

Center on Teaching
Analysis of Student Achievement data
A Research Report

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As part of the evaluation of the Center on Teaching program, pretest and posttest scores on the mathematics subtests and total mathematics test of the Comprehensive Tests of Basic Skills (CTBS) were analyzed. Pretest scores for fourth grade students who were enrolled in three program classes were available from the results of the regular district wide testing program (Form S, Level 1). Posttest answer sheets (Form S, Level 2) for these students were obtained from an administration of the test by classroom teachers late in the school year and scored by hand.

Analysis of pretest to posttest change followed a “Model A” analysis. Pretest percentile equivalents were converted to expected posttest raw scores and then to anticipated normal curve equivalents (NCE’s) with reference to posttest norms, to yield posttest data that would be expected in the absence of special treatment. Posttest raw scores were converted to NCE’s by using normative raw score data.

A series of correlated T tests were performed to determine the significance of the difference between anticipated and actual posttest data. Table 1 presents these results.

Table 1

Pre/Post Analysis of Fourth Grade Mathematics Scores of Participants in Center on Teaching Program (N=61)

	<u>Pretest (Level 1)</u>	<u>Anticipated Posttest</u>		<u>Actual Posttest (Level 2)</u>	
	<u>Percentile Equiv.</u>	<u>Raw Score</u>	<u>NCE</u>	<u>Raw Score</u>	<u>NCE</u>
Computation	72.8	30.0	62.10	46.23	98.40
Concepts	72.3	16.5	66.06	23.00	95.07
Applications	74.6	17.0	68.40	22.78	88.75
Total	75.0	62.0	64.50	91.94	99.49

Analysis of Anticipated vs Obtained Posttest Scores

	<u>NCE Difference.</u>	<u>Pre-Post Correlations</u>	<u>SED</u>	<u>T Correlation</u>
Computation	36.30	.45	3.72	9.76*
Concepts	29.01	.38	3.74	7.75*
Applications	20.35	.53	3.70	5.50*
Total	34.99	.68	3.66	9.56*

*p< .001

Table 1 indicates that there was a highly significant difference between anticipated and actual posttest scores. Students, on the average, moved from about the 75th percentile to the 99th percentile relative to national norms, achieving almost perfect scores on the posttest. It is highly unlikely that these results might have occurred by chance.

Conclusion and Recommendations

Based upon this analysis, it can be concluded that teachers trained by the Center on Teaching and using specially prepared materials can have a dramatic positive impact on student mathematics ability as measured by a standardized test.

We strongly recommend the following additional research;

1. A replication of this research using a control group/experimental group design.
2. Research to measure the impact of “Spectrum” trained teachers working with students in the absence of specially prepared materials.

The latter suggestion is the more pressing one. An experiment that measures the effect of teachers trained in the “Spectrum” who do not use specially prepared materials would clarify whether the results demonstrated in the present result were due to the training in the “Spectrum”, due to the specially prepared materials, or some combination of the factors.