AN ANALYSIS AND EVALUATION OF SHORT VOWEL INSTRUCTION IN A MODIFIED IN-CLASS WRITING TO READ PROGRAM

MASTERS' PROJECT

Submitted to the School of Education

University of Dayton, in Partial Fulfillment

of the Requirements for the Degree

Master of Science in Education

by

Virginia Addeo Dowd

School of Education

UNIVERSITY OF DAYTON

Dayton, Ohio

December 1995

Approved by:

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ACKNOWLEDGMENTS

The author would like to acknowledge Sue Detrick for her flexibility, creativity, and open mindedness. Writing to Read in the classroom is the only way to go. Acknowledgments also go out to the fifteen students who participated in the study. Ten weeks of writing, creating, inventing, listening, word processing, and thinking turned you into short vowel experts.

DEDICATION

To my mom, the greatest inspiration in my life. You have always set the tone and the pace and only maturity has made me appreciate it. Your desire, drive, determination, and commitment have inspired me more than you can ever imagine.

To Mark. You never complained even though I know you wanted to. Thank you, thank you, thank you. I could not have done this without your support and patience.

To Carrie. Your belief made me feel as if we are equals. What an inspiration....what a feeling... you do inspire me.

CHAPTER I

INTRODUCTION

Reading and writing are the two most fundamental skills taught in first grade. Studies indicate a child's success in first grade reading is the best predictor of his or her ultimate success in school (Adams, 1990).

Instructional methods used to teach reading and writing vary. Educators use either a whole language approach, a traditional approach, or a combination of the two. Traditionalists focus on subskills of reading as finding details, identifying main ideas, understanding cause and effect, and decoding. Whole language is a set of beliefs about how language learning happens and a set of principles to guide classroom practice (Goodman & Goodman, 1990). Advocates approach reading as a holistic activity. Reading is treated as integrated behavior at all times, never broken into separate skills. Teachers emphasize meaning and use real and relevant materials.

Teaching phonics, and more specifically, for the purposes of this study, teaching short vowel sounds, helps children understand the alphabetic nature of our writing system, and through that understanding internalize the correspondence between frequent spelling patterns and speech patterns. These are the words, syllables, consonants, and phonemes those spellings represent (Adams, 1990). Phonics is the focus in the traditional classroom, but it is not taught directly in a whole language setting. Whole language applies phonics by focusing on letter/sound relationships in the context of authentic reading selections.

International Business Machines Corporation (IBM) introduces the Writing to Read program as a computer-based language system designed to develop the writing and reading skills of kindergarten and first grade students. Learner outcomes include: mastering the alphabetic

principle which allows students to write anything they can say; using a consistent phonetic spelling system; gaining experience with the computer as a guide and tutor; discovering the joy of language; and developing an ability to express ideas to manipulate the English language (Leahy, 1991).

The writer believes that IBM's Writing to Read program is beneficial to first grade reading and writing instruction, however, three modifications could improve the program's effectiveness. First, a short vowel sound unit should be developed from the program and organized to most effectively present the material. Rather than introduce words and sounds randomly throughout the year, as the program does, teachers should cover each sound individually and thoroughly and complete the short vowel unit in a ten week span. This consistency would logically allow for better recall. Second, the Writing to Read program dictates the language arts curriculum. Instead, the curriculum should dictate the activities of the Writing to Read program, allowing for interdisciplinary instruction that easily incorporates words containing short vowel sounds into units being studies in other curricula. Third, the laboratory environment of the Writing to Read program includes stations and work books that are often tedious and unmotivating. Learning occurs in parts, not as a whole. Educators should modify the program, designing activities for short vowel sounds that motivate and challenge students while maintaining the Writing to Read premise. Relating language arts to science, mathematics, and social studies provides context for learning and allows the student to relate their lessons to the world around them. By combining a whole language approach to teaching reading and writing with more traditional phonics instruction (incorporation of the short vowel sounds) the writer feels this modified in-class Writing to Read program will be more effective that the standardized Writing to Read program.

Purpose of the Study

The purpose of this study was to determine whether a modified in-class Writing to Read program was effective in teaching short vowel sounds to first grade students.

Hypothesis

There will be no significant difference between the mean pretest and posttest scores of first grade students who have been exposed to learning short vowel sounds using a modified in-class Writing to Read program.

Assumptions

In order to carry out this study the writer must make the following assumptions: First, that testing instruments are reliable in that they measure the vowel sounds intended to be measured; second, that the students will preform to the best of their ability on the short vowel tests and; last, the writer must assume that each student will participate in the modified Writing to Read program. Given the transient nature of many of the students, experimental mortality may become a factor.

Limitations

The writer finds several limitations affecting this study. There is no control group in the T_1 X T_2 design. Also, this study is being conducted during Chapter I Reading pullout, so that three students will only participate in the Writing to Read program for twenty minutes of the scheduled forty minutes each day. Finally, the transient nature of specific students could have an effect on the final results of the study.

Definition of Terms

Phonemes are symbols that represent a particular sound element. The symbol for "s", for example, is the phoneme used to describe the "s" sound appearing in words such as "snake".

Writing to Read is an International Business Machines Corporation reading instruction system designed for use with primary grade children (K - 1). The program stresses creation first and correction later. It is designed to be used in a laboratory setting. Phoneme mastery is accomplished with computerized instruction, workbooks, and language development exercises. The belief of the program is that writing is an important activity prior to reading.

Chapter I Reading is a federally funded reinforcement program in culturally disadvantaged schools. Children qualify by testing on or below the thirty-sixth percentile on a standardized test.

Short vowels are speech sounds created by the relatively free passage of breath through the larynx and oral cavity, usually forming the most prominent and central sounds of a syllable. For example: the "a" sound in "hat;" the "e" sound in "bed;" the "i" sound in "fish;" the "o" sound in "jog;" and the "u" sound in "bug."

CHAPTER II
REVIEW OF LITERATURE

Overview

Writing to Read, distributed by IBM is a computer-based instructional system designed to develop the writing and reading skills of kindergarten and first grade children. In the schools, the system works within the context of a planned learning center, a room where students use a computer, a set of instructional and game diskettes, an electric typewriter, a cassette tape player, and various sensory materials organized at four basic learning stations. In the program the students practice the following skills:

1. Use the alphabet principle which allows the student to write anything that can be said.
2. Use a consistent phonemic spelling system.
3. Use the computer, which acts as a guide and tutor.
4. Discover the joy of language.
5. Develop the ability to express ideas and manipulate the English language.
6. Use a typewriter.

The history of Writing to Read dates back to the early 1970's when Dr. John Henry Martin compiled his research on children's first steps in learning to read and write. At the time, computer technology was advancing quickly and Martin believed he could create an economical computer-based learning system that would effectively teach real skills (Martin, 1986). Since reading is the key element in all learning, and teaching reading and writing is the most controversial of all academic subjects, Martin set out to construct a learning system that would produce effective results and satisfy the instructional needs of students, teachers, and parents (Martin, 1986).

The works of Piaget, Skinner, Montessori, Orton, and Pavlov combined with the work of Martin and his colleagues, provide the theoretical foundations of the Writing to Read program, which has one purpose: to improve the way first grade children learn to read and write, reducing the presently high levels of failure (Martin, 1986). Four main ideas were combined to create the system.

1. *The alphabetic principle-phonemic spelling:* Martin offered a simplified phonemic system to overcome the barrier of the phonemically irregular words in the English language. Roughly fifty percent of the words in our language fall under this category and are difficult to decode. The Writing to Read program temporarily eliminates the contradiction of trying to teach the encoding for a language that is only half encodable (Martin, 1986).
2. *Multi-sensory activities:* Research confirms that a multi-sensory approach improves learning. Activities and materials in Writing to Read engage as many senses as possible, giving the student a variety of choices (Martin, 1986).
3. *Voice-capable computer:* The Writing to Read computer program combines lessons of the past with the concepts of the future, turning complex programing techniques into a learning system simple enough to be self-managed by a kindergartner (Martin, 1986).
4. *Logic and reasoning in learning:* The first step in learning to read is recognizing that letters are symbols for sounds in words. Learning the symbols and corresponding sounds in the Writing to Read program enables students to write, to encode the spoken word, to write at the upper levels of their ability to think and talk (Martin, 1986).

Writing to Read software and other support materials help students work through sequenced, self-paced computer word cycles designed to teach letter/sound relationships (Leahy, 1991). The program is organized around five major work stations.

1. *Computer Station:* Students receive the initial instruction in the letter/sound relationship.
2. *Work Journal Station:* students practice letter sound/relationships and use the letters to form words.
3. *Writing/Typing Station:* Students hand write or type stories.
4. *Listening Library:* Students listen to tapes of books on a variety of topics.
5. *Make Words Station:* Students engage in a variety of learning activities that focus on sounds and words.

Supporters of IBM's program point to its success rate in urban and suburban settings, citing the more than one million children in five thousand kindergarten and first grade classrooms across the country who use Writing to Read as a multi-component computer-based system (Leahy, 1991).

Support for the Writing to Read Program

Writing to Read is based on the theory that children learn to communicate more quickly and effectively if their early education stresses writing first, prior to reading. Early results stemming from the program were so positive that a number of writers hailed the Writing to Read program as a possible partial solution to America's literacy crisis (Wallace, 1985).

Extensive studies have measured the effectiveness of the Writing to Read program. Findings vary but many indicate that the computer-based system is beneficial in teaching writing

and reading to kindergartners and first graders.

A 1989 study conducted in Kettering, Ohio, examined six elementary schools that had implemented Writing to Read the previous year and reported the following results: (1) first graders' attitudes and feelings about Writing to Read were generally positive; (2) the majority of parents were pleased with the program and felt it should be continued; (3) a comparison of second graders' reading and language scores in the Comprehensive Test of Basic Skills found the mean of students who had participated in Writing to Read higher than the mean of students who had not participated in Writing to Read; and (4) in the 1988-1989 school year, significant differences in Language Mechanics, Language Expression, and Language Totals appeared when students of the Writing to Read program were compared to students who had not participated in the program (Leahy, 1989).

A second study conducted in the DeKalb County School System in Decatur, Georgia, during the 1989-1990 school year indicated strengths in the Writing to Read program. Results from this research revealed a number of the program's aspects: (1) the overall goal of Writing to Read was achieved for most students; (2) Writing to Read seemed to have had a positive impact on teachers' opinions on whether young children could compose; (3) as instructional leaders in the classroom and in the lab, teachers needed to support the Writing to Read program, students (at the listening library station and in partnership activities), and central office personnel (in monitoring the Writing to Read labs); and (4) teachers also needed to address the time lapse between training and implementation, the amount of guided practice provided students, the continuation of training during implementation, and the amount of general inservice throughout the year (Howard and DiSalvo, 1991). As a result of these findings, changes to the program were

implemented. A follow-up study in 1991 compared Iowa Test of Basic Skills reading and language scores for second graders who had participated in the Writing to Read program the previous year with those who had not. Test scores indicated significant differences in language totals, with students who participated in the program scoring considerably higher. The overall program was rated above satisfactory (Howard and DiSalvo, 1991).

In 1989 -1990 the Writing to Read program served eighty seven schools in New York City. The program strove for the following objectives for the school year: extending and supporting implementation of the Writing to Read program in New York City elementary schools; promoting the reading and writing achievement of kindergarten, first grade and second grade students; and introducing students to computer technology during early childhood. The methods used to evaluate the program included on-site interviews, lab and classroom observations, questionnaires answered by all program participants and a select group of parents, pre- and post-program writing samples, and reading achievement scores from the Metropolitan Achievement Test for both selected program participants and matching control groups.

Results from this study were positive. Most participants believed that the program provided a good foundation in basic skills and helped to develop confident and mature writers, and that the computer and center settings were significant motivational devices. Some additional major findings included the following: (1) students made significant progress in their writing; (2) students who participated in the program improved their writing skills to a greater degree than did similar students who did not participate in the program and; (3) monolingual students at the kindergarten level showed a statistically significant improvement in writing (New York City Board of Education, 1990).

A fourth study was conducted in thirteen southern West Virginia rural schools during the 1988-1989 school year. Evaluation of the Writing to Read program consisted of a standardized writing sample and spelling test, as well as teacher questionnaires. Thirteen comparable elementary schools from the same school district served as comparisons. Findings indicated the following: (1) at both the kindergarten and first grade levels, Writing to Read students performed significantly better than the comparison groups on both the writing sample and the spelling test; (2) the fear that the program's use of phonemic spelling would negatively affect students' spelling skills seemed unwarranted; (3) although both Writing to Read teachers and comparison teachers liked their own reading programs and judged them to be effective, more Writing to Read teachers thought their students were reading and writing better than those in previous classes and; (4) ongoing inservice training and an active support system for teachers contributed to the program's success (Childers, 1990).

In "A Writing to Read Philosophy," Carolyn Spillman examined three elementary schools in southwest Florida that had been implementing Writing to Read since 1983. In each of the three years the program was in effect, the observations of the process of writing and the products of writing have revealed an enthusiasm for writing and reading among children (Spillman, 1986). Writing samples taken from first grade students who participated in the program were not typical of the writing of first grade children. This was credited to several factors.

1. *The computer*: The computer served not only as a motivator and initiator but a drillmaster, monitor and reward-giver. This freed the teacher to guide the children and give encouragement and assistance in the thinking and composing process.

2. *Expectations of the teacher:* First grade teachers who saw their students writing with

the assistance of the Writing to Read program knew that compositions could have consisted of more than just the students' name. These teachers have discovered that some children, whose motor control made pencil-paper writing difficult, could express their thoughts with the use of the typewriter. Each student is given the opportunity to create without restrictions (Spillman, 1986).

3. *Incorporation of the language experience:* The language-experience approach to writing and reading was found in many primary grades' curricula and was advocated for years. Writing to Read teachers used dictating and group composition, activities fundamental to the language-experience approach to reading and writing (Spillman, 1986).

4. *Reading Aloud to Children:* This approach was proven to be a strong motivator for writing (Spillman, 1986). This gave children the opportunity to hear the English language in action and allowed them to model what they heard in writing. The listening library center let children hear exemplary literature that they then incorporated into their everyday writing.

5. *Teachers' Attitudes:* The teachers' attitudes about spelling influenced the success of the Writing to Read program. When students were not pressured to spell correctly they had the freedom to experiment with sounds and to write what was heard. Creativity was not stifled but enhanced when correct spelling was left for revision process (Spillman, 1986).

6. *A belief that writing was an avenue to meaningful reading:* If children wrote daily and read their own compositions as well as their peers', the symbiotic relationship was in action (Spillman, 1986).

The combination of elements in the Writing to Read program led to students who read well and wrote continuously.

Though the above research suggests the Writing to Read program has many positive

aspects and can turn students into successful readers and writers, other research contradicts these findings.

Criticisms of Writing to Read

In 1987, a study measuring the effects of writing on reading abilities compared first grade writing programs with and without computer technology. The research examined whether increased writing activity with and without the use of the technology from the Writing to Read program would produce similar gains in reading. A classroom from the Writing to Read program (group A) and an experimental writing classroom (group B) were compared with each other and with a control classroom (group C). Group A used a lab five hours per week for computer-based instruction in sound-symbol relationships, followed by structured story-writing and reading. Group B received four hours weekly of structured story-writing followed by reading, discussing, and expanding the stories. Group C spent approximately two hours weekly in their usual writing activities. Scores showed that the Writing to Read group's gains in Reading Comprehension and Reading Total were significantly higher than those in the control group. Mean gains for group B fell between the other two groups, differing significantly from neither (Whitmer, 1987). Results indicated that structured writing time, regardless of technology, may have increased students' reading abilities. The amount of time scheduled for structured writing appeared to be the most influential factor, with the computer having little, if any, significance in the process (Whitmer, 1987).

A second study was implemented in the Fort Worth Independent School District, Texas. Research was conducted in the fall of 1985 to evaluate the following: (1) the implementation of the Writing to Read program; (2) its effectiveness in developing students' writing and reading

skills in comparison to students of similar socio-economic status in non-Writing to Read classrooms and; (3) the cost of continuing the Writing to Read program at the same level of operation. Data was collected from classroom observations, staff interviews collected writing samples, and the results of the reading subtest of the Iowa Test of Basic Skills. Though the teachers and administrators were positive about the program, the findings were much weaker than expected (Naron, 1986). Mean scores from the Iowa Test of Basic Skills varied only slightly from those students who had not participated in the Writing to Read program. Given these results, the district questioned the cost effectiveness of the program (Naron, 1986). Writing process instruction showed promise as a cost effective alternative. The Fort Worth Independent School District decided to continue implementing Writing to Read in classrooms that were wired for computers and set up for the program. This was primarily a financial decision, given the district's initial investment in the program.

In 1992, the Charlotte-Mecklenburg School District in North Carolina evaluated computer-assisted instruction in primary grade classrooms. The study addressed the effectiveness of two computer-assisted programs for writing and language instruction. Three first grade classes and three second grade classes at each of the five elementary schools in the system were selected for the study. Two schools used Writing to Read, two schools used Acceleration Station 2000, and one school used no special intervention. The data collected included teachers' descriptions of their instructional programs, teachers' opinions of the strengths and weaknesses of each program, and writing and achievement for students in different programs.

Results indicated that neither type of assessment consistently showed statistically significant differences in program achievements (Sockwell, 1992). The Charlotte-Meckenburg

Board of Education recommended (1) selecting the most economical writing program and ; (2) monitoring the use of the Writing to Read program, since the two schools implementing the program had very different outcomes even after controlling for differences in their students. With writing achievement being the largest discrepancy between the two schools, leading many educators to question Writing to Read's success (Sockwell, 1992).

In 1988, a comparison of achievement in the Writing to Read program versus traditional instruction was conducted in the East Gibbon School Corporation of Indiana. This study examined the effectiveness of the Writing to Read Program by comparing scores on locally designed, teacher constructed reading and writing tests of students in the program with scores of students exposed to traditional instruction. The subjects were seventy-one kindergarten students and sixty-five first grade students who had been indoctrinated with the computer-based program. The reading and writing test was administered to a control group at the end of the school year prior to the study. First grade students used the Writing to Read program in the fall semester while the kindergartners used the program in the spring, and all students were given the reading and writing test at the end of the school year.

Results indicated the following: (1) kindergarten students in the program scored significantly higher than students in the traditional program; (2) first grade students in the program fared no better than the control group; (3) one kindergarten class scored significantly higher then the other in writing, and one first grade class scored significantly higher than the other two in reading; and (4) scores on the first grade writing subtests increased as the year progressed but plummeted at the end of the year (Gilman, 1988). Final results indicated that there was little to no difference in writing success between traditional instruction and Writing to Read instruction at

the first grade level.

Although a study done by the New York City Board of Education in 1990 indicated many positive aspects in the Writing to Read program, it also found that the computer-based program had little immediate impact, and no long term impact, on improving reading performance of participating students when compared with similar reading programs (New York City Board of Education, 1990). This study connected reading and writing performance and questioned what the Writing to Read program could do to increase reading scores.

In 1991, a study used aesthetic criteria and artistic criticism to find meaning in the Writing to Read Program. First grade students were observed several days a week from the day in September when they began the program until the day most children completed the program six months later. Results indicated that: (1) students engaged in a slightly modified version of the program; (2) children spent time waiting to start, waiting to continue, or waiting to stop activities at each of the stations in the program; (3) interruptions were common and came from many of the students, teachers, and aides; (4) control of the children by the teacher was primary; (5) balance inherent in the design of the program was frequently compromised; (6) a disturbing lack of consistency in the expectation that children be creative in writing stories existed because in the reality that they were not given time to create; and (7) "playfulness" was not encouraged (Huenecke, 1991). Findings suggested that implementation of Writing to Read is not "educative" and does not lead to mental or moral growth (Huenecke, 1991).

Critics of Writing to Read contend that is an expensive language arts program. IBM lists a first year cost of between $20,000 and $24,000 per lab. Such figures do not include the cost of one or more instructional aides or teachers to manage the labs, the cost of maintenance, or the

cost of consumable materials (Slavin, 1990).

Studies conducted by Educational Testing Service, a company under contract to IBM, concluded unquestionably that Writing to Read has positive effects on writing for kindergartners and first graders (Slavin, 1990). These effects are largely explained by the fact that, until recently, writing was not taught in kindergarten and sparsely taught in first grade, so in reality, evaluations of Writing to Read have really compared writing instruction to no writing instruction rather than one form of writing instruction to another (Slavin, 1990).

Further research indicates that Writing to Read has modest and short-lived impact on reading. Its expense and the ready availability of much cheaper and more effective alternatives are two reasons to disregard the computer-based program (Slavin, 1990). The Writing to Read program was introduced at a time when kindergartens were shifting toward a focus on reading instruction and writing that used inventive spelling. Writing instruction and curricula was expanding in kindergartens and first grades. This made Writing to Read appear as a standout and appear to be a step ahead of its time.

The commercial success of Writing to Read is attributable to the allure of the computers themselves (Slavin, 1990). Children enjoy working on computers and parents and school administrators like the idea of students becoming computer literate.

Some critics of Writing to Read point to the controversy over the program's special spelling system. Research provides little empirical evidence for the instructional benefits of an initial phonemic alphabet (Freyd, 1990), though studies on invented spelling of young primary students have prompted questions about the value of introducing a special system of simplified letter/sound relationships. John Henry Martin, the program's creator, has stated, "the Writing to

Read system has disadvantages of brief duration, but an enormous advantage in the long term (Martin, 1986). But in fact, many children quickly develop their own logical system for representing the sounds they write.

Writing to Read teaches phonics explicitly using a tutorial/drill approach. Children are tutored by the computer to recognize sounds and words then practice the sounds and the words in workbooks.

Recent research on early literacy instruction, however, suggests the importance of using language in meaningful contexts, of talking to share information, of writing for a purpose. Writing to Read classrooms are normally separated form the regular classroom, making integration of its activities with other learning difficult (Freyd, 1990).

Two Writing to Read activities, writing on the computer and manipulative play with letters, do fit into an integrated framework, but at the other stations, language use seems unnecessarily decontextualized (Freyd, 1990). Many of the words selected to introduce the Writing to Read phonemes are not frequently used in every day writing. Taped stories in the listening library are not integrated with the curriculum of the regular classroom and seem to be chosen haphazardly (Freyd, 1990). Of all the stations, only the computer phonics component, based on an initial teaching alphabet, is unique to Writing to Read. The activities which fit into an integrated approach could easily be implemented in any classroom without the computer-based program (Freyd, 1990).

Summary

What is the educational value of the Writing to Read program? Research varies, indicating benefits and drawbacks to the IBM program. Incorporating this computer-based system into an

integrated curriculum, rather than letting it stand on its own, is warranted. One program cannot guarantee success for all children. Used with a variety of teaching strategies, Writing to Read does have a place in education.

CHAPTER III

PROCEDURE

Subjects

The subjects of this study were fifteen students from a self contained first grade classroom. These nine boys and six girls ranged in age from six to seven years old. Fourteen of the subjects were Caucasian and one was black.

Setting

School. The writer's building contained 304 students in grades kindergarten through six. Primary grades were located in the basement and on the first floor, intermediate grades were on the second floor. This elementary school also contained an office, library, music/art room, cafeteria/gym, Chapter I classroom, kindergarten plus classroom and a learning disability classroom.

Community. The school system was located in southwestern Ohio, within an urban to suburban community. The district was built upon the neighborhood schools philosophy, including six elementary buildings, a junior high school, and high school. The socioeconomic level of the community was lower-middle class to upper middle class. Parents' jobs range from unskilled labor to professional corporate positions. The number of single parent households in the community was consistently increasing and an abuse shelter within the school boundary resulted in a high turnover of the student population.

Testing Instrument

The testing instrument used for this study was taken from the workbook Learning Short Vowels (Schaffer, 1979). It consisted of sixteen fill in the blank questions which required the

student to look at a picture and fill in the missing short vowel.

Data Collection

Construction of the Data Collecting Instrument. The pretest and posttest measured the students' ability to identify and recognize short vowel sounds for sixteen of the most commonly used words in the first grade curriculum.

Administration of the Data Collecting Instrument. The pretest was administered in a whole group setting before the students are exposed to short vowel instruction. After the completion of a ten week modified in-class Writing to Read short vowel unit, the students were again tested on vowel recognition.

Design

The following is a diagram of the study design: T_1 X T_2. The T_1 represents pretesting carried out on short vowel identification and recognition. The X refers to the independent variable. This treatment consisted of ten weeks of short vowel instruction in relation to the Writing to Read program. The T_2 represents posttesting on short vowel identification and recognition. T_1 and T_2 will be identical instruments.

Treatment

For a period of ten weeks, a first grade class of fifteen students was exposed to short vowel sounds during a forty minute per day modified in-class Writing to Read program. Each vowel sound was taught independently for a two week period. Organization of this program consisted of the following:

1. Computer Station: This station provided the initial instruction in letter and sound relationships of the short vowel sounds.

2. Listening Library: Students listened to tapes of books on a variety of topics being covered in class. These trade books repeated phonic elements concentrating on specific vowel sounds. Students looked for specific words with short vowel sounds in these books.
3. Art Station: Students created projects relating to certain vowel sounds. These coincided with subject matter being taught that week.
4. Writing Station: Students wrote stories on given topics or of their choice relating to words with short vowel sounds.
5. Game Station: Students created and played games relating to the vowel sound being covered that week.
6. Cooking Station: Students cooked different types of foods relating to the thematic unit of the week.
7. Make Words Station: Students used a variety of mediums to spell short vowel words. Examples include sand, paint, and clay.
8. Story Sharing Station: Students read and received feedback from stories they wrote.

Each day students rotated to four stations. Portfolio folders and teacher observation provided feedback on progress being made throughout the study.

Sample Thematic Units

Short a: Family Unit

1. Computer Station: Each day the students will type one of the following words and compose a sentence to correlate with them.
   * family
   * dad

* grandfather

* grandmother

* cats

2. Listening Library: Students will choose from a selection of books relating to families.

* A.J.'s Mom Gets a New Job by Lawrence Balter

* Peter's Chair by Ezra Jack Keats

* Just One of the Family by Carol Marron

* Karen's Two Families by Ann Martin

* Happy Families by Frederick Warne

3. Art Station: Students will create books and projects.

* father book

* grandmother holding a heart

* a family pet cat

* finger paint a picture of their family

4. Writing Station: Students will write stories containing the word of the day.

* My Family

* My Dad Can...

* Grandfather's Bad Day

* Grandmother's Hands Can...

* The Funny Cat

5. Game Station: Students will make a game relating to families and their emotions.

* sad

* mad

* happy

* glad

* scared

6. Cooking Station: At the end of the week the children will decorate faces of family members on cookies.
7. Make Words Station: Students will write the word of the day in colored chalk on small chalkboards.
8. Story Sharing Station: Each day students will be required to read their to their teacher and a partner.

Short e: Teddy Bear Unit

1. Computer Station: Each day the children will type one of the following words and compose a sentence to correlate with it.

   * teddy bear

   * bed

   * ten

   * slept

   * red

2. Listening Library: Students will choose from a selection of books relating to teddy bears.

   * Where's My Teddy? by Jez Alborough

   * Teddy Bears Go Everywhere by Ruth Barber

   * The Teddy Robber by Ian Beck

* Let's Go! Teddy Bear by Lynne Bertrand

* Teddy Bear Magic by Anita Louise Crane

3. Art Station: Students will create book covers and projects.

* teddy bear face book

* build a bed for teddy out of popsicle sticks

* ten teddy bear paper dolls

4. Writing Station: Students will write stories containing the word of the day.

* My Teddy Bear

* Who is in Teddy's Bed?

* Ten Teddy Bears

* Teddy Slept with _____

* The Red Teddy

5. Game Station: Students will play the game "Where is Teddy Hiding?"

6. Cooking Station: The students will prepare bread and honey sandwiches.

7. Make Words Station: Students will write the word of the day on small chalkboards with colored chalk.

8. Story Sharing Station: Each day students will be required to read their stories to their teacher and a partner.

Short i: Children Unit

1. Computer Station: Each day the students will type one of the following words and compose a sentence to correlate with it.

* kids

* children

* big

* little

* silly

2. Listening Library: Students will choose from a selection of books related to children and childhood.

* Best Friends by Kerry Argnt

* Sunny Side Up by Patricia Reilly Giff

* New Friends by Dorothy Hass

* Ten Kids, No Pets by Ann Martin

* Fearless Elizabeth by Francine Pascal

* Let's be Friends Forever by Cindy Savage

3. Art Station: Students will create book covers and projects.

* friendship bracelets

* trace a friends body and decorate with yarn, material, and markers

* face of a friend book cover

4. Writing Station: Students will write stories containing the word of the day.

* Kids are....

* Children can do.....

* The Very Big Kid

* The Little Kid Who Saved the Day

* Silly Children

5. Game Station: Students will make a puzzle by drawing a picture of their best friends and cutting it into six to ten pieces.
6. Cooking Station: Students will make friendship cake.
7. Make Words Station: Students will write the word of the day with finger paints.
8. Story Sharing Station: Each day students will be required to read their stories to their teacher and a partner.

Short o: Popcorn Unit

1. Computer Station: Each day the students will type one of the following words and compose a sentence to correlate with it.
   * pop
   * popcorn
   * gobble
   * stop
   * mom
2. Listening Library: Students will choose from a selection of books relating to popcorn.
   * Popcorn by Frank Asch
   * The Popcorn Book by Tomie DePaola
   * Sing a Song of Popcorn by Beatrice DeRegniers
   * Peanuts, Popcorn, Ice Cream, Candy, Soda Pop by Solveig Russell
   * Peanut Butter, Apple Butter, Cinnamon Toast by ArgentinaPalacios
3. Art Station: Students will create book covers and projects.
   * pictures made from popcorn

* popcorn necklaces

* popcorn book cover

4. Writing Station: Students will write stories containing the word of the day.

* Pop, Pop, Pop

* The Popcorn Adventure

* Who will Gobble My Popcorn?

* Stop! Popcorn Thief!

* The Popcorn Mom

5. Game Station: Students will guess how much popcorn is in a container. The one who comes closest gets the popcorn and the container.
6. Cooking Station: Students will prepare popcorn balls.
7. Make Words Station: Students will write the word of the day using colored popcorn.
8. Story Sharing Station: Each day students will be required to read their stories to their teacher and a partner.

Short u: Pumpkin Unit

1. Computer Station: Each day the students will type one of the following words and compose a sentence to correlate with it.

* pumpkin

* pumpkin pie

* yummy

* tummy

* bus

2. Listening Library: Students will choose from a selection of books relating to pumpkins.

   * The Perky Little Pumpkin by Margaret Friskey

   * It's Pumpkin Time by Zoe Hall

   * Apples and Pumpkins by Anne Rockwell

   * Big Pumpkin by Eric Silverman

   * Pumpkin, Pumpkin by Jean Titherington

3. Art Station: Students will create book covers and projects.

   ** designing paper jack-o-lanterns

   * pumpkin lanterns

   * pumpkin face book cover

4. Writing Station: Students will write stories containing the word of the day.

   * What is it? Can you guess? A pumpkin

   * My, My, Pumpkin Pie!

   * Yummy!

   * Pumpkin Pie and My Tummy

   * The Bus Ride to the Pumpkin Patch

5. Game Station: Students will play pin the nose on the pumpkin.

6. Cooking Station: Students will prepare pumpkin pie.

7. Make Words Station: Students will write the word of the day using pumpkin seeds.

8. Story Sharing Station: Each day students will be required to read their stories to their teacher and a partner.

CHAPTER IV

RESULTS

Presentation of Results

Upon completion of the modified in-class Writing to Read study an analysis of pre and posttest results was performed. The writer computed the mean as the measure of central tendency and the standard deviation as the measure of variance for scores on the short vowels skills test. The results are entered into Table I. The t test for dependent samples at a .05 level of significance was also used.

Discussion of Results

Table I indicates scores for students participating in the study. The mean pretest score was 5.66 (35.4%) with a standard deviation of 2.49. The fewest number of correct answers was two and the most was twelve.

The mean posttest score was 14.93 (93.31%) with a standard deviation of 1.09; scores ranges from twelve to sixteen. Upon completion of the study the null hypothesis was rejected. The probability was computed at .001, considerably less than the standard level of significance .05. This indicates an alternative hypothesis and offers the conclusion that a change occurred that is statistically significant, therefore likely due to the independent variable or some determining factor or condition other than normal change.

The following is a breakdown of the sixteen test items:

** Four short "a" words: *bat, cap, rat,* and *fan*

** Three short "e" words: *net, bed,* and *hen*

** Two short "i" words: *pig* and *pin*

TABLE I

Results of the Short Vowel Skills Test

TEST	N	$\overline{X}$	S
Pretest	15	5.6666667	2.4976179
Posttest	15	14.9333333	1.0997835

TABLE II

Raw scores for Individual Test Items: Short Vowel Pretest

Test Item	Correct	Incorrect
dog	12	3
bat	6	9
hen	1	14
rat	6	9
net	3	12
fox	7	8
fan	5	10
box	4	11
pig	14	1
bed	2	13
cap	7	8
pin	2	13
bug	4	11
dot	3	12
sun	2	13
gun	6	9

TABLE III

Raw Scores Individual Test Items: Short Vowel Posttest

Test Item	Correct	Incorrect
dog	16	0
bat	16	0
hen	11	5
rat	16	0
net	16	0
fox	16	0
fan	12	4
box	16	0
pig	16	0
bed	14	2
cap	16	0
pin	15	1
bug	16	0
dot	15	1
sun	16	0
gun	16	0

** Four short "o" words: *dog, fox, box,* and *dot*

** Three short "u" words: *bug, sun,* and *gun*

Examination of the pre and posttest may offer an explanation of these results. The pretest was given five days after the beginning of the school year. Students participating in the study had little to no opportunity to write or reacquaint themselves with sounds, letters, or basic sight words taught the previous year. No instruction of the five short vowel sounds, which composed the study, was offered before the pretest was administered. In addition, short vowel sounds, five of the most difficult sounds to hear and distinguish, are not taught as part of the kindergarten curriculum. The writer believes the majority of the students may have had limited prior exposure to these phonemes.

Different test taking strategies were observed during the pretest, with evidence suggesting most students guessed at questions. On student wrote "a" for each answer; another followed an "a", "e", "i", "o", "u" pattern. The remaining thirteen answer sets seemed random.

One student who had been retained in first grade answered twelve questions correctly, the highest pretest score. The student who received the second highest score (nine) began the year as a beginning independent reader and was familiar with many of the words on the test. However, the remaining thirteen students were unable to identify the tested sounds with any consistency, exposing the need for short vowel instruction.

Posttest scores showed that significant gains were made during the study. During ten weeks of direct and indirect instruction on short vowel sounds, the students had ample opportunity to read, write, and identify words associated with each sound. Approximately two weeks were spent per phoneme. At the end of the study the majority of students could easily

TABLE IV

Comparison of Individual Raw Scores: Pre and Posttest

Student	Pretest	Posttest
1	5	16
2	2	15
3	7	15
4	7	15
5	3	16
6	4	16
7	5	14
8	4	15
9	5	14
10	12	15
11	4	12
12	9	16
13	6	16
14	7	14
15	5	15

identify the vowel sounds in grade appropriate words and incorporate them into reading and creative writing. This may have been due to the independent variables of the study.

Raw scores from the posttest ranged from twelve to sixteen. Of the fifteen participants five correctly identified all sixteen test items. Six students scored fifteen, three scored fourteen, and one student scored twelve.

The breakdown of posttest scores indicates all participants correctly identified eleven of the sixteen short vowel sounds found in the words *dog, bat, rat, net, fox, box, pig, cap, bug, sun* and *gun.*

The short *"e"* in sound "hen" and short *"a"* sound in "fan" were most commonly missed. All five students who misidentified "hen" mistook short *"e"* for short *"a."* Similarly, all four students who missed "fan" mistook short *"a"* for short *"e."* These errors may be attributable to dialect or speech patterns that cause these words to be mispronounced.

Two participants incorrectly identified short *"a"* for short *"e"* in the word "bed." "Pin" and "dot" were each missed one time, with short *"e"* confused for short *"i"* in "pin" and short *"u"* confused for short *"o"* in "dot." Both words were missed by the same student, who is speech delayed and has a moderate articulation problem.

The results of this study indicate a modified in-class Writing to Read program with an emphasis on interdisciplinary instruction in all probability enhanced the students' comprehension and identification of short vowel sounds.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The writer believes IBM's program to be beneficial for first grade reading and writing instruction, however, three modifications were made to improve the effectiveness. First, a short vowel unit was developed from the program and organized to most effectively present the material. Rather than introducing words and sounds randomly throughout the year, as Writing to Read does, this study covered each short vowel sound individually and thoroughly over a ten week period. It was felt this consistency would logically allow for better recall. Second, the Writing to Read program dictates the language arts curriculum. The writer felt the curriculum should dictate the activities of the program, allowing for interdisciplinary instruction that would easily incorporate words containing short vowel sounds into units being studied in other curricula. Third, the laboratory environment of the Writing to Read program included stations and work books that were often tedious and unmotivating. Learning was occurring in parts rather than a whole. The program was modified and activities were designed for short vowel instruction that were intended to motivate and challenge students while maintaining the Writing to Read premise. The writer related language arts to science, math and social studies to provide context for learning and allow the student to relate the lessons to the world around them.

Problem Statement

The purpose of this study was to determine whether a modified in-class Writing to Read program was effective in teaching short vowel sounds to first grade students.

Hypothesis

There will be no significant difference between the mean pretest and posttest scores of first grade students who have been exposed to learning short vowel sounds using a modified in-class Writing to Read program.

Procedure

The following is a diagram of the study design: T_1 X T_2. The T_1 represents pretesting carried out on short vowel identification and recognition. The X refers to the independent variable. For a period of ten weeks, students were exposed to short vowel sounds during a forty minute per day modified in-class Writing to Read program. Individual vowel sounds were taught independently through thematic units for a two week period. Organization of this program consisted of the following:

1. Computer Station
2. Listening Library
3. Art Station
4. Writing Station
5. Game Station
6. Cooking Station
7. Make Words Station
8. Story Sharing Station

Each day the students rotated to four stations. Portfolio folders and teacher observations provided feedback on progress that was made throughout the study.

The T_2 represents the posttesting on short vowel identification and recognition. T_1 and T_2 were identical instruments. The subjects for the study were fifteen first graders from a self-contained classroom.

Results

Upon completion of the modified in-class Writing to Read study an analysis of pre and posttest results was performed. The writer computed the mean as the measure of central tendency and the standard deviation as the measure of variance for scores on the short vowel skills test. The t test for dependent samples at a .05 level of significance was also used. The null hypothesis was rejected. The probability computed at .001, considerably less than the standard level of significance. This indicates an alternative hypothesis and offers the conclusion that change occurred that is statistically significant, therefore likely due to the independent variable or some determining factor or condition other than normal change. The mean score for the pretest was 5.6666667 with a standard deviation of 2.4976179. In contrast the mean score for the posttest was 14.9333333 with a standard deviation of 1.0997835. The results of the study indicate the modified in-class Writing to Read program enhanced the students' recognition and usage of short vowel sounds.

Recommendations

After two years in a Writing to Read computer lab setting, the writer believed there was a strong need to incorporate what was being taught across the curriculum into IBM's program. In the lab, children were introduced to words in random order, work station projects were often tedious and repetitious, and finding ways to motivate and stimulate learning were continuous concerns.

This study presented an opportunity to implement change for an outdated computer-based program. By bringing the computers into the classroom and planning the lessons around a central theme, versus two to three random words a week, the potential to cross the curriculum and make

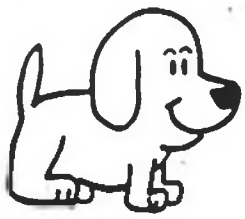
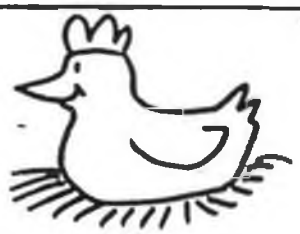
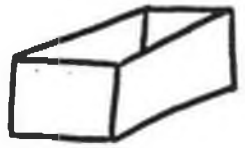
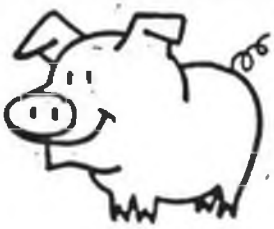
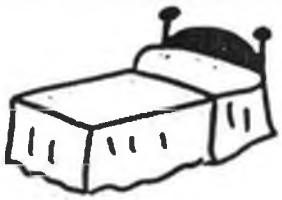
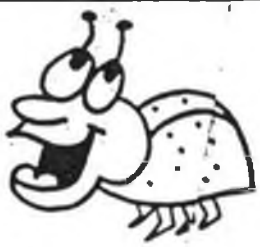
learning meaningful became possible.

Spending two weeks on an individual vowel sound gave the students the chance to see the phoneme in literature, creative writing, science, social studies, and math on a daily basis. Learning stations provided an opportunity for hands-on experiences, with different modalities incorporated into each activity.

Reading, writing and word processing were core components of the study and presented the opportunity for students to become actively involved in learning. As students became familiar with each sound, writing and reading skills increased. It appeared tremendous gains were made in a ten week period. Using a modified in-class Writing to Read program learning was made meaningful and could be connected with real world experiences.

The results of this study seem to indicate that a modified in-class Writing to Read program, centered around thematic units and interdisciplinary instruction, is successful in helping first grade students identify and apply short vowel sounds to every day writing and reading.

Appendix A
Pretest and Posttest

 d _ _ g	 b _ _ t	 r _ _ t	 h _ _ n
 n _ _ t	 f _ _ x	 f _ _ n	 b _ _ x
 p _ _ g	 b _ _ d	 c _ _ p	 p _ _ n
 b _ _ g	 d _ _ t	 s _ _ n	 g _ _ n

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