

AN EXAMINATION OF THE EFFECT OF DRAWING
ON THE WRITING PERFORMANCE OF
THIRD GRADE STUDENTS

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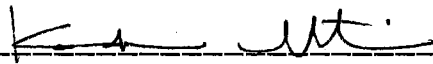
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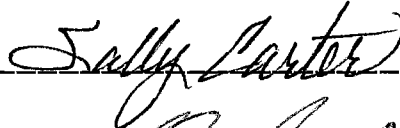
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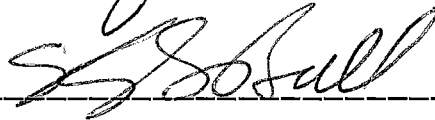
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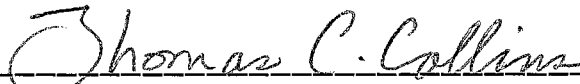
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CHAPTER I

THE RESEARCH PROBLEM

Introduction

The lack of writing skills in American schoolchildren has been widely discussed by parents, teachers, and education critics. Why does children's enjoyment of and interest in writing appear to decline as they leave the primary grades? Silberman (1989) has noted that the same students who readily can be observed animatedly conversing in school hallways, later will avoid expressing their thoughts in written form when they enter their classrooms. She is fearful that they are at risk of becoming part of a new generation of students who intensely dislike writing, just as did their parents and even grandparents.

Why do children not write more often and more skillfully? Beverly Bimes, a former National Teacher of the Year, quoted in Silberman (1989), said that it was hard to imagine how a large group of nine-year-old children, whose writing she was asked to review, could present such poor examples of writing ability after several years of schooling. The poor showing by the nine-year-olds contrasted sharply with very young children Bimes had observed, who often make attempts at writing long before they try to read or

are even old enough to enter school. Graves (1978) had previously contended that poor writing by schoolchildren occurs because writing has been changed, by inappropriate, formal, scholastic demands, from a pleasure or even a skilled discipline, into what is viewed by some students as a punishment. In many instances, the mechanics of writing, in which the students have not been adequately grounded, have been assigned much more importance by teachers and parents than the content of the writing.

The issue of the decline of the craft of writing is not a new one. Almost two decades ago, Newsweek (1975) published the article, "Why Johnny Can't Write." The focus of the article was the dearth of writing skills among American students, which the writer said had been bemoaned extensively for years before the writing of the article. Karl Shapiro, a poet, was quoted as saying that the United States was "in the midst of a literary breakdown." (p. 65) In his attempt to discover when the alleged breakdown began, the article writer said that it seemed that "a subtle shift of educational philosophy away from the teaching of expository writing" began in the 1960s, when school curricula had expanded to encompass increased student use of and exposure to the visual media of film, photography, television, and videotape. Are students paying the price for such a shift in educational emphasis? Dr. Carlos Baker, an educator and author quoted in the Newsweek article, stressed the continuing importance of writing when he said that writing, rather than reading, was "the hardest, most important thing any child does" (p. 59)

On a more optimistic note, there has been a growing movement in elementary schools in more recent years to expand the amount of time that is devoted to writing. The movement has come about as teachers have become increasingly alarmed at what they envision as a serious problem in the writing domain of elementary school curricula. Giving students daily classroom time to write in response journals has become commonplace (Gunderson & Shapiro, 1988), and teachers interested in the importance of writing are searching for ways to inspire and encourage their students, especially those students who write reluctantly. Atwell, (1990), encourages the use of writing to find and solve problems in every subject area," broadening the scope of ways of thinking about the act of writing." (p. 73)

Another area of concern among educators and parents has been the seeming decrease in school programs which promote the nurturing of children's creativity, which, just as ability and interest in writing, also seems to decrease after the primary grades. McFee (1969, p. 234), wrote that the decrease appears to be related to the way the American culture rewards the act of conformation to the peer group. In the same decade, Guilford (1966) wrote that a concentration on the development of creativity in schoolchildren might help in their potential to solve some of the most serious problems mankind continually faces, when those schoolchildren reach adulthood. Torrance and Goff (1989) later stressed their belief that creativity will be needed to cope with the future, and they talked about "a quiet revolution" occurring in classrooms, which could possibly spur such creativity. One area of

creativity which is easily accessible in any classroom is the realm of visual arts.

Janet Olson, a professor of art education, believes the solution to the problem of poor writing skills may be found by encouraging children to combine the creativity of drawing with the creativity of writing. She calls it "the visual-narrative approach," (1992, p. 36) and feels that students can be trained to move back and forth between the realms of writing and drawing with little trouble. Platt, (1977) seemed to establish a foundation for Olson's contention by stating:

There is a direct correspondence between the drawn symbol and the written symbol. Graphic images are part of a visual vocabulary which has intense personal meaning to the child. There is a symbiotic relationship among drawing, writing, reading, speaking, and listening. (p. 262)

Platt reported that students appeared to have increased enthusiasm for writing when graphic images were allowed to be incorporated into their work. Using drawing and other art activities, as a strategy before writing takes place, has recently been recommended by Tompkins and Hoskisson (1991, p. 570), especially with children who otherwise have problems expressing themselves in written form. Other researchers have documented the interest in combining writing with art that is shown by even very young children. It has been demonstrated that preschoolers, despite their youth, seem to understand intuitively how crayons and pencils are utilized for communication as well as creativity

(McCutchen & Perfetti, 1983; Newman, 1983; Vukelich & Golden, 1984).

Dyson, (1982,1986), recounted the importance of drawing before writing as a valuable planning tool for young children, who, during an observation, made no pretences of even beginning to write until their drawings were completed. Previously, Wilson and Wilson (1979) stated, "drawings provide a means for constructing, testing, and prophesying what can be." (p. 8) Their allegation appears to be supported by interviews and autobiographies they cite which concern "well-known artists, illustrators and writers," (p. 10), all of whom reported using the visual narrative form when they were children. As Eisner (1981) concluded, "The interaction of the senses enriches meaning." (p. 50)

Statement of the Problem

Although much research has focused on the separate subjects of children's art and children's writing, relatively little research had been published on the integration of the two until the work of Olson (1992). Her research and work with young students, spanning more than twenty years, suggested numerous benefits of such an integration. As a result of her extensive investigations, Olson came to believe that children's visual vocabulary improved as much as their drawing skills when the two processes were integrated. As she detailed in her book, the characters who children have first brought to life in drawings, "characters who cry, who are frightened, who are happy or angry," (p. 18), are easier to develop

in stories. In Olson's opinion, some students need the help such drawings provide.

If children are able to draw a variety of characters, make them move, change their emotions, as well as control a variety of changing environments, they then have access to a rich visual vocabulary that will serve them well when developing an interesting and meaningful plot. (p. 276).

Significance of the Study

The relationship between drawing and writing has been discussed in literature which considers the literacy development in children (Bissex, 1980; Calkins, 1983, 1986; Graves, 1973, 1981; Harste, Woodward, and Burke, 1984). Researchers (Graves, 1983a; Calkins, 1983; and Olson and Wilson, 1979) also have written about the unique kinship of drawing and writing during the planning phase of the writing process utilized by children.

There has been limited formal study of the role of drawing in the writing production of children in specific primary grades, with primary grades being defined, for the purposes of this study, as grades one through three. Zalusky (1982) analyzed the relationship between drawing and writing in first grade children, while Skupa (1985) did a somewhat similar study with second grade children. This study will explore the relationship between drawing and writing in third grade children.

Limitations of the Study

The following limitations apply to this study:

1. This study was limited to three rural elementary schools in Oklahoma.
2. The third grade students who were participants in this study were primarily Caucasians at a low socio-economic level.
3. The study spanned a ten-week period.
4. The results of the study may only be generalizable to comparable groups.

Organization of the Study

The organization of this study is framed in the following manner:

Chapter I is an introduction of the study. In it are stated the problem and purpose of the study, a theoretical background, and specifications of the limitations of the study.

Chapter II contains a review of the literature related to children's writing and the influence of drawing on such writing. A short summary follows the review.

Chapter III is a presentation of the methodology used in the study, including a description of the subjects and instrumentation used. Procedures and techniques that were used in the later analysis of the data are also reported.

Chapter IV is a presentation of the results that were determined by analysis of the data. Tables summarizing the data are included in this chapter.

Chapter V is a discussion and summary of the findings of the research, with a presentation of conclusions and recommendations for future research. A reference list and appendixes follow Chapter Five.

CHAPTER II

REVIEW OF SELECTED LITERATURE AND RESEARCH

Student Writing

Anxiety about the decline of writing ability in American schoolchildren and the subsequent consequences of that decline is not a new issue. Graves (1978), expressed his concern in his statement, "... when students cannot write, they are robbed not only of a valuable tool for expression but of an important means of developing thinking power as well." (p. 51) He reported that in the American elementary schools he surveyed in the late 1970s for the Ford Foundation, his research indicated clearly that student writing was neither encouraged nor emphasized, and, even more disheartening, largely nonexistent. While reading and listening skills were stressed, students seldom formally wrote subjective answers to questions. In fact, on the average, children in elementary school averaged only one written assignment a month (1983). Cooper (1993) noted the two most common reasons teachers historically gave for ignoring writing in the classroom were, first, that they felt writing was not important, and/or second, there was not enough time because of the other required subjects. Graves had stated two decades previously that he felt

such an instructional imbalance should not be allowed in a democracy because of the importance of each individual's voice, no matter in what form, and of that individual's ability to communicate. He contended (1978), "Writing is most important not as etiquette, not even as a tool, but as a contribution to the development of a person, no matter what that person's background and talents." (p. 62) His contention later was supported by Calkins (1986, p. 37), who wrote, "Human beings have a deep need to represent their experience through writing." She stressed that people write to understand their lives and because of a "need to make our truths beautiful." (p. 38)

When surveying kindergartens, Sulzby, Teale, and Kamberelis (1976) found many teachers mainly giving direct writing instruction which often became misdirected, because the children's individual developmental levels were largely ignored. Even worse, the direct instruction seemed to "interfere with the children's creativity in writing and their control of written language." (p. 63)

The importance of nurturing children in the act of writing has not been ignored in all educational bastions. Cohen, an educator at the famous Bank Street College of Education in New York City, stressed the urgent need for teachers to assist young students in their writing endeavors, because ".....a word, a phrase, a sentence, once set down in writing, have a finality that must stand on its own." (1972, p. 283). Cohen felt that with the correct guidance, children could become "masters of written form, not slaves to it," (p. 13), as form became a servant of the student's meaning.

Taking a different approach to the same goal of encouraging children's writing, Ashton-Warner, in her book, Teacher (1963) stressed,

A child's writing is his own affair and is an exercise in integration which makes for better work. The more it means to him the more value it is to him. And it means everything to him. It is part of him as an arranged subject could never be. It is not a page of sentences written round set words, resulting in a jumble of disconnected facts as you so often see. (p. 54)

Ashton-Warner felt that a child's creative writing helps to protect his personality, because as the child is searching his mind for meaningful words, he is exercising what Ashton-Warner termed "the inner eye," (p. 10), thereby encouraging the child's whole being to flower.

On behalf of the National Council of Teachers of English (NCTE), Applebee (1981) conducted a survey of secondary schools in the United States in the late 1970s. Student and teacher interviews, a questionnaire, and classroom observations were all utilized in a summarization of the results and to determine the possible implications of the research. When the survey was published, many educators as well as education critics perceived American schools to be in the midst of a writing crisis. Readers of the survey were informed of Applebee's conclusion that less than one-half of one percent of students' class time was spent on any form of creative or personal writing. Also, schools spent only one dollar on writing programs for every thirty dollars spent on

reading programs. Although the survey was undertaken at the secondary school level, the conclusions also reflected on the country's elementary schools. To further project a bleak future for schoolchildren, Applebee pointed out that courses available to prospective teachers which concerned methods courses in the teaching of writing were almost never required by colleges of education, while, at the same time, those same institutions were increasing their requirements of the number of courses in the teaching of reading. As Silberman (1989, p. 8) stated, "As a result of lopsided training and skewed values, school systems have had to resort to hiring teachers who have learned neither how to teach writing nor how to write themselves." Further, Graves and Stuart, (1985) noted,

The anxiety that inexperienced writers feel when they try to teach writing is as natural as the anxiety of a nonswimmer trying to teach swimming. If teachers are to feel confident about themselves and their work, they must feel confident in their ability to do the very things they teach others to do. (p. 147)

A classroom teacher quoted in Silberman (1989) contended that it might be just as well that she hadn't participated in a class which concerned the teaching of writing during her undergraduate teacher education, because the main thing she learned in language arts classes was how to be successful in finding the errors that her prospective students would probably be making, seeming to surmise that the same practice would have been followed in any writing class in which she had been enrolled. D'Arcy (1989, p. 19)

emphasized the seriousness of the problem when she expressed her belief that the writing which teachers required from their students and the way the teachers responded to that writing possibly would influence the students' approach to and performance in writing tasks throughout their lifetime.

In the latter half of the 1970s, a seed of a movement slowly began to germinate, a movement which reflected the concern among teachers who saw writing opportunities disappearing from America's classrooms. In reflection to their former practices, two classroom teachers frankly admitted that previously they often had neglected even the act of attempting to block out time periods in their lesson plans for their students to write, because the teachers were afraid of short-changing other subject areas which they deemed more important (Schroder and Lovett, 1993). In fact, Lovett confessed to thinking of student writing, for a number of years, as something to do on a rainy day or a day when the usual classroom schedule was changed.

Chew (1985) wrote that in the years since the movement to encourage writing in the schools began, much more has been learned about the stages of young writers' development and of the significance of the teaching of writing. For example, research has verified the importance of writing as the most consequential way in which children learn to spell and develop their ability to use grammar (Anderson, Hiebert, Scott, & Wilkinson, 1985). As teachers learn more about the relevance of writing, more classrooms are being supplied with ample writing materials, and

teachers increasingly are setting aside time during the school day to make writing a formal part of the curriculum. Some states, such as California and Vermont, have gone as far as establishing statewide writing programs for students.

In answer to the question of why writing should be given more importance in elementary schools, Norton (1980) said,

... the process of writing helps children become aware of their own uniqueness. Through it, they learn more about their own feelings, and about their reactions to life around them. Vocabularies can be enriched when children describe experiences related to sight, touch, smell, hearing, and taste. (p. 231)

Norton's contention previously had been stated in a familiar fashion by Palewicz-Rousseau and Madaras (1979, p. 3) when they wrote, "Life, real life, with all its wild disorders, all its ups and down, all its hard times and good times, pours forth from the stories children write."

Taking another approach, Phillips and Steiner (1985) suggested that children should write because "it is the one activity which gives thought a concrete form which can be examined and improved upon." Also, they emphasized that the pleasure which writing provides can be very fulfilling, while the act of writing down one's thoughts and feelings can be therapeutic. As Kress (1982, p. ix) expressed, "To watch children writing is to see focused energy and intelligence at work." Others felt there is an inborn need to write, and "a will to say something to someone else" (Temple, Nathan, Burris, & Temple, 1988). Revel-Wood contended

that in addition to providing a means of self-expression and communication with others, the act of writing "helps learners seek and build knowledge." (p. 169) Graves (1983b) affirmed the importance of children's desire to write when he insisted,

Children want to write. They want to write the first day they attend school. This is no accident. Before they went to school they marked up wall, pavement, newspapers with crayons, chalk, pens, or pencils . . . anything that makes a mark. The child's marks say, "I am." (p. 21)

Rubin (1990, p.234) reinforced Graves' remarks when she expressed the opinion that young children "have a multitude of ideas." She further stated that "their lively imaginations are ready to blossom forth in writing if they are properly encouraged and stimulated." (p. 234)

The mysticism of the act of writing was examined by Murray (1985) when he described how students feel when they have written something they may not have intended to write, saying, "They watch, with fascination, with fear, with pride, as their own words sent forth to do one job, perform another." (p.201)

Previously, Graves (1978) declared with certainty that there is a need in human beings to express themselves through writing, since the act of writing helps them to examine the human experience. He concluded with the thought that in American schools, "We have substituted the passive reception of information for the active expression of facts, ideas, and feelings," (p. 25) and a more equitable balance needs to be struck. In direct contrast to the act

of passive reception, Fulwiler (1987, p. 25) felt that it should be acknowledged "that writing is basic to thinking about, and learning, knowledge in all fields as well as to communicating that knowledge."

Visual Arts

Another often neglected aspect of the elementary school curriculum is the discipline of visual arts. According to Morris (1987), art has been a standard part of the American public school curriculum since the latter part of the nineteenth century. Despite its early introduction into formalized education programs, it was not until the 1930s that there was any real recognition by educators of the educational and aesthetic value of children's art and its importance to children's overall development. Hurwitz and Day, (1991, p. 38), wrote that contemporary art education "is based on the essential contributions from studying art," and, like the standard required subjects, is taught because "the study of art is essential for an educated understanding of the world."

Notwithstanding the recognized importance of art in children's lives, numerous schools in the United States are increasingly affected in an adverse manner by budget cuts, and visual arts programs are frequently at the top of the elimination list. At the same time, classroom teachers are frequently reluctant to allot school time to art, especially when often being faced with the demands of more publicized scholastic needs. Skromme (1989), an inventor and author, deplored the lack of emphasis on creativity in

American schools, which he felt led to educators ignoring the importance of the development of empathy, judgment, and motivation among schoolchildren.

Lear (1990), argued that our schools ignore the education of the human spirit. He felt that a human being's inner life, although mysterious, is "the fertile, invisible realm that is the wellspring of creativity." (p. 7) He decried the evidence he saw that the intuitive and mysterious facets were being stifled in children for the sake of a "numbers-oriented" thrust in schools. Lear listed a number of neglected consciousness-raising aspects of the curriculum in modern schools, and art was part of that list. He felt that a continued ignoring of art and and what he referred to as "other unquantifiable needs" could lead to the development of young people who would become "shockingly apathetic to the world around them." Lear's prediction had been stated in a little different manner by Palewica-Rousseau and Madaras, (1979, p. 12), when they noted, "Children who are able to make a strong connection between their inner visions and the outer world will be well prepared to deal with the future, no matter what shape it takes."

Eisner (1981, p. 49) succinctly commented about the importance of art in the curriculum when he wrote, "... the visual arts are cognitive activities, guided by human intelligence, that make unique forms of meaning possible." Williams (1977) previously had presented a very similar argument when he averred that evidence showed the introduction of creative art into the curriculum could cause "marked improvement" in core subjects.

Further, he contended that art could "stimulate a child's natural curiosity and, perhaps literally, expand the capacity of his brain." Decades before, a Gestalt psychologist, Koffka (1959, p. 37), in a study that might be considered a precursor to the whole language philosophy, declared that any organism learns as a total entity rather than just with certain parts.

Hurwitz and Day (1991, p. 475) countered the contention of some people that art is a less important part of school curriculum, and emphasized their point by borrowing a set of characteristics developed by Resnick (1987,) that can be applied to art and which points out its mentally meaningful aspects:

Higher order thinking . . .

- (1) is nonalgorithmic; that is, the path of action is not fully specified in advance;
- (2) tends to be complex. The total path is not "visible" (mentally speaking) from any single vantage point;
- (3) often yields multiple solutions, each with costs and benefits, rather than unique solutions;
- (4) involves nuanced judgment and interpretation;
- (5) involves the application of multiple criteria, which sometimes conflict with each other;
- (6) often involves uncertainty. Not everything that bears on the task at hand is emphasized.
- (7) involves self-regulation of the thinking process. We do not recognize higher order thinking in an individual when someone else "calls the plays" at every step;

(8) involves imposing meaning, finding structure in apparent disorder.

(9) is effortful. There is considerable mental work involved in the kinds of elaborations and judgments required. (p. 3)

Montessori (1984, p. 154) also expressed the opinion that a child's use of hands in significant activities stimulated the child's mind, because "the two are entwined." She had observed that children engaging in artful activities could work for long periods of time without becoming tired, and such activities helped their minds to be receptive for knowledge. She concluded by saying that although a child's intelligence could "develop to a certain level without the help of his hand," (p. 156) a higher level of intelligence could be reached by combining handwork with formal schoolwork. Arnheim (1979, p. 219) wrote that it was well-known by art teachers that the visual arts, "when intelligently pursued," help students develop their individual mental resources, because of the cognitive problems posed by the production of the art form. According to Rowe, Harste, & Short (1988), mankind has produced sign systems which have the function of creating learning, and art is one of the sign systems of which ownership must be demonstrated in order for a learner to be truly literate. Similarly, Cohen (1988, p. 90) stated that young children clarify their understanding and communicate what they know by expressing their life experiences in some sort of symbolic form. She felt that unstructured materials, such as paints and crayons, can be very important in helping children utilize symbolic description from

"the simplest representations of reality to the most complex," because children need symbolizing forms that are close to their action style, thereby helping to make the children's world clearer.

As long ago as 1944 (p. 6), Kepes spoke of the language of vision, which he felt disseminated knowledge "more effectively than almost any other vehicle of communication." In addition, he contended that the language of vision is universal, international, and not bound by the limits of vocabulary, grammar, or the manner of speech which was utilized. He summarized that the perception of a visual image requires a process of organization, making the perception "a creative act of integration." (p. 7)

Creativity and the Integration of Art and Writing

Many elementary school teachers can attest to their students' evident enjoyment of classroom time devoted to creative art activities; therefore, perhaps the best aspects of both the art and writing worlds would be enhanced by the act of combining the two. This realization seems to have occurred in a natural manner among young children, since some of the first symbol systems they have traditionally utilized to signify messages are their drawings, which adults tend to identify as "scribbles" (Clay, 1987, p. 140; Ferreiro & Teberosky, 1982, p. 78). The random marks made by young children were described by Reutzel and Cooter (1992) as "the wellsprings of writing discovery." The researchers further stated, "Children soon discover that drawing and scribbling are alternate forms of written expression." Indeed, investigations by several

researchers have shown that initial drawings seem to enhance writing by giving the young students a scaffold on which to build ideas, or a pathway which leads them to the words they later select. (Bissex, 1980; Calkins, 1986).

The combining of art with other areas was reviewed by Lowenfeld (1964) and he listed the following eight basic aspects of creativity which emerged in children as a result of that combining. They are:

- (1) the showing of sensitivity to problems, to attitudes and feelings of other people, and to the experiences of living;
- (2) the ability to produce a large number of ideas in a short period of time, and to be able to think rapidly and freely;
- (3) the ability to adjust quickly to new situations or to change rapidly in one's thinking;
- (4) the ability to think of new or novel responses;
- (5) the capacity to redefine or reorganize;
- (6) the ability to abstract;
- (7) the ability to synthesize or combine several elements into a new form or whole; and
- (8) the ability to organize. (p. 37)

Lowenfeld classified these aspects of creativity under the heading of divergent thinking, which was further bolstered by Rubin (1990, p.236), when she expressed the opinion that teachers who encourage creativity in their students will stimulate the students to become more divergent. As stressed by Graves and

Stuart (1985, p. 25) "Convergent thought seeks the safe and predictable answer, shunning all alternatives. Divergent thinking, on the other hand, leads people to dream up and entertain alternatives." Earlier, Sarnoff (1981, p. 198) had explored the same concept in his statement, "It is possible that training people to become more actively involved in interacting with their image worlds could increase their divergent thinking ability."

Demonstrating the importance of such ability, in 1983 Sinatra and Stahl-Gemake noted,

... the right brain can visualize an image in its entirety, while the left brain can scan, analyze, and discuss its component parts. Thus, tasks that require us to view or imagine people, places, or things and then provide time for us to talk or write about what we've seen, use the capabilities of both hemispheres of the brain. (p. 203)

They further noted applications of their hypothesis when they gave the example of the natural progression from drawing to writing which occurred after children were given individual sketch pads. Each school day, the children drew pictures about "family or school events, memories, dreams, and imaginary happenings." (p. 203). The children then were encouraged to compose written narratives about the pictures. After all, as noted by Sticht & McDonald (1992, p. 322), the alphabet itself is but "a graphical representation of spoken language."

Rubin (1990) also emphasized the importance of creativity in a classroom when she described the atmosphere in such a

classroom as being "charged with electricity." (p. 36) She reinforced her premise by insisting,

If we want divergent thinkers (persons who can see many different ways to solve problems) and individuals who are and continue to be intelligent risk-takers, we must create an environment that values those traits and we must involve students in creative experiences. (p. 37)

Lowenfeld's, Sarnoff's, and Rubin's studies converge with the work of Olson (1992) who stated, "children with highly visual aptitudes are capable of complex problem-solving and thinking processes." (p. 2) She continued by asserting, "the elements of plot are frequently more complex and detailed in children's drawings than is evident in their writings." (p. 3) Olson also stated that there is an untapped reservoir of visual experience and understanding that can be translated more effectively into words by utilizing a visual approach to writing.

Revel-Wood asserted that the classroom which provides positive support for young authors "is a lush environment that surrounds students with all kinds of print media." (p. 169) On her list of print media, Revel-Wood included art materials, and wrote of the benefits of the combining of various kinds of knowledge. The drawing of pictures is one of the activities that encourage composition in a young child that will lead to that child's progressive growth as a composer of ideas on paper (Temple, Nathan, Burris, & Temple, 1988).

Baskwill (1993) wrote that she consistently demonstrated the importance of combining art and writing in her classroom of

young children. She often discussed with her students the importance of pictures as aids to help the students remember their ideas. From the first day of school each year, "the children either draw or write about their ideas." (p. 46) She felt the combination of the two forms helped the children "as they take their first tentative steps as authors." Lastly, when children are encouraged to shift back and forth between the realms of artist and writer, they "come to view their knowledge and the communication systems themselves in a new way." (Rowe, Harste, & Short, 1988, p. 3).

The close relationship between writing and the visual arts previously had been noticed by Sealey, Sealey, and Millimore (1979) when they wrote,

Writing is a graphic form; it involves making marks on paper. As such, motor skills are involved, but one also needs to develop a sense of order and pattern. . . . Some approaches to the correct formation of letter shapes have been through art, but picture and pattern making also seem to release energy in some children for speaking and writing. In many classrooms where there is art of a varied and high standard, the writing is of corresponding quality. (p.6)

Friedman (1985), a first-grade teacher who researched the writing ability of her students over a number of years, believed that the majority of even her very young students, able to function in a regular classroom also were able to write competently. She found that incorporating drawing with her writing program seemed

to be a helpful method to inspire students suffering from writer's block, suggesting each child first should draw a picture. After the children were finished with their drawings, they were asked if they then could write about their pictures, and the answer was always an enthusiastic affirmative.

Further reinforcing the idea of the integration of the two disciplines, art educators and authors, Hurwitz and Day (1991, p. 494), wrote that art has often been abused in the process of being integrated with other curriculum areas; nevertheless, they encouraged the integration of art with writing by proposing the idea that the combination of the two could enhance the development of both forms.

As so aptly stated by Hjerter when she compared authors to visual artists, (1986),

The line between picture and symbol is a fine one. The principles of perspective and composition. . . are good for a writer to experience and will help him to visualize his scenes, even to construct his personalities and to shape the invisible contentions and branchings of plot. No better school exists than graphic representation. The tools are allied, the impulse is one. (p. 8)

CHAPTER III

METHODOLOGY

Introduction

The purpose of this study was to examine the effects of drawing on the writing performance of third grade students. This chapter provides a description of the subjects, instructional settings, instruments, research design and procedures, and hypotheses for the study.

Subjects

There were several reasons why the third grade level was selected for this study. First of all, third graders are nearing the end of their primary years, with most of them being aware of the basic mechanics of writing, and are past the stage of concentrating on the printing of individual letters; in fact, as part of the traditional curriculum, third graders formally are learning cursive writing, if they hadn't begun mastering it at the end of second grade. Second, the majority can write simple phrases and sentences. The third and last reason is that students in the third grade tend to be less self-conscious about their drawing abilities than older students might be.

The participants in this study were 119 third grade students, composed of 62 males and 57 females. The sample size used was determined to be adequate after referring to the work of Kraemer and Thiemann (1987). Eighty of the students were Caucasians, 34 were Native Americans, and 5 were African-Americans. The mean age of the students was 8 years and 11 months, with a range from 8 years, 0 months to 9 years, 11 months. Table 3.0 describes the subjects.

Initially, contact was made with the principal of each of the three participating schools. After an explanation of the purpose of the research and an assurance of the confidentiality of the results was given to the principals, each agreed to ask their third grade teachers if they would be willing to participate. All of the teachers were interested, so the researcher met with them at each school in order to explain more fully the purpose and methods of the research. Copies of the instruments, consent forms, and information forms also were given to the teachers. Additionally, appointments were made for the researcher to visit each classroom to speak to the prospective subjects. Next, a letter of information was distributed by the teachers to the parents/guardians of each of the subjects. The letter (Appendix 1) contained information about the purpose of the study, an explanation of the method of collection of the writing samples, and of the two tests that would be administered, the assurance of confidentiality, and the assurance of the parents'/guardians' rights to deny the child's participation in the study. Two copies of a consent form also were sent to the parents/guardians of each

TABLE 3.0
DESCRIPTION OF SUBJECTS BY AGE, GENDER, AND ETHNICITY

	Experimental Group			Contro Group		
	M	F	Total	M	F	Total
Subjects	27	33	60	31	28	59
Age (M)	8.92	8.97		8.91	8.98	
Ethnicity						
Caucasian	21	22	43	17	18	35
Nat. American	5	8	13	12	9	21
Af. American	1	3	4	2	1	3

subject (Appendix 2). The parents/guardians were asked to sign one copy of the consent form and return it to the subject's teacher, while keeping one copy of the form for their personal use.

Additionally, during a visit to each classroom by the researcher, the subjects were informed of the purpose of the research, that the study was entirely voluntary, and that they would have the option of refusing to participate at any point during the study (Appendix 3).

Instructional Settings

The study was conducted in self-contained public school classrooms in three rural elementary schools in north-central Oklahoma. Each of the schools was part of a district containing one elementary school and one high school. Although varied socioeconomic backgrounds and ethnic groups were represented, students who attend the three schools in the study were predominantly Caucasian, and in the lower- to lower-middle socioeconomic classes. The majority of the students, in the three districts of which the schools were a part, received free or reduced-price breakfasts and lunches while at school. Students were grouped heterogeneously.

The first school used in the study is part of a district formed after the combination of two school districts in danger of being closed because of dwindling enrollment. The school district population was 425 for the 1993-94 school year, and the school which was part of the study serves students from kindergarten through grade four. There were two or three sections of each

elementary grade level, with the exception of kindergarten, which was made up of four sections. Most of the students live in the rural area surrounding the two towns, while the remainder live within the two towns' limits. The majority of the jobs in the community are related to agriculture and the oil-related industries.

The second school serves students from kindergarten through grade six. At the time of the study, there were two to three sections of each grade level, with the exception of kindergarten, which was made up of four sections. There were 495 students registered in the district for the 1993-94 school year. A number of the community residents commute to a neighboring small city to find employment at an institution of higher learning. Within the town, which is the county seat, a community hospital, courthouse, and some small businesses also provide employment. Despite the variations of employment, the town is considered an agricultural community.

The third school in the study serves students from kindergarten through grade eight. There were 426 students registered for the 1993-94 school year in the district. At the time of the study, there were one or two sections of each grade level in the school, with the exception of kindergarten, which had two sections. Although a number of the community residents commute to a neighboring small city to find employment at an institution of higher learning, there are few businesses, and the town is classified as agricultural.

Instruments

Test of Written Language-2

The Test of Written Language-2 (TOWL-2) was the instrument which was used to determine the students' writing abilities before the treatments took place. The test was designed for the chronological ages of 7 years 0 months to 17 years 11 months. The test authors state that the TOWL-2 may be used to (a) identify any student who needs special help in written expression because he or she performs significantly more poorly than his or her peers; (b) discover a student's weaknesses and strengths in written expression; (c) record a student's development when taking part in a special writing program; and/or (d) conduct writing research. The TOWL-2 can be used for either individual or group administration. There are two forms, A and B; Form A was used for this study.

The instrument is made up of 10 subtests which measure vocabulary, spelling, style, logical sentences, sentence combining, thematic maturity, contextual vocabulary, syntactic maturity, contextual spelling, and contextual style. The subtests yield three composite scores: contrived writing, spontaneous writing, and overall written language. The TOWL-2 has no set time limits, except the 15 minute restriction for the spontaneous writing section. Depending on the ages and abilities of the students being tested, the test can be completed in 1 1/2 to 2 hours.

The content validity has been described as good. Concurrent validity is rated good with the SRA Achievement Test. Interrater reliability correlations averaged .96 for the ten subtests. A test-retest study with alternate forms yielded a quotient of .85 on the Overall Written Language composite. An examination of the TOWL-2's reliability relative to Anastasi's (1982) formula for calculating reliability on the basis of interscorer, content sampling, and time sampling reliabilities revealed an r value quotient equal to .90 on the Overall Written Language composite. The SEMs for the ten subtests are only one or two points at all age intervals.

A reviewer supports use of the instrument by stating that the authors should be commended for the changes made from an earlier edition of the test, and that the Overall Written Language quotient provides a valid and reliable measure of young people's writing ability (Benton, 1992).

Torrance Test of Creative Thinking (TTCT)

The instrument used in this study to measure subjects' creativity was Thinking Creatively with Pictures, Form A, from the Torrance Tests of Creative Thinking series. The Torrance Tests of Creative Thinking were designed to measure creative thinking abilities of subjects from kindergarten through graduate school. The Picture Booklet, Form A, includes three parts with a ten-minute limit for each part; thus, the entire test takes 30 minutes to administer. The test was administered by the researcher, who read the instructions from the test booklets three times

to the students before each part of the test was begun.

Figural Form A measures four dimensions of creativity, which are fluency, flexibility, originality, and elaboration. Fluency reflects the ability to produce a large number of ideas with pictures. Flexibility represents the ability to produce a variety of ideas and to shift from one approach to another, or to use a variety of strategies. Originality is the ability to produce ideas that stray from the obvious, common-place, banal, or established. Elaboration reflects the subject's ability to develop, embellish, carry out, or otherwise elaborate ideas (Torrance, 1974).

The Torrance Tests of Creative Thinking have been used for research in various areas for more than 20 years, and their validity and reliability have been well established (Buros, 1978). The correlation coefficients for the inter-score reliability on the four measures of creativity have been established as $r=.99$ on fluency, $r=.93$ to $r=1.00$ on flexibility, $r=.95$ on originality, and $r=.98$ on elaboration. The correlations for test-retest reliability have been documented as $r=.82$, $r=.59$, $r=.85$, and $r=.83$ on the four measures, respectively. The long-range predictive validity was given as between $r=.51$ to $r=.59$.

Design

The design for this study was the posttest-only control group experimental design. The subjects of the study were kept in their intact groups. The experimental group was made up of 33 females and 27 males, while the control group contained 28 females and 31

males. The covariates were the two instruments: the TOWL-2, used to control for pre-existing differences in writing ability; and the ITCT, used to control for pre-existing differences in creativity. The independent variable represented group membership and gender. The dependent variables represented the performance measures of the subjects as described below.

Dependent Variables

The first dependent variable measured the length of the stories written by the subjects after each assigned task, determined by counting the total number of words in each story.

The second dependent variable measured the number of sentences, simply determined by counting the sentences in the stories written by the subjects.

The third dependent variable was the measurement of the number of idea units. Linguists and other researchers have used the term, "idea units," interchangeably with the terms "semantic units," "discourse units," "intonation units" and "lexical units." For instance, in 1974, Chafe (p. 34) spoke of semantic units as being "like concepts." Idea units subsequently were defined by Kroll (1977) as concept idea units. Chafe (1980) later modified Kroll's definition to denote segments of discourse that coincide with a person's focus of attention. Gere and Abbott (1985) further expanded on the term by explaining that spontaneous idea units are not produced in a flowing stream but in a series of brief spurts. Also, they asserted that the boundaries of the spurts are posted

either or both by pauses and syntax. Additionally, Chafe and Danielewicz (1987, p. 84) defined intonation units, when used in written discourse, as "stretches of language between punctuation marks." After reviewing past definitions, it was decided that for this study, the term, "idea unit," would be functionally defined as a focus of consciousness that is linguistically expressed in written form, the completion of which is often, but not always, signaled by a period or other end mark. The meaning of a text, in this case a student's composition, is represented by connected idea units.

The fourth dependent variable was overall writing performance, determined by utilizing a holistic grading form devised by the researcher.

Covariates

Since intact groups were used, scores on the TOWL-2 and the ITCI were examined for use as possible covariates to control for any pre-existing differences in writing and relative abilities. ITCI scores were not found to correlate highly with any of the dependent variables and so were not used as a covariate. Scores on the TOWL-2 did correlate with all of the dependent variables and were used as a covariate.

Because three stories were collected from each child, "story" represented a repeated measures variable with three levels.

The final design incorporated one covariate (TOWL-2 scores), two between-subject variables (group and gender) and one repeated measures variable (story). The main effect of interest was the

group variable: how did the experimental group perform in relation to the control group? The purpose of the analysis was also to discover whether gender plays a role in writing performance, either by itself or in combination with the group variable. The story variable was used mainly to obtain more data without greatly increasing error variability. The desired outcome was that there would be no significant differences in performance on the three stories. The covariate, TOWL-2 scores, was used to control for any pre-existing differences in writing ability.

The study began in November of 1993 and was concluded in January of 1994. Permission was granted to the researcher to be in each school only for the amount of time needed to administer the two tests and the three treatments. All the subjects remained in their intact groups during the study. Attrition was a potential threat to internal validity, but that threat did not materialize because the study was completed within a short time.

Procedure

Administration of the Test of Written Language-2 (TOWL-2)

In order to assess the subjects' writing proficiency, the TOWL-2 (Form A) was administered by the researcher at the time of the first session of the study, with both the control and experimental groups.

The Spontaneous Writing section, with an allotted time period of fifteen minutes, was administered first. Utilizing Form A, when the students opened their test booklets, they saw a picture of what

was described by the authors as a prehistoric scene, although it was not labeled as such in the student booklets. The students then were told to write the best stories they could about the picture. They also were told that extra paper would be provided if the two lined pages in the booklet were not enough. The publishers allow a fifteen-minute time limit for the story-writing after the directions have been given to the students. A five-minute rest period was given to the students after the Spontaneous Writing section was completed.

Each story written yields five of the subtest scores. In the first, Subtest Six: Thematic Maturity, points are earned for each time the student mentions elements in the story which relate to the picture and which have been predetermined by the test authors. Subtest Seven: Contextual Vocabulary, yields a measure of the vocabulary level of each subject's story, counting the words of seven or more letters in length that are unduplicated within each story. Subtest Eight: Syntactic Maturity, is a count of the number of words in each student's story that is found within grammatically correct sentences. Subtest Nine: Contextual Spelling, yields the number of correctly spelled words in each subject's story. The final score yielded by the spontaneous writing is found in Subtest Ten: Contextual Style, where each subject's story is scored for the number of instances in which different punctuation and capitalization rules are used.

Subtest One: Vocabulary, was administered to the students next. In this section, the test booklet shows thirty stimulus words, and the students were instructed to use each word in a

sentence. A practice item was completed first by the researcher in a cooperative demonstration with the students. There was no time limit, so the researcher instructed the students to put their pencils down to signify when they were done. When all the students had finished, with the longest taking 19 minutes, the children were given a five-minute rest. Each sentence that utilized the stimulus word correctly, discounting spelling, received one point in scoring.

Subtest Two: Spelling, and Subtest Three: Style, were given simultaneously, but subsequently scored separately, according to the publisher's directions. The subtests consist of twenty-five sentences that were dictated to the students by the researcher. Before beginning dictation, a practice sentence was dictated to the students, then the researcher wrote the sentence on the chalkboard and discussed it with the students. When all the sentences had been dictated, the combined subtests were concluded, and the students were given a five-minute rest. Each sentence that was grammatically correct received one point, and each of the dictated words that was spelled correctly received one point in scoring.

Before beginning Subtest Four: Logical Sentences, the students each were given a copy of a list, provided by the test publisher, of 25 illogical sentences. Two practice items on the list were discussed, and then the students were instructed to rewrite, in their test booklet, each sentence "so that it makes perfect sense." Since the subtest isn't timed, the students were instructed to put down their pencils to indicate when they were finished. Subtest Four seemed to be difficult for most of the

students, and the student who was the last one finished took only twelve minutes. When everyone was finished, the students were given a five-minute rest. Each corrected sentence received one point in scoring.

Subtest Five: Sentence Combining, also required the use of a copy for each student of a list provided by the test publisher. The list contained 25 sets of sentences with the sets ranging from two to six sentences. Seven of the sets contained two sentences, seven contained three sentences, four contained four sentences, four contained five sentences, and three contained six sentences. The students were expected to combine each set of multiple sentences into one sensible sentence per set. There was one practice set of sentences on the list. The researcher discussed with the students the best way to combine the two sentences which made up the practice item, and wrote the "good" sentence on the chalkboard. Since Subtest Five wasn't timed, the students were told to put down their pencils to indicate when they were through. Subtest Five proved to be so difficult for the students that everybody indicated they were through in 11 minutes. The administration of the Towl-2 then had reached the conclusion. Each sentence formed correctly by utilizing the given sentences received one point.

Administration of Thinking Creatively with Pictures, Form A, from the Torrance Tests of Creative Thinking

During the second visit to the control and experimental groups, the students were administered Thinking Creatively with Pictures.

Form A, from the Torrance Tests of Creative Thinking series. The instrument includes three sections with a ten-minute limit for each. To begin Activity One: Picture Construction, the students opened their test booklets to the first page. On the page was depicted a curved shape, which generally resembled a black egg or oval. The students were directed to try to make the most unusual picture out of the shape they they could, and then to write a title for the picture story on the designated title line on the bottom of the page. They were informed that there was a ten-minute time limit. At the conclusion of the allotted time, the students were given a five-minute rest period.

Activity Two: Picture Completion, consisted of 10 numbered squares on two pages. Each square contained what the test authors called "an incomplete figure." The students were directed to complete each incomplete figure in as original a way as possible, and then write a title for each figure on the designated line on the bottom of each square. The students were informed that there was a ten-minute time limit. At the conclusion of the allotted time, the students were given a five-minute rest period.

The last section of the test was Activity Three: Lines. This part of the test consisted of 30 sets of two vertical lines. The first three sets of lines were spaced more closely together than the rest of the sets. As with the previous activities, the students were instructed to complete as many of the sets of lines as they could, making each set into as interesting a picture as possible, then writing a title on the designated line below each set. The students then were informed that they had a ten-minute time limit

in which to complete the task. At the end of Activity Three, that portion of the test was concluded and the testing session was over.

Story-Writing Sessions

During the third session with the control group, the students were asked by the researcher to write individual stories. Researchers of the writing process have stressed the importance of choice in the selection of writing topics (Calkins, 1980; Graves, 1981; Murray, 1982). Smith (1978) stated that interest precedes and drives experiences in learning, and such interest especially applies to written language. Furthermore, when children feel ownership of and responsibility for their writing they become highly involved in learning (Calkins, 1980; Graves & Stuart, 1985; Hansen, 1987). Graves (1983b) also felt that self-selection helps students recognize what is important to them. Children often have difficulty writing when they are assigned topics in which they have little interest or knowledge (Calkins, 1983), despite the fact that many teachers seem to believe that children would not be able to generate their own topics (Graves & Stuart, 1985). According to Silberman (1989, p.17), in classrooms where teachers have left behind the usual practice of assigning identical writing topics to all the members of their classes, "there is a stir in the air," and students appear to write more enthusiastically.

Because of the implications of the importance of choice, the control group members were given the option of four possible titles for the first story: "My Friends and Me," "One of My Favorite

Animals," "Something I Like to Smell," or "A Present I Would Like." The researcher wrote each title on the chalkboard, and a short discussion between the students and the researcher ensued as each title appeared. To ensure the widest range of expression, the students also were given the option of using a self-selected title if they did not wish to write about the four choices that were discussed. After thirty minutes of writing, the treatment was concluded.

As the third session with the experimental group began, the researcher followed the same procedure for the first story that was followed with the control group, with the same choice of titles or a self-selected title, except the students were asked to draw a picture first about the story they were going to write. After thirty minutes of drawing, the students were informed that it was time to write about their pictures. They also were told that they were allowed to look at their drawings as often as they wished while they wrote their stories. After thirty minutes of writing, the treatment was concluded.

During the fourth session with the control group, the same procedure was followed for writing stories. For the second story, the students were given the following choices of titles: "Something I Would Like to Own," "What I Like Best About Sports," "A Place I Would Like to Visit," or "Something I Can Do Well." As with the first story, the students also were given the option of using a self-selected title. After thirty minutes of writing, the treatment was concluded.

As the fourth session with the experimental group began, the researcher followed the same procedure for the second story that was followed with the control group, with the same choice of titles or a self-selected title, except the students were asked to draw pictures first about the stories they were going to write. After thirty minutes of drawing, the students were informed that it was time to start writing their stories. As before, the students were encouraged to look at their pictures as often as they desired while they wrote their stories. After thirty minutes of writing, the treatment was concluded.

For the fifth and last session with the control group, the researcher followed the same procedure for the third story that was followed with the second story. The students were asked to choose from the following list of titles: "Under the Bed," "The Adventures of the Giant Potato," "The Runaway Elephant," and "The Strange Dream." As before, the students were also given the option of using a self-selected title. After thirty minutes of writing, the experiment was concluded.

During the final session with the experimental group, the researcher followed the same procedure for the third story that was followed by the control group. As before, the students first were asked to draw a picture about their story topics. After thirty minutes of drawing, the students were asked to write their stories, being encouraged to look at their pictures as often as they wished while they wrote their stories. After thirty minutes of writing, the treatment was concluded.

Pilot Study

Gay, (1992) stressed the value of a pilot study, even if small-scale, to help the prospective researcher refine procedures and gain valuable experience. Because of the potential benefits, a pilot study was conducted one month before the experiment was implemented. Four third-grade children were selected as the subjects. The subjects were given the Torrance Test of Creative Thinking (TTCT) Figural, Form A, and the Test of Written Language-2 (TOWL-2) with each test being administered during a different session, while the subjects remained in one intact group.

For the three treatments of the study, two of the subjects served as the control group, and two served as the experimental group. The members of the control group each wrote one story on three different occasions; each member of the experimental group first drew a picture of his/her story subject, then wrote a story about the picture on three different occasions. All of the planned scoring methods that were proposed for the actual story then were followed.

In summary, the researcher was able to test the instruments, treatments, and scoring methods during the pilot study in order to decide whether they would be suitable for the goals of the study. It was found that the pilot subjects were able to understand and respond to the survey instruments and the three treatments with no apparent problems. Because of the success of the pilot study, no procedural changes were made before the actual study began.

Hypotheses

This study explored seven null hypotheses for each dependent variable. Gay (1992, p. 428) wrote that the "rejection of a null hypothesis is more conclusive support for a positive research hypothesis." The following is a list of the hypotheses:

Hypothesis 1: There is no significant difference between the experimental group and the control group as measured by number of words, number of sentences, number of idea units, and overall writing performance.

Hypothesis 2: There is no significant difference between males and females in the experimental group and the control group as measured by number of words, number of sentences, number of idea units, and overall writing performance.

Hypothesis 3: There is no significant interaction effect between group (experimental and control) and gender, as measured by number of words, number of sentences, number of idea units, and overall writing performance.

Hypothesis 4: There is no significant difference between the three stories, as measured by number of words,

number of sentences, number of idea units, and overall writing performance.

Hypothesis 5: There is no significant difference between the story number and group, as measured by number of words, number of sentences, number of idea units, and overall writing performance.

Hypothesis 6: There is no significant interaction effect between the story number and gender, as measured by number of words, number of sentences, number of idea units, and overall writing performance.

Hypothesis 7: There is no significant interaction effect between the story number, gender, and group, as measured by number of words, number of sentences, number of idea units, and overall writing performance.

Summary

Chapter III provided a description of the subjects, instructional settings, instruments, experimental design and procedures, and a presentation of the hypotheses for the study. Chapter IV will present a discussion of the results of the study.

CHAPTER IV

RESULTS AND ANALYSES OF THE DATA

The purpose of this study was to examine the effects of drawing on the writing performance of third grade students, as measured by number of words, number of sentences, number of idea units, and overall writing performance.

The individual stories completed by the students during each of the three treatments were examined. A count was made of the number of words and sentences. To ensure the reduction of subjectivity, the 357 stories were judged for the number of idea units by a jury. The members of the jury were two elementary classroom teachers and the primary researcher, all of whom possess degrees with graduate work beyond the master's. One of the teachers holds two master's degrees and the researcher is a doctoral candidate. The members of the jury have extensive teaching experience from the elementary school through the junior high school levels, totaling sixty-eight years among themselves. Additionally all possess current teacher certification. As the jury members assessed each student's writing selections, any papers on which they did not agree were placed aside. After the initial screening, all the written selections in contention then were discussed by the jury members until unanimous agreement was reached.

When assessing the quality of children's writing, researchers state that the entire selection should be considered, with the most emphasis being placed on the content (Manning, Manning, Long, & Wolfson, 1987). The stories written by the students in the study were graded holistically by the researcher for content, organization, and mechanics, using a story evaluation form with a 100 point scale. The evaluation form (Appendix 4) was devised by the researcher after studying a similar form by Hughey, Wormuth, Hartfiel, and Jacobs (1983).

Analysis of the mean scores obtained on the ITCI showed that the groups, although intact, appear similar in creative ability. Because the ITCI scores were not highly correlated with any of the dependent variables, they were not used as covariates.

The TOWL-2 scores utilized for analysis were the composite standard scores. According to Hammill and Larsen (1988, p. 5), there are latent problems associated with the use of subtest scores, since "the reliability associated with most subtests generally falls toward the bottom levels of acceptability." They further stated that "judgments made on the basis of subtest scores are going to contain considerably more error than those based on composite scores." (p. 6) At the same time, they stressed that their contention "is true not only of the TOWL-2 but also of all popular tests of aptitude and achievement." (p. 6) Therefore, they concluded that the results of composite scores "should be given more credence and attention than those of the subtests," (p. 7) especially when diagnosis is a factor.

Numerous variables were measured for this study: age, group (experimental and control), gender, race, TOWL scores, ITCT scores, number of words, number of idea units, number of sentences, and overall writing performance (the last four for each of three stories). Each of these variables is discussed for its purpose and possibility of use in the analysis.

(1) Group: this was the primary variable of interest, and the impetus for the entire study. There was never any question that it would be included in the study.

(2) Age: dependent variable scores were examined (by scatterplot) by age (age in years and months was converted into decimal form), and no trend was visible. Given the range of ages, since all of the subjects were in the third grade, this was not surprising. There was no reason to add the age variable to the analysis.

(3) Race: dependent variable scores did differ by race, but the variable was not used due to the very small numbers of subjects in minority groups.

(4) Gender: dependent variable scores differed by gender upon inspection of group means, and there were approximately equal numbers of subjects from each gender in each group. Since it looked as if the gender variable might be significant, it was added to the analysis. It should be mentioned that although group was the primary variable of interest, the addition of the gender variable (and in particular the interaction, if any, of gender and group) would provide insight into whether the effect of group was universal across gender or not.

(5) TOWL-2 scores: these were measured to serve as a possible covariate since intact groups were used. Examination of the correlation between TOWL-2 scores and dependent variable scores showed that TOWL-2 scores were indeed correlated with all dependent variables, and thus of use as a covariate to control for any possible pre-existing differences in writing ability in the intact groups.

(6) TICTI scores: these were also measured for possible use as a covariate. The test measures creativity, and it was assumed that those children with high creative ability might score better on their written stories. However, TICTI scores did not correlate very well with any of the dependent variables, since all correlations were under .2, so this variable was abandoned.

(7) Story: each subject completed three stories, making this a repeated measures variable. The variable itself was not of interest, since there was a strong possibility that there would be no systematic trend or difference between performance on the three stories, it was added for the purpose of having more data.

(8) Number of words, number of sentences, number of idea units, and overall writing performance: these were all measures of performance on the written stories. All four were used as separate dependent variables, since it was not known whether the group variable would have an effect on all, some, or none of these different measures.

These variables, along with all possible interactions, were analyzed, giving 28 separate hypotheses. As discussed above, most of these hypotheses were not of particular interest in isolation.

Testing the Hypotheses

The alpha (probability) level for the entire experiment was set at $\alpha = .05$. Since there were four dependent variables, each analyzed separately, the individual alpha level for each analysis was set at $\alpha = .0125$. (This level was computed by performing a modified Bonferroni adjustment obtained by taking the desired error rate (.05) and dividing it by the number of individual analyses (i.e.).

Hypothesis #1 (Dependent Variable: Overall Writing Performance)

Hypothesis 1.1: There is no significant difference in overall writing performance between the experimental group and the control group.

The ANCOVA summary table, (Table 4.0), showed an F observed value of 60.04 with (1,114) degrees of freedom. The probability that this value of F observed was due to chance was $p = .001$. Since this was less than the individual $\alpha = .0125$, the null hypothesis was rejected. The conclusion was that there was a significant difference between the experimental and control groups in overall

TABLE 4.0

ANCOVA SUMMARY TABLE

DEPENDENT VARIABLE = OVERALL WRITING PERFORMANCE

Variable	DF	SS	MS	F Value	Pr > F
Group	1	48030.74	48030.74	60.04	.0001
Gender	1	837.20	837.20	1.05	.3085
Group*Gender	1	81.96	81.96	.10	.7495
TOWL-2	1	13700.31	13700.31	17.13	.0001
Error	114	91999.69	799.99		
Story (1)	2	301.32	150.66	.67	.5142
Story*Group (1)	2	433.58	216.79	.96	.3845
Story*Gender (1)	2	80.00	40.00	.18	.8378
Story*Gender*Group (1)	2	161.96	80.98	.36	.6991
Story*TOWL-2 (1)	2	237.48	118.74	.53	.5918
Error (Story)	228	51497.55	225.86		

(1) Values are adjusted by the Huynh-Feldt epsilon correction.

writing performance. The experimental group performed significantly better than the control group, receiving higher mean scores ($M = 69.34$; $SD = 16.77$) on overall writing performance than did the control group ($M = 45.37$; $SD = 18.17$), as shown in Table 4.1.

Hypothesis 1.2: There is no significant difference in overall writing performance between males and females.

The ANCOVA summary table (Table 4.0) showed an F observed value of 1.05 with (1, 114) degrees of freedom. The probability that this value of F observed was due to chance was $p = .3085$. Since this was greater than the individual $\alpha = .0125$, the null hypothesis was not rejected. It was concluded that there was no significant difference in overall writing performance between males and females. For males, the mean overall writing performance was 54.03 ($SD = 22.20$); for females the mean overall writing performance was 60.70 ($SD = 19.76$), as shown in Table 4.2.

TABLE 4.1
MEAN OVERALL WRITING PERFORMANCE BY GROUP

Group	N	Mean	SD	Min.	Max
Experimental	60	69.34	16.77	19.00	95.00
Control	59	45.37	18.17	7.67	83.33

TABLE 4.2

MEAN OVERALL WRITING PERFORMANCE BY GENDER

Group	N	Mean	SD	Min.	Max.
Females	61	60.70	19.76	13.33	95.00
Males	58	54.03	22.20	7.67	92.00

Hypothesis 1.3: There is no significant interaction effect on overall writing performance between group (experimental and control) and gender.

The ANCOVA summary table (Table 4.0), showed an F observed value of .10 with (1, 114) degrees of freedom. The probability that this value of F observed was due to chance was $p = .7495$. Since this was greater than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was not a significant interaction effect on overall writing performance between group (experimental and control) and gender.

Hypothesis 1.4: There is no significant difference in overall writing performance between the three stories.

The ANCOVA summary table, (Table 4.0), showed an F observed value of .67 with (2, 228) degrees of freedom. The probability that this value of F observed was due to chance was $p = .5142$. Since this was greater than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was not a significant difference in overall writing performance between the three stories, as shown in Table 4.3.

TABLE 4.3

MEAN, STANDARD DEVIATION, AND RANGE
OF OVERALL WRITING PERFORMANCE

	N	Mean	SD	Mfn.	Max.
STORY ONE					
Experimental					
Females	33	74.21	17.40	40	98
Males	27	65.07	24.35	10	96
Control					
Females	28	44.93	19.19	10	88
Males	31	42.68	22.29	6	82
STORY TWO					
Experimental					
Females	33	70.69	20.81	15	99
Males	27	64.74	26.39	10	99
Control					
Females	28	45.79	17.39	11	78
Males	31	41.19	23.95	3	83
STORY THREE					
Experimental					
Females	33	71.91	22.12	11	99
Males	27	67.41	22.51	8	99
Control					
Females	28	50.50	16.39	19	77
Males	31	47.65	21.01	9	86

Hypothesis 1.5: There is no significant interaction effect on overall writing performance between the story number and group.

The ANCOVA summary table (Table 4.0) showed an F observed value of .96 with (2, 228) degrees of freedom. The probability that this value of F observed was due to chance was $p = .3845$. Since this was greater than the individual $\alpha = .0125$, the null hypothesis was not rejected. The conclusion was that there was no significant interaction effect on overall writing performance between the story number and group. Table 4.1 describes the results.

Hypothesis 1.6: There is no significant interaction effect on overall writing performance between the story number and gender.

The ANCOVA summary table, (Table 4.0), showed an F observed value of .18 with (2, 228) degrees of freedom. The probability that this value of F observed is due to chance was $p = .8378$. Since this was greater than the individual $\alpha = .0125$, the null hypothesis was not rejected. It was concluded that there was not a significant interaction effect on overall writing performance between the story number and gender.

Hypothesis 1.7: There is no significant interaction effect on overall writing performance between the story number,

gender, and group.

The ANCOVA summary table (Table 4.0) showed an F observed value of .36 with (2, 228) degrees of freedom. The probability that this value of F observed was due to chance was $p = .6991$. Since this was greater than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was no significant interaction effect on overall writing performance between the story number, gender, and group.

Hypothesis #2 (Dependent Variable: Idea Units)

Hypothesis 2.1 : There is no significant difference in the number of idea units between the experimental group and the control group.

The ANCOVA summary table, (Table 4.4), showed an F observed value of 17.54 with (1, 114) degrees of freedom. The probability that this value of F observed was due to chance is $P = .0001$. Since this was less than the individual Alpha = .0125, the null hypothesis was rejected. It was concluded that there was a significant difference in the number of idea units between the experimental group and the control group. The experimental group ($M = 11.39$; $SD = 6.31$) performed significantly better than the control group, receiving higher mean scores on number of idea units ($M = 7.65$; $SD = 2.95$), as shown in Table 4.5.

TABLE 4.4
ANCOVA SUMMARY TABLE

DEPENDENT VARIABLE = NUMBER OF IDEA UNITS

Variable	DF	SS	MS	F Value	Pr > F
Group	1	1065.11	1065.11	17.54	.0001
Gender	1	286.42	286.42	4.72	.0319
Group*Gender	1	36.39	36.39	.60	.4404
TOWL-2	1	1094.10	1094.10	18.02	.0001
Error	114	6922.20	60.72		
Story (1)	2	12.14	6.07	.27	.7669
Story*Group (1)	2	68.49	34.24	1.50	.2257
Story*Gender (1)	2	7.84	3.92	.17	.8423
Story*Gender*Group (1)	2	8.09	4.04	.18	.8378
Story*TOWL-2 (1)	2	10.88	5.44	.24	.7883
Error (Story)	228	5211.31	22.85		

(1) Values are adjusted by the Huynh-Feldt epsilon correction.

TABLE 4.5

MEAN NUMBER OF IDEA UNITS BY GROUP

Group	N	Mean	SD	Min.	Max.
Experimental	60	11.39	6.31	3.33	37.67
Control	59	7.65	2.95	1.00	14.67

Hypothesis 2.2: There is no significant difference in the number of idea units between males and females.

The ANCOVA summary table (Table 4.4) showed an F observed value of 4.72 with (1, 114) degrees of freedom. The probability that the value of F observed was due to chance was $p = .0319$. Since this was more than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was no significant difference in the number of idea units between males and females. For males, the mean number of idea units was 8.21 (SD = 5.26); for females the mean number of idea units was 10.80 (SD = 4.98). Table 4.6 describes the results.

Hypothesis 2.3: There is no significant interaction effect on the number of idea units between group (experimental and control) and gender.

The ANCOVA summary, as described in Table 4.4, showed an F observed value of .60 with (1, 114) degrees of freedom. The probability that the value of F observed was due to chance is $p = .4404$. Since this was more than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was no significant interaction effect on the number of idea units between group (experimental and control) and gender.

TABLE 4.6
MEAN NUMBER OF IDEA UNITS BY GENDER

Group	N	Mean	SD	Min.	Max.
Experimental	61	10.80	4.98	4.00	35.67
Control	58	8.21	5.26	1.00	37.67

Hypothesis 2.4: There is no significant difference in the number of idea units between the three stories.

The ANCOVA summary table (Table 4.4) showed an F observed value of .27 with (1, 114) degrees of freedom. The probability that the value of F observed was due to chance is $p = .7669$. Since this was more than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was not a significant difference in the number of idea units between the three stories. Table 4.7 describes the results.

Hypothesis 2.5: There is no significant interaction effect on the number of idea units between the story number and the group.

The ANCOVA summary table, (Table 4.4), showed an F observed value of 1.50 with (2, 228) degrees of freedom. The probability that the value of F observed was due to chance was $p = .2257$. Since this was more than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was no significant interaction effect on the number of idea units between the story number and the group.

Hypothesis 2.6: There is no significant interaction effect on the number of idea units between the story number and gender.

TABLE 4.7

MEAN, STANDARD DEVIATION, AND RANGE OF IDEA UNITS

	N	Mean	SD	Min.	Max.
STORY ONE					
Experimental					
Females	33	12.91	7.19	25	38
Males	27	9.37	6.90	1	36
Control					
Females	28	8.07	5.11	2	21
Males	31	6.90	4.30	1	17
STORY TWO					
Experimental					
Females	33	12.52	7.70	3	38
Males	27	10.07	8.96	3	48
Control					
Females	28	7.46	3.21	4	17
Males	31	6.00	3.43	1	15
STORY THREE					
Experimental					
Females	33	13.00	8.69	3	38
Males	27	9.52	6.36	1	30
Control					
Females	28	9.75	4.77	3	20
Males	31	7.94	3.60	1	15

The ANCOVA summary table (Table 4.4) shows an F observed value of .17. with (2, 228) degrees of freedom. The probability that the value of F observed was due to chance was $P = .8423$. Since this was more than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was not a significant interaction effect on the number of idea units between the story number and gender.

Hypothesis 2.7: There is no significant interaction effect on the number of idea units between the story number, gender, and group.

The ANCOVA summary table, (Table 4.4), showed an F observed value of .18 with (2, 228) degrees of freedom. The probability that the value of F observed was due to chance was $p = .8378$. Since that was greater than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was not a significant interaction effect on the number of idea units between the story number, gender, and group.

Hypothesis #3 (Dependent Variable: Number of Words)

Hypothesis 3.1: There is no significant difference in the number of words between the experimental group and the control group.

The ANCOVA summary table (Table 4.8), showed an F observed value of 19.26 with (1, 114) degrees of freedom. The probability that the value of F observed was due to chance was $p = .0001$. Since this was less than the individual Alpha = .0125, the null hypothesis was rejected. It was concluded that there was a significant difference between the experimental and control groups in the number of words. The experimental group ($M = 113.81$; $SD = 70.94$), performed significantly better than the control group ($M = 71.20$; $SD = 29.76$), receiving higher mean scores. Table 4.9 describes the results.

Hypothesis 3.2: There is no significant difference in the number of words between males and females.

The ANCOVA summary table showed an F observed value of .96 with (1, 114) degrees of freedom. The probability that the value of F observed was due to chance was $p = .3302$. Since this was greater than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was not a significant difference in the number of words between males and females. For males, the mean number of words was 83.24 ($SD = 61.79$); for females the mean number of words was 101.67 ($SD = 53.93$). Table 4.10 describes the results.

TABLE 4.8
ANCOVA SUMMARY TABLE
DEPENDENT VARIABLE = NUMBER OF WORDS

Variable	DF	SS	MS	F Value	Pr > F
Group	1	144587.94	144587.94	19.26	.0001
Gender	1	7179.35	7179.35	.96	.3302
Group*Gender	1	428.34	428.34	.06	.8116
TOWL-2	1	166360.42	166360.42	22.16	.0001
Error	114	855801.96	7507.03		
Story (1)	2	2061.41	1030.70	.51	.5828
Story*Group (1)	2	4879.75	2439.75	1.21	.2967
Story*Gender (1)	2	2211.18	1105.59	.55	.5618
Story*Gender*Group (1)	2	1990.84	995.42	.50	.5929
Story*TOWL-2 (1)	2	3234.81	1617.40	.80	.4385
Error (Story)	228	458406.02	2010.55		

(1) Values are adjusted by the Huynh-Feldt epsilon correction.

TABLE 4.9

MEAN NUMBER OF WORDS BY GROUP

Group	N	Mean	SD	Min.	Max.
Experimental	60	113.81	70.94	36.00	426.67
Control	59	71.20	18.17	29.76	147.00

TABLE 4.10
MEAN NUMBER OF WORDS BY GENDER

Group	N	Mean	SD	Min.	Max.
Experimental	61	101.67	53.93	42.67	375.33
Control	58	83.24	61.79	12.67	426.67

Hypothesis 3.3: There is no significant interaction effect on the number of words between group (experimental and control) and gender.

The ANCOVA summary table, (Table 4.8), showed an F observed value of .06 with (1, 114) degrees of freedom. The probability that the value of F observed was due to chance was $p = .8116$. Since this was greater than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was not a significant interaction effect on the number of words between group (experimental and control) and gender.

Hypothesis 3.4: There is no significant difference in the number of words between the three stories.

The ANCOVA summary table (Table 4.8) showed an F observed value of .51 with (2, 228) degrees of freedom. The probability that the value of F observed was due to chance was $p = .5828$. Since this was greater than the individual Alpha - .0125, the null hypothesis was not rejected. It was concluded that there was not a significant difference in the number of words between the three stories. Table 4.11 describes the results.

TABLE 4.11

MEAN, STANDARD DEVIATION, AND RANGE OF WORDS

	N	Mean	SD	Min.	Max.
STORY ONE					
Experimental					
Females	33	117.48	57.22	56	293
Males	27	96.52	63.54	11	357
Control					
Females	28	69.64	42.86	26	180
Males	31	59.25	36.53	13	177
STORY TWO					
Experimental					
Females	33	116.30	59.11	42	312
Males	27	108.70	102.91	28	502
Control					
Females	28	68.04	25.79	30	146
Males	31	57.48	30.55	9	115
STORY THREE					
Experimental					
Females	33	71.91	22.12	11	99
Males	27	67.41	22.51	8	99
Control					
Females	28	50.50	16.39	19	77
Males	31	47.65	21.01	9	86

Hypothesis 3.5: There is no significant interaction effect on the number of words between the story number and the group.

The ANCOVA summary table, (Table 4.8), showed an F observed value of 1.21 with (2, 228) degrees of freedom. The probability that the value of F observed was due to chance was $p = .2967$. Since this was greater than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was not a significant interaction effect on the number of words between the story number and the group.

Hypothesis 3.6: There is no significant interaction effect on the number of words between the story number and gender.

The ANCOVA summary table (Table 4.8) showed an F observed value of .55 with (2, 228) degrees of freedom. The probability that the value of F observed was due to chance was $p = .5618$. Since this was greater than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was not a significant interaction effect on the number of words between the story number and gender.

Hypothesis 3.7: There is no significant interaction effect on the number of words between the story number, gender, and group.

The ANCOVA summary table, (Table 4.8), showed an F observed value of .50 at (2, 228) degrees of freedom. The probability that the value of F observed was due to chance was $p = .5929$. Since this was greater than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was not a significant interaction effect on the number of words between the story number, gender, and group.

Hypothesis #4 (Dependent Variable: Number of Sentences)

Hypothesis 4.1: There is no significant difference in the number of sentences between the experimental group and the control group.

The ANCOVA summary table (Table 4.12), showed an F observed value of 12.98 with (1, 114) degrees of freedom. The probability that the value of F observed was due to chance was $p = .0005$. Since this was less than the individual Alpha = .0125, the null hypothesis was rejected. It was concluded that there was a significant difference in the number of sentences between the experimental group and the control group. The experimental group ($M = 10.02$; $SD = 5.80$) performed significantly better than the control group ($M = 7.05$; $SD = 2.67$) receiving higher mean scores on number of sentences Table 4.13 describes the results.

TABLE 4.12

ANCOVA SUMMARY TABLE

DEPENDENT VARIABLE = NUMBER OF SENTENCES

Variable	DF	SS	MS	F Value	Pr > F
Group	1	660.57	660.57	12.98	.0005
Gender	1	197.54	197.54	3.88	.0513
Group*Gender	1	25.71	25.71	.51	.4787
TOWL-2	1	995.53	995.53	19.56	.0001
Error	114	5802.99	50.90		
Story (1)	2	7.29	3.64	.17	.8418
Story*Group (1)	2	86.86	43.43	2.05	.1308
Story*Gender (1)	2	11.63	5.81	.27	.7598
Story*Gender*Group (1)	2	3.96	1.98	.09	.9107
Story*TOWL-2 (1)	2	8.10	4.05	.19	.8259
Error (Story)	228	4825.18	21.16		

(1) Values are adjusted by the Huynh-Feldt epsilon correction.

TABLE 4.13

MEAN NUMBER OF SENTENCES BY GROUP

Group	N	Mean	SD	Min.	Max.
Experimental	60	10.02	5.80	3.00	34.33
Control	59	7.05	2.67	1.00	13.67

Hypothesis 4.2: There is no significant difference in the number of sentences between males and females.

The ANCOVA summary table, (Table 4.8), showed an F observed value of 3.88 with (1, 114) degrees of freedom. The probability that the value of F observed was due to chance was $p = .0513$. Since this was greater than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was not a significant difference in the number of sentences between males ($M = 7.42$; $SD = 4.81$) and females ($M = 9.62$; $SD = 4.47$), as shown in Table 4.14.

Hypothesis 4.3: There is no significant interaction effect on the number of sentences between group (experimental or control) and gender.

The ANCOVA summary table (Table 4.12) showed an F observed value of .51 with (1, 114) degrees of freedom. The probability that the value of F observed was due to chance was $p = .4787$. Since this was greater than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was not a significant interaction effect on the number of sentences between group (experimental or control) and gender.

Hypothesis 4.4: There is no significant difference in the number of sentences between the three stories.

TABLE 4.14

MEAN NUMBER OF SENTENCES BY GENDER

Group	N	Mean	SD	Min.	Max.
Experimental	61	9.62	4.47	3.3	31.67
Control	58	7.41	4.80	1.0	34.33

TABLE 4.15

MEAN, STANDARD DEVIATION, AND RANGE OF SENTENCES

	N	Mean	SD	Min.	Max.
STORY ONE					
Experimental					
Females	33	10.67	5.90	2	30
Males	27	7.70	6.47	1	32
Control					
Females	28	7.50	4.86	1	20
Males	31	6.19	3.83	1	17
STORY TWO					
Experimental					
Females	33	11.45	7.55	2	36
Males	27	9.48	8.49	3	46
Control					
Females	28	6.82	3.08	1	16
Males	31	5.74	3.32	1	14
STORY THREE					
Experimental					
Females	33	11.61	8.23	1	35
Males	27	8.41	6.29	1	30
Control					
Females	28	8.82	4.05	3	19
Males	31	7.42	3.77	1	19

The ANCOVA summary table, (Table 4.12), showed an F observed value of .17 with (2, 228) degrees of freedom. The probability that the value of F observed was due to chance was $p = .8418$. Since this was greater than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was not a significant difference in the number of sentences between the three stories. Table 4.15 describes the results.

Hypothesis 4.5: There is no significant interaction effect on the number of sentences between the story number and group.

The ANCOVA summary table (Table 4.12) showed an F observed value of 2.05 with (2, 228) degrees of freedom. The probability that the value of F observed was due to chance was $p = .1308$. Since this was greater than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was not a significant interaction effect on the number of sentences between the story number and group.

Hypothesis 4.6: There is no significant interaction effect on the number of sentences between the story number and gender.

The ANCOVA summary table, (Table 4.12), showed an F observed value of .27 with (2, 228) degrees of freedom. The probability that the value of F observed was due to chance was $p =$

.7598. Since this was greater than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was not a significant interaction effect on the number of sentences between the story number and gender.

Hypothesis 4.7: There is no significant interaction effect on the number of sentences between the story number, gender, and group.

The ANCOVA summary table (Table 4.12) showed an F observed value of .09 with (2, 228) degrees of freedom. The probability that the value of F observed was due to chance was $p = .9107$. Since this was greater than the individual Alpha = .0125, the null hypothesis was not rejected. It was concluded that there was not a significant interaction effect on the number of sentences between the story number, gender, and group.

Summary

The analysis showed that the results were consistent across all four dependent variables. This was important because it provided more confidence that these are valid measures of writing performance: Taken together as well as separately, they showed the same thing.

The group variable showed a strong effect. The gender and story variables, as well as all interactions, were not significant. Thus, it can be stated that the treatment administered to the

experimental group, drawing pictures, was helpful for writing performance (no matter how it was measured) for both girls and boys equally. The fact that the story variable (and its interactions with other variables) was not significant indicates that there was no "learning" effect on writing ability. Drawing pictures or not drawing pictures beforehand had the same effect on the first story written as on the second and the third. Thus, a large group of hypotheses (most of which were chosen for exploratory purposes, rather than because they were expected to be significant) collapsed into a very simple and broadly generalizable result: drawing pictures helps writing performance. The strength of this simple result is enhanced by having examined (and rejected) many possible challenges to its generalizability.

The students who did not draw before writing tended to write fewer words, sentences, and idea units, and their overall writing performance tended to be lower. As this study indicates, the drawings of the students in the experimental group represented their ideas in a concrete manner before they represented them in a more abstract manner, which was, in this case, writing.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to examine the effect of drawing on writing. The ten-week study was conducted from the latter part of November, 1993 through the beginning of January, 1994. The subjects used in this study were 119 third-grade students in three rural elementary schools in Oklahoma. The majority of these students were Caucasians. The study addressed the following question:

Does the writing performance of students in grade three improve as a result of the students drawing prior to writing?

The study began by administering two pretests to all of the subjects to determine whether significant initial differences were found among the subjects in their written language and their creative thinking. Next, on three different occasions, the control group wrote stories, while the experimental group first drew, then wrote.

As a result of this study, two important findings were realized. First, highly significant differences were found between the two groups. The students who drew before writing tended to produce more words, sentences, and idea units, and their overall writing performance was higher. Such results strongly indicate

that the physical act of drawing ideas prior to writing about those ideas appeared to be beneficial to writing performance among third grade children. Likewise, the students who were allowed to draw first seemed to be much more enthusiastic about the visits from the researcher than did the children who simply wrote stories. Also, between the researcher's visits, some of the students in the experimental group independently drew about and composed extra stories, according to their teachers. Results indicate that drawing became a very effective planning strategy for the students, and they appeared to rely on their drawings as a reference point to prompt them toward what should come next in their writing. While it may be presumptuous to state that drawing always should take place before writing occurs, perhaps it would be reasonable to suggest that drawing before writing could become a valuable adjunct of the overall writing program in third grade classrooms.

The second finding was that the gender and story variables, as well as interactions, were not significant. This finding indicates that drawing pictures helped students write higher quality stories across three trials for both boys and girls. Both sexes were more productive when they were allowed to draw before writing. This was a welcome discovery, since in most elementary schools, boys' writing usually lags behind that of girls (Silberman, p.101). In fact, one of the teachers of some of the experimental group students expressed surprise when she was told that all the boys in her class had participated willingly in the writing portion of the study.

Conclusions

This study utilized, among the students in the experimental group, drawing before writing as a technique that allowed planning to take place before text was produced. Drawing appeared to provide students with the opportunity to speculate, contemplate, and reflect about their ideas and thoughts prior to actually writing them down. The technique of drawing seemed to become a means that forced unconscious planning to come before the actual production of words. The planning processes which occurred while the experimental group students were drawing seemed to act as the catalyst that caused an improvement in their writing. The act of drawing also seemed to enhance the enjoyment of the writing task for the members of the experimental group. Groans were often heard in the classroom each time they were told the time together had come to an end, and it was time to stop writing. As Hansen (1987, p. 13) expressed, the test of whether things are going well in the classroom is whether the students really want to write, and evidence of writing pleasure definitely was evident among the experimental group students.

Since the control group did nothing different than omit the drawing before writing, and their writing production seemed to suffer in comparison to the experimental group, it was concluded that they were placed at a disadvantage by not having the option to draw first. According to Olson (1992, p.97) even the simplest drawing "can provide a spark for additional reflection and further

development." Olson's thought seems to be borne out in this study, where the control group was not given the opportunity to draw.

During the time of the study, the students in the control group often seemed to be suffering from lack of confidence in their writing ability, indicated by comments they made such as, "I don't know what to write," or "I know what I want to say, but I don't know how to say it." Some appeared to be stymied completely after writing only a few lines. Even after beginning a story, a number of the students in the control group stopped writing well in advance of the required time limit of thirty minutes. As found by Skupa (1985, p. 179), the process of idea generation "can be a serious obstacle for writers if they do not possess procedures for gaining access to their resources that generate the ideas for writing," which in this instance seemed to be the opportunity to complete drawings before writing was begun.

Also, the high level of enthusiasm found among the experimental group students appeared to be lacking among the control group students. Some of them already were receiving extra instruction from a special writing instructor who visited their school, and they felt it was "not fair" that they only were supposed to write during the study, when they knew some of the students were drawing before writing.

Many elementary teachers view themselves as being extremely unartistic, and seldom have the benefit of an art teacher being on the faculty in the schools in which they teach. Once past the teaching of the earliest grades, it is a fairly common practice for classroom teachers to "save" art activities to do with other

classes on Friday afternoons or on bad-weather days, when the students can't go out for recess. However, Broudy (1979) on the question of the role of art in general education, pointed out that if a balanced education is to include the aesthetic domain of a child's experience, art should be considered just as basic and necessary as any subject in a required curriculum.

What's more, in many elementary schools, only occasionally are students given the opportunity, once they are past the first or second grades, to coordinate art with writing, and that coordination is usually in the use of art as an "after-the-fact" activity, as a decoration or illustration when stories are completed.

The act of writing requires the time and the tools necessary for children to explore and manipulate their thoughts and feelings in order to make meaning of their experiences. Their schemata, which May (1990, p. 40) defines as "minitheories about things, people, language, places, and other phenomena," is called into play. The subjects involved in the experimental group showed that when children first are given the opportunity to personalize their thoughts and ideas in the concrete, visual form of drawing, they seem to have an easier time in expressing their ideas on paper. Drawing is one strategy that children can use to help them to gain control over the act of producing writing as they grow in their ability to express their experiences for themselves and others in written language. As expressed by Olson (1992, p. 156), there is an interactive continuity of visual and written methods, and their integration has many benefits for all children. If such

integration is successfully implemented in elementary classrooms, there will be manifestations of marked improvements in the writing skills and production of the young students.

Teachers are concerned with their student's writing. The results of this study, hopefully, may be an encouragement to them to attempt the integration of art as a pre-writing technique in a language arts program.

Recommendations for Further Research

This study has revealed several areas which may serve as a basis for further research. Some of these areas are stated below.

1. Since the study was conducted in intact classrooms, its generalizability is limited. A study involving a greater number of randomly selected subjects might yield even more meaningful data.

2. This study was limited to third grade subjects. Further research at different grade levels is also suggested.

3. Due to time restrictions, this study was conducted over a ten-week period. A study involving the same question over an extended period of time may be beneficial.

4. Since this study was conducted with primarily rural students, it needs to be replicated in a number of geographical areas, in a variety of school settings, and with a number of diverse socioeconomic and ethnic groups.

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APPENDIXES

APPENDIX 1
LETTER OF INFORMATION

LETTER OF INFORMATION

Dear Parent or Guardian,

The study in which your child is being asked to participate will be used to determine beneficial approaches to creative writing. Your child will be asked to take a creativity test, a writing test, and to write three stories. Some of the children may be asked to draw pictures before they write their stories.

The above tasks will be completed in five sessions during the regular school day over a period of several weeks. The information gained from the study will be confidential, and the identity of your child will remain anonymous. There will be no discomfort, risk, or cost involved. You will have the right to withdraw your child from the study at any time without penalty after notifying the project investigator.

You may contact Edith A. Norris at (405) 377-7727 with any questions you may have. Also, you may contact University Research Services, 001 Life Sciences East, Oklahoma State University, Stillwater, OK, 74078, at (405) 744-5700.

Thank you.

Edith A. Norris, Project Investigator

APPENDIX 2
CONSENT FORM

CONSENT FORM

I hereby authorize or direct Edith A. Norris to conduct the study described in the attached letter. If I have questions or need additional information, I may call Edith A. Norris at (404) 377-7727 or University Research Services, 001 Life Sciences East, Oklahoma State University, Stillwater, OK, 74078, at (405) 744-5700.

This study is being conducted as part of an investigation entitled, An Examination of the Relationship Between Drawing and Idea Production in the Writing of Stories by Third Grade Students. The purpose of the study is to determine beneficial approaches to creative writing among children.

I understand that my child's participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withhold my consent and participation in this project at any time, without penalty, after notifying the project investigator.

I also understand that my child will be given two tests and will write three stories. I further understand that information gained for this study will be confidential, the identity of my child will remain anonymous, and that there will be no cost to me. Also, I realize I will receive a copy of this form to keep, and my child will be verbally advised of the study.

Name of Child

Parent's or Guardian's Signature

Date

APPENDIX 3

STATEMENT MADE BY RESEARCHER TO PROSPECTIVE SUBJECTS

STATEMENT MADE BY THE RESEARCHER TO PROSPECTIVE SUBJECTS

You are invited to take part in a research project which could assist teachers to find ways to help students write the best stories possible.

If you choose to participate in the study, you will be given two tests. One test will show me something about your writing, because you will do some writing in test booklets. The other test will show me something about your creativity, because you will be drawing all kinds of objects in test booklets. Then, I will visit your classroom three other times, and you will write stories.

You will not receive grades for any of the work you do for me, and you can stop participating any time you wish. If you participate in this study, it will help your teachers and me understand a little more about children's writing. Do you have any questions you wish to ask me about this study?

APPENDIX 4
STORY EVALUATION FORM

STORY EVALUATION

Name _____ School _____

Control Group _____ OR Experimental Group _____

SCORE	POINTS LEVEL	CRITERIA
CONTENT	10-9	EXCELLENT-VERY GOOD: Thorough development of chosen topic.
	8-6	GOOD-AVERAGE: Adequate development of chosen topic.
	5-0	FAIR-POOR: Inadequate development of chosen topic OR not enough written to evaluate.
ORGANIZATION	10-9	EXCELLENT-VERY GOOD: Fluent expression; well organized; coherent.
	8-6	GOOD-AVERAGE: Adequate expression; adequately organized; logical but somewhat disconnected.
	5-0	FAIR-POOR: Non-fluent, ideas confused or disconnected; poorly organized OR not enough written to evaluate.
MECHANICS	10-9	EXCELLENT-VERY GOOD: Effective use of writing and style conventions; few or no errors of grammar, spelling, etc.
	8-6	GOOD-AVERAGE: Limited use of writing and style conventions; occasional errors of grammar, spelling, etc.
	5-0	FAIR-POOR: Little or no evidence of writing and style conventions; frequent errors of grammar, spelling, etc.; difficult to read OR not enough written to evaluate.

Content Score x 5= _____

OVERALL COMMENTS:

Organization Score x 3= _____

Mechanics Score x 2= _____

TOTAL SCORE= _____
(100 possible)

APPENDIX 5

EXAMPLE OF STORY REPRESENTING AVERAGE NUMBER OF IDEA UNITS,
WRITTEN BY A CONTROL GROUP SUBJECT

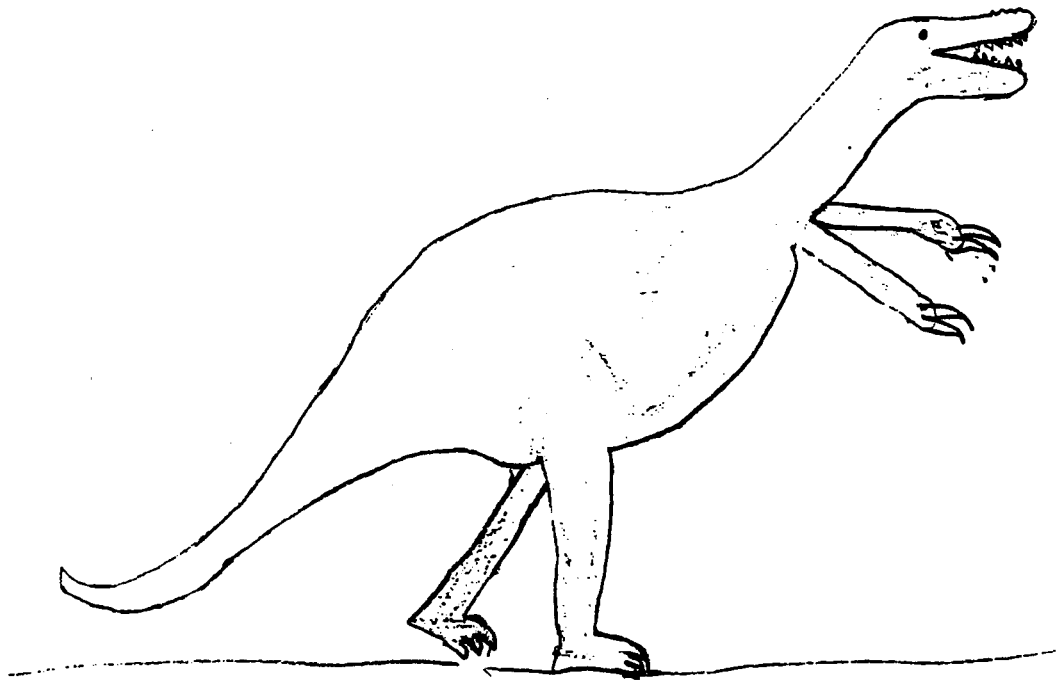
Something I Can Do Well

Something I can do well is Math. It is simple. Most of the time I make one-hundred's. I like times. English is okay, but I don't really like it. I love spelling and science. I more then love coloring. It is so fun.

APPENDIX 6

EXAMPLE OF STORY REPRESENTING MEAN NUMBER OF IDEA UNITS,
WRITTEN BY AN EXPERIMENTAL GROUP SUBJECT
AFTER FIRST DRAWING A PICTURE

ONE of my favorite Animals



One of My Favorite Animals

One of my favorite animals is the tyrannosaurus dinosaur. He is a meat eating dinosaur. That's why I like him because I like meat too. He is dead now. I didn't get to eat him but there are some bones of him they are in the Dinosaur Museum. He is 48 feet tall he has 2 legs and he runs fast. He can open his mouth 60 inches long his teeth stick out forward and he keeps his little arms tucked out of the way against his chest. His stiff strong tail balances his body.

APPENDIX 7

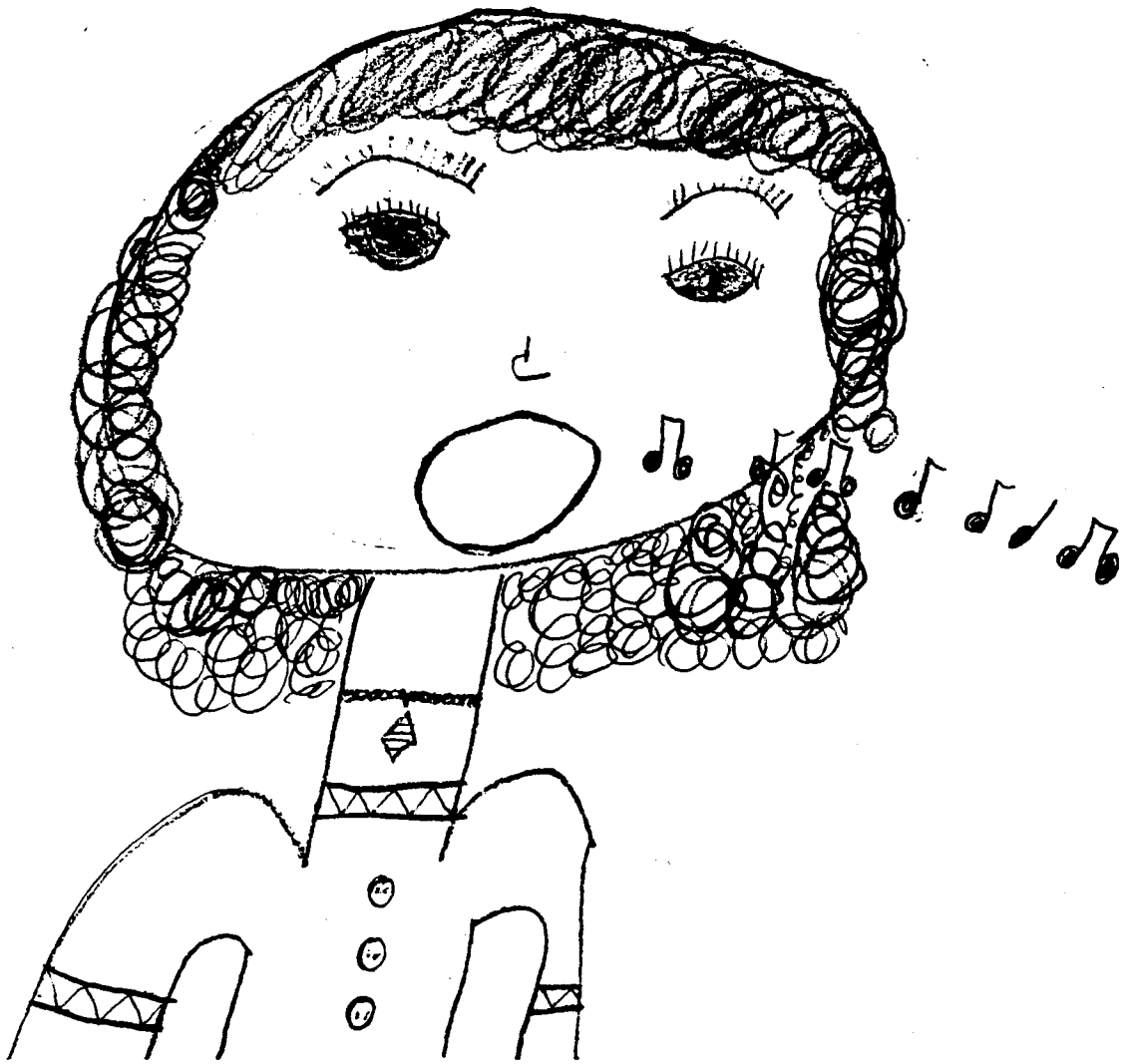
EXAMPLE OF STORY REPRESENTING MEAN NUMBER OF SENTENCES,
WRITTEN BY A CONTROL GROUP SUBJECT

The Adventures of the Giant Potato

I was walking in the mistirous night. And I came to a house and there was a mad scientist. I was watching threw the window. He created a Giant Potato. And it was alive and I ran home. The next day I went to sckool. The kids sayd I was crazy.

APPENDIX 8

EXAMPLE OF STORY REPRESENTING MEAN NUMBER OF SENTENCES,
WRITTEN BY AN EXPERIMENTAL GROUP SUBJECT
AFTER FIRST DRAWING A PICTURE



Something I Can Do Well

Something I can do well is sing. And I like to sing church songs and cuntry songs. One time I sang in front of 1,000 people at a competishon. And my dad can sing to. I get a lot of trofies for singing. And my dad tought me how to sing. I started learning to sing when I was two. I LIKE to sing God Bless the U.S.A. And in November I won a trophy and three ribbens. I get to direct a quire in Febuary.

APPENDIX 9

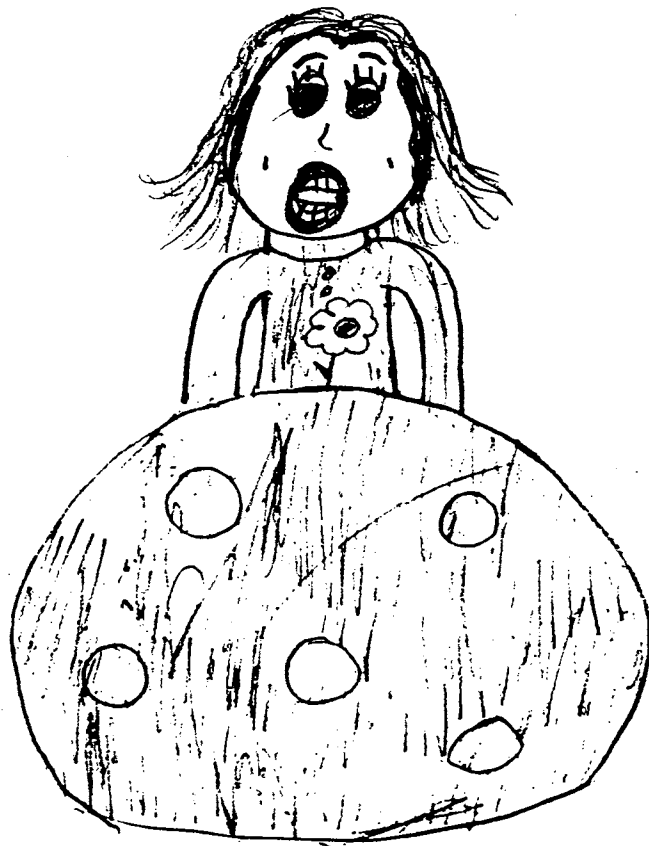
EXAMPLE OF STORY REPRESENTING MEAN NUMBER OF WORDS,
WRITTEN BY A CONTROL GROUP SUBJECT

One of My Favorite Animals

My favorite animal is a tiger because I like it's paws. I would like to have one in my house to keep my sister and brother off my bed and out of my stuf. I like tigers because I like how they purre, not really purre but kinda. I like to pet it on it's soft fur and watch it eat. I think it would be easy to take care of a tiger.

APPENDIX 10

EXAMPLE OF STORY REPRESENTING MEAN NUMBER OF WORDS,
WRITTEN BY EXPERIMENTAL GROUP SUBJECT
AFTER DRAWING FIRST



The Adventures of the Giant Potato

One time in the summer, my Dad was growing a garden with carrots, potatoes, and tomatoes. We liked to put the vegetables in soup. One day me and my dad were pulling out some vegetables for our soup and dad said, "I wish that we had a huge potato!!" and I said "Why?" Dad said, "Because it would last us a whole year!!!!" So when all of us were asleep the potato started to grow and it stopped growing at sunset, and so when I went out to get some more vegetables I saw it and I shouted, "Dad, Dad!!" The whole family came out to see it and I guess Dad's wish came true!!!!

APPENDIX 11

RESEARCH FORM FOR OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD FOR HUMAN SUBJECTS

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
FOR HUMAN SUBJECTS RESEARCH

Date: 11-12-93

IRB#: ED-94-035

Proposal Title: AN EXAMINATION OF THE RELATIONSHIP BETWEEN
DRAWING AND IDEA PRODUCTION IN THE WRITING OF STORIES BY THIRD
GRADE STUDENTS

Principal Investigator(s): Margaret Scott, Edith A. Norris

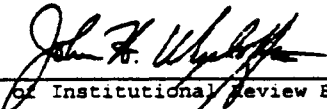
Reviewed and Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

APPROVAL STATUS SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD AT NEXT
MEETING.
APPROVAL STATUS PERIOD VALID FOR ONE CALENDAR YEAR AFTER WHICH A CONTINUATION
OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD APPROVAL. ANY
MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR APPROVAL.

Comments, Modifications/Conditions for Approval or Reasons for
Deferral or Disapproval are as follows:

Signature:


Chair of Institutional Review Board

Date: November 15, 1993

VITA

Edith Amelia Olsen Norris
Candidate for the Degree of
Doctor of Education

Thesis: AN EXAMINATION OF THE EFFECT OF DRAWING ON THE
WRITING PERFORMANCE OF THIRD GRADE STUDENTS

Major Field: Curriculum and Instruction

Biographical:

Education: Graduated from Phoenix Union High School, Phoenix, Arizona, in May, 1954; received Bachelor of Arts in Education degree from Arizona State University, in 1959; received Master of Science degree from Oklahoma State University, Stillwater, Oklahoma, in July, 1980; completed requirements for the Doctor of Education degree at Oklahoma State University in December, 1994.

Professional Experience: Elementary Teacher, Grant Public School, Phoenix, Arizona, 1959-1960; Elementary Teacher, Wilson School, Phoenix, Arizona, 1963-64; Special Education Teacher, Denton State School, Denton Texas; 1964-65; Special Education Teacher, Central Junior High, Iowa City, Iowa, 1965-68; Special Needs Teacher, Mark Twain School, Iowa City, Iowa, 1968-69; Special Education Teacher, Morrison School, Morrison, Oklahoma, 1976-77; Elementary Teacher and Reading Specialist, Sumner School, Perry, Oklahoma, 1977-91; Graduate Teaching Assistant, Oklahoma State University, Stillwater, Oklahoma, 1991-94.