

## ABSTRACT

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### A Study Of Calculator Usage On The Mathematics Achievement Of Seventh- And Eighth-Grade Students And On Attitudes Of Students And Teachers (Seventh-Grade)

The purpose of this study was to examine the effects of calculator usage on the mathematics achievement of seventh and eighth grade students as measured by the Mathematics Concepts and Applications sections of the California Achievement Test. The study also investigated the attitudes of students and teachers toward calculator usage. Student attitudes were measured through responses to the Student Calculator Survey. Teacher attitudes were measured through responses to the Attitude Instrument for Mathematics and Applied Technology-Version II.

Intact classes from two north central Louisiana school systems were assigned randomly to treatment and control groups. The sample consisted of 1070 students and 33 teachers from nine schools.

Data analyses were conducted through t-tests and ANOVA routines of the SPSS-X program. Significant differences ( $p < .05$ ) were found which favored the calculator group for both the number of correct responses and number of problems attempted. Significant differences for the variables of gender, race, grade, and level were reported for both the number correct and number attempted. Mean scores favored the calculator group for the variables of gender, race, grade, and level.

Responses on the student survey indicated a positive attitude toward calculator usage for both instructional and assessment purposes. Students reported calculator availability during class time in the categories of "some of the time" at 49.5% and "rarely or never" at 36.1%.

Classroom calculator availability was reported by 84.8% of the sample teachers. Usage was reported in the category "some of the time" at 81.8%. Survey responses differed significantly for the variables of conceptual mastery and teacher training. Findings from this study suggested that teacher training may result in more positive attitudes toward calculator usage.

Results of this study indicated that calculator usage during assessment appeared to have a positive influence on student mathematics achievement. Student and teacher survey responses appeared to support calculator usage for both instructional and assessment purposes. Teacher training and calculator availability should be considered as integral parts of calculator usage policies. School systems should consider the effects of calculator usage on student mathematics achievement as well as the attitudes of students and teachers in the development of calculator usage policies.