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ABSTRACT

A study compared the effectiveness of computer-assisted reading instruction to that of a direct teaching model. Nineteen adult male inmates from Windham School System's Ellis II Unit (located in Texas) special education classrooms served as subjects. The subjects were divided into two groups each of which spent one hour a day on reading. One group used computer assisted instruction, while the other group participated in traditional teacher-led reading lessons. Treatment effects were measured after two weeks using the Badar Informal Reading Inventory in the areas of oral reading and reading comprehension. Results indicated: (1) significant pretest to posttest gains made within the traditional direct teaching model; (2) gains were made by both instructional methods, even though the gains did not show one method better than the other in a statistically significant way. A survey given after the treatment indicated that student preference was for teacher-led lessons over computer assisted instruction. (Twenty-six footnotes, and eight tables and two figures of data are included.) (Author/RS)

COMPUTER ASSISTED INSTRUCTION VS. DIRECT TEACHING MODEL OF TEACHING READING TO INCARCERATED ADULTS

by

Frances Jane Spivey

A research paper

submitted in partial

fullfillment of the requirements for ASE 579.

Sam Houston State University

December 1992

ABSTRACT

A sampling of nineteen adult male inmates from Windham School System, Ellis II Unit, special education classrooms served as subjects for this research evaluation of reading instruction. The subjects were divided into two groups. Each group worked one hour a day on reading by their desired method of instruction. One group used Computer Assisted Instruction while the other group participated in traditional teacher led reading lessons. Treatment effects were measured by the Badar Informal Reading Inventory in the areas of oral reading and reading comprehension. Significant pretest to posttest gains were made within the traditional Direct Teaching Model. Gains were made by both methods eventhough the gains were not statistically significant showing one method better than the other. A survey was given after the treatment indicating student preference for teacher led lessons over Computer Assisted Instruction.

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CHAPTER I

INTRODUCTION

GENERAL INTRODUCTION

According to the Texas School Law Bulletin, in 1964, Texas Department of Corrections began offering educational services as a part of the rehabilitation process for incarcerated felons.[1] Many other state penitentiaries followed suit. For example, the state of Illinois created a school district for twenty-one correctional institutions in 1972.[2] Dr. George Beto, the originator of Windham School System, held the general philosophy behind offering an education to inmates in order to make them more employable and to slow down the recidivism rate. Each year millions of tax payer dollars are poured in to school budgets for penal institutions.[3] Are the taxpayers getting what they bargained for?

How necessary is it for the incarcerated men and women in Texas to be able to read? Prison educators believe that this is very important. Reading is necessary in almost any workplace to do the following: following policies and regulations for work, reading directions for operating equipment, reading directions for mixing chemicals, and reading safety signs. In fact, the prisoners need reading skills in order to get along in the prison. Whether they need to ask for a medical appointment or read a letter from

family, basic literacy skills are essential. Independence may be achieved through the development of reading skills. This independence may lead to boosting morale or self-esteem.[4] Meyer and Ory discuss the relationship between school failure and crime from studies by Keilitz and Miller, 1980: Chassin and Young, 1981; Rogers, 1981, and Tidwill, 1981.[5] However, just knowing how to read may not be enough for today's society.

Many prisons offer computer assisted instruction (CAI) as one method of teaching basic reading, math and writing. Meyer reports from a study by McCann, that some educators feel that this instruction will prove sucessful with students who have failed using more traditional educational strategies.[6] CAI involves students using computers while the teachers give assistance when necessary.

STATEMENT OF THE PROBLEM

The education of adult learners in basic skills is important in our society and funds for adult education are limited.

PURPOSE

The study will examine whether direct teaching or computer assisted instruction is more effective while teaching incarcerated adults to read.

SIGNIFICANCE OF STUDY

The significance of this study is to identify effective teaching strategies for reading; as well as, indicate the best way to spend adult academic funds.

DEFINITION OF TERMS

1. Computer Assisted Instruction (CAI) - Through CAI the students reach certain educational goals through using educational programs on the computer. In turn the teacher assists them through answer questions, teaching and reteaching during this process.

2. Direct Teaching Model - Through this educational model the teacher maintains a lesson cycle: stating the objective to be learned, lecturing, guiding student progress, monitoring, reteaching, providing enrichment, and evaluating student outcomes. This is a traditional teaching model in public schools.

NULL HYPOTHESIS

There is no difference in student outcomes in the area of reading achievement through the use of the Direct Teaching Model or through the use of CAI.

LIMITATIONS AND DELIMITATIONS

Research using CAI verses direct teaching will be limited to Windham School System. It is delimited to the Ellis II Unit, during the 1992-1993 school year.

ASSUMPTIONS

The following assumptions may be made about the study.

1. Adult learners in prison schools are equally motivated.
2. Teacher behavior is marked by some degree of consistency.

CHAPTER II

REVIEW OF RELATED LITERATURE AND RESEARCH

Several studies have been made concerning CAI in education programs. Due to the economy and crime rate adult education programs have become popular in recent years. Since many adults have failed to succeed under traditional educational settings, computers have become popular for use with at-risk adult learners.[7] Adult education programs aren't the only programs that are using technology as a classroom tool. Some public school, special education programs have also adopted CAI as one method to reach learning disabled students.[8] CAI has also entered the regular classroom in order to teach content area curricula in an unique way.[9] Does CAI work with at-risk learners? Is the use of computers a financially viable option? If the use of CAI is proven to be effective, the purchasing of computer materials and equipment is well worth the cost.

In 1983, Meyer and Ory conducted a study using 359 adult male inmates from six different institutions in the Illinois Department of Corrections. Half of the students participated in traditional self-paced instruction, while the other half used PLATO Computer Managed Instruction (CMI). The (TABE) Test of Adult Basic Education was used for pretesting and posttesting.[10] The TABE M (M standing for medium) ranging from 3.0 to 10.0 was given in the

beginning and the TABE D (D standing for difficult) was administered at the end of the study. The purpose of the study was to measure whether or not adult students were making gains in math and reading and to measure whether the students using PLATO/CMI and traditional classrooms were making comparable achievement. A third component of the study looked for indicators of academic gains through age, ethnic origin, prison sentence, and the security level of the prison.[11] The students worked in the areas prescribed for three months. The TABE results were given in grade equivalents. For attitudes The Tennessee Self Concept Scale was given. However, there were problems with the administration of this test. The significance of ($p < .05$) was shown in all content areas regardless of the instruction used. In the analysis of language scores older adults and Hispanics scored lower than other ethnic races.[12] Interestingly, the study indicated that the incarcerated adults participating in either PLATO/CMI or regular classroom instruction made significant gains. In the research, Meyer and Ory mention findings from similar studies: Murphy and Appel found no difference in achievement for students involved in PLATO, while Thorkildsen found higher performance for traditional instruction. Osin's and Saracho's studies were discussed, also. Both research projects showed positive results for groups using computers as stated by Meyer and Ory.[13]

At Jackson State University in 1989, research was compiled to indicate the instructional techniques necessary to assist at-risk adult learners in preparation for the General Educational Development (GED) program. CAI was used allowing the students to work and learn at their own pace individually. Advantages were found for this student body: students were accountable for their learning and learning styles were accounted for and frequent feedback was given.[14] After pretesting was completed custom-designed individual learning programs were designed to guide the individuals through the CAI.[15] Findings indicated that an average of 1.8 grade levels were gained per 100 hours of training. Those enrolled in GED programs passed one to five tests the first time and 93% passed subject-area tests. This success was attributed to the students using CAI.[16]

Dr. Eunice Askov investigated the use of computer courseware for Adult Basic Education in a research project requested by the Pennsylvania State University. A problem existed with the courseware vocabulary. The lists used in the software were too high, at least a fourth grade reading level, for beginning readers. Thus, new computer software designed to teach 1000 high frequency words was funded in 1984. Hence, the effectiveness of this courseware was carefully evaluated. This was a multiple baseline study. The subject and condition were held constant, while the baseline corresponded to a different set of words being taught. Data was collected on the number of correct items

and the time it took to respond correctly. This study was conducted in the Special Education classroom in Rockview State Correctional Institution.[17] All students were considered to be beginning readers. The Wide Range Achievement Test (WRAT) and the Slosson Oral Reading Test (SORT) were used for measurement. The men in the study worked one hour a day, five days a week for six weeks.[18] In conclusion, the study of the special courseware for CAI use appeared to be very successful.[19]

An examination of computer-based reading and spelling practice for twenty-eight learning disabled students was conducted in the Netherlands by Victor H.P. van Daal and Aryan van der Leij.[20] Testing was completed before and after treatment. The purpose of the study was to examine a if any correlation existed between computer-based reading and spelling practice and the influence of this practice upon reading and spelling outcomes. The sample was drawn from special education students from two small suburban schools. One group copied the words from the screen while another group copied the words from memory.[21] Results from the observations indicated that computer-based spelling practice was clearly beneficial in the area of spelling.[22] Furthermore, the research has shown gains in reading and spelling were made by those who repeatedly copied the words from the screen. Not only did this give students another learning style to work from, but also the type and amount of practice needed to overcome language arts disabilities.[23]

A measure student attitudes toward computer assisted instruction was examined with a sample of fifth grade science students. Askar, Uavuz and Koksal studied two groups including 74 boys and 63 girls.[24] Two scales were given to measure attitudes and perceptions: the Computer Assisted Instruction Environment Instrument and the Computer Assisted Instruction Scale.[25] Gender differences were also measured. Participants favored science instruction on computers. The boys scored slightly higher than the girls, but this difference was not statistically significant. Perceptions of the children showed a greater interest in computers than regular instruction.[26]

According to these studies, the use of computers seemed to be beneficial as one tool to incorporate in a classroom setting with adult learners, children and students with learning disabilities.

CHAPTER III

METHODS AND PROCEDURES

Windham School System's Ellis II prison unit served as the site for this study. Incarcerated, learning disabled students from three special education classes were the subjects in the sample. Participation was completely voluntary. Two basic research groups were used. Group one used CAI for reading instruction while group two used a direct teaching model for reading instruction. The students chose the group according to personal preference for reading instruction. Very few changes were made from the actual daily routine of work in these classrooms. Most students did not realize that the study had even begun.

Since students at the Windham School System were tested every one hundred hours of school the results from the reading portion of the TABE, Test of Adult Basic Education, scores from the last one hundred hour testing were used to show that the groups were equal. Both groups had the average TABE score of 2.7 grade equivalency, but a different test was given to each student for measurement purposes.

The test chosen for measurement was the Badar Informal Reading Inventory. First, a grade equivalent word list was administered for placement in the inventory passages. Oral reading efficiency and reading comprehension tests were presented. During the following two weeks, the students worked at least one hour a day on reading.

Group one worked at least one hour a day at the computer using Josten's, Project Star. This software was used on Apple II-E computers and was divided into four grade levels from first through fourth grade. Students were placed in the program according to the results from the pre-testing. These students completed the program disks in order from their starting point. All beginning readers on pre-primer, primer or first grade levels were placed in the first grade courseware. Whereas, there were two individuals with reading scores above fourth grade level on the Badar, they were placed in the highest level, grade four.

Group two also worked at least one hour a day on reading. They were involved in a traditional lesson cycle of the Direct Teaching Model. Prereading predictions were made. Vocabulary was introduced and students read orally, discussing the articles and stories with other members of the group. Josten's off-line Invest ABE, Adult Basic Education, readers were used for this purpose. Afterwards, individual work was assigned on the student's independent reading level. The teacher tutored individuals in both groups as daily monitoring and evaluation took place.

After two weeks of consistency in reading one hour a day with both groups, the Badar was readministered as a posttest. The same word list and passages were used to indicate growth or lack of growth in reading efficiency and reading comprehension.

A survey was given to all participants for student feedback about reading instruction. The students were asked whether they thought that they were learning to read better using their chosen method for the study. Results from the surveys were scanned on a Data Entry Terminal Scantron 1100 to an IBM computer to disagregate data from the questionnaires. Afterwords, descriptive data was entered on a spreadsheet on Statworks into a Macintosh computer.

The results of this study will be discussed in Chapter IV.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

To evaluate whether the incarcerated adult learners in the special education classes at Ellis II made significant ($p < .05$) gains in reading t-tests were conducted on the pre and post test scores of the Badar Informal Reading Inventory. T-tests were run to compare the following situations: computer group pre and post tests, direct teaching pre and post tests, and computer versus direct teaching post test data. Within these categories two sub-groupings were assessed: oral reading and reading comprehension. Gains were made in all categories and sub-groups. However, the only significant gain of ($p < .05$) was made in the comparison of direct teaching pre and post test comprehension with a ($p < .016$) significance.

Insert Table 1 here.

In the comparisons between the CAI and the direct teaching instruction gains were made, but the gains were not statistically significant. In both reading and comprehension the means were higher for the direct teaching group than the computer group.

Insert Tables 2 and 3 here.

Descriptive data was collected in the form of a student survey which was administered after the treatment. One of the questions inquired whether the student could read his own mail. Only 25 percent of the students who could read their own mail stated that they learned faster on the computer. Of this same group 58 percent of the students preferred a teacher led lesson over working in workbooks or on a computer. Furthermore, 67 percent of this same group were able to write necessary correspondence and fill out forms requesting services in the penitentiary.

Insert Figure 1 here.

The original hypothesis stated, there is no difference in student outcomes in the area of reading achievement through the use of Direct Teaching Model or through the use CAI. According to statistical data run on the two groups this hypothesis must be accepted.

CHAPTER V

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

SUMMARY

Results of the study reveal that both CAI and the Direct Teaching Model show gains in reading instruction. The most gains are made in the area of reading comprehension. Significant outcomes are shown in the direct teaching group subgrouping of reading comprehension.

Most of the students indicated a preference of direct teaching over CAI on a questionnaire of incarcerated white, black, and hispanic students ranging in age from 23 to 52.

CONCLUSION

Both CAI and the use of the Direct Teaching Model are valuable strategies for reading instruction. Gains are shown although not significant using the two instructional methods. However, the directed lessons show significant improvement in reading comprehension.

According to the survey, most students prefer teacher led lessons over the use of computers for their main instruction. Thus, the important role of the teacher plays while teaching incarcerated adult learners must not be ignored. The teacher in a prison setting is the closest link for the inmate to society. Being able to have specific questions answered and being given reassurance from another human being seems to improve self-esteem. In the classroom

a variety of strategies must be used to reach the adult learner.

The computer is an important instructional tool. First of all, the computer reaches several learning styles. Project Star seems to have a positive influence over some of the students. Furthermore, the immediate feedback and positive encouragement given to students are very effective. Some of the inmates appreciate being able to work at their own pace. The privacy factor while working with CAI protects personal pride for the convicted felons and pride is very important to these individuals. For these reasons, the purchasing of expensive courseware for the computer remains a viable option.

RECOMMENDATIONS

This study should be repeated over a six week to three month period. Two weeks of instruction for disabled learners may not be long enough to show significant improvement. The Badar Informal Reading Inventory seemed to be an effective tool to measure a number of areas. Oral reading and reading comprehension are the only measures taken for this research project.

In the prison classroom time can play an important role in any study. Two students paroled shortly after the two week study. Therefore, a larger group may prove beneficial while conducting research in this setting.

Further studies should be conducted in order to offer quality education to inmates. Helping adult students reach educational goals plays an important role toward reducing recidivism.

October 1992

Dear Students:

This questionnaire is related to a study of the effectiveness of reading programs used in Windham School System special education classrooms at the Ellis II Unit. The questionnaire is a necessary part of a research project that I am completing to fulfill the requirements of my mid-management certification.

Participation is completely voluntary. The study involves the study of two reading groups: students using computers and students using traditional classroom teaching strategies. All individual information will be completely confidential. Data in the paper will be reported by groups not by individuals. The questionnaire is written in a short answer or circle the best response format. Read each question and simply write on the blank line or circle the best answer. Answer every question. At the end of this study I will share the results with you during a special presentation.

Please return the questionnaire <u>today</u>!!!

Thank you for your time and assistance with this project.

Sincerely,

Mrs. F. J. Spivey

SURVEY OF COMPUTER ASSISTED INSTRUCTION VS DIRECT TEACHING

DIRECTIONS: Fill in the blanks and circle the best answer for you.

1. What grade did you finish in the public schools?_____

2. How old are you?_____

3. What is your ethnic race?

   white black Hispanic

4. Did you work on a computer in the past three weeks in the area of reading?

   yes no

5. Do you learn faster on the computer?

   yes no

6. Which method helps you remember what you've learned?

   the computer workbooks teacher led lesson

7. Which would you prefer for reading instruction:

   work on a computer a teacher led lesson

8. Do you feel that you are learning to read better than when you were first incarcerated?

   yes no

9. Are you able to read your own mail?

   yes no

10. Are you able to write your own commissary lists, I-60 forms and Sick Call Requests?

    yes no

11. What type of work do you plan to do when you parole?

    _____

APPENDIXES

Table 1

Direct Teaching (Comprehension) Pre and Post Testing

Data File: WINDHAM SCH STUDY

Independent Samples

Variable:	DIR PRE C	DIR POST C
Mean	55.00	79.33
Std Deviation	20.55	17.58
Observations	9	9

t-statistic	-2.70	Hypothesis:
Degrees of Freedom	16	Ho: $\mu 1 = \mu 2$
Significance:	0.016	Ha: $\mu 1 \neq \mu 2$

Table 2

Post Testing Comparing CAI and Direct Teaching (Reading)

Data File: WINDHAM SCH STUDY

Independent Samples...

Variable:	COM POST R	DIR POST R
Mean:	90.62	92.22
Std Deviation:	11.06	6.00
Observations:	8	9

t-statistic	-0.36	Hypothesis:
Degrees of Freedom:	15	Ho $\mu 1 = \mu 2$
Significance:	0.712	Ha $\mu 1 \neq \mu 2$

Table 3

Post Testing Comparing CAI and Direct Teaching (Comprehension)

Data File: WINDHAM SCH STUDY

Independent Samples...

Variable:	COM POST C	DIR POST C
Mean:	73.25	79.33
Std. Deviation:	15.67	17.59
Observations:	9	9

t-statistic:	-0.67	Hypotheses:
Degrees of Freedom:	15	Ho: $\mu 1 = \mu 2$
Significance	0.511	Ha $\mu 1 \neq \mu 2$

Table 4

Sam Houston State University
SURVEY OF STUDENTS ABLE TO READ THEIR OWN MAIL

Total Responding: 12 NR=No Response

Question	1 A	2 B	3 C	4 D	5 E	NR	Total	Average
1. Number:	1	4	4	1	2	0	12	2.9
Percent:	8%	33%	33%	8%	17%			
2. Number:	0	1	8	2	1	0	12	3.3
Percent:	0%	8%	67%	17%	8%			
3. Number:	3	6	3	0	0	0	12	2.0
Percent:	25%	50%	25%	0%	0%			
4. Number:	5	7	0	0	0	0	12	1.6
Percent:	42%	58%	0%	0%	0%			
5. Number:	3	9	0	0	0	0	12	1.8
Percent:	25%	75%	0%	0%	0%			
6. Number:	3	2	7	0	0	0	12	2.3
Percent:	25%	17%	58%	0%	0%			
7. Number:	2	9	1	0	0	0	12	1.9
Percent:	17%	75%	8%	0%	0%			
8. Number:	12	0	0	0	0	0	12	1.0
Percent:	100%	0%	0%	0%	0%			
9. Number:	12	0	0	0	0	0	12	1.0
Percent:	100%	0%	0%	0%	0%			
10. Number:	8	3	0	0	1	0	12	1.6
Percent:	67%	25%	0%	0%	8%			
11. Number:	1	1	1	1	8	0	12	4.2
Percent:	8%	8%	8%	8%	67%			
12. Number:	6	6	0	0	0	0	12	1.5
Percent:	50%	50%	0%	0%	0%			

Table 5

Sam Houston State University
SURVEY OF STUDENTS UNABLE TO READ THEIR OWN MAIL

Total Responding: 7 NR=No Response

Question		1 A	2 B	3 C	4 D	5 E	NR	Total	Average
1.	Number:	1	2	3	0	1	0	7	2.7
	Percent:	14%	29%	43%	0%	14%			
2.	Number:	0	1	4	1	1	0	7	3.3
	Percent:	0%	14%	57%	14%	14%			
3.	Number:	3	4	0	0	0	0	7	1.6
	Percent:	43%	57%	0%	0%	0%			
4.	Number:	6	1	0	0	0	0	7	1.1
	Percent:	86%	14%	0%	0%	0%			
5.	Number:	6	1	0	0	0	0	7	1.1
	Percent:	86%	14%	0%	0%	0%			
6.	Number:	4	1	2	0	0	0	7	1.7
	Percent:	57%	14%	29%	0%	0%			
7.	Number:	4	3	0	0	0	0	7	1.4
	Percent:	57%	43%	0%	0%	0%			
8.	Number:	5	2	0	0	0	0	7	1.3
	Percent:	71%	29%	0%	0%	0%			
9.	Number:	0	7	0	0	0	0	7	2.0
	Percent:	0%	100%	0%	0%	0%			
10.	Number:	0	7	0	0	0	0	7	2.0
	Percent:	0%	100%	0%	0%	0%			
11.	Number:	1	3	0	1	2	0	7	3.0
	Percent:	14%	43%	0%	14%	29%			
12.	Number:	2	5	0	0	0	0	7	1.7
	Percent:	29%	71%	0%	0%	0%			

Table 6

Sam Houston State University
SURVEY OF COMPUTER ASSISTED STUDENTS IN WINDHAM SCHOOLS

Total Responding: 11 NR=No Response Date: 01/04/80

Question		1 A	2 B	3 C	4 D	5 E	NR	Total	Average
1.	Number:	1	5	2	1	2	0	11	2.8
	Percent:	9%	45%	18%	9%	18%			
2.	Number:	0	0	8	2	1	0	11	3.4
	Percent:	0%	0%	73%	18%	9%			
3.	Number:	6	5	0	0	0	0	11	1.5
	Percent:	55%	45%	0%	0%	0%			
4.	Number:	9	2	0	0	0	0	11	1.2
	Percent:	82%	18%	0%	0%	0%			
5.	Number:	7	4	0	0	0	0	11	1.4
	Percent:	64%	36%	0%	0%	0%			
6.	Number:	6	1	4	0	0	0	11	1.8
	Percent:	55%	9%	36%	0%	0%			
7.	Number:	5	6	0	0	0	0	11	1.5
	Percent:	45%	55%	0%	0%	0%			
8.	Number:	9	2	0	0	0	0	11	1.2
	Percent:	82%	18%	0%	0%	0%			
9.	Number:	6	5	0	0	0	0	11	1.5
	Percent:	55%	45%	0%	0%	0%			
10.	Number:	4	6	0	0	1	0	11	1.9
	Percent:	36%	55%	0%	0%	9%			
11.	Number:	2	2	0	2	5	0	11	3.5
	Percent:	18%	18%	0%	18%	45%			
12.	Number:	0	11	0	0	0	0	11	2.0
	Percent:	0%	100%	0%	0%	0%			

Table 7

Sam Houston State University

SURVEY OF DIRECTED TEACHING IN WINDHAM SCHOOLS

Total Responding: 8 NR=No Response Date: 01/04/80

Question		1 A	2 B	3 C	4 D	5 E	NR	Total	Average
1.	Number:	1	1	5	0	1	0	8	2.9
	Percent:	13%	13%	63%	0%	13%			
2.	Number:	0	2	4	1	1	0	8	3.1
	Percent:	0%	25%	50%	13%	13%			
3.	Number:	0	5	3	0	0	0	8	2.4
	Percent:	0%	63%	38%	0%	0%			
4.	Number:	2	6	0	0	0	0	8	1.8
	Percent:	25%	75%	0%	0%	0%			
5.	Number:	2	6	0	0	0	0	8	1.8
	Percent:	25%	75%	0%	0%	0%			
6.	Number:	1	2	5	0	0	0	8	2.5
	Percent:	13%	25%	63%	0%	0%			
7.	Number:	1	6	1	0	0	0	8	2.0
	Percent:	13%	75%	13%	0%	0%			
8.	Number:	8	0	0	0	0	0	8	1.0
	Percent:	100%	0%	0%	0%	0%			
9.	Number:	6	2	0	0	0	0	8	1.3
	Percent:	75%	25%	0%	0%	0%			
10.	Number:	4	4	0	0	0	0	8	1.5
	Percent:	50%	50%	0%	0%	0%			
11.	Number:	0	2	1	0	5	0	8	4.0
	Percent:	0%	25%	13%	0%	63%			
12.	Number:	8	0	0	0	0	0	8	1.0
	Percent:	100%	0%	0%	0%	0%			

Table 8: Raw Data

WINDHAM SCH STUDY

	COM PRE R	COM PRE C	COM POST R	COM POST C	DIR PRE R	DIR PRE C	DIR POST R	DIR POST C
1	93	54	97	73	95	47	95	63
2	58	50	68	83	92	95	96	100
3	69	83	79	83	91	22	91	55
4	93	58	98	75	67	37	87	100
5	96	42	98	71	82	66	82	100
6	94	27	96	27	94	50	98	75
7	95	90	96	90	95	53	95	66
8	90	83	93	83	93	58	98	83
9					93	67	98	75

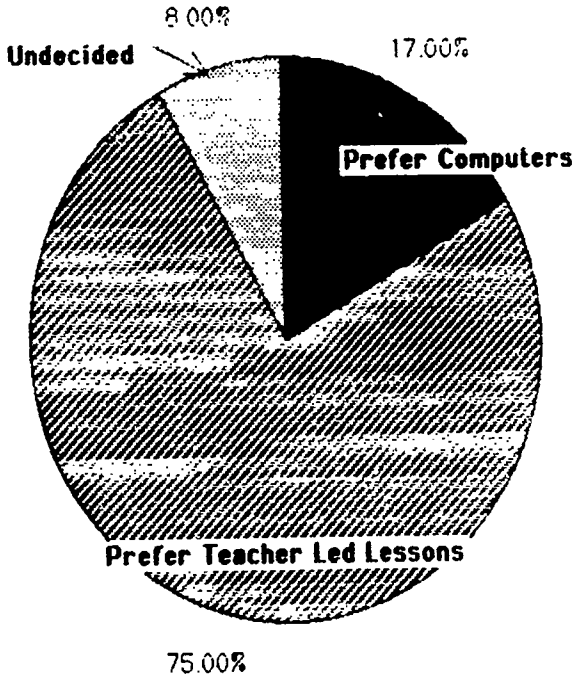

Figure 1. Students Able To Read Their Own Mail

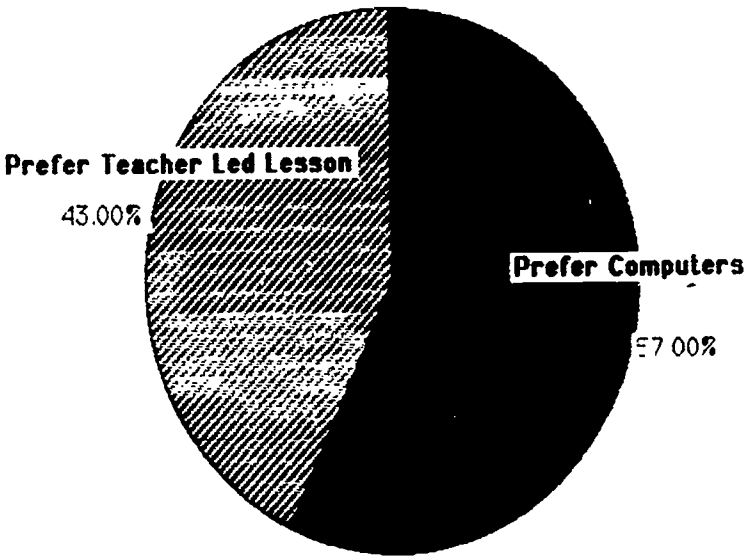

Figure 2 Students Unable to Read Their Own Mail

NOTES

[1] Texas Education Agency. Texas School Law Bulletin. "Chapter 29. Schools Within the Department of Corrections." Austin: 1986, 230.

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