A COMPARISON OF ALTERNATIVE METHODS OF TEACHING WRITING TO CHEROKEE STUDENTS IN GRADES THREE THROUGH EIGHT

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CHAPTER I

THE RESEARCH PROBLEM

Introduction

Educational research has investigated problems of youth in general, but few studies have inquired about the problems that American Indian youth face as they struggle to achieve success in school. Despite the fact that the federal government has been active in providing funds for educating Indian youth, these efforts have not met with widespread success. Absenteeism is still high, and many Indian students drop out of school each year. Indian high school graduates score behind their classmates in achievement, and a small percentage complete college. One of the urgent problems facing Indian students is that of mastering literacy skills. Indian students are not the only ones, however, with inadequate writing skills. A large percentage of the United States' population faces this problem. More pressing educational concerns tend to eliminate concentrated effort to improve the writing skills of school children.

Educators and researchers for the last decade have been trying to address this problem. As far back as 1975, an article in Newsweek, "Why Johnny Can't Write," tried to focus attention on the poor quality of writing nationwide. The article suggested that (a) writing is viewed as a secondary, unimportant activity in schools, (b) the business community

is dismayed by the lack of writing ability of its employees, and (c) universities complain that even their most intelligent freshmen cannot organize or express their ideas on paper. Television, emphasis on oral language, and lack of reading have been named as reasons for children's poor writing ability. Results of the National Assessment of Educational Progress (NAEP, 1986) testing have continued to indicate declining writing ability among young people.

In the last ten years, a variety of studies have focused on the writing difficulties of youth in general although little investigation has been compiled on the writing of Indian students. In the late 1970s, Donald Graves (1975) and Arthur Applebee (1981) completed surveys of writing instruction and practices at the elementary and secondary levels. Both surveys supported Newsweek's claim that little direct writing was being done in the nation's schools. According to Applebee, writing consisted mainly of written texts of two or three sentences, notetaking or fill-in-the-blank exercises. Students were not writing to communicate a message to a real audience for a specific purpose.

Despite renewed attention to writing in the schools in the eighties, the NAEP's 1984 national assessment of writing achievement showed less-than-promising results. This survey revealed that in general, American students can write at a minimal level, but they cannot express themselves well enough to insure that their writing will accomplish its intended purpose. And, according to NAEP (The Writing Report Card, 1986) results, "students at all grade levels are deficient in higher order thinking skills (p.11)." These children have difficulty employing analysis, synthesis, and evaluation reasoning skills to complete tasks.

A consequence of inattention to written communication in the public schools is the poor writing skills among college freshmen. More students are enrolling in remedial English courses, and they seek assistance from a growing number of writing centers. With youth exhibiting poor writing skills, it is understandable that combined with language difficulty and cultural differences, Indian youth have a hard time with writing.

Some educators and researchers believe that the microcomputer can provide some help to bring about a change in students' writing performance. Since 1982, software has been created for all stages of the writing process--prewriting, drafting, revising, and editing. Word processing, invention, and revision programs are now readily available to schools. However, little research for Indian students has been reported on the use of computers in language-related subject areas. The few studies evaluating the use of computers with Indian students have concentrated on computer-assisted instruction (CAI) to improve basic skills.

Educators advocate that the computer has advantages for writers. Perhaps one reason writing is not prevalent in the schools is the tedium involved in putting words onto paper in final form. Using word processing can eliminate the time-consuming task of recopying revised prose. Children are also more willing to take risks and revise because of the ease of making changes. They take pride in their work because their completed text looks better. As a tool, the computer can be used to facilitate communication, print frequent drafts, and explore ideas. However, there has been little use of word processing with American Indian students.

This study plans to provide teachers with the opportunity to use the word-processing capabilities of the computers to work on the writing skills of American Indian students. The study will focus on concentrated writing instruction for Cherokee students, using the computer as a tool.

Purpose of the Study

When school administrators decide to include writing instruction in their curriculum, they need to know what instructional methods are most effective to improve students' performance. The purpose of this study was to investigate the effects of two methods of writing instruction in improving the writing performance of Indian students in grades three through eight. The two methods of instruction studied were composing on computers and more "traditional" writing without them. The study addressed the following questions:

1. Does the writing performance of Indian students in grades three through eight improve after participating in a specific writing program?
2. If performance improves, which method of instruction--writing on computers or non-computer writing--leads to the greater writing improvement?

Hypotheses

This study tested the following hypotheses stated in the null form:

Hypothesis 1: There is no significant difference between pretest and posttest scores on overall writing performance.

Hypothesis 2: There is no significant difference between males and

females in overall writing performance.

Hypothesis 3: There is no significant difference between posttest scores of the experimental and control groups on writing performance.

Hypothesis 4: There is no significant difference in writing performance between males in the control and experimental groups.

Hypothesis 5: There is no significant difference in writing performance between females in the control and experimental groups.

This study will also look into significant differences between pretest and posttest scores on overall writing performance at Levels 1, 2, and 3.

Definitions

For the purpose of this study the following definitions of terms will be used.

Writing: A process of selecting, combining, arranging, and developing ideas into effective sentences, paragraphs, and, often, longer units of discourse.

Writing Process: An organized, systematic stage approach to the teaching of writing which includes prewriting, drafting, revising, editing, and publishing.

Prewriting Phase: The period of planning and invention when writers acquire and organize ideas.

Composing Phase: The period when writers create a piece of writing.

Revising Phase: The period for sharing, assessing, and making global changes in writing.

Editing Phase: The period for polishing writing for reader understanding.

Transactional Writing: Writing which informs (records, reports, generalizes), instructs, or persuades.

Dialogue Journal: An interactive journal in which the teacher and student respond to each other's messages.

Holistic Scoring: A guided procedure for sorting or ranking written pieces.

Scoring Guide: A guide which describes each feature to be evaluated in the writing and identifies high, middle, and low quality levels for each feature.

Direct Measurement: Using a writing sample to measure student writing.

Indirect Measurement: Using objective norm-referenced or criterion-referenced multiple-choice test items to test selected skills and knowledge related to writing.

FrEdWriter: A public domain word processing program for the Apple computer.

Limitations

The following limitations apply to this study:

1. This study is limited to one elementary school in a rural district in Oklahoma.

2. The participants in this study are primarily Cherokee children at a low socio-economic level.

3. Results are representative only of rural school districts with an American Indian population.

4. Time constraints permitted only a ten-week period for the writing program, allowing for only one type of writing to be examined.

5. By using a Pretest-Posttest Control Group Design, a possible interaction between the pretest and the treatment may occur; therefore, the results of the study may only be generalizable to other pretested groups.

CHAPTER II

REVIEW OF SELECTED LITERATURE AND RESEARCH

Introduction

Researchers have been concerned about the decline in writing skill of school children for at least a decade. American Indian students who are "at risk" present an even greater concern for school administrators. In the late 1970s Donald Graves (1983) completed a survey for the Ford Foundation on the status of writing instruction in elementary school classrooms. He reported that writing is neither emphasized nor encouraged. He states that when children enter elementary school, they become "receivers" of information rather than senders. They are taught to listen and read, but rarely write answers in a sentence. On the average, elementary school children write only three, short pieces in a three-month period.

Also late in the 1970s, Arthur Applebee (1981) conducted a survey of secondary schools across the country based on classroom observations in all content areas, interviews with students and teachers, and a wide-scale questionnaire. Results from these instruments indicated a writing crisis nationwide. Some of his findings showed that secondary students averaged only about three percent of their class time in writing a paragraph or more of coherent text. Personal and creative writing occupied less than one-half of one percent of lesson time. In fact,

most student writing was limited to replying in one or two sentences to essay exam questions, doing mathematical calculations, and copying directions or material from the blackboard. In the same survey, Applebee reviewed students' essays and concluded that students' texts were limited to a handwritten page, dealt with factual content, and were composed during a class period. He found that students might sometimes be asked for personal experience writing, but never for persuasive writing. Other findings indicated that teachers normally gave limited directions, expected students to begin writing immediately, and provided no help with the task. Evaluation was restricted to a few remarks on grammar, spelling and usage. This "standard" program of writing was to prepare students for college, the business world, and life's needs in general. Graves and Applebee also noted that schools funded the teaching of reading, not writing. For example, for every $3000 spent on developing children's reading skills, only $100 was spent on their power to send information in writing. Applebee further states that colleges of education are increasing the number of reading courses while they require no writing courses for perspective teachers.

Although the picture of school writing portrayed by these researchers appears bleak, in recent years more attention has been directed toward writing. States such as California and Vermont have established state-wide writing programs. The Bay Area Writing Project in California has drawn national attention to teachers' own writing, and the National Institute of Education has now begun to allocate money for writing research. Through the National Endowment for the Humanities, the Vermont Writing Project created six model writing programs in elementary schools throughout the state. Prior to this funding,

allocations for writing research were less than one-tenth of one percent of all research funds for education (Teaching Writing: Problems and Solutions, 1982). In addition, the Educational Testing Service, the National Commission on Education, and most State Departments of Education now allocate funds for assessing writing. However, although federal funding is available to support American Indian education, it has not been used for research in direct writing with these students, and, as with the population in general, no funds have been specifically designated for writing instruction. Therefore, many rural predominantly Indian schools in states like Oklahoma or North and South Dakota must try to provide the best writing instruction for its students without the benefit of research results that indicate the best methods.

In 1984, the NAEP's national assessment of writing achievement (1986) evaluated the writing performance of students in grades four, eight, and eleven of public and private schools. The results indicated that writing performance improved over grade level, but fewer than one-fourth of the students at all levels performed adequately on writing tasks involving skills required for success in academic studies or business. NAEP's results did not separate American Indians from the total group so that their specific writing problems could be identified.

Yet, despite the fact that many believe modern technology will cause people to communicate less through writing in the future, writing has importance for other areas besides communication. Recent findings by NAEP (1986) suggest that students, regardless of ethnic background, lack critical thinking skills. Writing requires persons to think critically using higher order skills of analysis, synthesis, and evaluation.

A new writing tool, the microcomputer, has received more visibility in schools in the eighties. It has been used to improve learning (Taylor, 1980) and, most recently, incorporated into writing instruction. A variety of studies have shown mixed results. For example, some researchers indicate that computer writing improves students' attitude toward writing, (Daiute, 1985; Woodruff, Bereiter, & Scardamalia, 1982); others suggest writing is lengthier (Daiute, 1982); while still others indicate that the quality of writing is not improved (Bridwell, 1980). Despite an increase in studies on computer writing, little research (Diessner, Rousculp & Walker, 1985; McCurry & Kleinfeld, 1986) is available on writing with computers by American Indian students.

An overview of recent literature and research, which follows, is divided into four sections. Section one emphasizes non-standard dialect and American Indians. Section two discusses approaches to writing development. The third section concentrates on teaching writing using a process approach. Section four deals with writing using word processing on the computer. Each section provides part of the theoretical base needed for this study of the process writing of Cherokee students using computer and non-computer techniques.

Non-standard Dialect and American Indians

The federal government classifies all Limited English Proficient (LEP) students together when it considers funding for bilingual education programs. One Federal law (Public Law 98-511) categorizes LEP students as (1) "individuals who were not born in the United States or whose first language is not English; (2) individuals who come from

environments where a language other than English is dominant; and (3) individuals who are American Indian and who come from environments where a language other than English has had significant impact on their level of English language proficiency." Although American Indians are considered the first Americans, they do not share a single culture nor the same language. Some speak an Indian language while others speak a non-standard dialect of English. Some Indian people have tried to maintain their culture and language by focusing on their own community. Many of these children come from homes where the native language is still spoken. Although Indian parents may not be teaching the native language, exposure to it in the early years allows children to develop some fluency in that language. Others, as a result of their need to earn a living, have become immersed in an all-English environment. However, children in these homes may still be influenced by the native language through grandparents who often live in the same dwelling. Still others, who are unconsciously influenced by the native language, have combined features of it with English creating a non-standard form of English called "reservation" or "Indian" English. Dale (1972), in his discussion of dialect differences, referred to "non-standard" as any dialect other than the one spoken by the dominant social class. Potter (1981) in his paper on American Indian children and writing, indicated that a recent trend seemed to be toward more mainstream, regionally-oriented English. However, Potter noted the variety of educational environments of Indian children made it difficult to determine the developmental problems they had in learning to write and what methods would produce solutions to their problems.

Research by Dulay and Burt (1973) suggested that non-standard

dialect speakers learned English in the same way as second language speakers--through interaction with the dominant social class. Krashen (1981) with his emphasis on "meaningful input" indicated that only through interaction with the target population could a second language be acquired. Schumann's (1973) study pointed out that acquiring English occurs only when the psychological and social needs of the native speakers were met. In his study of one Hispanic community, he noted that the need to learn English was not met by the local community because only Spanish was spoken. To learn spoken English, American Indians have this same need for interaction, but, they often live on reservations with others of their tribe or in rural areas of states where contact with standard American English is infrequent. They must be provided with "meaningful input" to learn the standard dialect; however, books are not provided in many homes, nor do the parents read to their children. Thus, children have received little comprehensible input in the home. And, although most have television sets in their homes, they have not interacted with the characters seen; rather they sit passively watching the screen. As a result, when Indian children enter school, they have problems with English. Researchers have found that Indian children in kindergarten (Ramstad & Potter, 1974) and in second and sixth grades (Rosier and Holm, 1980) scored significantly lower than Anglo children on measures of vocabulary and syntax and fell below national norms on paragraph meaning tests. Fuch and Havighurst (1972) noted that many Indian children fall as much as two full years behind the national norms of standardized achievement tests by the fourth grade. Lacking vital skills such as vocabulary and syntax, American Indian writing appears to be at the same level as the rest of

their English skills.

A study by Wolfram et al. (1979) investigated the effects of "Indian" English on the writing skills of elementary school children. All children in this study spoke English, although the native Indian language was spoken by adults. Researchers identified two types of influence: some variations from standard English were traceable to the linguistic features of the local Indian language; others were identified as features of American English diffused into the Indian language. Investigators isolated phonological influences as more frequent than grammatical problems. Wolfram also noted that many oral language transfer "errors" appeared in students' writing. However, Whiteman (1979) argued that some errors appeared as a result of the writing process and were independent of oral language influence. She suggested that dialect influenced writing but did not interfere with the child's ability to write.

Most research on problems of dialect and writing (Fasold & Whiteman, 1971; Hartwell, 1980) has focused on surface effects of dialect. Wolfram et. al. (1979) pointed out that there was a need to study Indian children's writing from a holistic perspective. Little research has been conducted on whether global features of discourse from different dialects affect writing. The process approach to writing allows teachers to look at writing holistically at all stages of the process. This approach may be what is needed to see if global features of content and organization interfere with learning to write more than do the surface-level influences. Several approaches to writing have been described by researchers.

Approaches to Writing Development

Writing has been conceived as a way to convey information to those not present (Witty, 1941; Murray, 1973; Green & Petty, 1975). Therefore, writing has been seen as having a practical function. In addition to its practical value, however, Donald Murray (1973) saw the psychological and personal learning values gained from writing as important. Writing has provided a tension release--an escape--by allowing the writer to get feelings down on paper and reflect on important personal experiences. Other authorities (Burrowes, 1951, 1952; Emig, 1977; Graves, 1978; Calkins, 1980, 1983) added that children maintained individuality, independence and their powers of invention through writing. Writing also enhanced reading comprehension (Elkind, 1976; Graves, 1975).

Early research (Campbell, 1776; Bain, 1866; Grierson, 1945) divided writing into four categories: narration, description, exposition and argument. Even today these categories form the basis for many textbooks on writing. Researchers identified these categories by looking at end products--pieces of writing students wrote. This research was not interested in how texts were produced, but rather what the writing looked like as a finished product.

In 1975, Donald Graves (1975) reported on new research and thinking on writing. This research focused on children's activities during writing. Through case study research, Graves (1975), Emig (1971), Calkins (1980), and Sowers (1979) obtained information on children's behavior and the decisions they made while writing. Results showed that writing is a recursive process of overlapping stages with changes in the writing being made at all phases. However, these researchers noted

that children's revision was more editing than global change.

Moffett, (1968) Britton et. al., (1975) and Myers and Gray (1983) provided insight into this process approach to writing. Moffett (1968) identified the writer's universe of discourse which he divided into three parts: I, you, it. He stated

> As writers develop, they progress through four audiences with four relationships: reflection (intrapersonal purpose); conversation (interpersonal - two people at close range); correspondence (interpersonal - 2 or more at a remote distance); and publication - impersonal communication to larger, unknown groups over time and space). As a writer communicates at different levels, the level of abstraction also increases from the immediate known to the past and theoretical (p. 11).

Britton et. al. (1975) provided a developmental model of writing which focused on the processes of writing. Britton based his model on psychological and linguistic research in child development. He identified three forms of writing: expressive, that which is close to informal speech and addressed to a close audience; transactional, writing which informs, instructs, or persuades a more distant audience; and poetic, in which how something is written is as important as what is said. Britton noted, as pictured in Figure 1, expressive language forms the basis for other forms of adult expression.

Myers and Gray (1983) dealt with a theory of teaching writing which they divided into modeling, processing and distancing. The modeling view focused on

parts of the text and made use of imitation, text examples, sentence combining and heuristics. The processing approach shifted from the text to the stages of the writing process--what was happening in the writer's mind and the way writing could be used for discovery and communication. Distancing was concerned with the relationship between speaker and

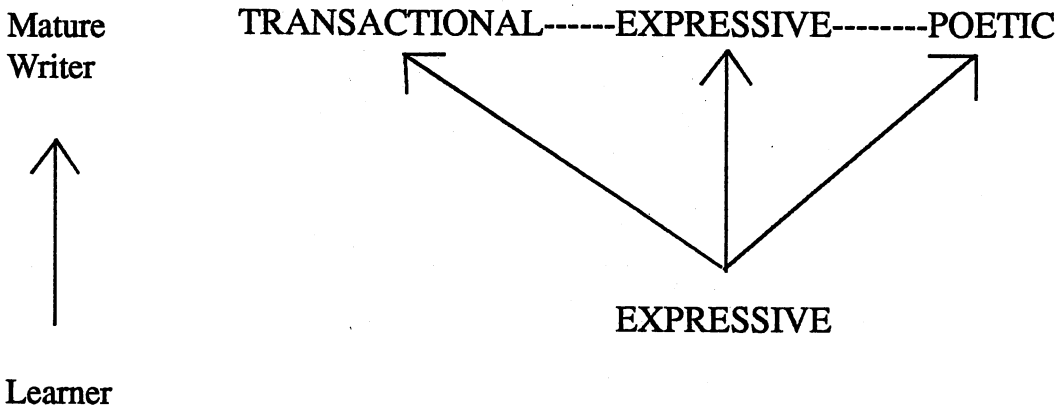

Figure 1. The expressive as a matrix for the development of other forms of writing (Britton, et al., 1977)

subject and between speaker and audience. In this approach the focus shifted to distance between the writer and the audience and the writer and the subject and away from text as in modeling and strategies in the processing approach. Gray suggested that these approaches to composition could overlap, with the best classroom techniques probably including all three approaches.

Literature on writing frequency suggests that one important strategy for creating better writers is to have them write frequently. Writing to learn to write has been advocated at the elementary level (LaBrant, 1955; Lundsteen, 1976; Moffett, 1979). At the secondary level, researchers (Bamberg, 1978; McQueen, Murray and Evans, 1963; Woodward and Phillips, 1967; Wall and Petrovsky, 1981) have found that better freshman writers did more school related writing in high school. Other evidence (Stallard, 1974; Donalson, 1967) pointed out that better high school writers wrote more outside of school. In 1975, the National Council of Teachers of English Commission on Composition indicated that children learned to write by writing so that writing frequently was important.

Haley-James (1981) summarized research on frequency of children's writing.

> Children need to write frequently about self-chosen topics that are drawn from their personal experiences. If teachers set the stage for this, it is likely that children will find satisfaction in communicating personal messages and information through writing. They will learn more about what they know, and reap psychological benefits of writing about what they see, feel, and experience (p.9).

Conclusions drawn from the research findings suggested that frequent writing about topics founded in personal experience was central to an effective instructional program.

These approaches indicate how researchers have been looking at the process of writing. The goals of process writing, however, are to produce writers who can communicate clearly to a variety of audiences, for a number of purposes using several different strategies.

The Writing Process Approach

Writing is an extremely complex task. DeHaven (1979) described writing as

> ...both complex and abstract. Children who are eager to get their ideas down in print soon find that words do not consciously tumble out onto the page in response to thought or momentary impulse. Instead, one must hold a thought in focus while carefully translating each word into its visual symbols (p. 215).

Zamel (1983) stated that writing is a process through which meaning is created. However, how writers write--where ideas come from, how they are formulated and developed, and what the various shapes of composing entail--has been ignored until the last decade. Recent research investigating the composing process, has presented a challenge to the way writing has been taught.

Research has indicated that writing is the process of discovery. Janet Emig (1971) found that writing involved a continuous attempt to discover what a writer wanted to say. Murray (1978) identified this "discovery" as the main feature of the writing process. According to Shaughnessey (1977), writing was "the record of an idea developing, a process whereby an initial idea gets extended and revised (p. 234)." Using a case study approach, Sondra Perl (1980a) discovered that

> ...even unskilled writers employ consistent and stable composing strategies which represent their attempts to discover meaning. Through the act of seeing their ideas on paper, students are enabled to reflect upon them and develop them further (p. 24).

Britton (1975) stated that writers shaped utterances as they wrote, and when they exhausted their imagination or were interrupted, they got started again by reading what they had written. Goodman and Goodman (1976) suggested that speaking and writing and reading and listening are all mutually supportive and did not develop alone. Children learned these skills in the same way and for the same reason.

Perl (1980a) discovered that writing performance was affected by the kind of writing the students were asked to produce. Students wrote more fluently when the writing was based on personal experience. In a study of better writers, she (1980b) noted that the writing process was recursive, that students went back to rediscover meaning as they wrote. Less skilled writers, however, were so worried about form that their revision was limited to surface features.

Like Perl, Sommers (1980) studied writing strategies of experienced and inexperienced writers. She found that less skilled writers revised in a limited way. They rarely changed ideas but were concerned with surface features of the writing only. The experienced writers looked at their writing more globally, changing whole paragraphs as they revised. She concluded that "it is a sense of writing as discovery--a repeated process of beginning over again, starting out new—that the less experienced students failed to have (p. 387)."

Rose (1980) noted in his study that writers who seemed to have writer's block felt restricted by "writing rules or planning strategies that impeded rather than enhanced the composing process (p. 390)." The non-blocked writers seemed to have a flexibility that allowed them to review their writing and shift directions, if necessary. Halsted (1975) stated, "The obsession with the final product...is what ultimately leads

to serious writing block. It closes the path to discovery (p. 82)."

Researchers' opinions on specific phases of the writing process have varied (Murray, 1980; Graves, 1978; Hillerich, 1985). However, most current definitions have included stages of prewriting or exploring, writing or drafting, revising and editing, and publishing. See Figure 2 for details about each stage of the process.

Prewriting. During this stage, writers are preparing or rehearsing to write (Graves, 1978) by talking, thinking or reading about a topic. They gather notes, plan and organize their thinking, identify an audience. Writers use strategies such as brainstorming, mapping, listing or free writing designed to help them form impressions and associations for writing or to stimulate the flow of ideas before any writing begins. This is the stage of discovery when the writer assimilates a subject. Several researchers have focused on the importance of prewriting activity. Mina Shaughnessey (1977) has noted that instruction in writing must begin with the more fundamental processes whereby writers get their thoughts in the first place and then get them underway. Graves (1975) observed that

> ...drawing for the young writer is often not only pre-writing--a first draft of the idea--but also a practical necessity for retaining the idea. A child who is writing slowly and with difficulty needs a drawing to retain a memory of the writing's central theme (p. 52).

Judy (1980) commented that "writers need to talk about, to expand and even to relearn or reexamine their experiences...prior to writing (p. 39)."

Writing Stage. During the writing stage, writers develop their ideas by preparing a first draft. The main concern is content--

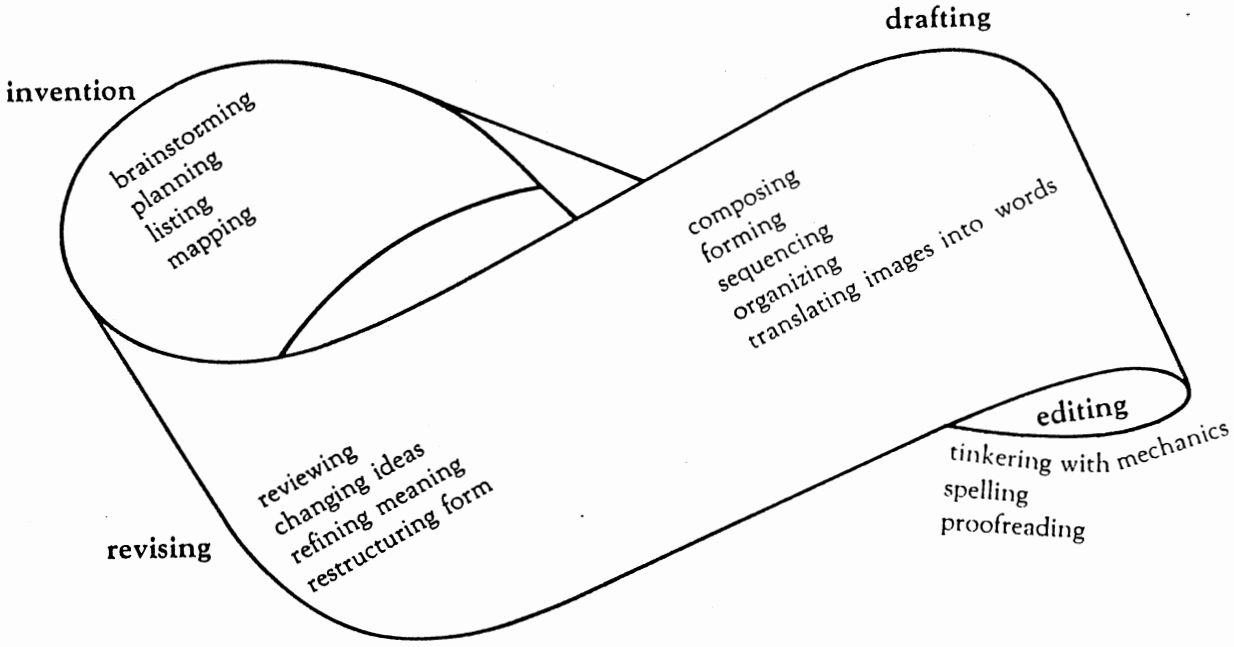

Figure 2. Stages of the Writing Process
(Alaska Department of Education, 1986)

presenting the amount and type of information needed to suit the purpose and audience of the writing. In this stage, writing becomes discovery at the conscious level. However, this draft may resemble the final writing very little. Graves (1975) found that children could compose personal narrative more easily than other kinds of writing. In personal narrative they found it easier to use their own experiences to draft new and imaginative material.

Revising Stage. During this stage, conferencing with the teacher, peer evaluation or group discussion may occur to provide reactions to the writer's first draft. Revising is the writer adding, deleting, and rearranging as a reaction to feedback what was written in the first draft. Changes may be in words, sentences, paragraphs or the whole composition. Calkins (1983) identified three revising styles in children: random drafters, who wrote new drafts without looking at old ones; refiners, who made changes only in spelling and punctuation; and interactive revisers, who used revision to identify good ideas and rework their papers. At the end of this stage, the writer edits his writing by making final revisions. The writer now attends to grammar, spelling, punctuation and usage, imposing correctness on the writing.

Publishing. Providing an audience for one's writing is an important part of the writing process. During this stage, sharing or exposing writing to a broad audience occurs. Graves (1983) stated that "...publishing writing contributes to a writer's development. Publishing is important for all children (p. 54)."

Researchers have recognized that the act of composing is recursive. (Perl, 1979; Murray, 1973, 1980).

Perl (1979) stated

> Composing does not occur in a straightforward, linear fashion. It can be thought of as a kind of 'retrospective structuring'; movement forward occurs only after one has reached back, which in turn occurs only after one has some sense of where one wants to go. Both aspects...have a clarifying effect (p. 18).

Donald Murray (1982) suggested that

> During the processes of rehearsing, drafting, and revising, four primary forces seem to interact as the writing works its way towards its own meaning. These forces are collecting and connecting, writing and reading. Writing may be ignited by any one of these forces in conjunction with any other; but once writing has begun, all of these forces begin to interact with each other (p. 21).

Figure 3 represents a visual portrayal of Murray's conception of writing development.

Results of Graves' (1975, 1983) studies have suggested that developmental factors such as a child's sex were involved as a child wrote. He identified sex differences in writing related to writing frequency, thematic choice and concept of a good writer. He found that

1. Girls write longer products than boys.
2. Girls write more about subjects related to the home and school while boys write about themes beyond home or school.
3. Boys are more concerned than girls with the importance of forming letters and neatness.
4. Girls stress more prethinking, organizational qualities, and give more examples to support their opinions than do boys (p. 35).

Graves (1975) stated that "at any given point in a writing episode, many variables, most of them unknown at the time of composing, contribute to the writing process (p. 40)." He concluded that "children write for unique reasons, employ highly individual coping strategies, and view writing in ways peculiar to their own person. In short, the writing

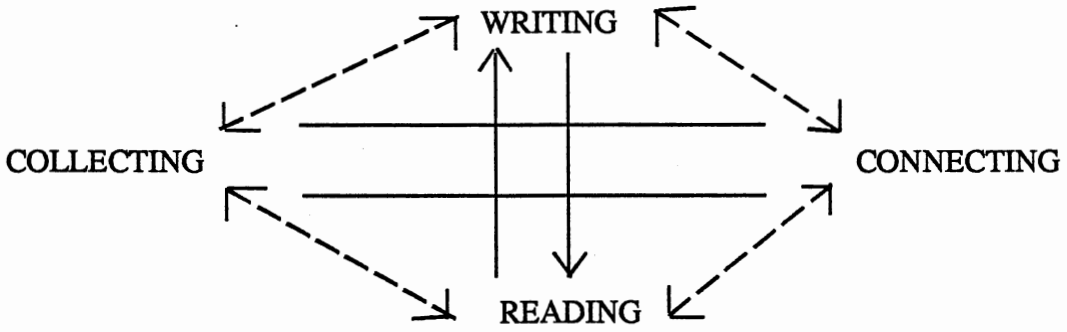

Figure 3. Writing Process (Murray, 1982)

process is as variable and unique as the individual's personality (p. 40)."

With the advent of the microcomputer, teachers have several options for its use in the writing process. They can make minimal use of computers to solve grammar-based writing problems such as subject-verb agreement, or they can use computers as a tool to assist at all stages of the process. In activities like writing, Daiute (1985) suggested that a complex mix of physical, psychological and social processes were at work, and the computer could become an integral part of the activity.

Writing and Computers

As an aid in teaching writing, Withey (1983) cited four approaches to using computers: (1) the computer as tutor, in discrete skills with the student as responder to questions with right and wrong answers; (2) the computer and student in an interactive dialogue with the computer as teacher; (3) the computer and student in interactive programs with the computer performing tasks determined by the student as teacher; and (4) the computer as a blank page on which the student could write, revise, and edit and where the computer responded to commands but offered no advice or other assistance. The first, and most widely used, emphasizes correcting errors and improving basic writing. The second approach uses a program such as developed by Burns and Culp (1980) to stimulate invention during the prewriting stage. Thirdly, students use the computer as a tool to store information they plan to use in their writing. Finally, the computer as word processor is a powerful tool aiding students during all phases of the writing process. Advocates of the tool approach believe that the computer gives writers more control

over the writing since it offers a communication channel as well as physical and cognitive aids.

The tool model of computing is based on a cognitive-developmental approach to learning. According to Daiute (1985), writers have learned to write by writing--by creating texts, reacting to writing, and revising. With word processing writers also learn by doing. Using word processing as a writing tool, writers can take control of their own thinking as they write stories. The editing and text moving capabilities have made revising and recopying texts less time-consuming (Daiute, 1982, 1983, 1985; H. Schwartz, 1984; Withey, 1983).

Studies of writing strategies (Beach, 1979; Faigley and Witte, 1981; Sommers, 1980; Stallard, 1974) suggested that revising successfully was a characteristic of good writers. Research has shown that unskilled writers tended to revise superficially at surface and word levels (Bridwell, 1980; Perl, 1979). In these studies, the word processor appeared to act as a facilitating device which increased the motivation to revise by enabling changes to be made simply. These researchers stated that the computer's value was that it reduced frustrations of recopying by allowing easier reading of text during the stages of the writing process, and by producing neat, publishable drafts for easy sharing with teachers and peers. According to Daiute (1985), children also thought computers were fun because of the interactive functions that made the computer useful for sharing ideas. Children enjoyed receiving messages and feedback on their writing.

Womble (1985) observed that students using word processing wrote longer on a piece of text--adding, deleting, moving text--than did students writing with paper and pencil. A study by Kane (1983)

demonstrated that students spent more time composing using a word processor; they were more intensively involved with composing at the computer; students felt free to explore their ideas in writing because deleting was easy; and they seemed to consider the overall structure of their texts and modified paragraph structure. The appearance of the text on the screen seemed to help focus student attention on the writing task at hand (Marcus and Blau, 1983; Newman, 1984).

When word processing was used with young children composing language experience stories, Bradley (1982) found that when the writing was done on the computer, students went back and made more revisions on stories than on those written on chart paper; the stories ended after reaching logical conclusions; stories were longer; and students reread the stories immediately upon receiving printed copies. Preliminary evidence from a study by Daiute (1982) suggested that word processing improved the quantity of writing, the number of revisions, and the length of the manuscripts done by children.

McKenzie (1980) proposed that using a word processor gave the writer a whole new way of composing and that fluency came when students were freed from the fear of errors. Kiefer and Smith (1983) found that students carried over what they learned about style and applied it to texts not analyzed with a text processor. Wresch (1984) and Kurth and Stromberg (1984) noted that their students, after months of writing with a computer, employed more task-related talk and approached prewriting tasks independently. They concluded that the computer screen seemed to facilitate talk and to focus attention on the students' writing.

A number of researchers have investigated the use of word processing to motivate students. Attitude questionnaires (Daiute, 1984)

illustrated positive effects of using word processing in that students exhibited greater willingness to revise, greater willingness to try prewriting tasks like freewriting, greater pride in their work, greater willingness to experiment with words and formats, and greater attention to teacher and peer comments. The ability to produce many quality copies of their work for sharing with others also appeared to be motivational for students using word processing.

According to Colette Daiute (1983),

> The computer enhances the communication function of writing not only because it interacts with the writers, but also because it can carry out a variety of production activities. Writing on the computer means using the machine as a pencil, eraser, typewriter, printer, scissors, paste, copier, filing cabinet, memo pad, and post office. The computer is a language machine (p. xiv).

The computer also helps internalize a sense of audience. Daiute (1983) suggested

> ...the cursor then blinks, waiting for more text or other commands. This invitation reminds the writer that the program is waiting to receive input, which encourages the writer to say more and to consider whether what is written makes sense...interaction with the computer also helps writers learn to monitor their own writing processes and to evaluate the product. Since the text editor simulates a potential audience, writers are concerned to communicate clearly even when freewriting. This concern encourages them to reflect on their writing in inner dialogues about their texts (p. 141-2).

Research has shown that as children get older interest in using computers may depend on gender. Zucker (1982) found that students in grades three through six had a strong interest in computers and used computers out of school and in their free time. He noted no significant sex differences in attitudes toward computers at these grade levels. However, in a study of secondary school students, Haring and Beyard-Tyler (1984) noted sex-related differences in attitudes toward

computers. They found that female attitudes toward computers was more negative than male and that females' involvement with the computer both in and out of school was less than males'. Thus, girls' confidence in their computer skills decreased as they grew older. Haring and Beyard-Tyler's study also suggested that females associated computers negatively with mathematics but that they had a more positive attitude about themselves and their writing abilities. As a result of this study, these researchers suggested removing girls' initial experiences with computers from a mathematical context and placing it in English composition to try to improve girls' attitudes toward computers.

Research evidence has supported that students can learn word processing skills quickly with limited practice (Kurth and Stromberg, 1984). Computer writing tools have helped writers overcome physical difficulties in writing. When they were integrated with the writing process, these tools served writers. Donald Graves (1984) summarized

> I don't want to see students relying on the computer as a stimulus to thinking. I want to see the computer used as a facilitator of thought. And I don't want it to bypass the teacher. I want the teacher to continue to be very important in listening to the kids read their stuff and asking the tough questions that go forward to publication. To provide other audiences in the classroom, to learn how to help a kid in choosing a topic, doing the draft, questioning the second draft, helping to tune the language in the final draft, we can never bypass that with software. And I don't want to. You've got to have voices responding to voices (p. 65).

Despite all of the research compiled on computers and writing, computer-assisted instruction (CAI) has been the primary mode of computer instruction for Indian students. Fletcher and Sawyer (1983) reported the following benefits of CAI in their conference summary on CAI for Indian students

...easy replication (materials that work in one setting can

> easily be transported and made to work in another setting), the perceived culture fairness of materials presented and judged by a computer, the extensive individualization capabilities of computers to tailor materials specifically and in detail for individual students, the ability of CAI to successfully and substantially improve student achievement independent of the abilities and interests of the classroom teachers whose students are using them, and the capability of computer-aided materials to produce relatively standardized enhanced levels of student achievement for geographically dispersed populations of students (p. 4).

One study by Suppes, Fletcher, and Zanotti (1975) showed improved computation in arithmetic using CAI. However, there is little reported research in language arts or specifically in writing with Indian students. As the final report of Indian Affiliates Incorporated put it, "these areas are most important, and given the successful results achieved with other populations of both advantaged and disadvantaged students some effort should be made to see if equivalent successes can be achieved within American Indian populations (p. 14)."

Summary

Most of the research cited has been conducted on native-English speaking children. Computer research for American Indian children has been compiled primarily using CAI, Whitey's (1983) most basic approach to using the computer.

A review of recent research on Indian populations indicates that American Indian students may be influenced by dialect problems stemming from their cultural and language backgrounds. Although specific problems occur for all students in writing, American Indian students' difficulties in language arts often place them below grade level. A limited number of simplistic studies (Potter, 1981; Diessner, Rousculp, & Walker, 1985) have been done with American Indians to try to improve

their writing abilities. Some research has suggested that Indian students' writing be looked at globally. The writing process approach appears to be one that will allow educators to look at and evaluate students' writing holistically.

With the influx of computers into education, research has shown the computer is now being used for word processing. With computers, students seems to improve their attitude toward writing, increase the quantity of what they write, and enjoy the task as well. However, Indian students have not been widely exposed to word processing. Researchers have suggested that American Indian students be given access to computers in an attempt to improve their writing skills. This study brings Indian students, writing on computers, and the writing process together to try to improve written communication skills of American Indian students.

CHAPTER III

DESIGN AND METHODOLOGY

Introduction

This study investigated the effects of two methods of writing instruction on the writing performance of children in grades three through eight. This chapter provides a description of the experimental design for the study, including subjects, sampling procedures, and descriptions of treatments. It also includes an overview of the instrumentation and treatment of the data.

Subjects

The population investigated was composed of subjects in grades three through eight from a rural area with a low socioeconomic level. The students were mainly American Indian from the Cherokee tribe. The initial subjects chosen for this study were 96 students in grades three through eight from Bell School, a rural school in eastern Oklahoma. Ninety-five percent of the students in this school were Cherokee Indians from low socioeconomic backgrounds. Parents' income level was determined to be $8,000 per annum or lower based on their children's eligibility for the free lunch program. Each grade level was represented by one class.

The study was conducted for ten weeks from January to April of 1988. Subjects were divided into three groups: Level 1, grades 3 and

4; Level 2, grades 5 and 6; Level 3, grades 7 and 8. Students at each level were then randomly assigned to two instructional groups of approximately 15 students each. The three experimental groups did all of their writing on the computer; the three control groups wrote in the conventional way, using pencil and paper. After posttests were completed, data from 73 students were used for analysis.

Design of the Study

A pretest-posttest control group experimental design was used for this study. This design was selected because it controls for nearly all sources of internal and external invalidity. Although subjects for this study were not randomly selected, they were randomly assigned to groups at each level. This research design is represented by the following

$$\begin{array}{l} R \quad O_1 \quad X_1 \quad O_2 \\ \hline R \quad O_1 \quad X_2 \quad O_2 \end{array}$$

where O_1 represents the pretest, O_2 the posttest, X_1 one treatment, and X_2 the other treatment. The independent variable for the study was the method of instruction. The dependent variable was the students' writing performance as measured holistically.

Random assignment, a pretest, and a control group provided controls over all sources of internal invalidity. Random assignment controlled for regression and selection factors; a pretest controlled for mortality; random assignment and a control group controlled for maturation; and a control group controlled for history, testing, and instrumentation.

The posttest scores of both the control and experimental groups were

compared for each level and analyzed using t-tests and one-way analysis of variance (ANOVA). A one-way analysis of variance was used because initial differences were found among subjects on the pretest of either group (Gay, 1981).

Internal Validity

According to Campbell and Stanley (1963), the researcher must control for eight factors of internal validity: history, maturation, testing, instrumentation, regression, selection, mortality, and interaction of selection and maturation. Controlling for internal validity insures that any observed differences on the dependent variable are the result of the manipulation of the independent variable not some other factor. The Pretest-Posttest Design controls for all of these factors of validity.

History. This study controlled for history by having the control and experimental groups participate in the study at the same time. Therefore, any historical events which might have influenced the control group would have had an effect on the experimental group as well. The researcher pretested and posttested both groups at the same time, and both groups received the same directions written by the researcher. The same teacher provided instruction and directions to both groups.

Maturation. Because maturation occurred in both control and experimental groups, it was not a factor in the study. In a ten-week study the effects of maturation would be minimal for both groups.

Testing. Testing was controlled for by using alternate forms for pretests and posttests. Although the format of the pre- and posttests

was the same, the picture prompt for the posttest was different from the pretest prompt.

Instrumentation. In this study the pretest and posttest alternate forms were of similar difficulty. Each picture used was within the child's experiential range. To control for instrumentation, the researcher assigned each writing sample a number code for scoring purposes so that the raters could not distinguish the pretests from the posttests or the experimental groups from the control groups. Using number codes eliminated any potential bias by raters when they evaluated the samples.

Regression and Selection. Because subjects were randomly assigned to treatment groups, problems of extreme scores was not a factor. Random assignment also eliminated selection as a factor.

Mortality. All students in grades three to eight were required to participate in the study and were randomly selected for control and experimental groups, thus, eliminating mortality as a factor. Only students who had pretest and posttest samples were used in the analysis.

Selection-Maturation Interaction. According to Gay (1981), selection may interact with factors such as history and testing, but selection-maturation interaction is most common. All of these factors have been controlled for in the design. In addition, the researcher provided the same directions and instructional techniques to all teachers. Finally, to assure uniformity among the teachers in instructional methods, the researcher had two workshops--one to provide an overview of the writing process and a one-day workshop to train the

teachers involved in the study to use the writing program designed by the researcher.

External Validity

Several threats to external validity may limit generalization to nonexperimental populations, according to Gay (1981). These threats include pretest-treatment interaction, selection-treatment interaction, specificity of variables, reactive arrangements and multiple-treatment interference.

Pretest-Treatment Interaction. Pretest-treatment interaction was not a serious factor because of the nature of the test. Teachers in the school had used picture prompts with these students for other classroom activities; therefore, the pre- and posttests which used picture prompts were not unusual to the subjects. Also, the pretest did not call for an attitude change, and it did not deal with any unusual or controversial issue that might alert or prejudice subjects. Finally, because of the similarity in prompts throughout the study, children did not see the pretest or posttest as novel.

Selection-Treatment Interaction. According to Gay, (1981) selection-treatment interaction can be a problem even in a design involving random selection. The possibility exists that the results are not generalizable to any but the population from which the control and experimental groups were chosen. Although the researcher considered other schools and had permission to do the study in several Oklahoma schools, this school was selected because it did not already have a structured program of writing instruction. Therefore, baseline data was

easy to obtain on writing performance. In addition, teachers enthusiastically endorsed the study when approached by the researcher. Another school was not included in the study because the researcher was unable to find a school at the socioeconomic level of the students in the school used for the study who also had access to computers.

Specificity of Variables. This study was conducted with a specific kind of subject, using specific measuring instruments at a specific time and under a specific set of circumstances. Therefore, in generalizing results, the researcher must be cautious in overgeneralizing to writing of all kinds and subjects of different backgrounds. However, because subjects from grades three through eight were included, generalization to elementary American Indian school children might be appropriate.

Reactive Arrangements. The researcher obtained permission from the school principal to do the study. Subjects did not know they were involved in a study, rather they thought that they were preparing for a state test in writing that would be given later in the spring. Therefore, a Hawthorne effect was not a factor in the study. Since all subjects received the same directions, writing instruction, and topic choice, the novelty effect was not a factor. Working on the computer was not a novelty either because all students in the school have two 45-minute computer periods each week. The experimental groups' computer writing occurred during part of their regularly scheduled computer periods. Using the same directions, regular classroom teachers administered the pre- and posttests, thus minimizing any feeling of special attention by the subjects. Teachers included the test writings as part of their regular classroom assignments and did not know that

they were participating in an experimental study. Teachers were told that the pretest was being given to provide a basis to judge which method of writing instruction was best to use for their classes to prepare them for the Oklahoma Writing Test.

Multiple-Treatment Interference. Because subjects did not receive more than one treatment in writing in succession during the study, multiple-treatment interference was not a factor. In addition, because no regularly scheduled program of writing instruction existed in this school, nocarry-over effects from an earlier treatment were found.

Sampling Procedure

The researcher selected students from grades three through eight in a rural elementary school in eastern Oklahoma. Students were divided into levels with grades 3 and 4 as Level 1, grades 5 and 6 as Level 2, and grades 7 and 8 as Level 3. The 95 students were each assigned a number from a random numbers table, and the list was divided into Levels 1, 2, and 3. Level 1 had 17 students in the non-computer group and 15 in the computer group; level 2's non-computer group consisted of 16 students with a computer group of 18; and level 3 had 15 in each group. Students were randomly assigned to control and experimental groups at each of the three levels.

Research Procedure

The regular classroom teachers asked each student in the six groups to produce a writing sample for the pre- and posttests. Tests at all grade levels in this study were patterned after the State of Oklahoma's MAT6 Writing Test because the MAT6 test was based on a national.

standardization sample tested in the spring of 1985. The MAT6 Writing test is a direct assessment designed to measure writing performance. A narrative/descriptive mode was chosen as the type of writing for the MAT6. Students were asked to look at a picture prompt and "tell a story" about the picture. It was felt by state test officials after research on the subject that narrative/descriptive writing had relevancy at all grade levels. Writing time for the test was 20 minutes. This study followed the same format as the MAT6 Writing Test in that they looked at a picture prompt, told a story about the picture, and had twenty minutes to write their response.

During the ten-week study, both control and experimental groups at each level received instruction on writing in all phases of the writing process. For each assignment, one day was provided for prewriting, one day for writing a rough draft, another day to revise the draft following feedback from teachers, and a fourth day to complete revision and a final copy. Four such assignments comprised the ten-week writing program. Following instruction at each phase, the control groups at each level did their prewriting, drafting, revising, and editing using pencil and paper. The experimental groups at each level did similar writing using FrEdWriter on Apple IIE computers. Students had little advance keyboarding practice before the study began.

Instrumentation

Two methods--direct and indirect measurement--are commonly used to measure writing performance. In indirect measurement, students are given an objective, multiple-choice test to assess their knowledge of the mechanics of language such as punctuation, spelling, grammar and

vocabulary. Direct measurement requires that students write on a specific topic so that the component of writing being tested is actual composition skill. According to Rexford Brown, of the National Assessment of Educational Progress, (AASA Critical Issues Report, 1982) writing assessment should be determined by the purpose for evaluation. The Los Angeles County Schools reviewed both methods of assessment. Their guide, A Common Ground for Assessing Competence in Written Expression, developed by teachers and curriculum specialists, favors direct measurement. Several reasons support their choice. "When teachers and students know that assessment will be through a writing sample, they are likely to focus on the writing process itself, instead of exercises in mechanics and punctuation." (AASA, 1982). Diagnosing student needs in writing, improving teaching skills, and aiding students in understanding their own weaknesses are advantages of using writing samples. Therefore, the researcher chose a direct measurement of writing performance--writing samples--so that the test would be more valid because it measured actual writing performance.

Although direct writing measures actual writing performance, scoring a writing sample can be the greatest problem with a direct measurement. Since scoring requires a subjective evaluation by the rater, instruments to measure writing performance are not readily available. Thus, to achieve reliability, inter-rater agreement is necessary to obtain statistically acceptable results.

Scoring Variables

The researcher considered the following scoring variables that might affect reliability.

Writer Variable. Researchers on writer variability have found that day-to-day writing performance varied, especially the writing performance of better writers (Kincaid, 1953; C.C. Anderson, 1960). From the information obtained in these studies, if a student's improvement in writing is to be measured, it is advisable to evaluate a student's composition when it is the best performance that he can do. Therefore, the researcher had the pre- and posttests administered immediately after opening announcements in the morning. It was felt that students would be most alert at that time of day.

Assignment Variable. In order to eliminate bias from the assignments, the researcher took each of the four assignment variables into consideration when choosing the writing prompts for the study. The assignment variable has four aspects to be controlled: the topic, the mode of discourse, the time afforded for writing, and the examination situation. Results of several studies have shown variations in writing performance by students who wrote on different topics (Wiseman and Wrigley, 1958). The Kincaid Study (1953) also showed that poorer writers' writing performance varied according to the mode of discourse--narration, exposition, argument or criticism--used in the assignment (Kincaid, 1953). Thus, based on MAT6 research on modes of discourse, the researcher chose Britton's informative mode of discourse, specifically the narrative/descriptive mode to model the MAT6 test. The narrative/descriptive mode was chosen for the MAT6 Writing Test because of its relevancy at all grade levels. The researcher also modeled the MAT6 Writing Test by choosing picture prompts for their concreteness and for their familiarity to children in grades three through eight. The pretest prompt was a picture used by consultants who train teachers to

give the MAT6 test in Oklahoma. The posttest picture prompt was one tested by Psychology Corporation, the company that provides the Oklahoma Department of Education with its MAT6 Writing Test. These pictures were chosen because they would have meaning for the writers, because vocabulary would not be a problem, and because the conceptual level would not be difficult--all characteristics needed for a good writing assignment.

To obtain writing samples, the researcher chose the same 20-minute timeframe used in the MAT6 Writing Test. The 20-minute timeframe was selected by MAT6 researchers because it yielded high reliability. A questionnaire administered to all teachers who participated in standardizing the MAT6 Writing Test indicated that time limits were reasonable for the writing task.

All students took their pretests on the same day at the same time in the morning as school began. Each regular classroom teacher administered the test to her/his students based on the instructions prepared by the researcher. The researcher provided each teacher with picture prompts and written directions which each teacher read to the class. The directions were also on the page with the picture.

Rater Variable. The rater variable--the tendency of a rater to vary his own standards of evaluation--has been the most serious problem encountered in direct writing assessment no matter who the raters were. Two areas of control are necessary: Rater fatigue and personal feelings. If raters become tired, they rate essays more severely or leniently or become erratic in their evaluations (Braddock, et. al., 1963). Therefore, the researcher provided breaks each hour during the rating period to try to maintain efficiency. In addition, pretests and

posttests for control and experimental groups were interspersed and staggered throughout the rating period so that no one group of papers or students would be affected by rater fatigue.

Another rater variable is personal bias. To avoid any effects from this variable, all papers had a numbered code so that raters did not know whether they were reading a pretest, posttest, control or experimental group paper. The researcher typed all pre- and posttests to eliminate handwriting bias as a variable. In addition, all picture prompts had no seasonal references to identify the writing as pre- or posttest.

Colleague Variable. The colleague variable is the tendency of several raters' evaluations to vary from each other. Research, substantiating this variability, shows correlations from as low as .31 to as high as .96 (Braddock, et. al, 1963). These variations exist because raters tend to place different values on different aspects of composition. Raters need to establish a common set of criteria about writing and must practice evaluating essays based on the criteria to achieve reliability. To avoid this variability, the researcher decided to use a general impression or holistic method of rating to achieve inter-rater reliability. A scoring guide established a common set of criteria, and practice occurred before raters evaluated each set of papers. This method can provide valid and reliable ratings despite the colleague variable. In addition, this is a method used in the Oklahoma MAT6 Writing Test to score writing samples.

Scoring Method

Holistic Scoring. The holistic method is a systematic analysis of

a piece of writing. Using the holistic method, raters work independently making single, overall judgments on the quality of a piece of writing. Raters read the papers for the general impression or overall impact of the writing. They make no marks on the papers as they read and should be able to rate papers in approximately two minutes (Cooper, 1977). Any papers with discrepancies of over one or two points between raters are read by a third rater. For this study two raters rated all papers on a scale from 1 to 8, with 1 the lowest possible score. Scores which fell within two points were accepted; however, if essays differed by more than two point, they were scored by a third rater. The sum of the two combined accepted scores was the total for each paper. Scores were based on an essay's success in meeting the characteristics of a scoring guide (See Appendix D). Although all three raters were familiar with holistic scoring and had rated numerous papers, they still participated in a training session on rating papers prior to evaluating any papers in the study.

Scoring

In one research study, B.M.D. Cast (1940) found that the holistic method of scoring was very reliable. For the present study, two raters rated all papers holistically, using an eight-point holistic scoring guide. Raters assessed papers for overall impression of the writing. Their combined scores were the totals for each paper. Any paper with a discrepancy of more than two points between raters was read by a third rater. The higher two ratings were used. Stalnaker (1934) found that after training raters, reliability increased from as low as .30 to a range of .73 to .98 with an average of .88. Raters 1 and 2 were trained

by Rater 3 so that the two raters demonstrated scoring accuracy prior to evaluating any papers in the study. Raters were checked periodically while scoring papers to make sure that they were making a common interpretation and applying criteria consistently. The researcher was present during scoring to answer any questions and see that the scoring proceeded as planned.

Raters

Three raters agreed to score the writing samples from the pre- and posttests. The following information describes the raters.

Rater 1. This rater received a B.A. in Education with a major in Spanish, from Houlton College. He earned two masters' degrees, one in Spanish from Middlebury College, the other in English from the University of Wisconsin and is working on a doctorate in English with a major in rhetoric from Oklahoma State University. He has had two years' experience using holistic scoring and teaching the process approach to writing.

Rater 2. This rater received a B.A. in English, an M.A. in English with special emphasis in Teaching English as a Second Language, and is working on a doctorate in English, with a major in rhetoric, all from Oklahoma State University. She has two years of experience using holistic scoring, teaching the process approach to writing, and working with basic writers.

Rater 3. Rater 3 received his B.A. in English at Ohio University. He earned an M.A. and PhD in English at the University of Florida. He was head of the English Department at York College in Pennsylvania prior

to coming to Oklahoma State University where he directs the Composition Program for the English Department. In this capacity, he creates assignments and scoring guides for freshman English courses and the English Proficiency examination. He has read extensively on the writing process approach and holistic scoring evaluation. Rater 3 directed the training session, as well as the scoring session for Raters 1 and 2. He was the third reader when differences in scoring arose between Raters 1 and 2.

Treatment

Before beginning the writing program, teachers in the school participated in training sessions designed to familiarize them with the writing process approach and specific activities that would be used during the writing program. All teachers who participated in the study were certified by the Department of Education to teach in the state of Oklahoma. The first training session reviewed process writing--what each phase consisted of and what students would accomplish at each phase. During the second session, the researcher trained teachers on how to involve students in prewriting and revising activities. The writing program designed by the researcher was also reviewed in detail. In addition, during the ten weeks of the study, the researcher visited the school on three occasions. During each visit the researcher checked at each level to see if the writing program was on schedule and talked with all of the teachers, answering their questions or supplying additional information. The investigator also obtained printouts of students' writing and reviewed paper and pencil copies to make sure all levels were maintaining the schedule. The principal and lab director

also noted any problems with weather or missed school days that might have occurred between visits and any changes they had implemented to keep students on schedule.

Each group at each level received the structured program of writing instruction based on the writing process approach. Each level, consisting of two grades, met together and received instruction for two 45-minute writing periods each week for ten weeks. These writing periods occurred during the regularly scheduled spelling session and one computer lab class each week. During the ten-week period students completed four separate assignments taking approximately four periods to complete each assignment.

Each assignment was similar and structured as follows:

Session 1: Teachers passed out a picture prompt supplied by the researcher. Part of the period was designed for students to investigate the topic (prewriting) with the teacher. For example, the teacher explained brainstorming and brainstormed with the students asking them to respond by saying anything that the picture brought to mind. The teacher wrote the students' responses on the board. Students then had time to do their own brainstorming and thinking about the topic. Teachers collected students' paper and pencil writing and the pictures at the end of the session. A computer printout of each assignment was recorded on the main hard disk in the computer lab for the computer writers. Teachers kept paper and pencil copies in students' writing folders.

Session 2: Teachers passed out students' brainstorming, and using this prewriting as a stimulus, students wrote their own first drafts (drafting) based on the picture prompt. Teachers collected all writing

and responded to the first drafts, using a dialogue journal format. Teachers' responses were based on information concerning revising supplied by the researcher.

Session 3: Teachers returned students' writing with teacher comments. Students read the comments and used them as a basis to revise their papers. Exercises on one grammatical point were also covered during this session.

Session 4: Teachers returned students' revised essays which they edited for final submission. A publishing activity also took place in Session 4.

Experimental Groups

Experimental groups at each level received pre- and posttests, the same instruction and directions as the control groups. These groups, however, did all of their brainstorming, drafting, and revising on Apple computers using the FrEdWriter word processing program.

Hardware. The hardware for the study included 21 Apple IIE microcomputers with color monitors and several printers. The microcomputers were connected together through a network system.

FrEdWriter. Free Education Writer (FrEdWriter) is a public domain word processing program, written by Al Rogers, and distributed through 1986 CUE, Inc Softswap. Students accessed the program by simply typing Fred after they turned on the computer. All students' writing was saved on a hard disk. The lab director ran copies of all student writing for the researcher.

Directions to Users. Before the ten-week study began, teachers instructed students on the commands they would need to use FrEdWriter. A list of commands needed to use FrEdWriter was available at each computer station.

Control Groups

Control groups at each level received pre- and posttests and the same instruction and directions as the experimental groups. These groups, however, did all of their brainstorming, drafting, and revising using pencil and paper.

Data Analysis Description

Rater Reliability

Rater reliability coefficients were estimated by using the Pearson product-moment correlation formula. For the 146 samples raters 1 and 2 achieved an interrater reliability of .82 ($p < .01$). This correlation compares with high reliability obtained from other studies (Cast, 1940; Kincaid, 1953; Wiseman & Wrigley, 1958) using holistic scoring following training of raters.

Analysis of Writing Sample Scores

Individual scores for each student's pre- and posttests were calculated by adding the scores of the two raters together to obtain holistic scores for each student. All statistical analyses were calculated using Systat: The System for Statistics, version 3.0. The mean scores for each group on each test were determined. The significance of the differences between the posttest means was

calculated by using t-tests and a one-way analysis of variance (ANOVA). Significance was established for the study at 0.05 level of confidence.

Summary

Chapter III provided an overview of the experimental design including subjects involved in the study and the treatment used. The instrumentation included rater variables, scoring procedures and methods, and raters involved. Also presented was a description of the analysis of the data. Chapter IV will discuss the results of the experiment.

CHAPTER IV

RESULTS

Analysis of the Data

The purpose of this study was to determine the effects of a program of writing on students in grades three through eight using two methods of instruction--computer and non-computer writing. The study addressed these questions:

1. Does the writing performance of Indian students in grades three through eight improve after participating in a specific writing program?
2. If performance improves, which method of instruction--writing on computers or non-computer writing--leads to the greater improvement?

The data for the study were analyzed using t-tests and a one-way analysis of variance (ANOVA). The t-test was used to determine whether two means--pretest and posttest--were significantly different at a particular probability level. It compared the actual mean difference observed with the difference expected by chance. Analysis of variance was used to determine whether there was a significant difference between two or more means at a specific probability level when there were more than two experimental groups (Gay, 1981). In this study the ANOVA provided a check on the computed t-tests.

A t-test was performed on pretest scores to see if any significant differences existed in the population at the beginning of the study. Results of the t-test on independent samples on the pretest by group yielded a mean of 7.447 for the non-computer group and 7.486 for the computer group. Pooled variances showed a probability of .955 indicating there was no significant difference between groups on the pretest. The results by group on the pretest are reported in Table 1. A t-test was also used to see whether there was any significant difference on pretests among levels. Means for the three levels were 7.038 for level 1, 7.667 for level 2, and 7.739 for level 3. Using an analysis of variance, summary statistics for the pretest by level showed an F value of .451 with a probability of .639. These results, reported in Table 2, indicated that there was no significant difference in pretests among levels. Because no significant difference was found in pretest scores when analyzed by group or by level, t-tests and analysis of variance were used to analyze the rest of the data.

Testing the Hypotheses

The following null hypotheses were tested at the 0.05 level of confidence

($p < .05$).

Hypothesis 1: There is no significant difference between pretest and posttest scores on overall writing performance.

The t-test for non-independent samples is used when some type of matching occurs. In this study one group was pretested before the treatment and then posttested, so the t-test was used to determine whether there was a significant difference between the means of the sample at two different times. Mean scores of 7.466 for the pretest and

TABLE I

PRETEST VARIABILITY: BY GROUP
T-TESTS

Group	$\bar{x}$	t-score	p
Non-Computer	7.447	.057	.955
Computer	7.486		

TABLE II

PRETEST VARIABILITY: BY LEVEL BY GROUP
ANALYSIS OF VARIANCE

Level	$\bar{x}$	F-value	p
Level One	7.038	.451	.639
Level Two	7.667		
Level Three	7.739		

9.137 for the posttest were found using a t-test of paired samples for the pretest and posttest. A mean difference of -1.671 with a probability of <.001 indicated that there was a significant increase in the performance of the entire group from the pre- to the posttest.

The mean differences between the pretest and the posttest scores were then calculated by level using t-tests. The mean difference for Level 1 was -1.808. With a significance level of $p < .05$, the p value for Level 1 equals <.001; therefore, for Level 1 the null hypothesis that there will be no improvement in writing performance from the pre- to the posttest was rejected. For Level 2 with a mean difference of -1.458 and a $p = .004$, the null hypothesis was rejected. Level 3's mean difference was -1.739 and $p = .013$; therefore, the null hypothesis was also rejected. The results of the t-test analyses indicated improvement in writing performance following a program of writing instruction at all three levels. Table 3 reports these results.

In an analysis of writing improvement by treatment group using t-tests, a mean difference for the non-computer group of -1.737 with a $p =$ <.001 and for the computer group a mean difference of -1.600 with a $p =$ <.001 was found. These results indicated that both groups showed gains from the pre- to the posttest, significant at the 0.05 level of confidence. Results by group are reported in Table 4.

Results by level and group showed that when put through a specific program of writing instruction, students improved their writing performance. The improvement was significant at the 0.05 level of confidence. Therefore, null hypothesis one was rejected. There was a significant difference between pretest and posttest scores on overall writing performance. This finding is in line with other research

TABLE III

RESPONSES TO PRETEST VS. POSTTEST WRITING ASSESSMENT: ENTIRE SAMPLES AND LEVELS T-TESTS

	$\bar{x}$ pretest	$\bar{x}$ posttest	diff. of $\bar{x}$	t-score	p
Entire Sample	7.466	9.137	-1.671*	5.564	.000
Level One	7.038	8.846	-1.808*	3.840	.000
Level Two	7.667	9.125	-1.458*	3.155	.004
Level Three	7.739	9.478	-1.739*	2.697	.013

* = $p < .05$

TABLE IV

RESPONSES TO PRETEST VS. POSTTEST WRITING ASSESSMENT: ENTIRE SAMPLE AND GROUPS

	$\bar{x}$ pretest	$\bar{x}$ posttest	diff. of $\bar{x}$	t-score	p
Entire Sample	7.466	9.137	-1.671*	5.564	.000
Computer	7.486	9.086	-1.600*	4.331	.000
Non-Computer	7.447	9.184	-1.737*	3.691	.000

* = $p < .05$

indicating gains in writing performance when a specific program of instruction is used.

HYPOTHESIS 2: There is no significant difference between males and females in overall writing performance.

First, the data were analyzed using t-tests to see whether improvement in writing occurred for both males and females following a specific program of writing instruction. The t-test analysis showed a mean difference for males of -1.718 with $p = <.001$. For females the mean difference was -1.618 with a $p = < .001$. These results revealed significant improved performance in writing for males and females following the writing program. However, a t-test to determine if there were any differences in writing performance between sexes yielded a t score of 1.339 for the pretest and a 1.201 for the posttest with a $p = .234$. This figure was not significant at the 0.05 level of confidence, indicating no overall difference between males and females in overall writing performance existed at the end of the writing program. An analysis of variance on posttests by sex by level showed an F value of 1.173 and a probability of .332. At level 2 the means of 7.917 for males and 10.333 for females reveals a significant difference on the pretest; however, analysis of variance showed no improvement in scores for the posttest for this level. Despite this slight difference on the pretest, no significant difference in writing performance was shown between sexes among levels. To summarize, analyses by level and sex indicated no significant difference in improvement of writing performance between males and females. An analysis of variance by sex by group yielded an F value of .870 and a $p = .461$, also showing no significance at the .05 level. Therefore, null hypothesis 2 was not

rejected. Table 5, 6, and 7 report the results of male and female differences. Therefore, null hypothesis 2 was not rejected.

HYPOTHESIS 3: There is no significant difference between posttest scores of the experimental and control groups on writing performance.

To analyze for significant differences between treatment group posttest scores the means of the computer and non-computer groups were analyzed using a t-test. The posttest mean of the non-computer group was 9.184 and for the computer group 9.086. The T score was .148 with a probability of .833. No significant difference was found between groups on the posttest. The results between treatment groups are reported in Tables 8 and 9. In addition, an ANOVA on posttest scores by level by group was performed. The ANOVA yielded an F value of .961 with p = .448, also indicating no significant difference on posttests between the non-computer and computer groups by level at the 0.05 level of confidence. Based on the analyses, null hypothesis 3 was not rejected.

HYPOTHESIS 4: There is no significant difference in writing performance between males in the control and experimental groups.

The posttest score means of the males in the control and experimental groups were compared using a t-test on independent samples to see if there was any significant difference in writing performance between males in the non-computer and computer groups. The posttest mean score for the non-computer group was 9.136 and for the computer group, 8.294. Pooled variances indicate a T score of .881 with a probability of .384. These results showed that males using the computer did not improve writing performance more than males who wrote using paper and pencil. Therefore, null hypothesis 4 was not rejected. Results are reported in Table 10.

TABLE V

DIFFERENCES IN PRETEST AND POSTTEST WRITING PERFORMANCE: BY SEX

Sex	$\bar{x}$ pretest	$\bar{x}$ posttest	diff. of $\bar{x}$	pretest/ posttest t-score	p
Males (n=39)	7.051	8.769	-1.718*	4.343	.000
Females (n=34)	7.941	9.559	-1.618*	3.483	.001

* = $p < .05$

Difference in Performance of Males and Females

	Pretest	Posttest
Male/female t-score	1.339	1.201
p	.185	.234

TABLE VI

POSTTEST MEANS: BY SEX BY LEVEL

Sex	Level	1	2	3
Male		9.154	7.917	9.143
Female		8.538	10.333	10.000
ANOVA:	F = 1.173		p = .332	

TABLE VII

POSTTEST MEANS AND ANOVA: BY SEX BY GROUP

Group	Sex	Male	Female
Computer		8.294	8.000
Non-computer		9.136	7.875
ANOVA:	F = .870	p =.461	

TABLE VIII

DIFFERENCES IN WRITING PERFORMANCE: BY GROUP

	computer	non-computer	t-score	p
Pre-test	7.486	7.447	.057	.955
Post-test	9.086	9.184	.148	.883

*=p<.05

TABLE IX

POSTTEST MEANS AND ANOVA: BY LEVEL BY GROUP

Group	Level	1	2	3
Computer		9.545	9.250	8.500
Non-computer		8.333	9.000	10.545
ANOVA:	F = .961	p = .448		

TABLE X

WRITING PERFORMANCE OF MALES: BY GROUP

Males	computer	non-computer	t-score	p
Pre-test	6.941	7.136	.234	.817
Post-test	8.294	9.136	.881	.384

*=p<.05

TABLE XI

WRITING PERFORMANCE OF FEMALES: BY GROUP

Females	computer	non-computer	t-score	p
Pre-test	8.000	7.875	.115	.909
Post-test	9.833	9.250	.631	.532

*=p<.05

HYPOTHESIS 5: There is no significant difference in writing performance between females in the control and experimental groups.

The posttest score means of the females in the control and experimentalgroups were compared using a t-test on independent samples to see if there was any significant difference in writing performance between females in the non-computer and computer groups. The posttest mean score for the non-computer group was 9.250 and for the computer group 9.833. A t-test produced a T score of .631 with a probability of .532 ($p > .05$). The results reported in Table 11 indicated that females using the computer to do their writing did not gain in writing performance over those females using paper and pencil. As a result, null hypothesis 5 was not rejected.

Summary

Results of the study indicated that writing performance of students in grades three through eight did improve after they had participated in a specific ten week writing program. T-test and ANOVA analyses showed that writing improvement was significant at the 0.05 level whether the analysis was of the total population, by level, by group, or by sex. However, although writing performance improved, no significant improvement was noted in the computer group over the non-computer group. T-test and ANOVA analyses completed between groups, sexes, and among levels showed no significant differences ($p > .05$). In addition, no significant differences were found between males who used computers and those who used paper and pencil for their writing, nor were any differences found between females on the same measure.

In summary, this study showed that writing performance did improve

after following a specific writing program, but the data analyzed for American Indian students revealed no evidence that these students using computers for writing assignments improved their writing more than those not using computers.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary of the Study

The purpose of the study was to look at two different methods of writing to see how each affected American Indian students' writing performance. The ten-week study was conducted from the last week in January through the first week in April, 1988. The subjects analyzed in this study were 73 students in grades three through eight in a rural elementary school in eastern Oklahoma. Most of these students were Cherokee. The study addressed the following questions:

1. Does the writing performance of Indian students in grades three through eight improve after participating in a specific program of writing instruction?
2. If performance improves, which method of instruction--writing on computers or non-computer writing--leads to the greater improvement?

A writing program which consisted of two 45-minute periods each week for the ten weeks of the study was developed for this population. Students, mostly Cherokee, were divided into levels with grades three and four as Level 1, five and six as Level 2, and seven and eight as Level 3. Students were randomly assigned to computer and non-computer writing groups at each level. All students were administered a pretest prior to

starting the writing program. The pre- and posttest were direct writing tests similar to those used by the state Department of Education in Oklahoma to test writing ability and were designed by Psychology Corporation. Scoring of pretests and posttests was completed holistically using a scoring guide compiled by the state Department of Education in Oklahoma.

The research design for this study was Campbell and Stanley's (1963) Pretest-Posttest Control Group Design. The researcher used t-tests and one-way analysis of variance (ANOVA) to analyze the data. These statistical techniques were used because no initial differences were found among the subjects on the pretest. Pretest and posttests scores were compared to see if student writing performance had improved following the ten weeks of writing instruction they had received. Computer and non-computer groups were compared to determine if one method of writing produced greater gains in writing performance than the other. A comparison was also made of the gains of males and females following the program and between males and females using the computer and those using pencil and paper. Statistical significance for the study was set at the 0.05 level of confidence.

Conclusions of the Study

Investigating the first question of the study--whether there was improvement in writing performance after ten weeks of writing instruction--the researcher compared pre- and posttest scores using t-tests and one-way analysis of variance. The pre- and posttests of the entire sample were compared and showed significant differences at less than the 0.05 level of confidence. In addition, the researcher

compared the pre- and posttests by level, by group and by sex. In all cases the differences were significant at the 0.05 level. Since the results were significant, the difference in scores seems to have resulted from the treatment, not by chance. One conclusion, then, from the study is that Indian students from low socioeconomic backgrounds can improve their writing if they are given a specific writing program over an extended period of time. Since improvement was noted at all levels and among both males and females, it would seem that given specific instruction on writing students can improve their writing performance. These results support that writing can be taught.

To examine the second question--whether there was a difference between the computer and non-computer groups in writing performance--the researcher again used t-tests and analysis of variance to compare the posttest scores of the computer and non-computer groups. Posttest scores revealed no significant differences at the 0.05 level between the computer and non-computer groups. Although these results would seem to support that using the computer does not help improve the quality of Indian students' writing over pencil and paper writing, several factors may have influenced this result. First, although these students were familiar with computers, the amount of typing they had experienced prior to this program was limited. In addition, although the FrEdWriter word processing program was chosen for its ease of use, the children had used it only once, or not at all, prior to the start of the writing program. Also, in the researcher's discussions with the teachers during the writing program, she noted that several teachers' attitudes toward the computer were not positive, and these attitudes could have been transmitted to their students. Another factor to account for non-

significant results might be the length of the study. It might be that it takes a longer period than ten weeks to create a significant difference when students work on the computer.

Despite the non-significant results, certain trends were noted. Indian students using the computer did not fall behind the non-computer groups in writing performance. Despite the computer groups' unfamiliarity with the FrEdWriter program and their lack of typing ability, there were no significant differences between their performance and that of the non-computer group. This result suggests that the computer does not impair writing performance of Indian students at low socioeconomic levels.

A third conclusion from the study relates to whether one group--males or females--improve more than the other following writing instruction. Both males and females improved their writing performance from pre- to posttest. However, in a comparison of posttest scores of males and females, neither group improved significantly more than the other. A related point was whether males or females favored one method of instruction over the other. In a comparison of posttest scores of males, no significant difference was found between males in the computer and non-computer groups. No significant difference was found between females in the computer and non-computer groups either. Although generally it has been suggested that males are more interested in computers than females, this interest does not appear to have made a difference in the writing performance of male or female Indian students.

Recommendations for Further Study

This study has revealed several areas which serve as a basis for

further research. Some of these areas are stated below.

1. Because of the relative unfamiliarity of Indian students at the elementary level using the computer and working with a word processing program, further study needs to take place using the computer as a tool for writing.

   Further study should take into account the following:

   a. Students should be familiar with the word processing program prior to the study.

   b. This familiarity would include some practice in building keyboarding skills and using the program.

   c. A longer training period is needed so that teachers are totally familiar with the writing instruction they are going to teach.

   d. Time of year for the study needs to be carefully considered so that limited interruptions from weather or sports takes place during the writing instruction program.

2. This study only used one mode of writing--narrative/descriptive for the program. Study using expository or persuasive writing and the computer needs further investigation.

3. Due to time restrictions this study ran for a ten-week period. A study involving the computer and writing instruction over an extended period of time is needed to see whether the non-pairment using the compouter noted in this study would lead to significant improvement.

4. A similar type of study using other minority groups--Hispanic or black--from a low socioeconomic level would provide data on computer effectiveness for other disadvantaged minority

populations.

5. A study to investigate the improvement of critical thinking skills is needed for both writing and computer use. This investigation could assess critical thinking skills before and following a program of writing on computers.
6. Replication of this study with other native American tribes would provide further data on the effectiveness of a computer writing program for all native Americans.
7. A study comparing elementary school males and females with secondary school males and females is needed to see whether favorable attitude toward the computer declines with age. Also, a comparison of elementary and secondary school females is needed to see if females' favorable attitude toward computers in elementary school declines with age.

This study has verified the importance of a program of writing instruction in today's schools. Writing can be taught. With more schools implementing computers into the curriculum, the opportunity now exists for administrators and teachers to use the computer as a tool so that when students leave the elementary school they have the skills using computers as well as the writing skill they will need whether they choose higher education or the work force. Continued study by researchers in the area of computers and writing is needed.

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APPENDIXES

APPENDIX A

WRITING PROGRAM

ACTIVITY ONE

Session 1: Prewriting

I. Explain writing process to students

A. The writing will be a series of steps.
B. First step--prewriting--will be completed today.
C. What is prewriting?

--will help you to think what to write
--will help you to think up some ideas on the topic
--will help you to throw out ideas that do not fit with the main idea
--will help you to organize your thoughts

D. Do activity for prewriting to get students thinking about a topic.

1. Brainstorm--explain what it is

--to produce as many ideas as possible in a short time
--everyone suggests ideas which teacher writes on board
--all ideas are accepted with no criticism
--everyone should participate

2. Procedure

--pose the problem or state the topic
--have class give as many ideas on topic as fast as possible
--go around the room once or twice to give all a chance; then open it up to anyone. Allow a student to pass if he wants.
--don't criticize or comment on responses. Just record on overhead or board.
--allow 5-7 minutes for brainstorming

II. Topic for Activity 1.

Mode: Informative Form: Descriptive paragraph
Audience: Teachers and peers
Purpose: To distinguish an object from others by using clear, concise, descriptive language.
Assignment: Describe a present without naming it so that if the description is read, it could be identified from

other presents. Think about size, color, shape, texture (how it feels). Explain that other students will try to guess the present from the description given so the description should be as accurate as possible.

Material: A wrapped present

Task Analysis:

Content: complete and accurate description
Organization: one complete paragraph
Style & word choice: complete sentences
vivid adjectives
Mechanics: proper capitalization
proper punctuation
paragraph indentation

Procedure:

1. Teacher will show the wrapped pressent to the class.
2. Teacher will explain brainstorming and ask students to give words that describe the present. Teacher writes words on board.
3. Next, teacher will ask students to describe by using all words they can think of a favorite present they received for Christmas without naming it. They will do exactly what the teacher did on the board for the wrapped present. (Computer group will go to the lab and write on the computer.)
4. Give about 10 minutes for prewriting and collect or save/print when through.

Session II: Drafting

I. Explain step 2--drafting--and how students will use the prewriting as an aid when they write their first draft.

A. Drafting is a rough/first copy of what they want to say about the object.

--not need to be perfect because will revise it again.
--show form of a paragraph
--show how words used in prewriting can be the descriptive words for their sentences to describe their presents.
--point out vivid adjectives which describe an object.

B. Distribute prewriting and ask students to write a first draft describing their favorite present. (The computer group will write in the lab on the computer.)

C. Allow about 20 minutes for writing; then collect prewriting and draft (save/print) to put in students' writing folders.

II. Teacher Feedback - This dialogue with students is important to provide them with encouragement and advice on their writing.

A. Quickly scan each draft for (1) a complete, accurate

description using vivid adjectives and (2) complete sentences.

B. Write a comment to each student based on 1-4 on the revision sheet.

1. Make sure to write one sentence of encouragement.
2. Identify one or two specific points needing improvement. (More than two will confuse the student.)
3. Either make your comments at the end of the paper or at the points where you are showing a need for change.

Session III. Revising (20-30 minutes)

I. Feedback

A. Explain to students that you have responded to their writing (as the audience).
B. Return rough drafts with your comments.
C. Direct students to read comments and make changes on their rough drafts. (Note: Let them know they can make more than those you have mentioned.)
D. Circulate around the room as students revise, answering questions or making suggestions.
(The computer group will meet in the lab and make changes on the computer.)

II. In the time remaining, students can start the final copies of their paragraphs.

A. Collect all copies (save/print) for writing folders.
B. If time, a sentence exercise could be done here. (examples provided)

Session IV: Editing and Publishing

I. Editing

A. Students will complete their "best" copy.
B. Teacher should circulate to help with final editing suggestions.

II. Publishing

A. Students will read thei;r descriptions to the rest of the class to see if others can guess the present.
Note: If guessing is difficult, explain that more detailed description is needed.
B. Hang some of the stories around the room. Have students draw pictures of their gifts to go with the descriptions.
C. Keep all writing in students´ folders.

ACTIVITY TWO

Session I: Prewriting

I. Explain prewriting--listing

A. Give students bicycle series of pictures
B. Do listing for prewriting to get students thinking about a topic.

--ask for events that are suggested by the series of pictures
--write all suggestions on the board
--spend about 5-7 minutes

II. Topic for Activity 2.

Mode: Informative Form: Narrative
Audience: Teacher/peers
Purpose: To tell a story in a sequenced order based on the series of pictures.
Assignment: Tell a story about these pictures. Explain what is happening in the begiinning and how the action in one picture leads to the next. How does the story end?
Material: Sequenced pictures
Task Analysis:
Content: Story with a beginning, middle and end
Organization: A sequence is followed
Style & word choice: Complete, varied sentences
Mechanics: Proper capitalization
Proper punctuation
Proper spelling
Procedure:

1. Teacher will ask students to look at the pictures.
2. Teacher will ask students to give ideas about the events happening in the pictures while teacher lists events in chronological order on board.
3. Students will be asked to create their own lists of events as they look at the pictures. (Computer group will go to the lab to prewrite on the computer.)
4. Give about 10 minutes to do prewriting and collect or save/ print when through.

Session II: Drafting

I. Session Two will follow format for Session 2, Activity 1.

A. Give students some transition words to link their events together - first, next, then, at the end, afterward, etc.
B. Follow steps A,B,C, Session II, Activity 1.

II. Follow same feedback format

A. Emphasize sticking to the topic and sequencing

B. Note sentence variety

Session III: Revising

I. Choose one sentence activity for a 20 minute workshop before revising papers. Sentences can be draw from students´ papers. ("lifted sentences") For example, for exercise 1, ask students to select two sentences from their rough drafts that can be joined with and.
Teacher writes sentences on board as examples.

II. Follow same format as Session III, Activity 1 (A,B,C,D)

III. Begin writing final drafts if time permits.

Session IV: Editing and Publishing

I. Editing - Follow editing format of Session IV, Activity 1.

II. Publishing

A. Have students read their story to a partner.
B. Put copies of all student stories in a class book. Divide class into groups -- Group 1 - create title
Group 2 - draw pictures for cover
Group 3 - arrange stories for publishing
C. Encourage reading in this book for silent reading or share with another class.
D. Keep all writing in writing folders.

ACTIVITY THREE

Session I: Prewriting

I. Prewriting Activity

A. Distribute pictures to class
B. Use a question/answer technique for prewriting.
C. Ask qustions about the picture which students should answer. The answer will form the basis of their stories.

1. How many people are in the picture?
2. Where are the bicyclists in the picture?
3. Are the bicyclists careful or careless?
4. What are they going to do?
5. What´s going to happen to them?
6. What are the two men on the motorcycle looking at?
7. What´s the plane going to do?
8. Who´s standing behind the truck?
9. What´s he going to do?

(Computer group will answer these questions on the computer in the lab.)

II. Topic for Activity Three.

Mode: Informative Form: Descriptive/Narrative
Audience: Teachers & peers
Purpose: To look at clues in a picture and make inferences from them.
Assignment: Describe what is happening in the picture and tell what will happen next.
Material: Picture prompt
Task Analysis:
Content: description of picture; explanation of next event
Organization: description followed by next event; several paragraphs
Style & word choice: concise word choice
Mechanics: Correct spelling
Correct punctuation and capitalization
First word of paragraphs indented.
Procedure: As listed in prewriting activity for this session.

Session II: Drafting

I. Follow format for Activity 1, Session 2 - 20 minutes writing

A. Emphasize completing both parts of the assignment
B. Note imagination needed to determine what will happen next

II. Feedback - Follow same feedback format as Activity 1, Session 2.

Session III: Revising (30 minutes)

I. Follow sentence activity format for Activity 2, Session 3. Try a different exercise.

II. Follow feedback format for Activity 2, Session 3.

III. Begin writing final drafts if time remains.

Session IV: Editing and Publishing

I. Editing - folllow editing format for Activity 1, Session 4.

II. Publishing

A. Have students read the part of the story - "what happened next" to the class.
B. Keep all writing in students' folders.

ACTIVITY FOUR

Session I: Prewriting

I. Prewriting Task

A. Choose one of the prewriting activities already used or try freewriting.
B. Freewriting
--write as much as you can in 3-5 minutes about the picture.
--do not stop writing; if you can't think of anything to say, write that statement.
--have students stop writing at end of time; ask them to choose one thing they wrote about the picture and write for 3-5 minutes more. This second freewriting will provide more detail than the first about one specific aspect of the picture.
Note: If you choose this activity the computer group should do its writing on the computer in the lab.

II. Topic for Activity 4.

Mode: Informative Form: Descriptive/Narrative
Audience: Teachers & peers
Purpose: To tell a story from a picture and make inferences from the picture about what will happen next.
Assignment: Here is a picture of a spaceship landing on another planet.
Write a story about the picture. Tell what is happening and what might happen next.
Material: Picture prompt
Task Analysis:
Content: Answers to both parts of the assignment
Organization: description of what is happening now; then what will happen next
Style & word choice: Vivid adjectives
Complete, varied sentences
Mechanics: Proper punctuation and capitalization
Proper spelling
First word of each paragraph indented.
Procedure:

1. Teacher will distribute space pictures.
2. Teacher will use one of the prewriting tasks to illicit responses.
3. Follow same procedure as other prewriting tasks.

Session II: Drafting

Follow same procedures as in previous activities.

Session III: Revising

Follow same procedures as in previous activities. Use a different sentence exercise before revising.

Session IV: Editing and Publishing

Follow same procedures as in previous editing activities. For publishing put all students' "best copies" of their papers in a book.

Have students make and design covers for their books. The books can either go home for parents to see and/or be used as library books in the room or for other classrooms. Students can check these books out like regular library books.

APPENDIX B

SAMPLE OF PRETEST/POSTTEST DIRECTIONS

Sample of Pretest/Posttest Directions

1. Each test paper has a number in the upper right corner. Match the number on the test paper with the number on your class roll and give that student the correspondingly numbered paper.
   Example: Artie Brown 2-1

2. To administer the pretest, distribute test papers and say to your students:

   Look at the picture on your paper. Do not begin writing until I tell you to do so. We will read together what is printed under the picture.

   Read aloud the instructions printed under the picture.

3. Say to your students: Write your story on the lines on the front under the picture and on the back. If you then need more paper, raise your hand, and I will give it to you. Ask for extra paper only if you run out of room on the front and back. Do not ask for extra paper to plan your story or to recopy your story. Are there any questions about what you are expected to do?

   Answer any questions. If questions arise now or during test administration dealing with particular writing formats or styles, simply tell students to write the way they think is best.

4. Say to your students: You will have 20 minutes to write. Begin now.

   Record the time you began and ended here. _____

5. At the end of 20 minutes, say to your students: Stop now. Instruct any student who has asked for extra paper to write the number in the upper right corner from the original sheet.

6. Collect all tests.

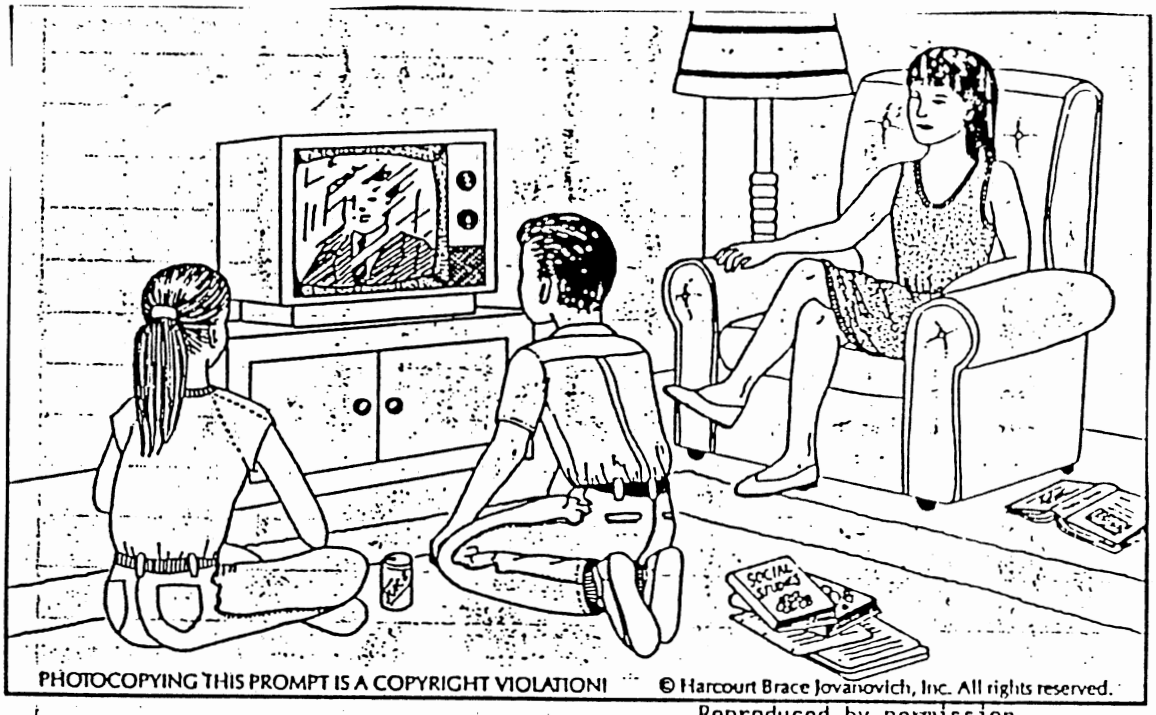
7. I will collect all tests before the end of the day and chat with you about any problems you might have or anticipate.

Thanks very much.

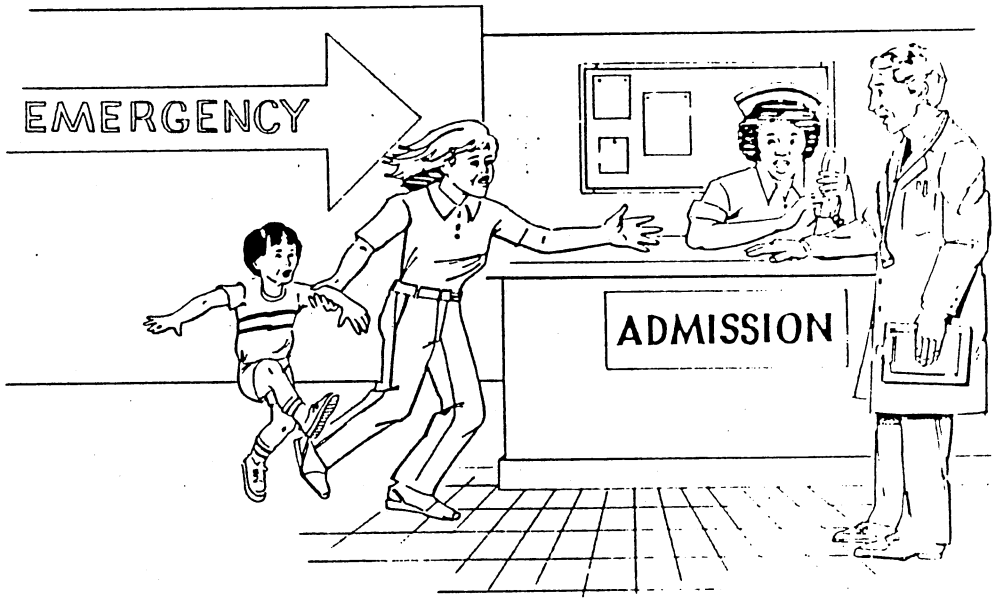
Beverley Crane

APPENDIX C

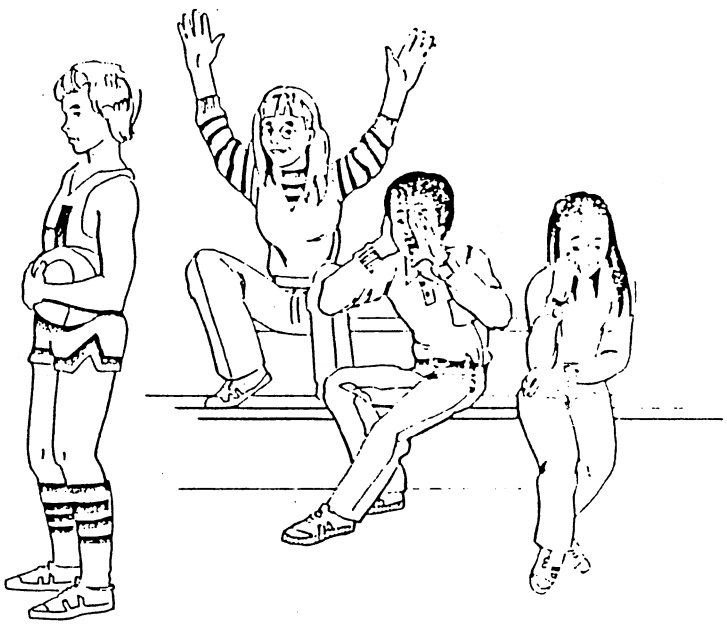
PRETEST/POSTTEST WRITING PROMPTS



Here is a picture of some kids watching TV.
Write a story about the picture.
Tell what is happening and what might happen next.



Here is a picture of an emergency room in a hospital. Write a story about the picture. Tell what is happening and what might happen next.



Here is a picture of some kids at a game. Write a story about the picture. Tell what is happening and what might happen next.

APPENDIX D

SCORING GUIDE

SCORING GUIDE

High-Rated Papers. Highly rated papers - one with individual ratings of 7 or 8, combined ratings in the 14 - 16 range - are well organized, with a discernible beginning, middle, and end. The writer uses complete sentences, often varying the sentence structure. There are only occasional, if any, mistakes in spelling and other mechanical matters. Very often the paper shows a high degree of creativity, or takes an unusual approach to the topic. Especially fitting words and phrases, and specific references to names and numbers, add flavor to the writing.

High-Middle Papers. Papers which are rated above the middle of the scale but not at the high end - individual ratings of 5 or 6, combined ratings in the 10 - 13 range - usually show reasonably good development of the topic or story. These papers will often have some mechanical errors, e.g., in spelling, punctuation, capitalization: enough to be mildly irrating, but not so many as to interfere with the flow of the paper. If there is an especially creative approach to the topic, it is usually detracted from by mechanical problems. On the other hand, papers in this range may be mechanically quite flawless but very bland in approach and word choice.

Low-Middle Papers. Papers rated below the middle of the scale but not at the lowest levels - individual ratings of 3 or 4, combined

ratings in the 5 - 9 range - usually have significant mechanical problems, e.g., frequent misspellings, subject-verb disagreements, etc., although the reader can still follow the story line. The papers are usually fairly short, but some evidence of topical development is displayed. Creative approaches are not typical at this level. Paragraphing is not well developed, being either almost completely lacking or in the one sentence per paragraph stage.

Low-rated Papers. Papers with very low ratings--individual ratings of 1 or 2, combined ratings in the 2 - 4 range--are often very short, perhaps only a few lines or sentences. Generally, mechanical errors are rampant. The paper may be incoherent or contain little meaning beyond the most elementary references to the topic at hand.

0 - Unscorable. (1) Illegible; (2) Foreign Language; (3) off topic - in no way responds to the prompt.

VITA

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Candidate for the Degree of

Doctor of Education

Thesis: A COMPARISON OF ALTERNATIVE METHODS OF TEACHING WRITING TO CHEROKEE STUDENTS IN GRADES THREE THROUGH EIGHT

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