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ABSTRACT

A WICAT Computer Assisted Instructional (CAI) System began operation at St. Anne Consensus School (Tennessee) in August, 1986. Iowa Test of Basic Skills (ITBS) scores for the years 1984 through 1988 for ten students in each of the grades 4th through 8th (as of May 1988) were analyzed. The average gain for all subjects during the two years before WICAT (pre October 1986) was 0.85 grade equivalents (G.Eq., national norm=1.00) per year; and the average gain for all subjects for the two years with WICAT (post October 1986) was 1.17 G.Eq. per year. Using a median split, students were grouped into high ability and low ability groupings. The high ability group showed an average pre-WICAT gain of 0.97 G.Eq. per year, and an average post-WICAT gain of 1.19 G.Eq. per year. The low ability group showed an average pre-WICAT gain of 0.72 G.Eq. per year, and an average post-WICAT gain of 1.15 G.Eq. per year. This result suggests that the WICAT CAI was beneficial for all students, but was particularly effective for students below the median. (Author)

Computer Assisted Instruction at St. Anne's School: The Second Year

by Roy B. Clariana and Charles W. Schultz

abstract

A WICAT Computer Assisted Instructional (CAI) System began operation at St. Anne Consensus School in August of 1986. Iowa Test of Basic Skills (ITBS) scores for the years 1984 through 1988 for ten students in each of the grades 4th through 8th (as of 5/88) were analyzed. The average gain for all subjects during the two years before WICAT (pre 10/86) was 0.85 grade equivalents (G.Eq., national norm = 1.00) per year; and the average gain for all subjects for the two years with WICAT (post 10/86) was 1.17 G.Eq. per year. Using a median split, students were grouped into high ability and low ability groupings. The high ability group showed an average pre-WICAT gain of 0.97 G.Eq. per year, and an average post-WICAT gain of 1.19 G.Eq. per year. The low ability group showed an average pre-WICAT gain of 0.72 G.Eq. per year, and an average post-WICAT gain of 1.15 G.Eq. per year. This result suggests that the WICAT CAI was beneficial for all students, but was particularly effective for students below the median.

A Display session presented at the Mid-South Educational Research Association Annual Meeting (MSERA) on November 7, 1988 in Louisville, Kentucky.

Running Head: Computer Assisted Instruction

Introduction

In 1985 the Metro Tech Council, a group of Memphis Businessmen and Educators from the city and county public schools and also from parochial and private schools, investigated numerous instructional technologies available at that time. After research and on-site visits across the U.S., the council selected the WICAT S-300 instructional system for a demonstration study. A local area school, St. Anne School near Memphis State University, was selected as a pilot school. St. Anne School became a consensus school for city, county, and private schools in the Memphis Metro area. Funds for the WICAT system were provided through contributions from local businesses ($60,000) and by St. Anne School ($60,000). The College of Education at Memphis State University provided research assistance to the council. An administrative summary of the results from the first year has been developed and circulated locally. This paper extends the executive summary by presenting ITBS scores after two years of WICAT use.

Research Questions

1. Does daily computer use as a complement to the regular school day result in generally improved scores on a test of basic skills?
2. Is daily computer use equally effective for all ability groups?
3. Is daily computer use equally effective for all subject areas?

WICAT Use

All students at St. Anne School were scheduled to have WICAT CAI for thirty minutes everyday. Generally, math was presented two days each week, reading for two days, and writing or language arts for one day each week. Typing skills and word processing were presented in blocks of about two weeks early in the school year, and then reinforced periodically. The upper grades (7 and 8) added an extra day of language arts and one less day per week of reading. The average number of hours of CAI for each grade and subject for a year are shown in the table 1 below:

Table 1.
Approximate hours of CAI instruction per year.

grade	reading	math	lang.	typing	write	c.lit	year(hours)
1	35	35	-	15	3	-	88
2	33	33	-	5	17	-	88
3	30	30	15	5	8	-	88
4	30	30	15	5	8	-	88
5	30	30	15	5	8	-	88
6	30	30	15	5	8	-	88
7	25	35	18	5	5	-	88
8	15	30	18	5	5	15	88

The Sample

St. Anne School is a Catholic Elementary School (k-8) with an enrollment of about 220. The students are mostly white (about 10% minority) from blue-collar worker homes.

Records for all students in grades four through eight (as of 5/88) were obtained and Iowa Test of Basic Skills scores for the preceding 4 years were analyzed. Though the school is small, it was possible to obtain a sample of fifty (50) students, ten from each of the five grades. Through a median split, students in each grade were separated into two groups termed "high ability" and "low ability". Each group contained twenty-five (25) students.

Results

The average gain for all subjects during the two years before WICAT (pre 10/86) was 0.85 grade equivalents per year (G.Eq., national norm = 1.00); and the average gain for all subjects for the two years with WICAT (post 10/86) was 1.17 G.Eq. per year [see Figure 1]. The average G.Eq. across the four year period for each grade is shown below [see Figure 7]. No tests of significance were conducted.

The high ability group showed an average pre-WICAT gain of 0.97 G.Eq. per year, and an average post-WICAT gain of 1.19 G.Eq. per year. The low ability group showed an average pre-WICAT gain of 0.72 G.Eq. per year, and an average post-WICAT gain of 1.15 G.Eq. per year [see figures 2 and 3]. This result suggests that the WICAT CAI was beneficial for all students, but **was particularly effective for those below the median.**

Three subject areas were considered in this paper: reading, language, and math. Language ITBS scores showed the most gain. Math and reading pre-WICAT and post-WICAT yearly G.Eq. gains were similar. [Table 2 below and Figures 4, 5, and 6].

Table 2.

Reading, Language and Math Grade Equivalent Gains
before and with the WICAT CAI

	Reading	Language	Math
pre-WICAT	0.89	0.76	0.89
post-WICAT	1.14	1.23	1.14

Summary

* For these students, average yearly G.Eq. gains (ITBS) were below the norm before daily CAI use, and were above the norm with CAI use.
* Low ability students average yearly gains with CAI use were almost equal to those of the high ability students.
* Language scores showed the most gain with CAI.

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Figure 1.

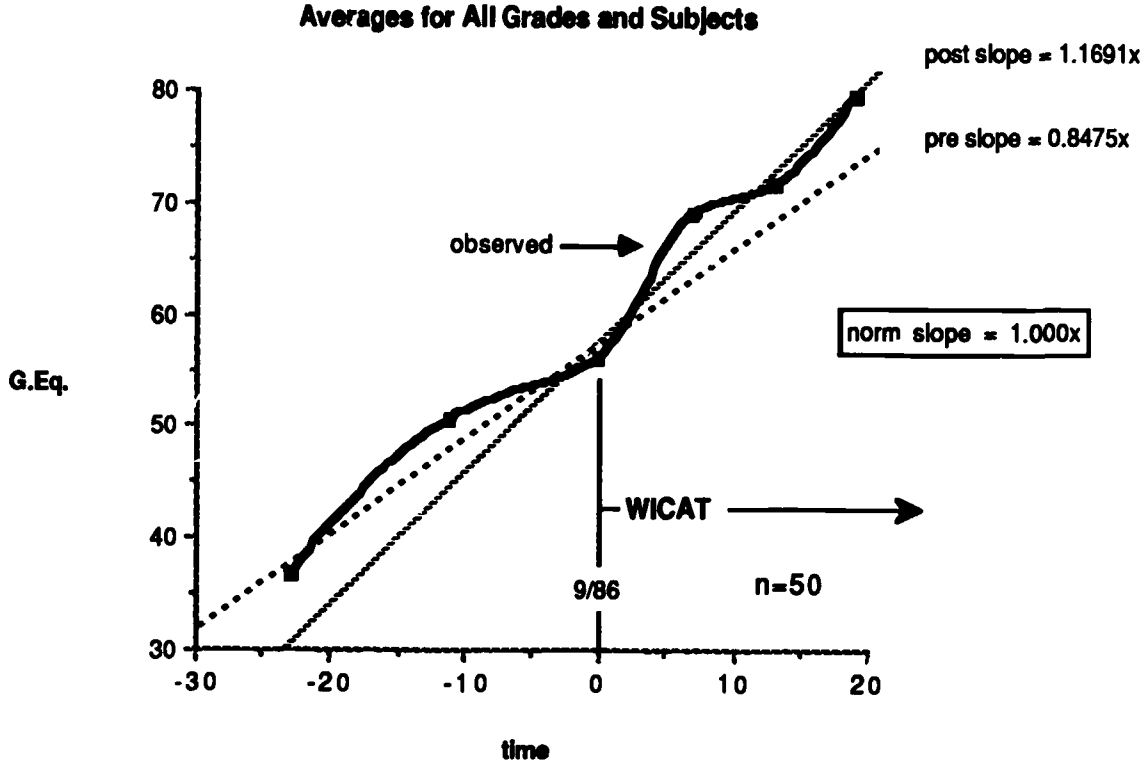

Figure 2.

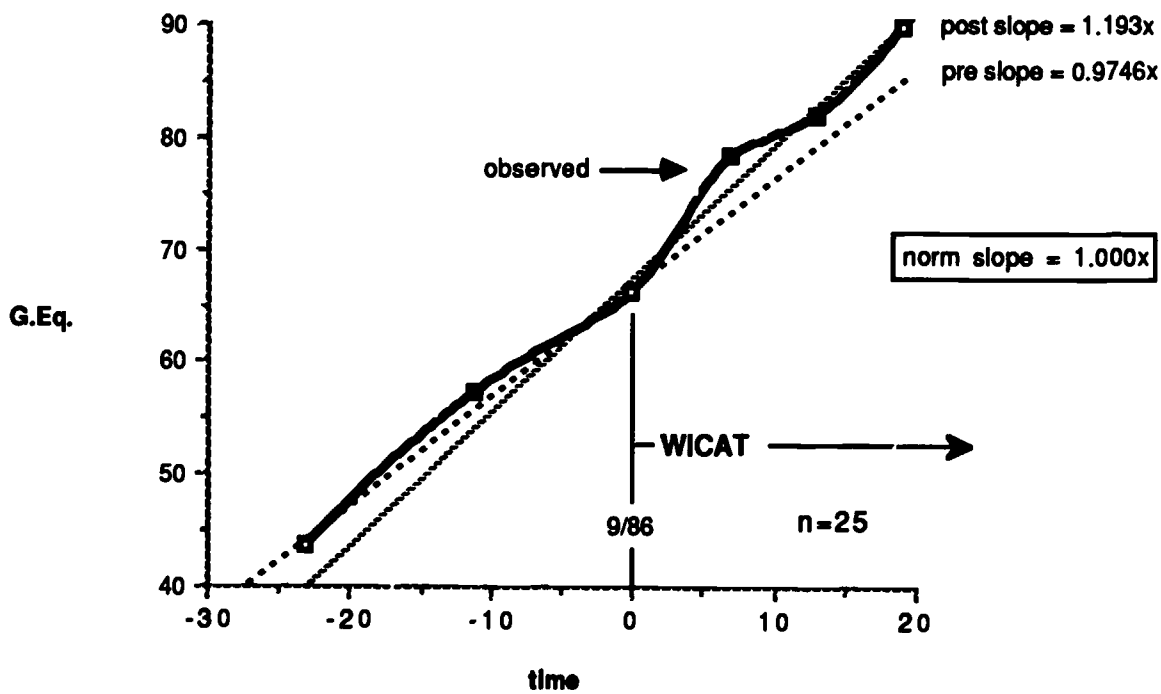

Figure 3.

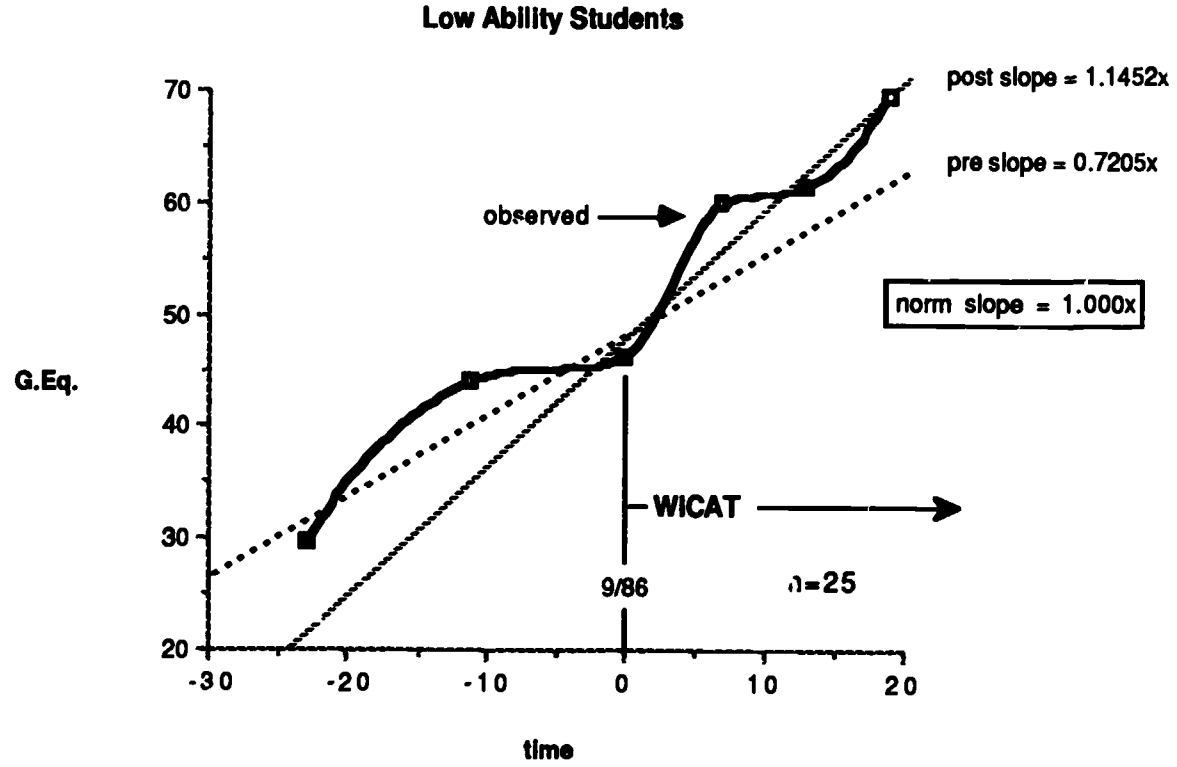

Figure 4.

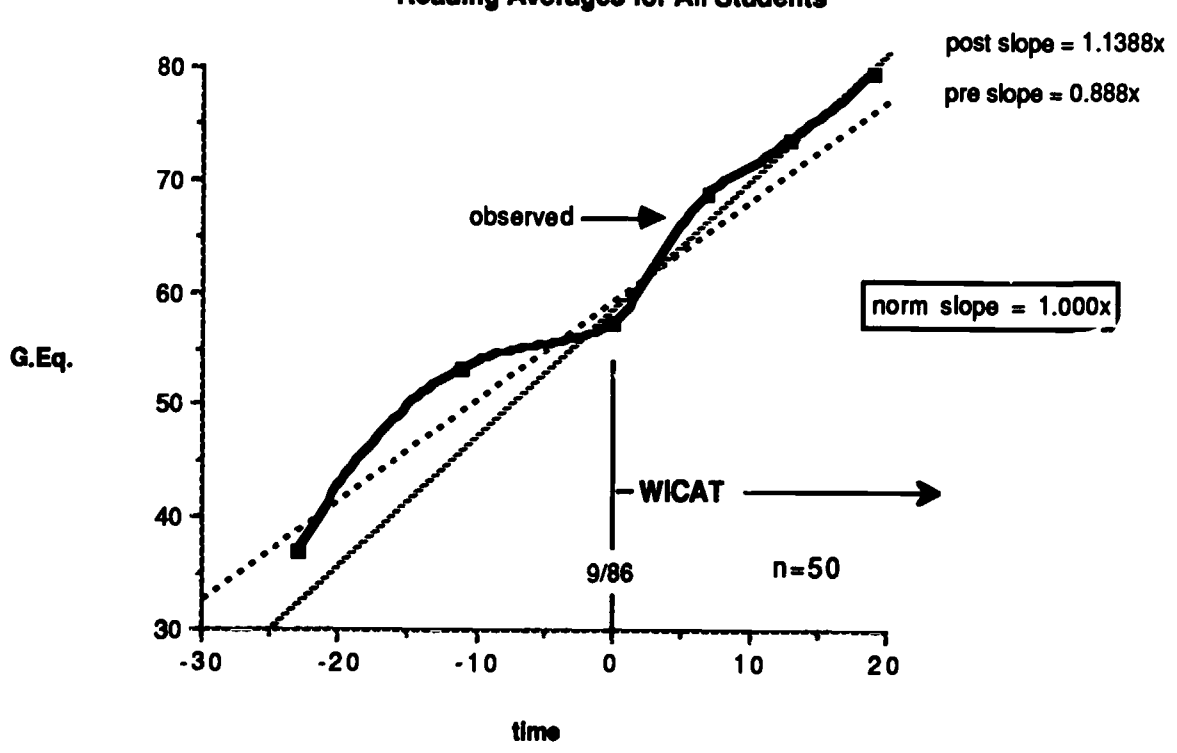

Figure 5.

Language Averages for All Students

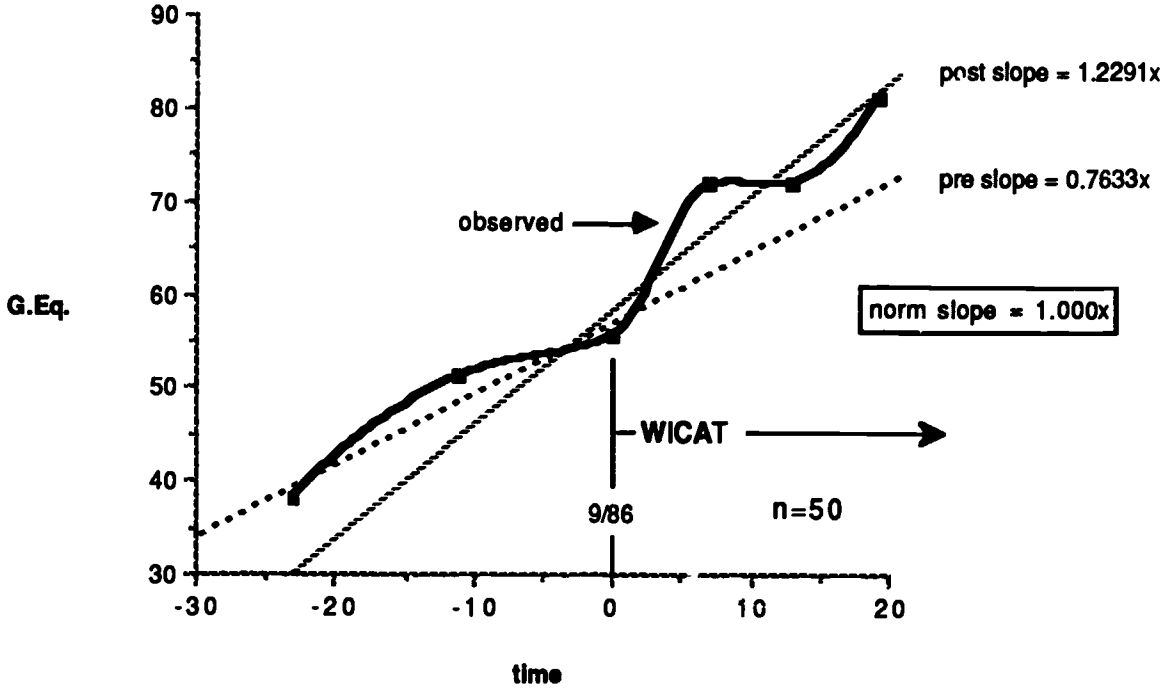

Figure 6.

Math Averages for All Students

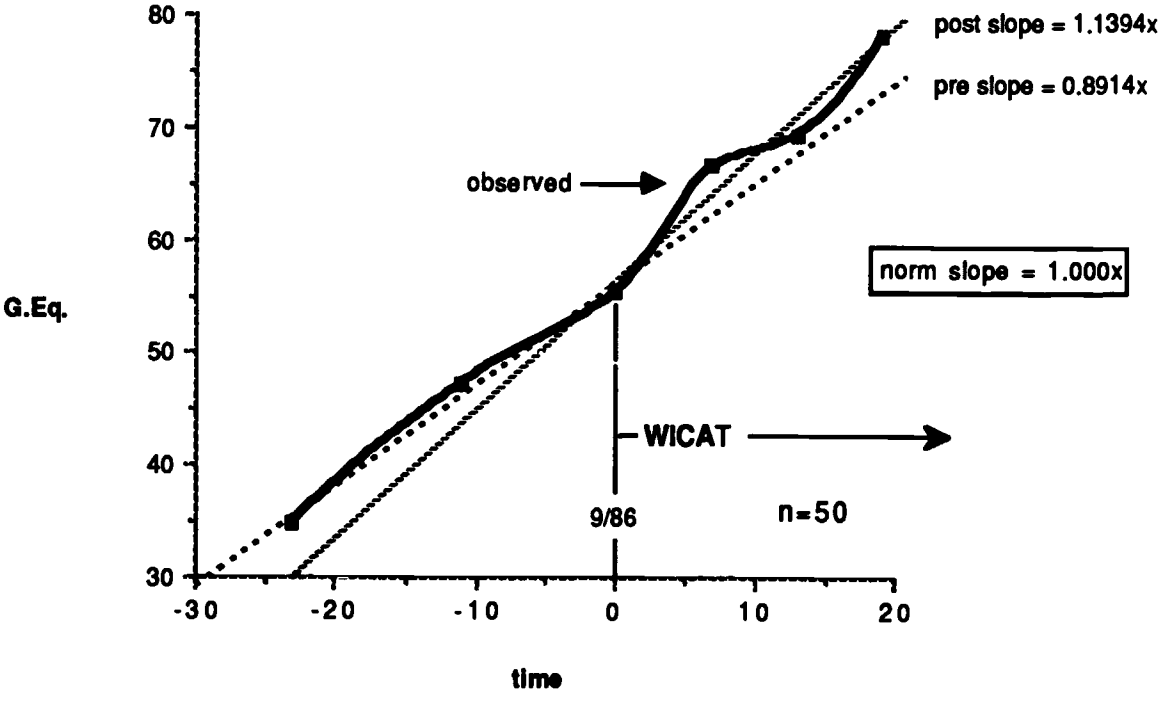

Figure 7.
Averages for each grade, n=10 per grade.

4th grade	Reading	Language	Math
10/84	15.2	17.3	19.4
10/85	26.6	25.0	26.5
9/86	34.0	32.0	35.7
4/87	51.5	59.8	45.6
10/87	51.1	41.7	45.8
4/88	59.5	55.5	54.2

5th grade	Reading	Language	Math
10/84	22.5	24.0	21.9
10/85	39.0	35.5	29.8
9/86	45.3	42.5	37.2
4/87	58.1	60.2	53.3
10/87	64.1	60.4	55.3
4/88	69.9	69.6	64.7

6th grade	Reading	Language	Math
10/84	38.9	41.9	31.4
10/85	58.8	56.1	51.6
9/86	55.0	57.7	58.3
4/87	69.1	71.3	68.7
10/87	75.7	79.0	72.8
4/88	78.7	83.0	83.2

7th grade	Reading	Language	Math
10/84	51.0	45.9	44.8
10/85	68.9	61.9	61.8
9/86	73.1	68.7	68.8
4/87	76.6	78.6	76.7
10/87	86.3	82.9	81.6
4/88	88.3	95.8	88.7

8th grade	Reading	Language	Math
10/84	57.3	61.7	56.8
10/85	72.9	77.7	66.8
9/86	78.8	77.1	76.5
4/87	88.5	89.5	88.4
10/87	90.3	96.1	91.2