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PREVIEW

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EFFECTS OF COMPUTER-ASSISTED INSTRUCTION UPON SEVENTH-GRADE
STUDENTS' GROWTH IN WRITING PERFORMANCE

The University of Nebraska - Lincoln

Ed.D. 1985

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EFFECTS OF COMPUTER-ASSISTED INSTRUCTION UPON SEVENTH-GRADE
STUDENTS' GROWTH IN WRITING PERFORMANCE

by

John D. Crook

A DISSERTATION

Presented to the Faculty of
The Graduate College in the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Doctor of Education

Major: Interdepartmental Area of Administration, Curriculum
and Instruction

Under the Supervision of Professor Rex K. Reckewey
and Professor Gordon F. Culver

Lincoln, Nebraska

May, 1985

TITLE

EFFECTS OF COMPUTER-ASSISTED INSTRUCTION UPON SEVENTH-GRADE

STUDENTS' GROWTH IN WRITING PERFORMANCE

BY

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EFFECTS OF COMPUTER-ASSISTED INSTRUCTION UPON SEVENTH-GRADE
STUDENTS' GROWTH IN WRITING PERFORMANCE

John D. Crook, Ed.D.

University of Nebraska, 1985

Advisors: Rex Reckewey and Gordon Culver

The primary purpose of this study was to determine if there were significant differences between the growth in writing performance of seventh-grade students who received computer-assisted instruction and seventh-grade students who did not receive computer-assisted instruction. More specifically, the researcher sought to determine the difference in the students' growth in the general, mechanical, and total writing performance between the two groups.

In addition this study was designed to: (1) ascertain the total, general, and mechanical writing performance of those students who experienced writing with word processors; (2) ascertain the difference in the total, general, and mechanical writing performance between male and female students who experienced writing with word processors; (3) compare the total language percentile scores on the Comprehensive Tests of Basic Skills with the percentage of growth, as determined by the Diederich Composition Rating Scale, for those students who experienced writing with word processors; and (4) compare the perceptions toward writing between the students who experienced writing with word processors and students who wrote with pen and paper.

Two seventh-grade classes were compared for writing growth. The experimental class wrote their assignments on word processors, while the control group wrote with pen and paper during an entire semester. A team of three trained raters scored the pretest and posttest essays, using the Diederich Composition Rating Scale. The mean scores on these essays provided the basic data used to test the hypotheses.

The results of the study indicated that seventh-grade students successfully completed their writing assignments on word processors. There was no significant difference between the growth in writing performance of the group of students who wrote with word processors and those students who wrote with pen and paper. However, the majority of students who wrote with word processors experienced considerable writing growth and their growth in writing was greater than those students who wrote with pen and paper.

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J.D.C.

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CHAPTER I

INTRODUCTION

Although most educators have always been interested in improving the student's ability to write, the public interest in the teaching of writing has greatly increased during the past two decades. Because writing is considered to be an essential lifetime skill by both the public and professional educators, teachers and administrators have sought to develop more effective ways to teach essential writing skills and to improve the processes used in teaching students to write.

The current interest in teaching writing was first triggered by the launching of Sputnik in 1957. The same year James Bryant Conant began his studies of American education. In his book, The American High School Today, Conant presented twenty-one recommendations to improve secondary schools in the United States. It was his recommendation that all students be required to take four years of English during which half of this time should be devoted to English composition with an average of one theme per week required. In order that English teachers could read and correct these themes, it was also recommended they not be responsible for more than one hundred students.

The announcement in 1974 by the Educational Testing Service that SAT verbal scores had declined over a ten-year period gave rise to a barrage of questions from the public and the news media

about the quality of school writing programs, questions that were incisive, sometimes hostile, and occasionally downright absurd (Judy, 1981). With this SAT score decline announcement, increased research was undertaken to learn more about how students write.

Recent major reports on American education have placed a high premium on literacy in general and writing in particular. Earnest L. Boyer declared, "Clear writing leads to clear thinking; clear thinking is the basis of clear writing" (cited in Toch, 1984). Although writing is one of the three basic skills in education, there is mounting evidence that pupils' proficiency in this skill has decreased rather than increased since the 1960's.

Personnel in the United States Office of Education, using survey results from a federally funded study in 1975 by the University of Texas and 1980 census data, estimated there are as many as seventy-two million Americans who have difficulty or are incapable of performing such basic tasks as reading the label on an aspirin bottle, writing a check, or following the directions for cooking a T.V. dinner (Toch, 1984).

According to the third National Assessment of Writing conducted by the National Assessment of Educational Progress (N.A.E.P.) (1981), most American high school students never attain the goals of good writing and careful thinking. The N.A.E.P. study found that while America's 17-year-olds have a general grasp of the mechanics of writing, only half could write a satisfactory piece of explanatory prose.

Toch (1984) reported that 84 percent of the personnel from the 1,392 colleges and universities recently surveyed by professors at the University of Texas said they had established remedial programs in reading, writing, and mathematics within the last several years. "By and large, freshmen are not conscious of language," said Michael Holzman, an assistant professor of English at the University of Southern California who just completed four years as chairman of the university's 3,000-student freshman writing program. "They show very little stylistic creativity and they possess few higher-order rhetorical skills" (Toch, 1984, p. 4).

There has been a growing concern regarding the amount of time students actually spend writing. Graves (1978), in a study sponsored by the Ford Foundation, found that second graders averaged only three pieces of writing in three months' time and that secondary school students wrote even less.

Applebee and others (1980) conducted one of the most comprehensive studies on writing in the public schools, known as "The National Study of Secondary School Writing." This observational study revealed that while students held a pencil 44 percent of the time during class, only three percent of that time was spent composing prose of a paragraph or more in length. The researchers found that only three percent of the students' homework involved writing a paragraph or more.

Goodlad (1983), in his book A Place Called School, reported the results of a survey of 38 public elementary, junior high, and high

schools which revealed that student writing in the early years involved primarily the tasks of answering questions and filling in blanks. According to Goodlad, by junior high school, the frequency of writing had dropped by one-third and in high school by one-half.

The on-going search for more effective ways to improve writing skills of youth has been intensified in recent years. As a result of this new emphasis, writing has regained greater attention in the schools. While there is no one universally effective program or technique that has been identified, a number of the new approaches have met with some success.

During the past decade, four major developments have converged to produce a "paradigm shift" in the teaching of writing. Kuhn (1981) defined a paradigm shift as the replacement of one conceptual model by another. According to Kuhn, such a replacement is often controversial and occurs only when unsolved problems in a discipline reach a crisis stage. When such a crisis occurs, professionals in the field must then search for alternative solutions. During the 1970's, the amount of poor writing by students produced a paradigm shift in the teaching of writing.

The first of the developments of the new conceptual models focused on writing as a composing process. For many years, composition was taught primarily by instinct and intuition and emphasized the final product. More recently, the process of writing began to receive equal attention. In this approach, the composing process was viewed as a way of thinking, learning, and knowing. As a result,

many theorists have postulated a three-stage linear model of pre-writing, drafting, and revising. However, some current researchers believe that this linear three-stage model is too simple to explain the complex process of composing. Theorists who perceived a more complex structure generally agreed with the following conclusions and principles identified by Glatthorn (1981):

- The composing process is complex, involving memory, cognition, language, and psychomotor behaviors.
- The composing process is multiphased, involving several different stages and many subprocesses.
- The process seems recursive and interactive; the stages overlap, relate closely to each other, and affect each other. (p. 1)

While there does not seem to be conclusive evidence at the present time to support one revision process over another, there is substantial evidence that the revision process itself is critical in the improvement of writing (Bamberg, 1978). Neill (1982) indicated that the most commonly accepted bit of wisdom in the new writing programs was that "writing is a process, and it must be taught that way" (p. 15). To their credit, the researchers, curriculum specialists, and teachers who have developed the programs have successfully established the truth that writing is not simply a function of grammar, but a "composing process" that requires preparation, planning, and revision.

The second development in the teaching of writing pertains to the proliferation of writing workshops for teachers. The Bay Area Writing Project, recently renamed the National Writing Project, is perhaps the most well-known of these writing workshops. According to a NASSP Curriculum Report (1983), the BAWP-model workshops were based

on the following common assumptions:

- (1) The writing problem is shared by universities and schools and can be solved best by cooperatively funded efforts.
- (2) Most teachers have not been adequately prepared as teachers of writing and know little of what is now known about teaching writing.
- (3) The best teachers of teachers are teachers who have succeeded, who are identifiable, and whose strategies are demonstrable.
- (4) Teachers of writing are writers themselves. (p. 2)

As of 1983, more than 41,000 elementary and secondary teachers had participated in the National Writing Project. Many of these summer workshops were subsidized by grants from the National Endowment for the Humanities, the Carnegie Foundation, universities, state boards of education, and federal programs.

The third development in the paradigm shift was the concept of writing across the curriculum. This concept was born in Britain and was based on the idea that not only English teachers but all teachers must teach writing as a way of learning and should provide students frequent opportunities to write. The philosophy of this concept was that when teachers teach writing as a way of learning in every discipline students will develop both better writing and learning skills.

The fourth and most recent movement to improve student writing skills involves the use of microcomputers. Since its inception, computer-assisted instruction (CAI) has been defined as "any method of learning in which a computer is the primary delivery system" (Burke, 1982). Computer-assisted instruction dates back to the 1960's,

when attempts were made to provide students with direct instructional assistance through the use of large, stationary mainframe computers which were connected to school-based terminals by long-distance telephone. However, these early CAI systems were often found to be expensive, unreliable, and too centralized to be practical in the public schools. Nevertheless, by the late 1970's, the advances in computer technology offered the school a new tool to aid in improving the writing process.

Incorporating computer-assisted instruction into the language arts curriculum obviously depends upon the availability of appropriate, cost-effective instructional software. According to Blaschke (1979), the development of such software lagged far behind the developments in computer hardware. Bonham (1983) found that the highest quality of software was largely the "work of talented individual teachers who have little chance of making their work nationally available" (p. 33).

Nicholl (cited in Zaharis, 1983) indicated that language arts instructors working with existing programs would likely experience one or more of the following limitations:

- (1) the program is incompatible with the hardware available for use in the school.
- (2) It is too costly to merit purchase.
- (3) It contains factual errors.
- (4) It is pedagogically unsound.
- (5) It does not quite fit the class's needs and cannot be modified by the teacher to do so.
- (6) It fails to take advantage of the computer's capabilities and is, therefore, little more than an electronic workbook.
- (7) Its instructions are so complicated that students cannot follow them or so verbose that students lose interest before they begin or finish the exercises.

- (8) Its response times are too long or too short.
- (9) Adequate documentation for the program is not available. (p. 991)

At the same time, these limitations need not be an inherent part of the software programs and are not sufficient reason for the exclusion of CAI from the language arts classroom.

The modes of delivery presently employed in the language arts classroom include (1) drill and practice, (2) tutorials, (3) educational games, (4) simulations, and (5) demonstrations. Text analysis programs are also available which scan student compositions for structural mistakes, mark the place where the error occurs, and require that students make the necessary corrections (Cornnell & Humes, 1981).

More recent advances in the computer science field have led to the development of relatively inexpensive word processors. Teachers and students with access to these microcomputers and supplied with appropriate text-editing software and high-speed printers can now organize, enter, edit, format, and print out anything they might write.

Coburn et al. (1982) reported:

Schools using word processing programs have found that even young children will revise their work to correct punctuation, spelling, word selection, sentence structure, and the dozens of errors common to student writing, such as word and letter juxtaposition. Using word processing programs encourages students to write who might otherwise avoid writing. All students using such programs tend to write longer, more detailed stories and essays. As a side benefit, learning to use such programs properly often results in the students' overall improvement in following directions. (p. 993)