early work of Graves (1981) and Calkins (1981) focused more on the conferencing portion on the writing process, believing this to be the part of the lesson where most of the teaching takes place. However, Graves stressed that at some point in the lesson, spelling, punctuation, and handwriting must be directly taught in addition to a discussion of these skills during a conference. He stressed that if children do not receive help in these areas, they are so focused on their inability to spell or punctuate correctly that they become stymied in their writing. In instructional books published later, Calkins (1986; 2003) suggested that teachers include direct teaching of writing strategies and conventions in the form of a mini-lesson and that teachers use models of writing as an instructional tool. As in the training of the NWP, these are only suggestions; there is no set protocol of how to teach the writing process. Most of the current manuals and how-to books stress the importance of basing instruction on student observation and teaching to the needs of the students, leading to great variety in the way that writing process

instruction is implemented (Calkins, 1986, 2003; Fanascoli & Silverstein, 2002; Graves, 1989).

Research such as that of Graves (1981), Calkins (1981; 1983) and Fanascoli and Silverstein (2002), was extremely influential in motivating the widespread use of the writing process. However, additional research was necessary not only to determine the type of teaching method which is best, but which components and writing techniques are necessary to implement instruction effectively. It was essential to examine the components of the writing program and the techniques used to teach these components in relation to student achievement. An understanding of these relationships between components of a writing program and student achievement will help in the discovery of how to plan writing curriculum so that it meets the needs of students and enables them to succeed in school and in today's job market.

#### *Context of the Study*

A Bay Area school district devised a five-year plan to train teachers in writing instruction through an initiative titled Every Child a Reader and Writer (ECRW). The training began in the 2002-2003 school year and was completed in the 2006-2007 school year. The school district of approximately 2000 students is in a multi-cultural, middle class community in the suburbs of California. Test data from two cohorts of students over three years of the ECRW training, using the language arts portion of the California Standards Test (CST), were examined for the impact of writing instruction on reading and writing achievement of students. The reading components included on the CST are: vocabulary, comprehension, and response to literature. The writing components included on the CST are: written conventions and writing strategies. Prior achievement was used

as a covariate to control for initial differences. Gender and English language ability were also used as covariates to control for differences attributed to the sex of the student or to the ability to read and write in English.

This study examined the effects of three teaching components suggested by Calkins (1986; 2003) and the effect of teaching various written conventions. Teaching components were: modeling, conferencing, and mini-lessons. Written conventions were: grammar, spelling, and punctuation.

Some students had four years of ECRW instruction, some three years, some only two years, some one year, and some had no ECRW instruction. The teachers of the students had varied amounts of training in ECRW, with some teachers having no ECRW training at this point and others having three years of training. All of the teachers were given a questionnaire asking about their teaching methods and the components they taught in their writing instruction. It was expected that teachers who were being trained or had been trained in ECRW were using the teaching components suggested in the training and were teaching written conventions. Teachers were held accountable during the training by being required to bring in examples of lessons and students' work. They were also required to discuss the progress of their class with other teachers in their training class. This helped to assure the teachers' fidelity of the treatment in this study.

### *Research Questions*

This study addressed two research questions.

1. What are the differences in scores on the English Language Arts section of the California Standards Test (CST) of students in the second, third, fourth, and fifth grades who received writing instruction from teachers with more ECRW training and those who received instruction from teachers with little or no ECRW training?
2. What components, if any, of the writing process are connected to student achievement in writing? Do some components show more of relationship to writing achievement than others? Components of instruction which were examined include conferencing, modeling, and mini-lessons. Components concerning content of the writing lesson included spelling, punctuation, and grammar.

### *Definition of Terms*

Bay Area Writing Project (BAWP): A collaborative program of the University of California at Berkeley and Bay Area schools. It includes a network of exemplary classroom teachers (kindergarten through university) who conduct professional development programs, with a focus on the writing process, for teachers and administrators. BAWP is the flagship site of the National Writing Project.

California Standards Test (CST): A standardized test given annually to grade 2 to grade 11 students in California in order to determine if they are meeting the standards at their grade level. This study will be concerned only with the language arts portion on the CST. On the language arts portion of the test, the students are tested in six areas: (a) word analysis and vocabulary, (b) reading comprehension, (c) response to literature, (d) written conventions, and (e) writing strategies. In order to be considered as meeting the standards, a student must score at the proficient or advanced level. The specific scores which indicate levels of achievement vary by grade level. A score between 300 and 349 is the basic level and score of 350 and higher is the proficient level or above.

Conferencing: The act of conducting a conference between two writers (2 students) or between the writer and the teacher. The student reads his/her writing aloud and the other student or the teacher gives advice on ways to improve the writing.

Direct Teaching: The teacher explains to the students, in a direct manner, usually by demonstration, how to perform a skill or how to use a strategy. Direct teaching is also referred to as direct instruction and explicit instruction.

Editing: Making changes in the writing with the goal of improving the writing. Editing may involve changes in punctuation, grammar, spelling, organization, or re-writing of portions of the text.

Every Child a Reader and Writer (ECRW): an initiative under which teachers and administrators are trained to teach a writing process program based on the work of Lucy Calkins, the director of The Reading and Writing Project at The Teacher's College at Columbia University. Teachers receive lesson plans which include suggestions for teaching techniques and components to include in their instruction.

Grammar: Students are taught correct sentence structure and word usage for standard English.

Mini-lesson: A short, focused instruction in which the teacher teaches a specific skill or strategy.

Modeling: The teacher uses a model as an example of good or poor work; in this study it is an example of writing. The model may be of a professional writer's work, another student, or the teacher. Modeling may also include a "think-aloud" in which the teacher talks as she writes a piece in order to demonstrate how a writer plans a writing piece.

National Writing Project (NWP): The NWP provides the same service as the BAWP on a national level. The NWP network consists of 189 sites in 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands. Each site resides on a university campus and operates in partnership with local schools.

Prewriting: Any activity related to the current writing lesson which occurs before the children write. Prewriting may include generating topics for writing through class discussion or the use of a graphic organizer to plan the day's writing.

Publishing: A student's completed writing piece is displayed either in a book or on the wall of the classroom.

Punctuation: Students are taught how to correctly punctuate sentences and paragraphs.

Recursive: The act of a writer moving back and forth between the five steps of the writing process in a non-linear fashion. For example, a writer may write, edit, confer, then go back to writing, do more editing, then more prewriting, etc.

Spelling: Students are taught to spell words that they may be using in writing pieces or that they have misspelled in writing pieces.

Student Achievement: Student achievement will be measured using the scores from the language arts portion of the California Standards test.

Think-alouds: The teacher writes a piece in front of students. As the teacher is writing, she talks about her thoughts and decisions about writing, modeling how a writer thinks.

Writing: The portion of the writing process in which students write independently. The teacher may move around the room assisting students and conferencing with students at this time.

Writing Process: The writing process is a five-step method of writing which is recursive, meaning writers moving back and forth between the five steps. The five steps are: (a) prewriting, (b) writing, (c) conferring, (d) editing, and (e) publishing.

## CHAPTER TWO

### Review of the Literature

The literature review examines the effectiveness of teaching the writing process as well as the effectiveness of each of the components of the writing process. It examines both teaching techniques (modeling, mini-lessons, and conferencing) and written conventions (spelling, grammar and punctuation) used in the writing process.

The literature review is divided into three main sections. The first section contains background knowledge on the writing process and provides a historical perspective on how the writing process became the predominate teaching method in the writing class. The second section reviews the literature on the components of the writing process. The third section is the conclusion and contains a summary of the findings of the literature review.

The variety of teaching components and writing components made section two difficult to organize. There are three teaching components which are reviewed in subsections: (a) modeling, (b) mini-lessons, and (c) conferencing. There are three subject components which are also reviewed in subsections: (a) grammar, (c) spelling, and (c) punctuation. These subject components are also referred to as written conventions.

A great deal of overlap exists between these components and several components may be included in one study. The decision regarding which section of the literature review to place a study was based on the amount of information given about each component. For example, if a study included spelling and punctuation, but more information was given on spelling, the study was placed under the heading for spelling; however, the information on punctuation is included in the review.

### *Background of the Writing Process*

Research on the writing process began in the 1970s. This research was partially inspired by the publication of a review of writing research (Braddock, Lloyd-Jones, & Schoer, 1963) in which it was discovered that most of the research at that time dealt with product, not process, with researchers reviewing students' writing and making assumptions of learning or asking students to remember how they had composed a piece of writing. Braddock et al. (1963) recommended that future research focus on the process of writing and the skills involved in the process of writing.

Emig (1971) was one of the first researchers to study the process of writing. The common assumption of many researchers and teachers at the time was that writing took place in a linear fashion and most teachers used the model proposed by Rohman (1965) which included three stages of writing: (a) prewriting or idea generating, (b) writing, and (c) rewriting. Therefore teachers encouraged students to make an outline during the planning process, write an essay, revise their papers, and then turn them in. In 1967 Emig (as cited in Emig, 1971) interviewed published writers and discovered their writing was recursive, with the writer moving back and forth between the stages of writing, rarely making a formal outline. As a result of these interviews, Emig (as cited in Emig, 1971) conducted a pilot study of eleventh-grade students to determine if making an outline before writing increased the quality of writing. Students were instructed to write in any way that worked best for them. Less than half (40%) chose to outline. Teachers graded the writing, not knowing which students had outlined. No relationships were noted between outlining and grading; overall, the students who outlined did not score any higher than those who did not.

Following the pilot study, Emig (1971) observed how teachers taught writing. She observed eight twelfth-grade students during a writing class and noted that most students' writing consisted of the five-paragraph essay, popular with teachers at the time: one paragraph describing what is going to be said, three paragraphs to say it, and one paragraph telling what was said, all in a linear fashion. When papers were completed, teachers wrote editorial remarks and gave these back to the students. Writing was taught as a step-by-step linear process. Emig noted that teachers placed an emphasis on spelling and correctness, not the writing process. Students were not taught how to write, they were merely informed of errors. She proposed that because most teachers were not writers themselves, they did not know how to teach writing. After the publication of Emig's study, the writing model of Rohman (1965) began to be viewed as an oversimplification of the process of writing (Hayes & Flower, 1986).

In 1975, Newsweek published an article titled *Why Johnny Can't Write* (Sheils, 1975) which expressed concerns about writing instruction and ability: high-school students were not prepared for writing at the college level and college students were not prepared for the writing that was required in the job market. Sheils, like Emig, found fault with instructional methods, reporting that teachers were not teaching students to write and the suspected reason for this was that teachers were not taught to teach writing. Sheils cited the Bay Area Writing Project (BAWP) as an example of a way for teachers to learn to teach writing using the writing process. The BAWP and the NWP (the nationwide BAWP) had begun conducting a comprehensive, nationwide effort at instructional improvement in writing through teacher development.

Research on the cognitive processes used in writing and the awareness of the connections between writing, thinking and learning led to support for the writing process as a method of writing instruction (Hayes & Flower, 1986). Flower and Hayes (1980) used protocol analysis, a research technique in which the subject is asked to think aloud while performing a task, to analyze the writing process. This analysis led to an understanding of the cognitive processes which writers use. Flower and Hayes (1980) developed a writing model based on their analysis of these cognitive processes.

This model continues to be revised to integrate new findings and update labels which reflect current terminology (Hayes, 2000). The original 1980 cognitive model described the mental operations that take place during the writing process. Flower and Hayes divided the writing process into three subprocesses: (a) planning, (b) translation, and (c) reviewing. It also included a monitor which appeared to control these subprocesses. The model included three major components: (a) the task environment which includes all of the factors that influence writing tasks outside the writer, such as the writing assignment, the topic, the audience, motivating cues, and the text produced so far, (b) the cognitive processes involved in writing (planning, text generation, and revision), and (c) long-term memory which includes knowledge of topic, audience, and genre.

The new model (Hayes, 2000) combines the factors into two major components: (a) the task environment which includes the audience, the social environment, other texts the writer may read, and the writing medium such as a word processor, and (b) the individual which incorporates motivation and affect, cognitive processes, working memory, and long-term memory. Cognitive processes include text interpretation

(planning), reflection (revision), and text production (text generation). Working memory includes phonological memory, a visual/spatial sketchpad, and semantic memory. Long-term memory includes task schemas, topic knowledge, audience knowledge, linguistic knowledge, and genre knowledge. The main difference between the old model and new model is that the new model has a greater focus on metacognition and working memory.

Graves (1981) discovered that young writers engage the same cognitive processes as older writers and the process of writing is recursive. Graves (1981) conducted a longitudinal case study on the process of writing of elementary students. Previous research in the elementary grades, as in the secondary grades, had been retrospective, with a focus on the product, not the process. Graves proposed that with no systematic observations over time, researchers could only guess what children do in the process of writing. Graves and his colleagues observed eight second graders and eight fourth graders over a two-year time period. The goal of the study was to identify, describe, and sequence the order in which children display certain writing skills. Data collections consisted of: (a) teacher interviews, (b) direct observation, (c) video recordings of children composing, conversing with other students, and conferencing, and (d) examination of the students' written products.

Through his observation of students, Graves (1981) concluded that there are five categories of problem-solving which fall into a hierarchical order in terms of development, with no set age that a student will master a category: (a) spelling, (b) aesthetic (appearance on the page), (c) conventions, (d) topic and information, and (e) revision. He observed the development of writing over time with a focus on how students revised their work because this step of the writing process is the most revealing in terms

of development. By noticing what a child is choosing to revise, the researcher may gain understanding of what the child is attending to in writing. He determined that a scaffolding and conferencing approach is the best way to teach children to revise. Scaffolding occurs when a teacher helps a student to build on current knowledge by starting with information a student knows, gradually adding information, and assisting the student in advancing to a slightly higher level of knowledge. He also noted that skills such as punctuation, spelling, vocabulary, and writing strategies are best taught within the context of writing. Graves' philosophy of how to teach writing coincided with the philosophy of the NWP.

Graves and Calkins began to publish many books and articles on how to teach writing based on their observations of students. Most of the language arts specialists agreed that there was a need to improve writing instruction, and through the books by Calkins and Graves and the training of the NWP, the writing process became widely popular, initiating a paradigm shift in the teaching of writing (Hairstone, 1982). The writing process became the standard way in which to teach writing.

One of the first quantitative studies of the writing process was conducted by Hillocks (1986) when he used meta-analysis to study the effectiveness of various methods of writing instruction. Hillocks found a process approach to teaching writing to be more effective than other approaches. Hillocks (1986) compared four approaches to the teaching of writing: the natural process mode, a traditional presentation mode, an environmental mode, and an individualized mode. The natural process mode used a teaching method in which students wrote on a topic of their choice and the teacher provided an opportunity for the students to revise. Teachers who used a traditional

presentational mode had specific objectives and gave students specific models to follow in their writing. They also taught lessons on grammar during writing instruction. Teachers who used the environmental mode had clear objectives and worked with students in small groups. The individualized mode involved programmed instruction or one-on-one writing conferences. Hillocks found the environmental mode to be the most effective, although the effect size of .44 was small. Natural process and individualized modes were second and third, with effect sizes of .17 and .19, respectively. The environmental mode and the natural mode shared an emphasis on process and students' interaction, but the environmental mode was the method that was found to be the most like the writing process, in that guided problem solving was a key component and it was more likely to be recursive with the teacher encouraging the child to read over their work, make changes, read again, and do more planning (Sperling & Freedman, 2001).

Today, researchers find that the writing process approach is an effective method for teaching writing. In a recent study of the writing process, the NWP commissioned the Academy for Educational Development (AED) to conduct a three-year study of the progress of third and fourth-grade students from 24 classrooms across the country (Fanascali & Silverstein, 2002). The study measured students' writing ability against a rubric, using a pre-test/post-test design. Students were assigned a writing piece in the fall. The writing pieces were scored on a six-point rhetorical-effectiveness scale that included qualities such as focus, coherence, elaboration, and style of writing. The pieces were also scored on a four-point scale for conventions that included punctuation, grammar, and spelling. Students were given another timed writing piece in the spring. The spring writing pieces were also scored for rhetorical effectiveness and writing conventions,

using the same rubric which was used at the beginning of the year. Many of the third and fourth-grade students' scores showed statistically significant increases from baseline to follow-up for rhetorical effectiveness and writing conventions. Fifty-two percent of the students increased their scores on rhetorical effectiveness by a half point or more. Forty-seven percent of the students increased their scores for writing conventions. Students' writing ability improved according to the rubric used in the schools, but it was not determined if overall achievement or writing scores increased on state or national standardized tests.

### *Components of Writing*

There are no set protocols for how to teach each of the five steps of the writing process. This leads to variety in the teaching components included in each step and in the methods used to teach each component. The following section examines common writing and teaching components used in the writing process.

### *Teaching*

Three teaching components which are part of ECRW training and are commonly used in writing process programs were examined in this study: the use of modeling, the use of mini-lessons, and conferencing. There are three types of models which may be used in writing process instruction: models of writing by professional writers, models of the teacher's writing, and models of the students' writing. A mini-lesson is short, focused instruction in which the teacher teaches a specific skill. A mini-lesson implements direct instruction so research on direct instruction in the teaching of writing is included in the section of the literature review on mini-lessons. Conferencing may include student-to-student conferences or teacher-to-student conferences.

*Modeling.* Modeling is a broad based term which includes a demonstration of writing or an example of writing. Three types of models were reviewed: teacher modeling, modeling of a published writer, and modeling of a student's work. Teacher modeling also includes "think-alouds." During a "think-aloud," the teacher writes a piece in front of students. As the teacher is writing, she talks about her thoughts and decisions about writing, modeling how a writer thinks. When a teacher uses a model of a published writer, she reads a book or portion of a book to the students, pointing out writing strategies used by the author. When a teacher uses a student's writing as a model, she may show an example of exemplary or even poor writing, pointing out good and bad points of the writing.

There is very little research on the effectiveness of using models to teach writing. A search of ERIC (going back to 1986, the date of Hillock's meta-analysis) using the key terms of "writing instruction and models" and "literacy and writing instruction" led to 164 citations of writing, none of which were actual research on the use of models. A search of ERIC using the key terms literacy instruction or writing instruction and "think-alouds" revealed 16 citations. Many of the articles concerned teacher modeling in language immersion classes or the modeling of writing in a foreign language class. Many articles and books listed were guide books on how to use models to teach writing or descriptive or conceptual statements of how models are used. In a search of the table of contents of journals published by the American Educational Research Association between 1984 and the present, no articles were found on the use of models to teach writing.

The three articles which are discussed in this section were found in references of other articles. One article was found which examined the use of published writing as a model. Even though it concerns high-school students, it is included in this review. The other two examine teacher modeling and “think-alouds.”

A common assumption among writing teachers and professional development instructors is that exposure to models of quality writing will lead to an increase in the writing ability of students. The underlying concept of this assumption is that writers are guided by schemata when composing a piece (Bereiter & Scardamalia, 1982; Flower & Hayes, 1980). Schemata are types of plans one learns to use; in education, schemata generally involve following a procedure (Schunk, 2000). When learning to write, children develop a schemata which they follow while composing. Schema theory (Bartlett, 1932) suggests that new information is selected and organized by a schema and integrated with prior knowledge. Individuals relate new knowledge to their existing knowledge in order to make sense of it. A schema is a stereotype which specifies a standard pattern or sequence of steps associated with a concept or skill (Rumelhart & Ortony, 1977). Flower and Hayes (1980) hypothesized that if models were used in writing instruction, a student would be able integrate the writing strategy into existing schema and be able to imitate it.

In the early days of the writing process, Graves (1981) suggested that if teachers read literature to students, they would automatically learn various writing strategies. He also suggested, however, that teachers model their own writing and ask students to give input on how to compose a piece of writing. He did not report any research in this area, however.

The results of Hillocks' (1986) meta-analysis on writing instruction were that the use of models was found to be ineffective, with a mean effect size of .22. However, only middle school and high-school students were included in the statistical analysis because the studies on the use of models for younger students were inconclusive. Hillocks concluded that the use of models had the potential to increase writing ability, but research did not permit discrimination among the types of models on students at various grade levels. He hypothesized that some of the models in the studies included in his meta-analysis may have been too elaborate for participants to integrate into their schema and suggested that direct instruction of how the models are constructed would make them more effective for student learning.

Church and Bereiter (1983) used a model of a published writer to find out if students could attend to the style of writing as well as to the content. They instructed high school students to pay attention to the style used in translating a passage from the *Divine Comedy*. Students were able to attend to style for a short time, but then lapsed into attending only to content. When not instructed to attend to style, students attended only to content. Later students were instructed to convert a passage from one translation into the style of the other. The features the students noticed when reading corresponded to those they used in writing which suggests the students were able to follow the model of a professional writer after reading and attending to style. Like Hillocks, Bereiter and Scardamalia (1983) suggested that the knowledge gained about writing style in the Church and Bereiter (1983) study could have been more easily learned through explicit instruction, suggesting the use of a model would be more effective if the teacher included explicit instruction.

The findings of Englert, Raphael, Anderson, Anthony, and Stevens (1991) supported the use of explicit instruction when using models. Englert et al. discovered that modeling and thinking aloud by the teacher were key components in effective writing instruction. The study was conducted in general and special education settings in fourth and fifth-grade classrooms and included students with and without learning disabilities. The subjects included 138 students from 12 schools. Students in the experimental classroom received five months of instruction that consisted of four phases: (a) text analysis, (b) modeling the writing process, (c) guided practice in composition, and (d) independent writing. Students in the control group received regular classroom instruction and engaged in writing composition two to three times per week. The experimental group received two types of modeling instruction: models of a teacher and models of another student. The teacher modeled the inner dialogue of a competent writer during each step of the writing process. She also showed examples of student writing and explained which features of the text qualified as competent or superior writing. Direct instruction was also included in the form of “think sheets” which served as a guide of what to do during each step of the writing process. After the students began writing and as they confronted difficulties during the process, the teacher in the experimental group used transparencies of a student’s work to lead discussions of how to solve the problems in their writing piece. The lessons were the same for the special education and general education students, but often the special education students received more feedback and practice. The results revealed significant main effects for treatment,  $F(4,146) = 16.76, p = .001$ , for group,  $F(3,292) = 3.5, p = .001$  and for text,  $F(4,146) = 14.19, p = .001$  and a

significant interaction between group and treatment,  $F(8, 292) = 2.73$ ,  $p = .006$ , all favoring the use of models.

Englert et al. (1991) noted that students' writing not only showed improvement when they wrote using text structures for which they had received instruction but also when they wrote using text structures that were not included in instruction. They contributed the achievement of the students to the fact that writing strategies were made visible to the students in the form of models. The think-sheets made the inner dialogue of the writer apparent to students, in effect, serving as a model. This explicit modeling helped students to develop self-regulating strategies. One limitation of the study noted by the researchers was that no information was given on the relationship between treatment effect and teacher assignment, teacher implementation, or researcher attention.

A quasi-experimental study by Danoff, Harris, and Graham (1993) also used models to teach writing strategies, but unlike Englert et al. (1991) they included conferencing. Modeling was employed during the instruction of the writing strategy, but the effect of modeling was not measured separately from the effect of conferencing. Fourth and fifth-grade students with and without learning disabilities (LD) were taught a strategy for planning and writing stories, as well as a procedure for regulating the use of the strategy. A student was designated as LD if they met the following three criteria: (a) IQ scores on the Wechsler Intelligence Scale for Children-Revised (as cited in Danoff, Harris, & Graham, 1993) above 85, (b) achievement at least one standard deviation below grade level in one or more academic areas, and (c) absence of any other handicapping condition.

A multicomponent strategy instructional model, self-regulated strategy development (Graham, Harris, & Sawyer, 1987; Harris & Graham, 1992) was used to teach a writing strategy. With this approach, the target strategy is embedded in a self-instructional routine, and students are explicitly taught how to use self-regulation procedures (such as goal setting, self-monitoring, self-assessment, self-instructions, and self-reinforcement) to evaluate and guide their use of the strategy and the writing process. The students were given a series of writing assessments prior to the start of instruction to establish a baseline. At two different points during instruction, writing assessments were administered to determine if students' writing had improved. One assessment was administered after the students were taught a pre-skill necessary for the effective use of the strategy. A second assessment was administered after the strategy and self-regulation procedures had been described and modeled. The final assessments were administered following collaborative and independent practice in using the strategy.

Six students from two fifth-grade classrooms and one fourth-grade classroom participated in the study. Two of the fifth-grade students and one fourth-grade student were identified as LD. The three remaining participants were two fifth-grade students and one fourth-grade student who were normally achieving students. The participants were given a writing assessment to determine a baseline for the use of story grammar elements in writing. Three writing assessments (post-instructional story probes) were administered immediately following instruction on writing strategies. The classroom teacher administered a writing assessment immediately following the post-instructional story probes. In order to determine if participants continued to use the writing strategy,

assessments (maintenance story probes) were administered two weeks and four weeks following the completion of instruction.

The lessons plans used in instruction were based on the Self-Regulated Strategy Development model (SRSD) used in previous investigations (Graham, Harris, & Sawyer, 1987; Harris & Graham, 1992). During the writing process, writing and self-regulation strategies were explicitly taught and modeled and the goals and significance of the strategy were discussed with the students. Feedback on writing and the use of the strategy were given to students during individual conferences. The lessons included seven instructional stages and students had to meet initial criterion in one stage before proceeding to the next stage. The students in the two fifth-grade classrooms required nine mini-lessons, whereas the fourth-grade students required 11 lessons.

During Stage 1, the initial lesson, students were taught the common parts of a story and how expanding these parts could enhance a story. Stage 2, the pre-skill development lesson, focused on more fully defining, identifying, and generating common story parts. The parts of a story which were discussed were setting and episode (goal, action, ending, and reaction). The teacher modeled examples of these elements in literature the class was reading. The teacher held individual conferences with students to identify story parts used in their baseline assessment. The students were taught to regulate their progress by graphing the number of story parts included in their baseline assessment. In Stage 3, students were given a five-step writing strategy and a mnemonic to remember it by. The five steps were: (a) think of a story, (b) let your mind be free, (c) write down the mnemonic, (d) write down the ideas for each story part, and (e) write the story. The teacher modeled the things she said to herself to help her think of good ideas.

In Stage 4, the teacher modeled “thinking out loud” to use the strategy to develop the story. They also modeled five types of self-instruction: (a) problem definition, (b) planning, (c) self-evaluation, (d) self-reinforcement, and (e) coping. In Stage 5, students worked on memorizing the five steps and the mnemonic. In Stage 6, the teacher and students collaboratively planned a story, and then the students wrote individual stories. The teacher gave support to individual students as needed. In Stage 7, the students individually wrote stories.

The first assessment following the baseline assessment was administered after the completion of Stage 2. The next assessment was administered following completion of Stage 5. Writing ability was assessed using a story grammar scale developed by Graham and Harris (1989) and by calculating the number of words written. The quality of the writing was assessed using a holistic rating scale. Notes written by the students during the writing process were collected as evidence they actually used the writing strategy taught.

The overall quality of the students’ writing did not show improvement, but test results revealed that students had learned the writing strategies. Results of the study showed an increase in the story grammar element score and an increase in the number of story grammar parts for all the participants. The average scores of students from baseline to post-instruction doubled or tripled. The scores for elements for one fifth-grade student with LD were 5.3 at baseline and 13.3 at post-instruction; for one fifth-grade normally achieving student, scores increased from 3.7 to 12.3. For the other fifth-grade student with LD, the score for elements increased from 3.8 to 12.3 and for the other normally achieving fifth grader, scores increased from 4.0 to 16.0.

For story grammar parts, scores were as follows: one fifth-grade student with LD scores increased from 4.3 to 6.3, and the other fifth-grade student with LD scores increased from 2.8 to 6.7. One normally achieving fifth-grade students' scores increased from 3.0 to 7.0 and the other normally achieving fifth-grade students' scores increased from 3.5 to 6.3.

The scores for elements for the fourth-grade student with LD increased from 3.8 to 13.0 and for the normally achieving student, 3.3 to 6.7. The scores for grammar parts for fourth-grade students were as follows. The fourth-grade student with LD scores increased from 2.2 to 6.3 and for the normally achieving student, scores increased from 3.3 to 6.7. Danoff et al. (1993) concluded that explicitly teaching a writing strategy may significantly improve writing performance in a short period of time.

As in the Englert et al. (1991) study, the Danoff et al. (1993) study included models and teacher think-alouds. Both studies included modeling, guided practice or conferencing, and independent writing; however the overall quality of writing improved for the students in the Englert et al. study, but not for the students in the Danoff et al. study. The results of the Danoff et al. study demonstrated that the students learned only the information they were explicitly taught. This knowledge did not transfer to general writing as it did for the students in the Englert et al. study.

There were fewer students in the Danoff et al. study and they received fewer lessons. The students in the Englert et al. study received instruction for five months (it is not stated how many lessons they received, but instruction took place in four phases) and the students in the Danoff et al. study received only 10-12 lessons. Another limitation of

the Danoff et al. study was that the sample size is small. The results of this study may not apply to the general population.

More research is needed in order to determine if modeling is an effective method for teaching writing. In the studies by Englert et al. (1991) and Danoff et al. (1993), two types of models were used: a model of a writing strategy and a model of the inner dialogue of the writer, displayed by a think-aloud by the teacher. The effectiveness of the use of models may depend on how explicitly they are taught. Both studies also included independent practice and conferencing. Further research could shed light on which of these components (modeling, conferencing or practicing) had the most effect on writing achievement or if the effect is due to the fact that all three components were used in conjunction.

Explicit instruction along with the use of models appears to be beneficial to the learning of writing strategies. In the study by Danoff et al. (1993) mini-lessons are used to explicitly teach writing strategies. The use of mini-lessons is the recommended method for including direct instruction in the writing process (Calkins, 2005).

*Mini-lessons.* A review of the literature uncovered only two studies which included mini-lessons: the aforementioned study by Danoff, Harris and Graham (1993) and a study by MacArthur, Graham, Schwartz, and Schafer (1995). In a mini-lesson a teacher typically uses direct instruction to teach writing skills and strategies to the whole class therefore research on direct instruction is reported in this literature review. Direct instruction during a mini-lesson may be used to teach writing strategies such as organizational techniques or specific skills such as spelling, vocabulary, grammar, and punctuation.

In the study by Danoff, Harris and Graham (1993), the researchers noted that the teaching of writing strategies through a mini-lesson during the writing process increases students' learning because students may immediately apply the newly learned strategies to their writing, increasing the likelihood that they will generalize the use of the strategies. Teaching strategies in context has been found to be especially important for students with learning disabilities; however, Danoff et al. (1993) discovered that normal achieving students also need direct instruction in applying writing strategies.

In the study by MacArthur, Graham, Schwartz, and Schafer (1995), the researchers examined the effect of direct instruction, using mini-lessons, followed by individual conferences. Instructors taught specific topics of punctuation, spelling, or writing strategies in a mini-lesson to fifth graders, and then provided individualized instruction of the mini-lesson topic during a conference. The instruction for the control is not detailed. Writing samples consisted of a narrative composition and an informative composition which were scored for overall quality using holistic evaluation procedures (Huot, 1990), for number of words and for spelling, capitalization, and punctuation errors. For quality of the narrative composition, the difference was significant, in favor of the experimental group,  $F(1, 164) = 6.518, p = .012$ . The quality for the informative composition was also significant in favor of the experimental group,  $F(1, 160) = 4.174, p = .043$ . A significant effect was found for the length of the narrative writing  $F(1, 164) = 4.038, p = .046$ , but not for informative writing  $F(1, 159) = 0.589, p = .044$ .

Unlike the studies by Englert et al. (1991) and Danoff et al. (1993) which used direct instruction to teach only writing strategies, this study used direct instruction to teach both strategies and conventions. The results showed that the use of mini-lessons led

to an increase in the writing quality of the students, however the effect on achievement may be due to conferencing as well. There are two limitations of the study. One is that the instruction for the control is not detailed so it is not possible to know what type of instruction is being compared. The other is that the teachers taught in the control and experimental group for one year; however it is unclear how many days or minutes the teachers taught.

Although direct instruction through a mini-lesson is the recommended way to teach strategies and conventions, there is some debate on the usefulness of direct teaching in the area of writing (Freedman, 1993). Freedman proposed two hypotheses concerning direct teaching, the Strong Hypothesis and the Restricted Hypothesis. The Strong Hypothesis states that explicit teaching is not useful and the Restricted Hypothesis allows for explicit teaching in certain specific circumstances. The Strong Hypothesis is based on the work of Krashen (1984) who theorized that children acquire writing skills subconsciously through reading. He proposed that students engage in the authentic language task of reading and subconsciously infer the rules of language which are used in writing. His position was that the rules of written language are too complex to teach, so it is better for children to read extensively and subconsciously infer the rules of language. His one exception was that explicit teaching could be used in instruction of obvious features and formats of writing and for specific punctuation rules.

Freedman (1987) found that children were able to control a narrative structure in their writing without any explicit teaching of this structure. Her conclusion was that students inferred the appropriate schema for the narrative structure on the basis of their own reading or from hearing stories read aloud. In accordance with Krashen's (1984) one

exception, Freedman (1993) noted that direct instruction may be useful for learning a specific skill when students are engaged in an authentic task such as writing. She suggested that direct instruction take place in the form of a mini-lesson. The use of mini-lessons is supported by the Restricted Hypothesis.

Fitzgerald and Teasley (1986) conducted a study which followed the tenet of the Restricted Hypothesis: direct instruction is useful in specific circumstances. They felt that although direct instruction may not be necessary for the whole class, it is necessary for low-performing students. Although they used direct instruction, they did not include mini-lessons. Fourth graders who scored at a low level on measures of knowledge of narrative structure were randomly assigned to one of two treatments, instruction in knowledge of story structure (the experimental group) or instruction in dictionary-word study (the control group). In the experimental group, the instructor taught students how to structure a story in a three-step process: step one was a review of previous lessons, step two was an overview of the new lesson, and step three was a description of the story element using examples. The control group read the story presented to the experimental group and practiced writing stories, but only received direct instruction in dictionary skills.

Fitzgerald and Teasley (1986) discovered that low-performing fourth graders who received direct instruction of writing strategies improved the organization of their writing. The researchers performed five repeated measures mixed model analyses of variance in which the between-subjects variable was treatment and the within-subjects variable was time (pretreatment, interim, and final) and story within time (two stories at each time).

Instruction in knowledge of story structure had a strong positive effect on the organization and the quality of students' writing. For organization, there was a significant effect for time, for the changes between the interim and final times versus the pretreatment testing time,  $F(1, 17) = 13.77, p = .01$ . There was also a significant effect for treatment,  $F(1, 17) = 5.63, p = .03$ , which was attributed to the Treatment x Time interaction. For quality, there was a significant effect for time,  $F(1, 17) = 25.20, p = .01$ , for the contrast between the interim and final times versus the pretreatment testing time. There was also a significant Treatment x Time interaction,  $F(1, 17) = 4.86, p = .04$ , for the contrast between the interim and final times, versus the pretreatment testing time.

In the Fitzgerald and Teasley study (1986), both trained and untrained groups received writing instruction using the writing process, but only the trained group received direct instruction on writing strategies. The results indicate that direct instruction of strategies improves the organization of the student's writing. This study included only low-performing students. It would be interesting to conduct the same study for average-performing students.

The results of the two studies which used mini-lessons (Danoff, Harris, & Graham, 1993; MacArthur, Graham, Schwartz, & Schafer, 1995) showed that mini-lessons are an effective way to teach specific skills and strategies during writing instruction. It appears that students may learn narrative structure without explicit instruction, but explicit instruction is necessary for specific skills and strategies (Freedman, 1993). Some studies also included the use of models and conferences so it is unclear which of the components had the most effect. It may be that when all three components are included (direct instruction, modeling, and conferencing), instruction is

most effective. Because only two studies included mini-lessons, more research is needed in this area in order to determine the effectiveness of mini-lessons and in which circumstances they should be employed.

*Conferencing.* Several studies which were reviewed in the modeling and mini-lesson sections of this paper included conferences as part of the instruction. In the writing process, the conference is often used as a follow-up to instruction and the focus of the conference is on the content of the instruction.

The premise behind the writing conference and the direct, individualized instruction which it entails is based on the theories of Vygotsky (1978) and Bruner (1978). The work of Vygotsky (1978) influenced the teaching of writing at the elementary level with his theory that students learn best when they are in their zone of proximal development (ZPD) (Sperling & Freedman, 2001). The ZPD is the distance between independent problem solving and the potential development as determined through problem solving under the guidance of someone more capable (Di Pardo & Freedman, 1988). Bruner (1978) referred to the process of a more capable individual providing instruction in the ZPD of a less capable individual as scaffolding. Individual conferences with students allow the teacher to scaffold instruction and teach in the student's zone of proximal development.

Graves (1983) suggested that much of the teaching of writing takes place during the writing conference and the editing and revising that take place during and following the conference are an essential part of the writing process. He proposed that the stages of learning to write take place with the teacher guiding the student during writing conferences, showing the child how to solve problems, and allowing the child to feel

he/she is in control of the process. Children grow in their writing and cognitive development through the process of wrestling with their intentions (what they are trying to say when writing) and the problem at hand (lack of clarity in writing) and learning to solve these problems.

Calkins (1981) observed that there is a sequence in the way children learn to revise during the writing conference. First, the teacher corrects the child's writing which leads to the child making corrections on his/her own. Next, the child develops strategies for making corrections and explicit acts become implicit. Vygotsky (1978) refers to this transfer from explicit to implicit acts as "internalization."

When the revision is explicit, the child talks aloud about revision and does more writing and erasing. When the revision is implicit, the revision is done in the child's thoughts before the child begins to write. In order for conferences to lead to an increase in writing ability on the part of the student, however, the teacher must be aware of what the student is capable of doing and lead him/her to the next step (Calkins, 1983).

Jacob (1982) noticed that teachers sometimes have a tendency to simply tell students what to do during the conference, giving the student a passive role, which does not lead to much learning on the part of the student. Freedman (1993), on the other hand, found that rather than telling students what to do during conferences, teachers were not being specific enough in their instruction. Teachers often questioned students about their writing, then gave hints about how to revise, but did not give enough explicit instruction for the conference to be a learning experience for the student. The conferencing per se may not increase writing ability, but the explicit instruction and discussion with the student during the conference may lead to an increase in writing achievement.

Unfortunately, this study did not include observation of teachers so it was not possible to know the details of how a conference was conducted.

Often, students confer with each other, not the teacher, advising one another on their work. The use of peer conferences is supported by the research of the influences peers have on learning. Cooper, Marquis, and Ayers-Lopez (1982) studied spontaneous speech among kindergarten and second-grade students and recorded instructional episodes. Cooper et al. found that 79% of the episodes were concerned with classroom subject matter, leading to the conclusion that students view their peers as having information that is important for classroom learning.

The research on the effectiveness of peer conferencing has been somewhat mixed. Freedman (1992) studied ninth-grade students and warned that peer conferencing is only beneficial when students work as equals. If one student is expected to act as an expert, conferencing is not helpful. Di Pardo and Freeman (1988) reviewed the pedagogical literature and studies of peer response groups and proposed that it is feasible that a student of any ability level may be capable of giving helpful advice on a piece of writing. Two studies examined in this literature review (MacArthur, Graham, Schwartz, & Schafer, 1995; Wong, Butler, Ficzere, & Kuperis, 1996) of students who were learning disabled found conferencing with students to be comparable to conferencing with the teacher. The study by MacArthur et al. (1995) was reviewed in the section on mini-lessons. Conferences followed mini-lessons on writing strategies and student writing improved.

Wong et al. (1996) conducted a study of students who were learning disabled (LD) and students who were low achievers (LA) in the eighth and ninth grades in order to

determine if a strategy instruction for writing opinion essays would lead to an improvement in writing opinion essays. Students who were LD were students with adequate intelligence who were performing significantly below grade level and students who were LA were defined as students whose best grade was a C-. The strategy instruction included modeling and collaboration with peers. The procedure was as follows: the teacher modeled a planning strategy and the writing of a draft. The students were randomly divided into pairs and planned an essay, with the expectation that each student would write an essay on his/her own. After writing individual essays, students met with their partners to conference with each other about revisions. The students were instructed to make revisions concerning organization first, then to concentrate on conventions. The control group wrote essays, but received no training in strategies and did not work with a peer. Children in both the control and treatment groups wrote a total of six essays. Students in the treatment group received new student partners for each essay.

The subjects were given pretests, posttests, and maintenance tests. These tests consisted of opinion essays written by the students prior to training in the fall (pretest), following the training in May (posttest) and again later in May (maintenance test). A multivariate analysis of variance (MANOVA) was conducted on measures of clarity and cogency in students' essays. Significant differences were found in overall quality, favoring the treatment group,  $F(2, 30) = 328.98, p < .001$ . A follow-up univariate analysis of variance with repeated measures indicated significant changes over time for clarity,  $F(2, 30) = 42.82, p < .001$  and cogency,  $F(2, 30) = 56.27, p < .001$ . The writing of the students showed no improvement in conventions such as punctuation, spelling, and

grammar, however. The researchers attributed this to the fact that the teachers and trainers put less emphasis on conventions (spelling, punctuation, and grammar). The conclusion of the researchers was that advice from peers on the planning and revision of writing are very beneficial to students. The results of this study contradict the work of Freedman (1992), but it could be that the modeling by the teacher influenced the effectiveness of the instruction.

The implications of the study are that conferencing is beneficial to student achievement in writing; however it is not possible to know if the effect was due to the conference, the modeling, or a combination of the two. The treatment had an effect on clarity and organization of the students' writing, but not on conventions. The teacher modeled writing strategies only, not conventions which may account for the differences in effect. Students were instructed to concentrate on organization first, then conventions. Further information on the conferences would be interesting to discover if students actually worked on conventions during the conferences or stopped after working on strategies.

According to Fitzgerald and Stamm (1992) the benefit of conferencing may depend on the prior knowledge of the student. They found dramatic differences between two first-grade students in the effect of conferencing. In a case study examining the effect of conferencing with peers and with the teacher, the researchers discovered that a conference led to more revisions on the part of a child who had less experience and knowledge of revision than for a child with more experience and knowledge of revision.

Fitzgerald and Stamm chose two students for the case study, one who revised extensively and possessed knowledge of revision and one who did little revision and

seemed to have little knowledge of revision. Knowledge of revision was based on two criteria: the ability to identify mismatches between intentions and actual text, and the ability to know how to change the text to increase clarity or reduce errors in conventions. The conferences the children participated in were with other children and with the teacher. Every two weeks small groups of students met with the teacher for a conference. Students made comments on each other's writing, but only the teacher suggested revisions. Several times a week the students read their writing to each other without the assistance of the teacher.

The child who had less experience and knowledge of revision exhibited behaviors which showed greater understanding of how to revise a paper and she made most of the revisions suggested by the teacher. The child who had experience and knowledge of revision at baseline showed little growth in his knowledge of revision and did not make many of the changes suggested during conferences.

The quality of writing did not improve for either child, but the researchers noted that the scale used to measure quality may not have been sensitive to small changes in growth. The researchers concluded that group conferences may be beneficial to students, but that conferencing, in general, with the teacher or with other students, is most beneficial to students with less knowledge of revision. They cautioned, however, that it is difficult to generalize to the population when only two students are studied.

The implications of the study are that students who have moderate knowledge of revision may not be as willing to listen to advice from others. Instruction on how to conference may be needed for these students. A weakness of the study is that it does not really measure the effect of a complete peer conference. A conference usually includes

suggestions for improvement. Although students discussed their writing with each other, only the teacher suggested revisions. Although first-grade students may not have many valid suggestions for their peers, research in which students actually suggest revisions would be more helpful in determining the effect of peer conferences. Results showed that students learned to revise, but this did not increase their quality of writing. The scale may not have been sensitive enough, as the researchers suggested, or more instruction may have been needed to achieve an effect on the quality of writing.

The results of the research studies in this review revealed that conferences are effective for both younger and older students. In each of the studies, students improved in the areas of organization and style, but not in conventions, indicating that the focus of the conferences was primarily on organization and style, with little attention to conventions. Follow-up conversations with the students and teachers would have led to more information on the content of the conferences.

### *Written Conventions*

The mini-lesson section and the conference section of this review contained studies which included conventions. The study by MacArthur et al. (1995) concluded that teaching conventions during mini-lessons is effective. The study by Wong, Butler, Ficzer, and Kuperis, (1996) revealed that conferences do not improve students' use of conventions.

This section reviews the following written conventions: grammar, spelling, and punctuation. The studies in this review have mixed approaches. Some of the studies examined the effect of teaching conventions during writing class on writing achievement. Others examined the effect of teaching the writing process on students' correct use of

conventions. Some studies are included which examine the effect on achievement of teaching these conventions in a context other than the writing class. These were included because the methods used to teach the convention were pertinent to this study (i.e. direct instruction or modeling was used). Explanations of the studies are given at the beginning of each subsection for a convention.

*Grammar.* The literature review revealed few studies of grammar instruction. A computer search of ERIC was conducted to uncover studies on grammar and writing since Hillocks' meta-analysis (1986). Many of the articles cited were opinion pieces, descriptions of teaching techniques, or had a focus on second language acquisition. Two articles were located, one conducted at the college level and one at the elementary school level. The article at the college level is included because it concerns the teaching of grammar within the writing class.

Early studies found the teaching of grammar to be ineffective. Over 40 years ago, Braddock, Llyod-Jones and Schoer (1963) conducted a widespread study on the effect of grammar instruction on writing quality and concluded that grammar instruction had a negligible effect and perhaps even a harmful effect on the quality of writing. In a meta-analysis of writing composition, 20 years later, Hillocks (1986) came to a similar conclusion.

In his meta-analysis, Hillocks (1986) reviewed studies which examined the effects of teaching grammar on composition but found that most of the studies did not qualify for inclusion in the meta-analysis because minimal controls were not included, there were no pre-and post-writing samples, or the writing was not rated for quality. Several studies which did qualify for the meta-analysis compared the effect of teaching

traditional grammar and teaching no grammar in grades 7 through college and found no significant differences between the two treatments ( Bowden, 1979; Elley,1976; Sullivan, 1969). None of the studies examined in the meta-analysis provided support for teaching grammar to improve composition.

A study by Holden (1994) contradicted the findings of Braddock et al (1963) and Hillocks (1986). Holden (1994) conducted a study comparing two approaches used in the teaching of writing in order to improve students' knowledge of grammar. In a first year college writing process class, the treatment group received no grammar instruction while the control group, in a separate section of the same writing course, received formal grammar instruction throughout the course. The formal grammar instruction of the control group incorporated extensive discussion and drill in the elements of grammar. In the treatment group, students wrote extensively, the professor collected each of the papers and highlighted, but did not name, the grammar errors, and then students edited and revised their papers, sometimes with the help of another student. The assumption that students learn grammar through writing and editing is based on the idea that each student violates different rules of grammar, making it impossible for the teacher to teach formal lessons which meet each student's needs (Holden, 1994). The goal of the study was to determine if the knowledge acquired through grammar instruction would transfer to the students' writing, along with a concurrent improvement in the quality of writing.

Changes in writing were measured using a pretest and posttest from Houghton Mifflins's *The Riverside Handbook*. The tests consist of questions which ask students to identify grammatically correct and incorrect sentences. The results of the scores from pretest to posttest showed a statistically significant difference in favor of the treatment

group,  $t(70) = 2.29$ ,  $p = .026$ . These results led to the conclusion that the writing process is more effective in improving students' knowledge of grammar than instruction in grammar.

The success of the treatment group may also be due to conferences with peers. The researcher states that some students worked together, but it is not clear if the performance of the students who worked together was the same or different from the performance of the students who worked alone. Further research would help in determining the effect of the peer conference.

Unlike the Holden study (1994), Saddler and Graham (2005) studied the effect of direct instruction in grammar. They examined the effect of sentence combining instruction as a way to improve grammar and the overall quality of students' writing. Instruction using sentence combining teaches students to combine two or more basic (i.e. kernel) sentences into a single sentence in order to produce more syntactically mature writing (Ney, 1981; Strong, 1976). Sentence combining became a focus of instruction in the 1970s and studies of sentence combining were examined in the meta-analysis of Hillocks (1986). Hillocks (1986) examined over 50 studies on sentence combining, including grades 2 to adult, in his meta-analysis and found the majority of them to be positive, with significant results (at least  $p < .05$ ) for syntactic maturity.

Sentence combining is not an approach normally used in the writing process (Saddler & Graham, 2005), but Saddler and Graham studied this approach as a way to model correct grammar through direct instruction during the process of writing. They focused on sentence-construction skills because the construction of a sentence is one of the three major processes (the transactional process) in the model of Hayes and Flower

(1980). Limited knowledge of sentence construction restricts a student's ability to produce quality writing because more attention is focused on the transactional phase than the planning and revision phases. Incorrect grammar also makes the writing more difficult to read which reduces the quality of the text (Freedman, 1979). The use of sentence combining is based on three principles. The first is that students need to be taught sentence formulation and various syntactic options which may be used. The second is that as sentence formulation becomes automatic, this will allow cognitive resources to be used for higher level planning and revision. The third is that sentence combining may be used as a revising skill (Zimmerman & Kitsantas, 2002).

Saddler and Graham (2005) integrated sentence-combining with another instructional method, peer-assisted learning strategies (PALS). With PALS, a stronger and weaker student are paired together to apply a skill and each student alternates as "coach" for the other. They studied a fourth-grade class using the writing process. Instruction was provided through mini-lessons. Students received 30 lessons, five minutes in duration, three times per week for 10 weeks. The lessons progressed from simple sentence combinations to compound sentences using conjunctions such as "and, but, because, then," to the addition of adjectives and adverbs and finally, to the addition of adverbial and adjectival clauses. The instructor used direct instruction to explain the process, followed by modeling sentence combining while thinking aloud. Afterward students practiced sentence combining in pairs, using the PALS model. The instructor held a conference with each student, discussing the rhetorical effectiveness of each sentence, and helping to modify the sentence if necessary. Ungrammatical sentences were

corrected. The control group received a lesson on grammar skills, mainly the parts of speech. They received the same number of lessons as the experimental group.

Students were given two sentence-combining measures: (a) a five-item test to measure sentence-combining skills and (b) Form B of the Sentence Combining subtest from the TOWL – 3 (Hammill & Larsen, 1996). To measure quality of writing, the researchers used a holistic quality rating scale developed by Cooper (1977) on first and second drafts of a story. The results of the five-item test revealed that students in the treatment group were twice as likely as the control group students to produce a grammatically correct sentence, containing all critical ideas,  $F(1, 39) = 31.3$ ,  $MSE = 37.7$ ,  $p < .00$ ,  $ES = 1.3$ . There was also a statistically significant main effect for treatment according to the results of the TOWL-3 test,  $F(1, 38) = 8.8$ ,  $MSE = 184.5$ ,  $p < .01$ . The scores for quality were analyzed using a 2 (treatment) x 2 (student type) x 2 (draft of paper) x 2 (time of testing) ANOVA, with repeated measures on the last two variables. The result that was of most interest to this study was the statistically significant effect for the Draft x Treatment interaction,  $F(1, 41) = 4.8$ ,  $MSE = 2.1$  and the follow-up analysis for the Draft x Treatment interaction which examined revised stories. For students in the treatment condition, revising improved the quality of their stories  $F(1, 20) = 14.7$ ,  $MSE = 4.7$ ,  $p < .01$ . The effect size for quality change following revision was .64, a moderate effect size, leading Saddler and Graham (2005) to conclude that the 12 hours of instruction may not have been enough to reduce the cognitive strain of sentence construction for fourth graders; however sentence combining did result in an improvement in the quality of writing.

As in the Holden (1994) study, grammar instruction was combined with conferencing in the Saddler and Graham (2005) study. Saddler and Graham had students work as partners. This was followed by a teacher-to-student conference. It is difficult to know how much of the effect on writing is attributable to the sentence combining instruction and how much is attributable to the conferencing. The effect size for quality was small, leading researchers to suggest that the effect size may have been larger if students had received more hours of instruction.

Some researchers claim that the problem is not so much that teachers are not teaching enough hours of grammar, they are not teaching grammar at all. Johansen & Shaw (2003) suggested that the research claiming that teaching grammar in isolation was ineffective led to the cessation of grammar instruction altogether. In other words, teachers focus on the creative aspects of writing and ignore grammar. There is some debate about whether grammar should be taught, leading some teachers to argue that students be allowed to choose the type of grammar they use in their writing, standard or nonstandard (Dunn & Lindblom, 2003; Ehrenworth, 2003). In an essay on the teaching of grammar, Dunn and Lindblom (2003) pointed out that many published authors use colloquial language and nonstandard grammar in their writing and that writing is effective if it counts as grammatically correct with the audience. They proposed that teachers not teach grammar, but expose students to various style manuals and models of different uses of grammar in writing and discuss these with students. They suggested that teachers should not demand the use of correct grammar.

It was never the intent of the proponents of the writing process for teachers to cease teaching grammar (Calkins, 1986, 2005; Pritchard & Honeycutt, 2005). The

philosophy behind the writing process is that grammar be taught in the context of writing so that learning is meaningful and can be immediately applied to the writing task (Einarsson, 1999; Meyer, Youga, & Flint-Ferguson, 1990; Warner, 1993).

The research in this review supports the teaching of grammar in the context of the writing process. In the studies of this review, grammar instruction was implemented in three steps on the writing process: pre-writing (mini-lessons), conferencing and editing (Holden, 1994; Saddler & Graham, 1995).

*Spelling.* Like grammar, writing process proponents suggest that spelling be taught in the context of writing. The literature which was uncovered concerning spelling and writing was varied. The literature review below begins with studies of how spelling affects students differently at different ages and grade levels. Next the studies of the relationship between spelling and writing are reviewed, many of which are correlational studies. Finally the effect of writing instruction on spelling achievement is reviewed. Many of the studies concerning punctuation (these are reviewed after the spelling section) overlap with spelling instruction.

When students are not able to spell efficiently their writing time is spent on transcription, and this lack of fluency affects their ability to attend to the larger task of planning and organizing their writing. The writer's processing memory is taxed when so much attention is given to spelling and interferes with the higher order skills of planning and organization (Baker, Gersten, & Graham, 2003). Spelling is more problematic for younger children because they are in early stages of spelling development (Graham, 2000). There are five stages of spelling development: (a) precommunicative (symbols a child writes on paper have no resemblance to the sounds in a word), (b) semiphonetic:

letters represent some sounds in the word, (c) phonetic: words are represented phonetically, but no attention is paid to orthography, (d) transitional: conventional orthographic conventions are used, and (e) correct: grade-level words are spelled correctly. The precommunicative stage usually occurs when children are in preschool or kindergarten. The semiphonetic and phonetic stages usually occur when children are in the early primary grades (grades 1 and 2), and the conventional and correct stages occur in the late primary and intermediate grades (grades 3-5) and continues through at least grade 9. In the early stages of spelling development, children spend much more of the writing time attempting to spell words (Gentry, 1982).

Juel (1988) compared the reading and writing scores of children at first grade with their scores at fourth grade, with spelling designated as one of the main components of writing achievement. Juel conducted a longitudinal study of 54 children in one elementary school with a large minority, low socioeconomic population in order to determine if children who are poor readers and writers in first grade remain poor readers and writers in fourth grade. Reading ability was composed of two factors: decoding and comprehension. Writing was composed of two factors: ideation (generating and organizing ideas) and spelling. She correlated individual reading scores of first-grade students with their reading scores at fourth grade. The probability that a student with a low score in first grade would also have a low score in fourth grade was .88. The correlations for writing scores were lower, but did increase with each subsequent grade level. The correlation between writing at the end of first grade and writing in fourth grade was .38,  $p < .01$ . The correlation for writing between the end of second grade and fourth grade was .53,  $p < .001$ . The correlation between the end of third grade and fourth grade

was .60,  $p < .001$ . These results indicated that as children get older, it is more difficult for them to make substantial improvements in their writing ability; however, a correlation of .60, the highest correlation for writing, is only a moderate correlation. The influence of spelling ability on writing ability was lower for fourth grade than for first grade. After controlling for the influence of ideation, Juel found that spelling accuracy accounted for 29% of the variability in scores for first graders and 10% of the variability in scores for fourth graders. Baker et al. (2003) speculated that this may be because children in the intermediate grades are at a higher developmental level of spelling and do not expend as much time and energy on spelling when writing.

The implications of the Juel (1988) study are that students in the lower grades should be encouraged to not worry about correct spelling. This focus on spelling may hinder the quality of their writing. Older students do not seem to be as hampered by spelling. Correlations were small to moderate for all grade levels so the relationship between spelling and writing does not appear to be strong.

Graham, Berninger, Abbott, Abbott, and Whitaker (1997) obtained results which seemingly contrasted to the Juel study. Using structural equation modeling, they found that spelling skills accounted for a large proportion of the variability in grades 1-6 and there was no significant decrease in the amount of variance accounted for in the primary versus the intermediate grades. Further inspection of the results revealed that spelling contributed to writing only indirectly, through handwriting, at the intermediate grades. The path between spelling and composition fluency factors were statistically significant for primary grades, but not for intermediate grades. This lends support to the speculation of Baker et al. (2003) that younger children are spending more time attempting to spell

words and this affects the flow of their writing. The path between spelling and composition quality was not found to be significant at the primary or intermediate grades.

The implications for the Graham, Berninger, Abbott, Abbott and Whitaker (1997) study, like the Juel study, is that students should be encouraged to write without focusing excessively about correct spelling. Spelling does not appear to have much of an effect on the quality of writing, but does affect fluency.

The aforementioned studies examined relationships between spelling and writing, but did not study the affect of teaching spelling during the writing process. Some researches have claimed that teaching spelling in the context of writing is not effective because many commonly misspelled words occur frequently in reading and writing, indicating that words students use in writing are not words they learn to spell (Graham, Loynahan, & Harris, 1993). Graham noted that if writing is a contributor to spelling development, then correlations between writing and spelling should be large, but they are generally lower than for reading and spelling (Graham, 2000). Correlations between reading and spelling range from .50 to .90 and correlations between writing and spelling are often in the .40 to .50 range (Ehri, 1987; Horn, 1960).

Graham and Harris (1997) stated that teachers often provide reading and writing opportunities for students, with minimal teaching of spelling during writing with the expectation that students will learn to spell through exposure to the words. Graham (2000) suggested that students do not receive enough feedback on spelling in writing which limits the impact that any writing instruction that is provided has on spelling achievement. Several studies have shown the amount of feedback on spelling in the

course of writing is limited (DeGoff, 1992; Fitzgerald & Stamm, 1992; Graham & Harris, 1997).

Graham and Harris (1997) suggested that mini-lessons are an effective way to teach spelling, but mini-lessons on spelling must occur often in order for students to learn. They encouraged formal spelling lessons in addition to teaching spelling in the context of writing.

No research was found on the teaching of spelling during a mini-lesson in the writing process class. Only one study was discovered which examined spelling instruction during the writing process. Berninger, Vaughan, Abbott, Brooks, Abbot, Rogan, Reed, and Graham (1998) conducted a study comparing three different types of spelling instruction and their effects on writing composition for poor spellers in the second grade. The types of instruction included: (a) training on the alphabetic principle, (b) teaching of words in a spelling inventory, and (c) writing a composition, using the spelling words. The control group also received three types of instruction: (a) training in phonological awareness, (b) training in orthographical awareness, and (c) writing a composition with no instruction to use spelling words. Results showed that all of the instructional methods used in the treatment group were superior to the methods used in the control group. There was a significant difference between the scores of the pretest and posttest in favor of the treatment group. The students' spelling scores increased from 21.2 at pretest to 39.1 at posttest. None of the treatments used in the treatment group were significantly better than the other, showing that using spelling words in composition is not superior to other methods of teaching spelling. Spelling instruction did lead to longer

compositions, however, showing that spelling instruction may lead to writing achievement.

Two of the studies which were reviewed indicated that spelling instruction leads to an increase in writing fluency and quantity, but does not necessarily improve the quality of writing (Berninger, Vaughan, Abbott, Brooks, Abbot, Rogan, Reed & Graham, 1998; Graham, Berninger, Abboot, Abbott & Whitaker, 1997). This supports the conclusions of Baker et al. (2003) that if students must focus on spelling, it limits their writing. There was little effect on the quality of writing. The one study which examined the effect of spelling instruction during the writing process on spelling achievement (Berninger, Vaughan, Abbott, Brooks, Abbot, Rogan, Reed & Graham, 1998) found significant differences in favor of the treatment groups for the effect of spelling instruction on writing, but did not find that spelling instruction during the writing process is any more effective than any other spelling instruction.

*Punctuation.* Just as it did for spelling, the search for research on punctuation proved to be difficult. An ERIC search going back to 1986, using the keywords “punctuation instruction” and “writing” resulted in five studies. None of the studies were on teaching punctuation in writing. They were reviews of products, how-to articles, or reviews of the teaching of punctuation in textbooks. A search of journals published by the American Education Research Association did not lead to any articles on teaching punctuation in writing. The few articles that were discovered were found in reference sections of other articles included in this study. This review includes articles on how concentration on punctuation affects writing quality, the current attitude toward teaching

punctuation, and finally studies on the teaching of punctuation during the writing process. Some studies on punctuation included spelling.

The dearth of research on instruction in punctuation may be partly the result of the instruction teachers are receiving on how to teach the writing process. Often teachers who receive training in the writing process are instructed to focus on the organization, quality, and fluency of writing and not to distract students by overemphasizing punctuation (McCarthy, 1992; Wong et al., 1996). Before the paradigm shift to the writing process, teachers placed too much emphasis on punctuation (Emig, 1971), but now it seems to be largely avoided in writing research. Instruction in punctuation should take place during mini-lessons and should be addressed during the conference period, but often punctuation instruction is neglected for a focus on writing strategies (Calkins, 1983; McCarthy, 1992).

A study by McCarthy (1992) gave support to the idea that teachers spend little time on punctuation. He investigated the changes in the development of conducting writing conferences of two teachers who were incorporating the Teachers College Writing Project philosophy in their teaching. The Teachers College Writing Project is directed by Lucy Calkins, the author of many books on the teaching of the writing process (1980; 1981; 1983; 1986; 2003). The Teacher's College Writing Project is a coordinated effort between the New York City Board of Education's Division of Curriculum and Instruction and the Teachers College at Columbia University. The Writing Project consists of two major components: (a) teacher trainers visit public schools and assist teachers and students with the writing process, and (b) teachers attend workshops on the writing process.

The writing conference is a major focus of instruction for teachers so McCarthy (1992) focused her research on the changes teachers made in the way they conducted conferences. McCarthy selected two teachers who began their involvement with the Writing Project with different philosophies. Data were collected through classroom observation and interviews. One teacher, Erica (pseudonym) initially focused on conventions such as grammar, spelling and punctuation during the conference. The other teacher, Emily (pseudonym) initially focused on ideas in writing more than conventions during conferences. Both teachers participated in the Writing Project throughout the school year and both teachers increased the focus on ideas and decreased the focus on conventions. In October, 39% of Erica's conference time was spent discussing ideas and 35% was spent discussing conventions. In June, 75% of Erica's conference time was spent discussing ideas and only 7% was spent discussing conventions. Emily's time spent on ideas increased from 49% to 79% from October to June and time spent on conventions decreased from 15% to 1%. The conclusion of McCarthy (1992) was that as teachers progress in their knowledge of how to teach the writing process, their focus of instruction, at least during conferences, is less on conventions and more on ideas.

The implication of this study (McCarthy, 1992) was that the focus for writing instruction before the advent of the writing process was on punctuation and now teachers include little punctuation instruction. Teachers need to find a balance between teaching organization and strategies and punctuation. One weakness of this study, however, is that only two teachers were studied and their experience may not apply to the general population of teachers teaching the writing process.

Some researchers promote the teaching of punctuation so that knowledge of correct punctuation becomes automatic and students do not have to focus on conventions and can divert their attention to ideas. Researchers have hypothesized that the mechanical requirements (punctuation, spelling, and handwriting) interfere with the quality of students' writing (MacArthur & Graham, 1987; Scardamalia, Bereiter & Goleman, 1982), but often studies do not differentiate between punctuation, spelling, and handwriting making it difficult to determine which components of writing cause the greatest difficulty for students. Scardamalia et al. (1982) suggested that directing attention to conventions affects the quality of writing in four ways: (a) switching attention to conventions may lead the writer to forget previous plans for writing, (b) attention to conventions may slow the rate of writing to the point that it is difficult to keep up with ideas that are generated, (c) students may use simpler words or syntax in order to avoid becoming confused, and (e) difficulties with conventions may affect motivation.

Research has shown that writing fluency is greatly increased when students dictate stories and do not have to focus on spelling, handwriting, or punctuation (Graham, 1990; MacArthur & Graham, 1987; Scardamalia et al., 1982). In a study by MacArthur and Graham (1987), results revealed that dictation was nine times faster than handwriting and 20 times faster than word processing. Students with learning disabilities misspelled 12% of the words they wrote and made capitalization and punctuation errors in one-third of the sentences they produced, leading MacArthur and Graham (1987) to conclude the difficulty with spelling and punctuation interferes with higher order cognitive processes and slows down writing.

Graham (1990) conducted a study to examine the effect of rate and concentration on spelling and punctuation on the quality and quantity of compositions of fourth and sixth-grade students with learning disabilities. The study did not differentiate between spelling and punctuation. Graham examined writing using normal dictation and slow dictation in order to control for speed. There were three treatment groups. The control group was told to write as much as they could on an assigned topic. The normal dictation group was told to speak their stories into a tape recorder. The slow dictation group dictated their stories to an examiner, one sentence at a time. Compositions were scored according to the number of words and the quality of writing which was based on a holistic scoring scale.

The number of words in all three conditions was relatively small; however the quality of text was affected by the method of composing. The quality of the control group was significantly lower than for normal dictation ( $p < .01$ ) and slow dictation ( $p < .001$ ). Graham (1990) concluded that the demands of conventions affected the quality of writing; however it is not known if there is a difference in the effects of the demands of punctuation versus spelling.

The results of the Graham (1990) study indicate that students are able to produce higher quality writing pieces when not attending to punctuation and spelling. A weakness of the study is that the experimental groups were not writing at all. One group spoke to a researcher and one group through a tape recorder. Although this method of treatment was necessary to eliminate punctuation and spelling altogether, the influence of “telling” the story is not known.

Studies show that attention to punctuation taxes cognitive processes even at the college level where students should have mastered punctuation. In a study by Glynn, Britton, Muth, and Dogan (1982), college students were instructed not to worry about punctuation and spelling when writing a first draft of a persuasive argument. A second group of students were instructed to write a mechanically correct first draft. Students who did not attend to punctuation and spelling produced more arguments than students who concentrated on using correct punctuation and spelling. The implication of the results of the Glynn et al. study was that students need instruction in punctuation and spelling so that the use of correct punctuation and spelling become automatic and does not interfere with writing. There were no significant differences between groups, however, in the number of spelling and punctuation errors per sentence.

Calkins (1981) found the teaching of punctuation during the writing process to increase students' knowledge of punctuation. She compared two groups of children in their knowledge of the uses of punctuation; one group was taught how to use punctuation within the context of the writing process and the other group was taught the skills of using punctuation with no writing. Students' knowledge of punctuation increased more through writing instruction than through skills-based instruction. When asked to explain punctuation, 47% of the children in the writing class said punctuation affected the pace and inflection of language. Only 9% of the children in the skills-based instruction said this. The students in the skills-based group cited rules for punctuation, but did not have full understanding of the purpose of punctuation. The skills-based students said a period came at end of a sentence, but could not tell where to end a sentence.

It appears that students developed a greater understanding of punctuation through writing process instruction. A limitation of the study is that actual writing was not measured. Students expressed more knowledge of punctuation, but it is not known if they applied this knowledge to writing. It would have been interesting to compare the differences in writing between the two groups.

In Hillocks' meta-analysis (1986), he examined studies which incorporated punctuation and studies which considered punctuation irrelevant. Punctuation was found to have a negative effect on writing. There were 74 studies of writing which did not mention punctuation; they had an effect size of .40. The difference between treatments using punctuation and treatments which did not use punctuation was significant ( $z = 3.88$ ,  $p < .0001$ ). Treatments which included punctuation had significantly lower changes in writing.

One of the studies Hillocks (1986) included was a review by Bennett (1976) in which he examined studies in which students had received formal punctuation instruction and informal punctuation instruction. He found that students taught to write freely made more errors in punctuation than those taught to focus on punctuation. There was a significant difference between the two groups in their ability to use correct punctuation, but not in the quality of writing. Students who were taught punctuation using informal instruction made 22 more errors than those taught punctuation using formal methods of instruction. This difference was significant at the .05 level.

The findings of Reyes (1991) serve as a counterpoint to the findings of Bennett. Reyes studied students in a writing process classroom in which the students wrote in literature logs and dialogue journals. Literature logs were used for students to record

responses to literature and dialogue journals were used for students to write notes to the teacher to which the teacher then responded. In this study, the teacher modeled correct punctuation in the students' journals and logs and provided mini-lessons on punctuation and conferenced with students individually about their punctuation errors. The result was that students continued to make the same punctuation errors in their writing.

The results of the studies reviewed indicate that instruction in punctuation often does not lead to an increase in skills or an increase in the quality of writing. The research by Calkins (1981) was the only study that found a positive effect for teaching punctuation during the writing process. Most of the research was on the effect that attention on punctuation has on writing, rather than the effect of punctuation instruction on writing. This is probably due to the emphasis on teaching writing strategies and the deemphasizing of the teaching of punctuation. There is a need for more research in this area.

### *Conclusion*

The foregoing review examined literature related to the two research questions. The first research question was concerned with the overall effectiveness of writing instruction on student achievement. All of the research on the writing process showed the writing process to be an effective way to teach writing, but most of the studies did not include controls or compare students with more or less writing process instruction.

Although, this study did not include a control group, it examined the effectiveness of writing instruction on student achievement for two groups (more trained and less trained) of students. More trained students were taught by teachers with more

training in ECRW and less trained students were taught by teachers with little (one year) or no ECRW training.

The second research question was related to the components included in the writing process. The teaching components which were examined in this literature review were included in a teacher questionnaire given to all of the teachers included in this study. Teachers were asked which of the teaching components they used in writing instruction and how often these components were employed.

In this literature review, mini-lessons and conferences were always found to be effective means of instruction. Often mini-lessons were followed by a conference which may be the optimal method of instruction. Models were shown to be effective for teaching the strategy or skills embedded in the model, but did not always lead to an increase in the quality of writing. Models were found to be most effective when teachers used explicit instruction and this instruction was followed by a conference.

Conferences were found to have more of an effective on improving students' use of writing strategies than their use of conventions. There is much discussion on how to conduct a conference effectively; however this study only noted the degree to which conferencing was included in writing instruction, and if the conference was between students or between the teacher and the student. The quality of the conference was not measured in the current study.

The literature on the written conventions is very mixed. Grammar instruction was found to be most effective when used in the context of writing, but the effect of spelling and punctuation instruction was negligible. It was revealed that spelling affects writing ability differently at the lower and upper grades, and writing instruction has a positive

effect on spelling achievement. Instruction in punctuation led to achievement in punctuation in only one study.

In this study, teachers were asked how often they taught each of the written conventions and which teaching components they used when teaching writing. The aim of this study was to examine what teachers taught during the writing process and how teachers taught. By comparing this information with specific subtests and total scores on the Language Arts CST, the intent was to discover which methods were most effective in the teaching of writing.

## CHAPTER THREE

### Methodology

The description of the methodology used in this study is divided into six sections. The first section is research design and describes the overall design of the study. The second section is headed “schools, teachers and students” and describes the subjects. The third section is headed “instrumentation” and describes the teacher questionnaire and the collection of students’ standardized test scores. The fourth section is headed “variables” and describes student background variables, the teacher variables and the student CST scores. The fifth section is procedures and describes how data were collected. The sixth and final section is data analysis and describes how the data were analyzed.

#### *Research Design*

This study was conducted in three elementary schools within a small suburban school district of approximately 2000 students in Northern California. This was a three-year, retrospective study, involving two cohorts of students in second through fifth-grade classrooms. The first cohort included students who were in second grade in the school year 2003-2004, in the third grade in school year 2004-2005, and fourth grade the following year. The second cohort included students who were in the third grade in the school year 2003-2004 in the fourth grade the next year and fifth grade in school year 2005-2006. The second and third-grade classrooms consisted of approximately 20 students each; fourth and fifth-grade classrooms consisted of approximately 30 students each.

Teachers in a school district received training through an initiative titled Every Child a Reader and Writer (ECRW). Due to budget restraints, the training of teachers took place in stages. During the three years of the study, teachers may have received either 0, 1, 2, or 3 years of ECRW training, beginning in 2003-2004. During this time, students would have had teachers trained in ECRW for 0, 1, 2, or 3 years. This teacher training variable is referred to as years of training throughout the study. As it turned out, the amount of ECRW training ranged from one to three years for Cohort 1 and from one to two years for Cohort 2.

The values of the teacher training variable of each of the student's three teachers were summed across the three years of the study to create the years of training variable. By the third year of the study, a student could have benefited from teachers who had anywhere from 0-6 years of training. For example, if the student was never taught by an ECRW trained teacher, the total for years of training would equal 0. If the student were taught by a teacher who was in the first year of training in year one, a teacher in the second year of training year 2, and a teacher who was in the third year of training year 3, the years of training would total 6. This new variable was then dummy coded to indicate either more or less years of training, with 0 indicating less trained and 1 indicating more trained. In cohort 1, students taught by teachers with 0-2 years of training were labeled 0 and students taught by teachers with 3-6 years of training were labeled 1. In cohort 2, students taught by teachers with 0-1 years of training were labeled 0 and students taught by teachers with 2-5 years of training were labeled 1. By chance, the years of teacher training were not the same for both groups. The difference in the designations of more trained and less trained groups was created in order to achieve roughly the same numbers

between groups. Table 1 displays the frequency distribution of training for the teachers in each cohort and how groups were created.

This training became the independent variable of this study. Test scores from the language arts portion of the California Standards Test (CST) for each year were the dependent variables.

In order to determine if teachers were implementing ECRW instruction in the classroom, teachers filled out a questionnaire about how they taught writing. ECRW training suggests that teachers include the following components in their writing lessons: modeling, mini-lesson, conferencing, and the teaching of written conventions (spelling, punctuation, and grammar). These components are not unique to ECRW training and may be in use by untrained as well as trained teachers. The questionnaire is explained in detail in the instrumentation section.

It was originally planned that the questionnaire data on ECRW component use would be used as independent variables in the study if it was shown that training was related to student achievement. Questionnaire data were to be used to identify which components, if any, might have an effect on student achievement (research question 2). However, most teachers failed to differentiate among ECRW components on the questionnaire and it was decided to drop this research question from the study.

Student scores on five subtests of the California Language Arts CST for the third year were used as the dependent variables. The five subtests consist of three reading subtests and two writing subtests. The total CST scores for the first year of the study were used as covariate scores. Complete scores were obtained for 128 second through fourth-grade students in Cohort 1 and 139 third through fifth-grade students in Cohort 2. The

two cohorts were conceived of as two replications, although one total analysis was also done.

Table 1

Number of Students Who Had Teachers Identified as Having Less Training (0) and More Training (1) for Cohorts 1 and 2

Years Training	Number of Students	Code
<u>Cohort 1</u>		
0	4	0
1	35	0
2	25	0
3	18	1
4	23	1
5	16	1
6	7	1
<u>Cohort 2</u>		
0	35	0
1	18	0
2	46	1
3	20	1
4	17	1
5	3	1

In summary, the study covered the following school years: 2003-2004, 2004-2005, and 2005-2006 for two cohorts of students: Cohort 1 covering grades 2-4 and

Cohort 2 covering grades 3-5. Table 2 displays the grade levels of the students for each cohort for each year of the study and the number of students in each cohort, the independent variable, covariates, and dependent variables. Within each cohort, for each of the five dependent scores, analyses of covariance (ANCOVA) were completed. Student achievement was not compared between the two cohorts, only between training groups.

Table 2

Cohorts 1-2: Grade Level by Year, Independent Variable, Covariates, and Dependent Variables

Cohort	Sample Size	Independent Variable	2003-2004	2004-2005	2005-2006
1	128	More Trained Less Trained	2 <sup>nd</sup> grade	3 <sup>rd</sup> grade	4 <sup>th</sup> grade
2	139	More Trained Less Trained	3 <sup>rd</sup> grade	4 <sup>th</sup> grade	5 <sup>th</sup> grade
			<u>Covariate</u>		<u>Dependent Variable</u>
			CST Total Score		CST Vocabulary
			Gender		CST Comprehension
			ELD		CST Response to Literature
					CST Conventions
					CST Strategies

### *Schools, Teachers, and Students*

#### *Schools*

There were four elementary schools and a middle school in the district, but one of the elementary schools and the middle school were not included in the study. The elementary school was not included because they use a different reading program and

that could lead to confounding results. The middle school was not included because the ECRW instruction is for Kindergarten through fifth grade only.

*School A.* School A had an enrollment of 340 students in grades K-5. The ethnicity of the students was as follows: 50% Asian, 28%, White, not Hispanic, 8%, Hispanic or Latino, 7%, multiple- race, 4% Filipino, and 3%, African American. Less than 1% was Pacific Islander or American Indian. Twenty-six percent of the students were English language learners. The percentage of students receiving free or reduced-priced lunch, an indicator of socio-economic status (SES) was 9%. Most of the parents were educated; 41% were college graduates and 24% attended graduate school. Only 4% did not graduate from high school. The Academic Performance Index (API) 2005, a measure used by the state of California to rate the progress of a school's academic achievement, was 838. The API rankings are based on a scale of 200 to 1000, with 800 as the statewide goal for all schools. All of the teachers were fully credentialed, and the average years of teaching experience was 13.

*School B.* School B had an enrollment of 344 students in grades K-5. The ethnicity of the students was as follows: 45%, Asian, 34% White, not Hispanic, 11% Hispanic or Latino, 6% Filipino, and 3%, multiple- race. Less than 1% was African American, Pacific Islander, or American Indian. Fifteen-percent of the students were English language learners. The percentage of students participating in a free or reduced-priced lunch program was 17%. More than half of the parents were college graduates (53%) and 20% of the parents attended graduate school. Only 2% did not graduate from high school. The API was 817. Most of the teachers were fully credentialed (89%), but

6% had emergency credentials or waivers. The average number of years of teaching experience was 16.

*School C.* School C had an enrollment of 288 students. The ethnicity of the students was as follows: 39%, White, non-Hispanic, 29%, Asian, 18% Hispanic or Latino, 6%, multiple race, 4% , Pacific Islander, 4% Filipino, and 1%, African American. Twenty-six percent of the students were English language learners. The amount of students participating in free or reduced-price lunch was 9%. Forty-three percent of the parents graduated from college and 16% attended graduate school. Twenty-four percent were high school graduates and 17% attended some college. Only 1% did not graduate from college. The API was 812. Most of the teachers were fully credentialed (93%), but 7% were pre-intern or intern. The average years of teaching experience was 15.

### *Teachers*

Students from the 2005-2006 school year were selected by cohort, and then teachers were matched to their students. Teachers were the teachers of students who had complete data. A total of 37 teachers were included in the study. Three teachers worked in job-share positions. This means two teachers shared a classroom, with each teacher working half-time. A coin toss was used to determine which teacher to include in the study for job-share positions. There was a large range of teacher experience for both cohorts. Teaching experience ranged from 1-32 years for Cohort 1 and from 1-38 years for Cohort 2.

Teachers in their first year of training attended four all-day sessions, which were grade-level specific and spaced at intervals throughout the year. In the school years 2003-2004, 2004-2005, and 2005-2006, a 20-hour on-line course, offered by Heinemann,

was included in the training. The on-line course for teachers of grades K-2 was based on the book, *Inspiring Our Youngest Authors: Writing Workshop for Grades K-2* (Woods-Ray, 2004) and the on-line course for teachers of grades 3-5 was based on the book, *The Writing Workshop: Working through the Hard Parts* (Woods-Ray, 2001). Saturday workshops were offered to interested teachers three times each year. Teachers who attended the training were given how-to books on the teaching of writing.

In the school years 2002-2003 and 2004-2005, teachers in the second year of training attended four all-day sessions which were also grade-level specific and spaced at intervals throughout the year. In the school year 2004-2005, a 20-hour on-line course was added. The course, offered by Heinemann, was based on the book, *What You Know by Heart: How to Develop Curriculum for Your Writing Workshop* (Woods-Ray, 2002). In the school year 2005-2006, Teachers in the second year of training attended only two days of training and there was no on-line course. Second year teachers also had the option of attending the Saturday workshops.

Teachers were given a manual which provided guidelines and daily lesson plans and were instructed to teach writing for one hour per day, five days a week. The lesson plans provided a basic outline, but much of the instruction was left up to the teacher's discretion. For example, each lesson plan included instructions to conduct a mini-lesson, but the topic of the mini-lesson was often the decision of the teacher.

The district-adopted language arts program, which is used by both trained and un-trained teachers, includes a writing component which also implements the writing process. At the time of adoption, all the teachers who worked in the district received a

day of training on the overall components of the language arts program only. They did not receive specific instruction of how to teach writing.

### *Instrumentation*

Each of the teachers in the study was administered a questionnaire (Appendix A). Teachers were questioned about their teaching practices for the following years: 2002-2003, 2003-2004, 2004-2005, and 2005-2006. School year 2002-2003 was included on the questionnaire because this was the first year of ECRW training and initially the researcher had planned to include data from 2002-2003. Very few students received ECRW instruction that year so it was dropped from the study. Pretesting with teachers not in the study suggested that teachers would be able to answer questions about their teaching from two years previous, but evidently they did not differentiate their teaching much among the years. Each question was divided into four sections, one section for each school year. The questionnaire was administered in the school year 2005-2006 and the first question asked about teaching practices for 2005-2006. For example, a question was: "how many times a week do you teach mini-lessons?" The answer choices were as follows: zero, 1-2, 3-4, and daily. The following question for 2004-2005 was: "in 2004-2005, the number of times a week I taught mini-lessons was." The answer choices were: none, less than now, the same as now, and more than now. The same question was asked for the 2003-2004 school year and for the 2002-2003 school year.

Teachers were asked how many years they had been teaching. There were two questions about job-sharing: whether or not they were in a job-share position and who their partner was. Next teachers were asked if they implemented the writing process for each of the four years included in the questionnaire. Teachers were asked how many days

per week and the number of minutes they spent on writing instruction. They were questioned on how often they employed four components of instruction: modeling, conferencing, mini-lessons, and teaching of conventions. Modeling and conferencing were broken down into types of models and conferences. There are three types of models. The model may be of a professional writer, a student, or of the teacher. The teacher explains why it is a good or poor piece of writing. The teacher may also point out various literary devices (dialogue, descriptive writing, a good lead, etc.) used in the model. The questionnaire contained a question asking how many times a week a teacher used the work of a published author as a model, student work as a model, and their own work as a model. Answer choices ranged from never to often for school-year 2005-2006 and for previous years, answers ranged from never to more than now.

There are two types of conferences: a teacher-to-student conference and a student-to-student conference. A teacher-to-student conference takes place when a teacher discusses a student's writing piece with the student. The teacher may suggest changes and editing. A student-to-student conference takes place when one student reads another student's writing piece and discusses the writing with the student. The student who is reading may suggest changes and editing for the writer. The questionnaire contained a question asking how many times per week the teacher had a conference with individual students and a question asking how often the students discussed their work with each other. Answer choices ranged from never to often for 2005-2006 and from never to more than now for all previous years.

Mini-lessons are short lessons (5-15 minutes) in which a teacher teaches a writing skill or strategy. These lessons may occur at the beginning or at the end of the

writing class. Teachers were asked how many times per week they taught a mini-lesson. Answer choices for 2005-2006 ranged from zero to daily. Answer choices for the previous years ranged from none to more than now.

Conventions are spelling, punctuation, and grammar. Teachers were asked how often they taught conventions during the writing lesson. Answer choices for 2005-2006 ranged from never to often. Answer choices for previous years ranged from never to more than now.

### *Variables*

There were 12 variables in this study: two student background variables, six student achievement variables, and four teaching variables. Each one is listed and explained below.

1. *Gender*. Gender depicts the student as male or female. Gender was coded as 0 for male and 1 for female.

2. *ELD Level*. ELD stands for English Language Development. This is the students' ability to speak, read, and write in English. When a student enters the school district, the parents are asked to fill out a Home Language Survey stating what language is spoken at home. If they speak a language other than English, the student is administered the California English Language Development Test. The students are given a score between 1 and 8. A score of 1 is a beginning speaker, a score of 2 is early intermediate, 3 is intermediate, 4 is early advanced, 5 is advanced, 6 is a student who is redesignated as a fluent English speaker, 7 is an initially fluent speaker, and 8 is a speaker who speaks only English.

For the analysis of covariance, a dummy variable was created for ELD year 1 so that 0 was an English language learner and 1 was a student fluent in English. Students with a score between 1-5 were labeled 0 and students with a score of 6-8 were labeled 1.

3. *Total CST.* The total CST is the total score for the Language Arts CST. It is the total of all the subtest scores combined. The range for the total score is 150-600. Each of the subtests measures the student's knowledge of the standards for a particular strand of the language arts curriculum at their grade level. Three of the subtests measure reading ability: (a) word analysis, fluency, and systematic vocabulary (labeled vocabulary), (b) reading comprehension, and (c) literary response and analysis (labeled response to literature). Two of the subtests measure writing ability: (a) writing strategies (labeled strategies) and (b) written conventions (labeled conventions). All of the tests are multiple-choice tests. Examples of each subtest for each grade level may be found at <http://www.cde.ca.gov/ta/tg/sr/resources.asp>.

4. *Vocabulary.* Vocabulary is the subtest measuring word analysis, fluency, and systematic vocabulary development. This test measures students' knowledge of word patterns, phonics, syllabication, and word parts. For example, at the second-grade level, students are asked to identify words that contain the same sound, but not the same spelling (i.e. board and tore) and to choose a word that has been divided into syllables correctly. A third-grade student may be given a sentence and asked to choose the definition of an underlined word. A fourth-grade student may be given a word and asked to choose a synonym for the word. A fifth grader may be asked to identify the meaning of a metaphorical phrase such as "in the middle of nowhere."

5. *Comprehension.* Comprehension is the subtest measuring reading comprehension. Students are required to use a variety of comprehension strategies to respond to questions about a written passage. Some of the strategies students must use are as follows: using knowledge of the author's purpose to comprehend texts, interpreting charts and graphs, following written instructions, and drawing inferences and conclusions. Students are required to read a passage and answer multiple choice questions. A second-grade student may be asked to identify cause and effect relationships, follow 2-step instructions, or demonstrate understanding of an author's purpose. A third-grade student may be asked to connect prior knowledge to information in a text, to follow simple multi-step directions or to make predictions. A fourth-grade student may be asked to follow multi-step directions or to compare and contrast information. A fifth-grade student may be asked to analyze text that is organized in sequential order or to identify a fact as opposed to an opinion.

6. *Response to Literature.* Response to literature is the subtest literary response and analysis. Students are required to read a significant work of children's literature and answer questions concerning the structural features of the text (e.g. theme, plot, setting, and characters). A second-grade student may be asked to identify when a story takes place, how events in the story affect the ending, how a character feels and how events affect characters. A third-grade student may be asked what a word in the story means, the order in which events take place, how a character solved a problem, to choose a phrase that tells the moral of the story or to identify the genre of the story. A fourth-grade student may be asked to identify the genre of a story, answer inferential questions or to compare events that occur in different stories. A fifth-grade student might be asked to

identify a conflict in the plot and explain how it is resolved, demonstrate comprehension of figurative language, demonstrate comprehension of a character's actions, or display an understanding of symbolism as it is used in a text.

7. *Conventions*. Conventions refer to the subtest, written conventions. Students must demonstrate knowledge of standard English grammar, spelling and punctuation. For example, a second-grade student might be asked to identify a complete sentence or a word that is spelled incorrectly. A third-grade student may be asked to identify the correct way to punctuate a sentence. A fourth-grade student may be asked to identify the correct spelling of the past tense of a word. A fifth-grade student might be asked to identify a sentence that is grammatically correct or that contains correct punctuation.

8. *Strategies*. Strategies is the subtest which measures writing strategies. Students must demonstrate knowledge of how to write coherent sentences and paragraphs and how to write for an audience and purpose. For example, a second-grade student might be asked to choose a sentence that belongs in a story or a sentence that includes many details. A third-grade student may be asked to revise a sentence. A fourth-grade student may be asked to identify the sections of a reference book. A fifth-grade student might be asked to choose a sentence which summarizes a passage or to choose a sentence which describes the setting.

9. *Years Experience*. The first of four teacher variables is labeled years of experience and is the number of years of teaching experience, regardless of grade level. The years of teacher experience for each student's teacher was added to create this variable.

*10. Years Training.* Years of training is the number of years of ECRW training. The values of the teacher training variable of each of the student's three teachers were summed across the three years of the study to create the years of training variable. This new variable was then dummy coded to indicate either more or less years of training, with 0 indicating less trained and 1 indicating more trained. In Cohort 1, students taught by teachers with 0-2 years of training were labeled 0 and students taught by teachers with 3-6 years of training were labeled 1. In Cohort 2, students taught by teachers with 0-1 years of training were labeled 0 and students taught by teachers with 2-5 years of training were labeled 1. Table 1 displays the frequency distribution of training for the teachers in each cohort and how groups were created.

*11. Days Teach Writing.* Days teach writing is the number of days per week a teacher taught writing. This information is taken from the teacher questionnaire.

*12. Use of Writing Process.* Use of the writing process measured the extent that teachers implemented ECRW instruction in their classrooms. The scores for questions 4-12 for each questionnaire were added. These questions concern the following components: number of minutes of writing instruction, use of mini-lessons, type and use of models, type and use of conferences, and teaching of conventions. The sum of the answers indicates how many of the writing process components teachers included in their writing lessons and how often these components were included. The sum created a new variable which is labeled "use of the writing process."

### *Procedures*

The study was initiated when the researcher contacted the superintendent of the district and obtained permission to do the study. The researcher worked with the

superintendent to insure the protection of human subjects. The superintendent of the district gave permission for this study to be conducted and the district did not require consent of the parents for the researcher to collect CST scores of students. Teachers routinely examine CST scores in order to plan instruction for students. No names were attached to scores in this study so the students and teachers were anonymous. The name of each student was assigned a number and only the researcher and dissertation committee had access to students' names. Teachers were informed that all information obtained through interviews or surveys were strictly confidential, shared only with the members of the dissertation committee. Participation was strictly voluntary. Individual teachers are not mentioned in the study.

Next she contacted teachers asking them to fill out a questionnaire. Teachers within the district were sent a letter through the district mail system. Teachers who had moved or retired were sent a letter with the questionnaire attached. The researcher gave teachers a choice of four options for taking the questionnaire. Option one was to meet in school and grade level groups. For example, the researcher offered to meet with all the second grade teachers at School A and give them the questionnaire. Option two was to meet alone with the researcher. Option three was to fill out the questionnaire during a staff meeting. Staff meetings are held at each school at least twice a month and include the teachers and principal. Option four was to fill out the questionnaire on their own and return it to the researcher. As the study was being planned, there was concern that teachers would not remember the specifics of their writing teaching over four years which led to the decisions to allow teachers to fill out surveys in grade-level teams. Most of the teachers plan in grade level teams so they have knowledge of each other's teaching

practices and meeting in grade level teams would have allowed them to converse about teaching practices and help each other to remember what they did in past years. Teachers assured the researcher that they could remember teaching practices and most did not choose to meet in teams. Most teachers chose option three or four. If teachers did not respond, the researcher made up to two more attempts, using the same method of contact as the first attempt. Four teachers declined to do the survey. Their answers were entered as missing data. The answers from the teacher questionnaires and the amount of training were entered onto a blank excel (Office SP, version 2002) worksheet to create a teacher data file.

The school secretary of each school gave the researcher class lists of students in fourth and fifth grades for the school year 2005-2006. The fourth-grade students were the students for Cohort 1 and the fifth-grade students were the students for Cohort 2. Only students with complete data for all three years of the study were used as subjects. Students' CST scores and background data were collected for each student in each cohort in the study from each school site during the 2005-2006 school year. The researcher was given access to the students' files which are located in the office of each school site. Student files contain all background information on students as well as yearly report cards. She obtained the gender, ethnicity and the ELD level for each student for each year of the study. Gender and ELD level were used as variables, but ethnicity was not. Students' language ability does not necessarily vary by ethnicity. Many students labeled as white were not fluent English speakers and many students from all ethnicities are native English speakers. The researcher did not feel ethnicity would affect student achievement. The ethnicities of the students were as follows. For cohort 1: (a) 3%

declined to state, (b) 44% were Asian, (c) 8% were Hispanic, (d) 3% were Filipino, (e) 2% were African American, (f) 3% were Pacific Islander, and (g) 37% were White. For cohort 2: (a) 2% declined to state, (b) 50% were Asian, (c) 9% were Hispanic, (d) 4% were Filipino, (e) 1% were African American, (f) 1% were Pacific Islander, and (g) 33% were White.

She also collected information on whether or not the student was in special education. There were few students who were in special education so this information was not used in the study.

The researcher was able to determine the students' teacher for each year by reviewing the report cards. Students were paired with their classroom teacher at each grade level. The school district office gave the researcher information on the amount of ECRW training each teacher had received. Each teacher received a score ranging from 1-3 (none had four years of training) to depict the number of years of ECRW training received.

The researcher was granted permission from each principal of each school to collect the scores which are kept in binders in the schools' offices. CST scores and background data were recorded manually on a blank excel worksheet. It took 2.5 hours a day, 2 days a week, at each school site to collect the data. The scores were then entered into an excel program. When the scores were entered into the excel worksheet, students were given an identification number. Names of the students were available only to the researcher and committee members after that point. The scores were then exported to SPSS 10.0 where they could later be analyzed.

The data were organized by student, grade level and teacher for each year. The researcher began with the student data which were organized by grade level and year. This included all background variables and CST scores. The amount of ECRW training for each teacher and the answers to the teacher questionnaire were added to the student data file by pairing teachers with students they taught each year.

### *Data Analysis*

The plan for the data analysis was to address two research questions. Research question 1 was: “What are the differences in scores on the English Language Arts CST of students in the second, third, fourth and fifth grades who received writing instruction from teachers with more ECRW training and those who received instruction from teachers with little or no ECRW training?” Research question 2 was: “What components, if any, of the writing process are connected to student achievement in writing and do some components show more of a relationship than others?”

Research question 1 was answered through the use of a one-way Analysis of Covariance (ANCOVA). For each cohort, the strategy was to analyze the data in four separate analyses. In the first analysis means and standard deviations were computed for all 12 variables, regardless of training for both cohorts. In the second analysis, means and standard deviations of students’ CST scores were compared between more trained and less trained groups for each of the cohorts for each of the three years. In the third analysis, analysis of covariance was conducted for each cohort, comparing more trained and less trained groups. For all the ANCOVAs conducted, the homogeneity of regression assumption was tested and no interactions between the treatment and the 3 covariates— CST Total, ELD scores, and gender-- were statistically significant, making ANCOVA

viable. In the fourth analysis, analysis of covariance was conducted for the two cohorts combined, comparing more trained and less trained groups. Two additional analyses were conducted on teacher variables. An analysis was conducted to determine if both more trained and less trained groups were receiving writing process instruction. An examination of question three revealed whether or not teachers used a writing process program for each of the years of the study. Another analysis was conducted to determine if two teacher variables, years of experience and use of the writing process, had an effect on the dependent variables. Correlations were computed between years of experience and use of the writing process and each of the dependent variables.

In order to answer research question 2, the plan was to determine which components of the teacher questionnaire contributed to differences in achievement. There were nine questions which concerned the use of ECRW instruction. The questions were on the following ECRW components: (a) number of days spent on writing instruction, (b) amount of time each day spent on writing instruction, (c) models of the students' writing, (d) models of the teacher's writing, (e) models of professional writers, (f) mini-lessons, (g) teacher-to-student conferences, and (h) student-to-student conferences and (i) the teaching of written conventions. These components were to be used as independent variables in the study in order to determine their effect on student achievement. Unfortunately the questionnaire data turned out not to be usable. There was not enough variation in teacher responses on each of the questions to examine each component separately and compare it to students' CST scores. Answers were combined to create the use of writing process variable.

## CHAPTER FOUR

### Results

This chapter presents the results of the study. The results are presented for six separate analyses. The first analysis is a computation of means and standard deviations for all 12 variables, regardless of training, for each cohort. The second analysis is a comparison of means and standard deviations between less trained and more trained groups for each cohort. The third analysis is an analysis of covariance for each cohort, comparing less trained and more trained groups. The fourth analysis is an analysis of covariance for the cohorts combined, comparing less trained and more trained groups. The fifth analysis consists of bivariate correlations between years experience and use of the writing process and all of the dependent variables. The sixth analysis consists of totals for each year of the study of teachers who used the writing process in their teaching and teachers who did not use the writing process in their teaching.

#### *Means and Standard Deviations for All Variables*

Means and standard deviations of all 12 variables for Cohort 1 are displayed in Table 3. The population of Cohort 1 was almost evenly split between males and females with a mean of .52. The mean ELD for each of the three years was over 6, which is a fluent English speaker. The means of the total CST score increased each year. Most of the means of the scores of each of the four subtests increased slightly each year. There was little fluctuation in the means for the teacher variables.

Means and standard deviations of all 12 variables for Cohort 2 are displayed in Table 4. As with Cohort 1, the population was almost evenly split between males and females with a mean of .55 and the mean ELD for each of the three years was over 6.

The means of the total CST scores decreased between fourth (2004-2005) and fifth grade (2005-2006), but fifth-grade means were still higher than they were in third grade. The means for the teacher variables for Cohort 2 were very similar to those of Cohort 1, with little variation from year to year.

Table 3

Means and Standard Deviations (SD) of Student Background Variables, Teacher Variables, and Test Scores for Cohort 1 (n = 128)

Variable	2003-2004		2004-2005		2005-2006	
	Mean	SD	Mean	SD	Mean	SD
<u>Students</u>						
Gender	0.52	0.50	0.52	0.50	0.52	0.50
ELD Level	6.24	2.26	6.29	2.21	6.53	1.90
Total CST	352.46	52.65	354.42	58.57	380.73	54.46
Vocabulary	68.34	16.92	77.23	17.83	75.52	19.17
Comprehension	62.63	23.21	61.87	22.25	70.83	21.39
Response to Literature	69.70	26.16	68.29	24.00	78.21	21.89
Conventions	70.00	23.00	74.33	20.87	75.16	20.16
Strategies	61.11	22.07	64.98	25.84	67.18	21.14
<u>Teachers</u>						
Years Experience of Teachers	10.91	8.59	17.58	11.39	9.55	8.07
Years Training of Teachers	0.21	0.41	0.91	0.72	1.63	1.03
Days Teach Writing	2.71	0.75	3.14	0.78	3.12	0.75
Use of Writing Process by Teachers	24.20	3.62	27.83	2.76	26.33	3.01

Note. ELD Level = English language development. Total CST = total scores on the California Standards Test.

Table 4

Means and Standard Deviations (SD) of Student Background Variables, Teacher Variables, and Test Scores for Cohort 2 (n = 139)

Variable	2003-2004		2004-2005		2005-2006	
	Mean	SD	Mean	SD	Mean	SD
<u>Students</u>						
Gender	0.55	0.50	0.55	0.50	0.55	0.50
ELD Level	6.86	1.98	7.04	1.66	7.17	1.43
Total CST	348.17	57.55	373.05	48.78	364.96	55.85
Vocabulary	75.84	18.59	76.71	18.41	73.83	21.14
Comprehension	62.23	21.29	71.92	20.51	59.33	21.42
Response to Literature	73.75	22.83	68.37	18.54	77.35	22.38
Conventions	68.92	19.63	67.62	19.06	76.04	20.12
Strategies	38.37	22.40	60.70	20.97	64.11	22.34
<u>Teachers</u>						
Years Experience of Teachers	20.19	12.30	11.63	6.62	10.90	12.43
Years Training of Teachers	0.12	0.33	0.76	0.98	0.94	0.86
Days Teach Writing	2.95	0.84	3.51	0.52	2.51	0.76
Use of Writing Process by Teachers	23.98	5.49	28.07	3.00	24.19	7.17

Note. ELD Level = English language development. Total CST = total scores on the California Standards Test.

*Means and Standard Deviations Comparing More Trained and Less Trained Groups*

Table 5 presents mean scores and standard deviations for the CST for more trained and less trained groups of students for Cohort 1. Means were compared between the two groups in order to examine differences in the scores of students. Means are reported over 3 years.

Overall, the less trained group had higher means than the more trained group on the total CST score and on the reading measures. For the three reading subtests; vocabulary, comprehension, and response to literature, means were higher for the less trained group than for the more trained group, with the exceptions of the vocabulary and response to literature test in the fourth grade (2005-2006).

The results were more favorable for the more trained group on the writing tests. Third (2004-2005) and fourth-grade students (2005-2006) in the more trained group had higher means on the strategies test. In the fourth grade, more trained students had higher means on the conventions test.

Table 6 presents mean scores for the CST split by more trained and less trained groups for Cohort 2. As with Cohort 1, means are reported over 3 years. Results were more favorable for the more trained group in Cohort 2 than they were in Cohort 1. Means were slightly higher on the total CST score for the more trained group than for the less trained group, with the exception of third grade (2003-2004). Means were higher for the more trained group on the reading subtests, comprehension and response to literature at all grades. Means for vocabulary were higher for the more trained group only at fifth

grade (2005-2006). The means were higher on the writing tests for the more trained group, with the exception of conventions at third grade.

Overall, the results show that the means of scores were generally in the direction expected. Means of scores were higher for the more trained group by year three for both cohorts, with the exception of comprehension for fifth grade (2005-2006). In the more trained group, the means were higher for writing scores than for reading scores. Means of reading scores tended to be higher in both cohorts for the more trained group in the upper grades (fourth and fifth grades), with the exception of comprehension in fourth grade (2005-2006) in Cohort 1.

#### *Analysis of Covariance*

An examination of means alone does not take into account where the students started year 1. A one-way analysis of covariance (ANCOVA) was conducted in order to determine the effects of teacher training on students' CST scores while taking into account that some variables other than the ECRW instruction may account for variability in scores.

Three variables (gender, ELD levels from year 1 and total CST scores from year 1) were used as covariates for year 3 achievement scores. Gender was used as a covariate to account for differences in achievement in language arts due to the sex of the students. ELD was used as a covariate in order to insure that achievement of students was not due to their ability to read and write in English rather than ECRW training. Total CST scores for the first year of the study were entered as a covariate to account for initial differences in achievement of the students.

The dependent variables were the year 3 subtest scores of the CST. Because this analysis was conducted for Cohort 1 and Cohort 2, 10 separate analyses (five for each cohort) were completed. The independent variable included two levels of teacher training: more trained and less trained.

Table 5

Comparison of Total Mean Scores on the CST of Students of More Trained or Less Trained Teachers in Cohort 1 (n = 128)

Variable	2003-2004		2004-2005		2005-2006	
	Mean	SD	Mean	SD	Mean	SD
<b>Total CST</b>						
More Trained	346.64	52.25	352.09	59.27	383.67	57.50
Less Trained	358.28	52.81	356.75	58.24	377.80	51.51
<b>Vocabulary</b>						
More Trained	67.98	17.52	77.13	17.15	74.89	19.66
Less Trained	68.70	16.41	77.34	18.62	74.16	18.81
<b>Comprehension</b>						
More Trained	60.81	22.42	61.80	20.89	70.66	21.29
Less Trained	64.45	24.02	61.94	23.70	71.00	21.66
<b>Response to Literature</b>						
More Trained	67.27	26.13	65.30	25.64	78.88	21.03
Less Trained	72.13	26.16	71.11	22.22	77.55	20.69
<b>Conventions</b>						
More Trained	66.33	73.67	72.66	22.47	76.80	19.56
Less Trained	73.67	22.73	76.00	19.15	65.94	19.76
<b>Strategies</b>						
More Trained	59.73	22.55	65.72	25.60	68.42	22.51
Less Trained	62.48	21.68	64.25	26.26	65.94	19.76

Note: Total CST = Total score on the California Standards Test.

Table 6

Comparison of Total Mean Scores on the CST of Students of More Trained or Less Trained Teachers in Cohort 2 (n = 139)

Variable	2003-2004		2004-2005		2005-2006	
	Mean	SD	Mean	SD	Mean	SD
<b>Total CST</b>						
More Trained	347.60	55.82	375.70	49.52	371.53	57.81
Less Trained	349.09	60.78	368.75	47.71	354.30	51.26
<b>Vocabulary</b>						
More Trained	75.37	18.09	76.37	18.84	74.99	20.01
Less Trained	76.60	19.53	77.26	17.88	71.96	22.92
<b>Comprehension</b>						
More Trained	63.47	21.56	72.00	21.73	60.71	22.80
Less Trained	62.85	20.78	71.79	18.58	57.09	18.95
<b>Response to Literature</b>						
More Trained	74.75	22.25	70.48	18.33	78.45	19.35
Less Trained	73.13	23.29	64.96	18.55	75.23	24.11
<b>Conventions</b>						
More Trained	67.58	19.80	68.34	18.81	78.45	19.35
Less Trained	71.09	19.33	66.45	19.59	72.11	20.91
<b>Strategies</b>						
More Trained	59.94	23.10	61.60	21.98	67.03	22.15
Less Trained	55.81	21.17	59.23	19.32	65.94	19.76

Note: Total CST = Total score on the California Standards Test.

Tables 7-11 display the analysis of covariance for each of the five dependent variables for cohorts 1 and 2. Mean squares, degrees of freedom, F values, significance, and Type III Sum of Squares are included. In addition, adjusted means, the coefficient of determination ( $R^2$ ) and adjusted  $R^2$  are reported.

ANCOVA was significant for the two writing variables, in favor of the more trained group with the exception of writing strategies for Cohort 1, but not for any of the reading variables. ANCOVA was significant for conventions in favor of the more trained

group in Cohort 1,  $F(1, 123) = 4.78$ ,  $p = .03$  and Cohort 2,  $F(1, 134) = 4.15$ ,  $p = .04$ .

Adjusted means for conventions in Cohort 1 were as follows: more trained = 78.23 and less trained = 72.08.  $R^2 = .41$  and adjusted  $R^2 = .39$ , meaning that training accounted for 41% of the variance in scores for conventions in Cohort 1. Adjusted means for Cohort 2 were as follows: more trained = 78.45 and less trained = 72.12.  $R^2 = .27$  and adjusted  $R^2 = .25$ , meaning that training accounted for 27% of the variance in scores for conventions in Cohort 2.

The ANCOVA was significant for strategies in favor of the more trained group only in Cohort 2,  $F(1, 134) = 7.56$ ,  $p = .00$ . The adjusted means for strategies for Cohort 2 were as follows: more trained = 67.21 and less trained = 59.08.  $R^2 = .46$  and adjusted  $R^2 = .44$ , meaning that training accounted for 46% of the variance in scores for strategies in Cohort 2. The ANCOVA was almost significant for Cohort 1, with a  $p$  value of .05.

#### *Analysis of Covariance for Cohorts Combined*

The results for the ANCOVA conducted by cohort were almost identical so ANCOVA was conducted on the two cohorts combined for each of the five CST subtests. As with the ANCOVA for each cohort, 10 separate analyses were conducted.

The results of the ANCOVA for the two cohorts combined are displayed in Tables 12-16. As in the ANCOVA for separate cohorts, significant effects were found for the two writing measures in favor of the more trained group. ANCOVA was significant for conventions, in favor of the more trained group,  $F(1, 262) = 9.16$ ,  $p = .00$ . Adjusted means were as follows: more trained = 78.35 and less trained = 72.11.  $R^2 = .32$  and adjusted  $R^2 = .31$ , meaning training accounted for 32% of the variance in the scores for conventions.

Table 7

## Analysis of Covariance for Vocabulary Scores on the CST for Cohorts 1 and 2

Source	Type III SS	df	MS	F	Sig.
<u>Cohort 1 (n = 128)</u>					
Corrected Model	20680.81 <sup>a</sup>	4	5157.70	24.37	.00
Teacher Training	358.55	1	358.55	1.69	.20
Total 1	15677.81	1	15677.69	74.07	.00
ELD Year 1	276.65	1	267.65	1.31	.26
Gender	0.25	1	0.25	.00	.97
Error	26033.12	123	211.65		
Corrected Total	46663.93	127			
<u>Cohort 2 (n = 139)</u>					
Corrected Model	26466.00 <sup>b</sup>	4	6616.50	12.20	.00
Teacher Training	439.73	1	439.73	1.67	.20
Total 1	24044.71	1	24044.71	91.56	.00
ELD Year 1	54.14	1	54.14	.21	.65
Gender	223.52	1	223.52	.85	.36
Error	35189.20	134	262.61		
Corrected Total	61655.19	138			

Note. Sig. = significance. ELD = English language development.

<sup>a</sup>R Squared = .44 (Adjusted R Squared = .42) <sup>b</sup>R Squared = .43 (Adjusted R Squared = .41).

Table 8

## Analysis of Covariance for Comprehension Scores on the CST for Cohorts 1 and 2

Source	Type III SS	df	MS	F	Sig.
<u>Cohort 1</u> (n = 128)					
Corrected Model	25574.93 <sup>a</sup>	4	6393.73	24.18	.00
Teacher Training	221.59	1	221.59	.84	.36
Total 1	18063.93	1	18063.93	68.32	.00
ELD Year 1	333.98	1	333.98	1.26	.26
Gender	390.54	1	390.54	1.48	.23
Error	32521.29	123	264.40		
Corrected Total	58096.20	127			
<u>Cohort 2</u> (n = 139)					
Corrected Model	26233.90 <sup>b</sup>	4	6558.48	23.72	.00
Teacher Training	563.58	1	563.58	2.04	.16
Total 1	24020.39	1	24020.39	86.86	.00
ELD Year 1	16.15	1	16.15	.06	.81
Gender	267.50	1	267.50	.97	.33
Error	37058.87	134	276.56		
Corrected Total	63292.78	138			

Note. Sig. = significance. ELD = English language development.

<sup>a</sup>R Squared = .44 (Adjusted R Squared = .42) <sup>b</sup>R Squared = .41 (Adjusted R Squared = .40)

Table 9

Analysis of Covariance for Response to Literature Scores on the CST for Cohorts 1 and 2

Source	Type III SS	df	MS	F	Sig.
<u>Cohort 1</u> (n = 128)					
Corrected Model	20261.18 <sup>a</sup>	4	5065.30	17.99	.00
Teacher Training	479.73	1	579.73	1.70	.19
Total 1	16627.95	1	16627.95	59.07	.00
ELD Year 1	133.44	1	13.44	.47	.49
Gender	339.78	1	339.78	1.21	.27
Error	34624.12	123	281.50		
Corrected Total	54885.31	127			
<u>Cohort 2</u> (n = 139)					
Corrected Model	22632.85 <sup>b</sup>	4	5658.21	16.30	.00
Teacher Training	355.58	1	355.58	1.03	.31
Total 1	21223.06	1	21223.06	61.16	.00
ELD Year 1	181.65	1	181.65	.52	.47
Gender	1.56	1	1.56	.00	.95
Error	46502.88	134	347.04		
Corrected Total	69135.73	138			

Note. Sig. = significance. ELD = English language development.

<sup>a</sup>R Squared = .37 (Adjusted R Squared = .35) <sup>b</sup>R Squared = .33 (Adjusted R Squared = .31)

Table 10

## Analysis of Covariance for Conventions Scores on the CST for Cohorts 1 and 2

Source	Type III SS	df	MS	F	Sig.
<u>Cohort 1</u> (n = 128)					
Corrected Model	20946.33 <sup>a</sup>	4	5236.58	21.02	.00
Teacher Training	1189.81	1	1189.81	4.78	.03*
Total 1	16100.26	1	16100.26	64.62	.00
ELD Year 1	2.31	1	2.31	.01	.92
Gender	296.80	1	296.80	1.19	.28
Error	30646.55	123	249.16		
Total	51592.88	127			
<u>Cohort 2</u> (n = 139)					
Corrected Model	14917.17 <sup>b</sup>	4	3729.29	12.20	.00
Teacher Training	1268.93	1	1268.93	4.15	.04*
Total 1	12915.50	1	12915.50	42.27	.00
ELD Year 1	77.29	1	77.29	.25	.62
Gender	1.11	1	1.11	.00	.95
Error	40947.65	134	305.58		
Corrected Total	55864.82	138			

Note. Sig. = significance. ELD = English language development.

<sup>a</sup>R Squared = .41 (Adjusted R Squared = .39) <sup>b</sup>R Squared = .27 (Adjusted R Squared = .25)

\* p < .05

Table 11

## Analysis of Covariance for Strategies Scores on the CST for Cohorts 1 and 2

Source	Type III SS	df	MS	F	Sig.
<u>Cohort 1</u> (n = 128)					
Corrected Model	27069.48 <sup>a</sup>	4	6767.37	28.06	.00
Teacher Training	938.73	1	938.73	3.89	.05
Total 1	19402.32	1	19402.32	80.45	.00
ELD Year 1	557.97	1	557.97	2.31	.13
Gender	49.61	1	49.61	.21	.65
Error	29663.40	123	241.66		
Corrected Total	56732.87	127			
<u>Cohort 2</u> (n = 139)					
Corrected Model	31717.23 <sup>b</sup>	4	7929.31	28.60	.00
Teacher Training	2095.96	1	2096.96	7.56	.00*
Total 1	27117.76	1	27117.76	97.81	.00
ELD Year 1	6.46	1	6.46	.02	.88
Gender	.16	1	.16	.00	.98
Error	37150.15	134	277.24		
Corrected Total	68867.38	138			

Note. Sig. = significance. ELD = English language development.

<sup>a</sup>R Squared = .47 (Adjusted R Squared = .46) <sup>b</sup>R Squared = .46 (Adjusted R Squared = .44)

\* p < .05

ANCOVA was also significant for strategies, in favor of the more trained group, F (1, 262) = 10.86, p = .00. Adjusted means were as follows: more trained = 67.63 and

less trained = 62.96.  $R^2 = .46$  and adjusted  $R^2 = .45$ , meaning training accounted for 46% of the variance in the scores for strategies.

Table 12

Analysis of Covariance for Vocabulary Scores on the CST for Cohorts 1 and 2 Combined (n = 276)

Source	Type III SS	df	MS	F	Sig.
Corrected Model	46965.05 <sup>a</sup>	4	11741.26	50.11	.00
Teacher Training	817.99	1	817.99	3.49	.06
Total 1	40390.73	1	40390.73	172.39	.00
ELD Year 1	293.26	1	293.26	1.25	.26
Gender	110.52	1	110.52	.47	.49
Error	61385.70	262	234.30		
Corrected Total	108350.75	266			

Note. Sig. = Significance. ELD = English language development.

<sup>a</sup>R Squared = .43 (Adjusted R Squared = .43)

Table 13

Analysis of Covariance for Reading Comprehension Scores on the CST for Cohorts 1 and 2 Combined (n = 276)

Source	Type III SS	df	MS	F	Sig.
Corrected Model	51685.41 <sup>a</sup>	4	12921.35	43.12	.00
Teacher Training	263.72	1	263.72	.88	.35
Total 1	46160.53	1	46160.53	154.04	.00
ELD Year 1	.472	1	.472	.00	.97
Gender	.05	1	.05	.00	.99
Error	78511.99	262	299.66		
Corr. Total	130197.40	266			

Note. Sig. = Significance. ELD = English language development.

<sup>a</sup>R Squared = .40 (Adjusted R Squared = .39)

Table 14

Analysis of Covariance for Response to Literature Scores on the CST for Cohorts 1 and 2 Combined (n = 276)

Source	Type III SS	df	MS	F	Sig.
Corrected Model	42409.60 <sup>a</sup>	4	10602.40	34.02	.00
Teacher Training	974.13	1	974.13	3.13	.08
Total 1	38443.70	1	38443.70	123.34	.00
ELD Year 1	.06	1	.06	.00	.99
Gender	182.89	1	182.89	.59	.44
Error	81660.53	262	311.68		
Corr. Total	124070.14	266			

Note: Sig. = significance. ELD = English language development.

<sup>a</sup>R Squared = .34 (Adjusted R Squared = .33)

Table 15

Analysis of Covariance for Conventions Scores on the CST for Cohorts 1 and 2  
Combined (n = 276)

Source	Type III SS	df	MS	F	Sig.
Corrected Model	34644.88 <sup>a</sup>	4	8661.22	31.14	.00
Tchr. Trng.	2548.09	1	2548.09	9.16	.00*
Total 1	2682.12	1	28682.12	103.13	.00
ELD Year 1	.05	1	.05	.00	.99
Gender	151.84	1	151.84	.55	.44
Error	72864.38	262	278.11		
Corr. Total	107509.27	266			

Note. Sig. = significance. ELD = English language development.

<sup>a</sup>R Squared = .32 (Adjusted R Squared = .31)

\*p < .05.

Table 16

Analysis of Covariance for Strategies Scores on the CST for Cohorts 1 and 2 Combined  
(n = 276)

Source	Type III SS	df	MS	F	Sig.
Corrected Model	58357.29 <sup>a</sup>	4	14589.32	56.32	.00
Teacher Training	2812.98	1	2812.98	10.86	.00*
Total 1	48498.45	1	48498.45	187.22	.00
ELD Year 1	212.44	1	212.44	.82	.37
Gender	25.44	1	25.44	.99	.75
Error	67871.73	262	259.05		
Corrected Total	126229.02	266			

Note. Sig. = significance. ELD = English language development.

<sup>a</sup>R Squared = .46 (Adjusted R Squared = .45)

\*p < .05

### *Correlations*

Prior to conducting the analysis of means, teacher experience was correlated with the means of the students' scores in order to determine if experience was a larger factor in student performance than training. Generally, teacher experience did not correlate highly with student performance on the CST. There were significant negative correlations in Cohort 1 between response to literature and teacher experience ( $r = -.24$ ) and for strategies and teacher experience ( $r = -.20$ ) at third grade. There were also significant correlations in Cohort 2 at fourth grade for teacher experience and strategies ( $r = -.24$ ).

The "use of the writing process" variable was also correlated with the means of the students' scores. There were no correlations between the "use of the writing process" and student achievement. Originally, it was believed that the use of the writing process

could be used as a means of determining whether components of the writing process related to achievement, but this was not possible.

*Totals of Teachers Who Used the Writing Process*

Of the 37 teachers in the study, 29 reported that they used the writing process for each of the three years. Six of the teachers did not teach the writing process in the 2003-2004 school year. One teacher did not teach the writing process during 2003-2004 or 2004-2005 and one did not teach the writing process during 2005-2006.

In summary, ECRW did have an effect on writing achievement, but not on reading achievement. The ANCOVA was found to be significant for conventions for both Cohort 1 and Cohort 2 and for the two cohorts combined in favor of the more trained group. ANCOVA was found to be significant for strategies in favor of the trained group only in Cohort 2 for the separate analyses. For the ANCOVA for Cohorts 1 and 2 combined, ANCOVA was significant for strategies in favor of the trained group. There were no significant findings for any of the reading measures.

Results of the study indicate that training in the writing process has a positive effect on achievement. The use of the writing process alone had little or no effect on achievement. Most of the teachers, both trained and untrained reported that they used the writing process, yet ANCOVA was significant only for the more trained group. Few relationships were found between teacher experience and achievement. There were two negative relationships between teacher experience and response to literature and strategies for grade 3.

## CHAPTER FIVE

### Summary, Discussion, and Implications

This chapter is divided into five sections. The first section presents a summary of the study. It includes a summary of the problem addressed by the study and a description of the methodology used. The second section presents a summary of the findings. Section three includes the limitations of the study. Section four includes a discussion of the findings in light of the limitations of the study. Section five presents implications of the study.

#### *Summary*

This dissertation investigated the relationship between writing instruction and student achievement in grades 2-5. This was a retrospective study which examined the effect of a writing process program titled Every Child a Reader and Writer (ECRW) over a three-year time period. It also attempted to examine the relationship between individual components of the writing process and student achievement.

The writing process is based on a model of composition by Flower and Hayes (1980) and uses a five-step process for writing. The five steps are: (a) prewriting, (b) writing, (c) conferring, (d) editing, and (e) publishing. Writing programs which use the writing process approach include the teaching of conventions (spelling, punctuation, and grammar) in the writing lessons.

Most students in the United States do not possess adequate writing skills. On the National Assessment of Educational Progress (NAEP) writing assessment, less than half the students who took the test scored at grade level (Persky, Daane, & Jin, 2002). Results are the same at the state level, with less than half the students in California scoring at

proficient or above on the Language Arts CST (California Department of Education, 2004).

The National Commission on Writing (2003) suggested that schools are not putting an emphasis on writing. According to their findings, students entering the job force after college do not have adequate writing skills. In an attempt to address this problem, The College Board established The National Commission on Writing in America's Schools and Colleges. The board of the Commission added a writing assessment to the Scholastic Achievement Test (SAT®). This makes it more important than ever that students become proficient writers in elementary school so they are prepared for high school and are able to master the writing portion of the SAT.

Most of the writing programs in use in schools are modeled on the program used by the National Writing Project (NWP) which advocates a writing process approach to the teaching of writing. The NWP has 185 sites in 50 states in the United States. Trained teacher-consultants work with teachers in the schools on implementation of instruction on the writing process. Previous research by the NWP (Fanascali and Silverstein, 2003) has demonstrated that it is an effective program. In a study of third and fourth-grade students, 82% of third-grade students and 85% of fourth-grade students scored at an "adequate" or "strong" writing level on a school writing assessment after receiving instruction in the writing process at a NWP school site. The results of the study indicate that teacher training in the writing process and writing process instruction are related to student achievement.

The writing process has been the standard for teaching writing for over 25 years, but when student achievement is measured on standardized tests, the writing programs in

schools do not appear to be effective. Studies have shown the writing process to be an effective method of teaching writing (Calkins, 1981; Fanascoli and Silverstein, 2002; Fanascoli and Silverstein, 2003; Graves, 1981), yet less than half the students in the US perform at a proficient level on writing assessments. If schools are using writing process methods and students are not performing well in writing as measured by standardized test scores, then many writing process programs are not effective. The purpose of this dissertation was to determine if teacher training in ECRW, a writing process method, and classroom instruction in ECRW was effective as measured by standardized test scores and if so, which components of the writing process made it effective.

Most of the previous research in writing has not measured the effect of instruction on student achievement on standardized tests. The NWP study used school-based writing assessments, not standardized test scores. Achievement was measured by comparing students' writing samples before instruction in the writing process and after instruction in the writing process. Often the research method used to study writing instruction was qualitative, with the researcher observing students during the writing process. Anecdotal evidence was then provided on achievement (Calkins, 1981; Graves, 1981).

Although there are studies in which individual components of the writing process are examined (i.e. studies on conferencing), previous studies have not examined all of the components together in order to discover which ones contribute to achievement. Research on the effectiveness of the writing process has usually focused on the process as a whole without examining each component.

This dissertation attempted to answer two research questions. What are the differences in scores on the English Language Arts California Standards Test (CST) of

students in the second, third, fourth and fifth grades who received writing instruction from teachers with more ECRW training and those who received instruction from teachers with little or no ECRW training? Which components if any of the writing process are connected to student achievement in writing and do some components show more of a relationship than others?

This was a three year retrospective study, involving two cohorts of students in grades 2-5. Cohort 1 consisted of students who were in the second grade in the school year 2003-2004, in the third grade in 2004-2005, and in the fourth grade in 2005-2006. Cohort 2 consisted of students who were in the third grade in the school year 2003-2004, in fourth grade in 2004-2005, and in the fifth grade in 2005-2006. Language Arts CST scores were collected for the students for each of the following three school years: 2003-2004, 2004-2005, and 2005-2006.

Teachers in a school district received training in a writing process program which was titled ECRW. The training took place in stages. Some teachers were trained the first year, some the second year, some the third year, and some teachers had not yet received training by the end of the study.

All teachers were administered a questionnaire which asked about their writing instruction for each year of the study. Teachers were asked how often they included the following components in instruction: modeling, mini-lessons, conferencing, and the teaching of written conventions (spelling, punctuation, and grammar). Teachers were also asked how many years they had been teaching, if they used the writing process, and how many days a week they taught writing. The answers to the questions which concerned writing instruction were added together to create a new variable called use of the writing

process. The years of training and experience for each students' teacher were added for a years training variable.

For each year of the study, students' Language Arts CST scores were collected for each cohort. Total CST scores were collected as well as scores on the five subtests. Three of the subtests measure achievement in reading: vocabulary, comprehension, and response to literature. Two of the subtest measure achievement in writing: written conventions (spelling, punctuation, and grammar) and writing strategies. They were labeled conventions and strategies.

There were 12 variables in this study: two student background variables, six student achievement variables, and four teacher variables. The variables were: gender, ELD level (English language ability), total CST, vocabulary, comprehension, response to literature, conventions, strategies, years experience, years training, days teach writing, and use of writing process. The scores on the CST were dependent variables. Years training was the independent variable. Gender, ELD level, and the total CST for 2003-2004 were covariates.

For each cohort, students were divided into two groups: less trained and more trained. For each cohort the data were analyzed in four separate analyses. In the first analysis, means and standard deviations were computed for all 12 variables, regardless of training. Second, means and standard deviations of students' CST scores were compared for each of the cohorts for each of the three years. Third, analysis of covariance was conducted for each cohort, using year 3 scores as the dependent variables. Fourth, analysis of covariance was conducted for the two cohorts combined, also using year 3 scores as the dependent variables. Two additional analyses were conducted for teacher

variables. The first analysis consisted of bivariate correlations between the years experience and use of the writing process and all of the dependent variables. The second analysis consisted of totals for each year of the study of teachers who used the writing process in their teaching and teachers who did not use the writing process in their teaching.

### *Summary of Findings*

The findings are listed as follows:

1. Using analysis of covariance to control for gender, ELD level for year 1, and total CST scores for year 1, a significant effect for training in ECRW was found on third year CST writing scores, but not on reading scores.
2. Even though there were no significant effects for training in ECRW on reading scores, there were greater differences in the means of reading scores in favor of the more trained group for students in the upper grades.
3. The findings in this study did not reveal which components of the writing process instruction contributed to achievement on the Language Arts CST.
4. The majority of teachers in the study reported they used the writing process for all three years of the study.
5. There were small significant correlations between response to literature and teacher experience and for strategies and teacher experience at third grade. There were also significant correlations in at grade four for teacher experience and strategies.

Research question 1 was answered by the first and second findings listed above.

The question was: What are the differences in scores on the English Language Arts CST

of students in the second, third, fourth and fifth grades who received writing instruction from teachers with more ECRW training and those who received writing instruction from teachers with little or no ECRW training? The results of the ANCOVA revealed an effect of teacher training on student achievement in writing. Although there is no statistically significant effect for training in ECRW and achievement in reading, means are higher on many of the dependent reading variables in favor of the trained group for the upper grades.

Unfortunately, it was not possible to answer research question 2. Research question 2 was: “What components, if any of the writing process are connected to student achievement in writing and do some components show more of a relationship than others?” There were not enough differences between teachers’ instruction to determine which components of instruction contributed to achievement. Even when answers were added together to create a new variable labeled “use of the writing process,” no correlations were found. The questionnaire was not used in the final analysis.

The fourth finding reveals that the more trained group and the less trained group received similar writing instruction. If both groups received writing process instruction, yet ANCOVA was significant for the more trained group, the differences between groups may have been due to the training the teachers received, not to the use of the writing process alone.

The fifth finding was that there is a negative correlation between teacher experience and strategies for two grade levels only. In the beginning of the study, it was thought that teacher experience might attribute to student achievement. A more

experienced teacher might be a more effective teacher. Since there were few correlations for this variable, it was not used as a variable.

### *Limitations*

In conducting this study the following limitations were realized:

1. This study is a correlational study, not a causal study. It was not possible to assign students randomly to a writing treatment. It was necessary to use existing and pre-existing classrooms and data.
2. The study was a retrospective study going back four years so it was necessary to ask teachers to remember how they taught writing for the past three years.

Initially this was a concern as the study was being planned, but teachers assured the researcher they could remember. Teachers were given the option of doing the questionnaire in grade level teams in order to assist each other with memory, but most of the teachers did not choose this option. Even though teachers filled out the questionnaire quickly with no apparent difficulty with memory, there is always the risk that memories may not be accurate. In the end, it was not possible to use the questionnaire because there was not enough variation in responses.

3. Achievement was compared between more trained and less trained groups. Although it is possible to surmise the instruction of teachers who received ECRW training based on the tenets of the training, it was not possible to determine the instruction of the teachers with no training. This information was not clearly revealed on the questionnaire.
4. Even though the total sample size was adequate, a long term study required that the students be divided into cohorts, reducing the total sample size. There are four

elementary schools in the district. Unfortunately one school had to be excluded from the study because they use a language arts program that is different than the one used in the other three schools. Including this school could have confounded the results of the study.

### *Discussion*

Using analysis of covariance to control for gender, ELD level for year 1, and total CST scores for year 1, an effect for training in ECRW was found on third year CST writing scores, but not on reading scores. The ANCOVA was significant for both writing measures in favor of the more trained group.

Although it appears from the results of this study that the ECRW training was effective, this is not a causal study. It was not possible to randomly assign students to a more trained group and a less trained group. Even if students had been randomly assigned, the teacher questionnaire did not reveal many differences in teaching so it was not possible to know what the specific differences in writing instruction were between the less trained and more trained group.

Teacher experience did not appear to be related to student achievement because it was not highly correlated with achievement. There were a few negative correlations: (a) in year 2, experience correlated with strategies for fourth grade ( $r = -.24$ ), (b) in year 3, experience correlated with response to literature for third grade ( $r = -.24$ ), and (c) in year 3, experience correlated with strategies for third grade ( $r = -.20$ ). This indicates that teaching experience, in these areas of achievement at these grade levels, has a negative effect on achievement.

Teacher training in ECRW did have an effect on student achievement. Initially the researcher thought there were two possibilities for the differences between the less trained group and the more trained group. One possibility was that the more trained teachers simply taught more writing than the less trained group. The other possibility was that both less trained and more trained teachers taught writing with the same frequency, but the quality of writing instruction was higher for the more trained teachers. After examining the teacher questionnaire and finding that almost all of the students received equal amounts of writing process instruction, it became an issue of quality.

In this study, in order for there to be an effect of using the writing process, there also had to be an effect of the ECRW training on the teachers. It is difficult to demonstrate the efficacy of the ECRW training. This seems particularly important because the students were not directly trained by the writing process. First the teacher had to be trained and then translate his/her training into effective instruction. Two effects had to occur, an effect on the teacher and an effect on the students.

The groups were not split between teachers with training and teachers with no training; it was a matter of the degree of training students benefited from over time. The results of the study lead to two implications: that a more experienced ECRW teacher was a more effective teacher of writing and more instruction in ECRW was beneficial to students' writing achievement.

All teachers in the district are required to teach the writing process. The language arts program for the district includes the writing process as the standard instruction for the teaching of writing. When the language arts program was adopted, all teachers working in the district at that time, received an overview from the publisher of the entire

language arts program, but no specific instruction on how to teach writing. Only ECRW teachers received specific training in the writing process.

The ANCOVA showed an effect for conventions and strategies. Each is discussed separately below.

The relationship between training and written conventions was assessed by  $R^2$ . The training accounted for 41% of the variance of written conventions for cohort 1 and 27% of the variance in cohort 2. ANCOVA was significant for both cohorts in favor of the more trained group.

Conventions include spelling, punctuation, and grammar. The more trained teachers may have simply taught spelling, punctuation, and grammar more often than the untrained teachers. The other possibility is that both more trained and less trained teachers taught these conventions with the same frequency, but the trained teachers taught more effectively.

ECRW instruction suggests teaching each of the conventions in the context of the writing lesson and provides instruction on how to do this. Conventions are taught during a mini-lesson or individually during student conferences. Each of the conventions is discussed separately below.

In the district used in this study, spelling is taught by both ECRW teachers and non-ECRW teachers as a stand-alone subject. ECRW teachers are instructed to also include spelling instruction in the writing lesson.

There is disagreement among researchers about the effectiveness of teaching spelling during writing instruction. Berninger, Vaughan, Abbott, Brooks, Abbot, Rogan, Reed, and Graham (1998) found that second grade students improved in spelling when

spelling instruction was provided in the writing class. Graham, Loynahan, and Harris (1993) studied students who were taught spelling during the writing class and discovered they were unable to spell the words they were taught. Graham (2000) concluded that spelling taught during the writing class improved spelling for students, but instruction during writing should not replace traditional spelling instruction. This last approach is the one used by ECRW teachers.

In this district, there is no adopted program for teaching punctuation and instruction varies among teachers. Non-ECRW trained teachers may or not be including punctuation instruction during their writing lessons. Research shows that in teaching the writing process, teachers often emphasize writing strategies to the point of neglecting punctuation (McCarthy, 1992). This was not the intent of the founders of the writing process. Although most of the literature on punctuation found instruction in punctuation to be ineffective, Calkins, one of the first proponents of the writing process, advocates for the teaching of punctuation during writing. Calkins (1981) conducted studies in which students were tested on their knowledge of punctuation before and after receiving writing process instruction and found the teaching of punctuation during the writing process increased students' knowledge of punctuation. Calkins' books are used as references for ECRW instruction (Calkins, 2003, 2005). ECRW teachers are instructed to conduct mini-lessons on punctuation, use models of punctuation and to have follow-up conferences with students.

Like punctuation, in this district there is no adopted program for the teaching of grammar and instruction varies among teachers. Non-ECRW teachers may or may not be teaching grammar during writing. Johansen and Shaw (2003) claim that because research

has shown the teaching of grammar in isolation to be ineffective (Braddock, Lloyd-Jones, & Schoer, 1963), many teachers do not teach grammar at all. Teachers were told to teach grammar during the writing process, but because they were not taught how to do this, they stopped teaching grammar altogether. The research reviewed in this study found grammar instruction to be more effective when taught in the context of writing (Holden, 1994; Saddler & Graham, 2005). ECRW teachers are instructed to teach grammar during a mini-lesson or during conferences.

In summary, teachers who received ECRW training received instruction on how to teach conventions within the writing lesson. Non-ECRW teachers received little or no training in the teaching of conventions in isolation or within the writing lesson and they have no teaching guide, with the exception of spelling, to follow. It may be that ECRW teachers teach more conventions or that the training in ECRW increases the quality of the teaching of conventions. It may also be that students are more likely to learn conventions when they are taught in the context of the writing class rather than as a separate subject.

ANCOVA was significant for writing strategies (organization, writing style, etc.) in favor of the more trained group for Cohort 2, but not for Cohort 1. The strength of the relationship was moderate for Cohort 2, with an  $R^2$  of 46, meaning that 46% of the variance of writing strategies scores can be accounted for by the ECRW training.

ECRW trained teachers are taught specifically how to teach writing strategies. Strategies are generally taught through a mini-lesson, usually with the use of a model and reviewed individually with a student during a conference. The teacher guide for the language arts program of the district provides some guidance on how to teach strategies

in the writing lessons, but is not as specific as the instruction for ECRW training. Non-ECRW teachers received no instruction in the teaching of strategies.

The ECRW training for the teaching of strategies is supported by research. Researchers have suggested that students learn narrative structure by direct instruction (mini-lessons) during writing class (Freedman, 1993; Krashen, 1984). Danoff, Harris and Graham (1993) observed that when writing strategies are taught during the writing process, students immediately apply the strategies to their writing, increasing the likelihood that they will continue to use these strategies. It is unknown if the more trained group received more instruction on strategies or just better instruction on strategies. Research reveals that strategies are best taught using models and then conferencing with the student (Englert, Raphael, Anderson, Anthony & Stevens, 1991). This is the instructional method employed by ECRW teachers.

No significant effects were found for ECRW training on reading achievement. Although there were no significant differences for scores on the reading measures on the CST, in many cases, means were higher for students taught by more trained ECRW teachers. It may be that there is an effect on reading, but the effect is not strong.

Research supports the idea that writing instruction affects reading achievement, particularly at the younger grades (Berninger Abbott, Abbott, Graham & Richards, 2002; Clay, 1975, Graves, 1981). Clay (1975) suggested that writing instruction enhances reading for students in kindergarten and first grade, particularly in the areas of phonics, orthography and grammar. Through writing, children learn which sounds are connected to which letters, how to spell simple words, and how a sentence is constructed. This is primarily an effect at the word and sentence level. Students at this age are learning

phonics and how to apply phonics knowledge to word recognition. At the same time, they are learning how to construct a sentence. Writing words and sentences helps them to orchestrate this knowledge.

This study, however, did not include kindergarten and first grade. The youngest students were in second grade and many of them had mastered the very beginning levels of phonics, orthography, and grammar. In second through fifth grades, students are encouraged to use more complicated words and to apply more complicated grammatical structures when writing, increasing their knowledge of spelling and grammar.

If younger students apply knowledge of spelling and grammar gained in writing to reading, it would seem that older students would also. This idea is supported by the research of Berninger, Abbott, Abbott, Graham, and Richards (2002). They conducted research investigating the relationship between writing and reading, using structural equation modeling. Their findings revealed that word-level writing was related to word recognition in reading and contributed to reading comprehension for younger children. Writing composition was related to reading comprehension at the upper grades. Berninger et al. (2002) found that compositional fluency had a significant influence on reading comprehension at fifth grade and compositional quality had a significant influence on reading comprehension at the fourth and fifth grades.

In this study, higher means on reading measures were particularly evident in the analysis for Cohort 2 which included students at higher grade levels. In Cohort 1, means were higher for the more trained group on vocabulary and response to literature in the fourth grade. In Cohort 2, means were higher for the more trained group for fifth grade

on vocabulary, for fourth, and fifth grades on comprehension, and for fourth and fifth grades on response to literature.

Much on the research on the relationship between reading and writing on the upper grades is in the area of content literacy (science and social studies). Research shows that writing about a topic studied in the content areas has a greater positive effect on comprehension than note-taking or summarizing (Durst & Newell, 1989). This study examined an indirect relationship of general writing instruction and general reading ability. In other words, students did not read about a topic, and then write about that topic. The reading topics on the CST were not related in any way to the writing topics in the classroom. In this study, the relationship between writing instruction in general and reading achievement in general was not significant.

In conclusion, the findings of the study revealed that ECRW writing instruction had an effect on writing achievement at all grade levels and no effect was shown for reading achievement. Teacher experience was not correlated with achievement and it was not possible to determine specific components of writing instruction which attributed to writing achievement. The training in the writing process, however, appears to have had an effect on the teachers and in turn the students.

#### *Implications for Research and Practice*

Research question 2 could not be answered because there was not much differentiation between the answers on the surveys. Future research should include observation of writing process lessons. This would shed light on any differences in how often the components of the writing process are implemented or if they are implemented at all.

Observation of writing lessons would also help to determine why there was an effect of the training on conventions and strategies. Did teachers teach conventions more often or was the quality of teaching higher? What were the methods used to teach strategies? Observation of more trained and less trained groups would provide more information.

Controlled studies in which components are taught differently between two groups would facilitate understanding of how these components relate to achievement. For example, an experimental group could receive instruction on conventions during the writing process and a control group could receive instruction on conventions as a separate subject.

In lieu of observation, interviews with teachers, using the questions on the questionnaire, would be beneficial for determining differences in teachers' writing instruction. Focus groups would also give insight on teacher instruction.

Future research should include random assignment of subjects. An experimental study should be conducted with an experimental group of students who receive writing process instruction and a control group which receives non-writing process instruction. An experimental study should also be conducted with an experimental group of ECRW trained teachers and a control group of non-ECRW trained teachers.

In this study, writing instruction was not found to have a significant effect on reading performance, but there were greater differences between means for trained and untrained groups in favor of writing as the children got older. In a comprehensive meta-analysis of effective reading instruction, The National Reading Panel suggested that studies be conducted on the effect of writing on reading performance. The Panel did not

have time to pursue this issue. Further research is needed in order to determine the effect of writing instruction on reading performance. Future research should focus on the differences in the effect of writing instruction on reading achievement between lower and upper grades.

The results of this study suggest that teacher training in the writing process has a positive effect on student performance. This supports findings by the NWP (Fanascali & Silverstein, 2002). Although Fanascali and Silverstein did not compare trained and untrained groups, they found that students who were taught by teachers trained in the writing process improved their writing skills. The findings of both this study and the Fanascali and Silverstein study suggest that in-depth training for teachers in the teaching of writing would be beneficial to schools in increasing students' writing scores. Training in ECRW had an effect in the areas of conventions and strategies, indicating that teacher training should focus on teaching these components within the writing process and teachers should be taught specifically how to do this.

There is a lot of variety in the implementation of writing process instruction. Language Arts teacher manuals give instruction on the steps of the process but little instruction on teaching strategies and conventions. During ECRW training, teachers are instructed to integrate each step of the writing lesson by planning mini-lessons, conferences, and independent writing with a common focus. Teachers are instructed to encourage students to try the strategies and skills learned in the mini-lesson and to review these skills and strategies during conferences.

Teachers who have not had in depth training in the writing process may just go through the motions of the five steps of the writing process with no integration between

the steps and no focus of instruction. Training in the writing process leads to focused, quality lessons which in turn lead to student achievement.

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**Directions:** For the remainder of the questionnaire, I am requesting information about specifics of your writing instruction. The format is the same for each item. The first item is a question about how you teach writing this year. Following the question are three statements for you to complete comparing your teaching this year to the last three years.

**4. How many days per week on average do you teach writing?**

1	2	3	4
Zero	1-2	3-4	Daily

*a.* In **2004/2005** the number of days I taught writing was

1	2	3	4
None	Less than now	The same as now	More than now

*b.* In **2003/2004** the number of days I taught writing was

1	2	3	4
None	Less than now	The same as now	More than now

*c.* In **2002/2003** the number of days I taught writing was

1	2	3	4
None	Less than now	The same as now	More than now

**5. What is the average number of minutes you teach each writing lesson?**

1	2	3	4	5
0	1-15	16-30	31-45	46-60

*a.* In **2004/2005** the number of minutes I taught each writing lesson was

1	2	3	4
None	Less than now	The same as now	More than now

*b.* In **2003/2004** the number of minutes I taught each writing lesson was

1	2	3	4
None	Less than now	The same as now	More than now

*c.* In **2002/2003** the number of minutes I taught each writing lesson was

1	2	3	4
None	Less than now	The same as now	More than now

**6. How many times per week do you teach mini-lessons (a 5-15 minute lesson in which you teach a skill such as punctuation or a particular writer's craft) during writing?**

1	2	3	4
Zero	1-2	3-4	Daily

*a.* In **2004/2005** the number of times per week I taught mini-lessons was

1	2	3	4
None	Less than now	The same as now	More than now

*b.* In **2003/2004** the number of times per week I taught mini-lessons was

1	2	3	4
None	Less than now	The same as now	More than now

*c.* In **2002/2003** the number of times per week I taught mini-lessons was

1	2	3	4
None	Less than now	The same as now	More than now

**7. How often do you use the work of a published author (i.e. a story by Donald Cruz) as a model of good writing?**

1	2	3	4
Never	Seldom	Sometimes	Often

*a.* In **2004/2005** I used the work of a published author as a model of good writing

1	2	3	4
Never	Less than now	The same as now	More than now

*b.* In **2003/2004** I used the work of a published author as a model of good writing

1	2	3	4
Never	Less than now	The same as now	More than now

*c.* In **2002/2003** I used the work of a published author as a model of good writing

1	2	3	4
Never	Less than now	The same as now	More than now

**8. How often do you use student work (your own students or other students) as a model of good writing?**

1	2	3	4
Never	Seldom	Sometimes	Often

*a.* In **2004/2005** I used student work as a model of good writing

1	2	3	4
Never	Less than now	The same as now	More than now

*b.* In **2003/2004** I used student work as a model of good writing

1	2	3	4
Never	Less than now	The same as now	More than now

*c.* In **2002/2003** I used student work as a model of good writing

1	2	3	4
Never	Less than now	The same as now	More than now

**9. How often do you model writing or use a piece of your writing as a model?**

1	2	3	4
Never	Seldom	Sometimes	Often

*a.* In **2004/2005** I modeled writing or used a piece of my writing as a model

1	2	3	4
Never	Less than now	The same as now	More than now

*b.* In **2003/2004** I modeled writing or used a piece of my writing as a model

1	2	3	4
Never	Less than now	The same as now	More than now

*c.* In **2002/2003** I modeled my own writing or used a piece of my writing as a model

1	2	3	4
Never	Less than now	The same as now	More than now

**10. How many times per week do you have a conference with individual students?**

1	2	3	4
None	1-2	3-4	Daily

*a.* In **2004/2005** I had a conference with individual students

1	2	3	4
Never	Less than now	The same as now	More than now

*b.* In **2003/2004** I had a conference with individual students

1	2	3	4
Never	Less than now	The same as now	More than now

*c.* In **2002/2003** I had a conference with individual students

1	2	3	4
Never	Less than now	The same as now	More than now

**11. How often do students discuss their work with each other?**

1	2	3	4
Never	Seldom	Sometimes	Often

*a.* In **2004/2005** students discussed their work with each other

1	2	3	4
Never	Less than now	The same as now	More than now

*b.* In **2003/2004** students discussed their work with each other

1	2	3	4
Never	Less than now	The same as now	More than now

*c.* In **2002/2003** students discussed their work with each other

1	2	3	4
Never	Less than now	The same as now	More than now

**12. How often do you teach conventions during the writing lesson (spelling, punctuation, and grammar)?**

1	2	3	4
Never	Seldom	Sometimes	Often

*a.* In **2004/2005** I taught conventions

1	2	3	4
Never	Less than now	The same as now	More than now

*b.* In **2003/2004** I taught conventions

1	2	3	4
Never	Less than now	The same as now	More than now

*c.* In **2002/2003** I taught conventions

1	2	3	4
Never	Less than now	The same as now	More than now

