The Effects of Instructional Technology on Academic Achievement in Elementary Public Schools

A True Experimental Research Study

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Problem:
What does the Literature Say?

O Only 29% of elementary teachers integrate computers in their classroom (Barron, Kemker, Harmes & Kalaydijian, 2003).

O According to Ertmer, Addison, Lane & Woods (1999), teachers face internal and external barriers with implementation of instructional technology.

Purpose Statement

O Determine the effectiveness of new technologies.

O Determine the effects of instructional technology on academic achievement scores.

Research Question and Alternative Hypothesis

O <u>Research question</u>: What effect does instructional technology have on students' standardized achievement scores in the areas of language arts and mathematics?

O <u>Alternative hypothesis</u>: The use of the instructional technology tool EdCite in public elementary schools is positively related to academic achievement scores on the <u>SBAC</u> among third grade students in Paramount Unified School District (PUSD).

Participants and Instrument

O 150 incoming third grade students at a California public school.

O 6 third grade teachers

O Smarter Balanced Assessment Consortium (SBAC)

Variables

O <u>Independent Variable</u>: Instructional technology tool *EdCite*

O <u>Dependent Variable</u>: Student achievement scores on SBAC in English language arts and math

O <u>Control Variables</u>: gender, academic abilities, English learner level

Experimental/Treatment Group

O Will implement instructional technology tool *EdCite* in classrooms 3 days a week in addition to traditional instruction

O Teachers will receive Professional Development

O Teachers will receive additional from Technology Assistant at school

O Control group will not implement instructional technology in classroom

Data Analysis

O All third grade students will take the SBAC assessment at the end of the academic school year

O Administration of assessment will be standardized for both groups

O Numeric point value scale

O Summed scores for ELA and math

O T-test to compare differences among experimental and control groups

Results

O Based on previous research studies, results should show a positive relationship between instructional technology in the classroom and higher achievement scores for the experimental group in comparison to the control group.

Limitations

O Sample size

O Instructional technology used

References Cited

O Barron, A. E., Kemker, K., Harmes, C., & Kalaydjian, K. (2003). Large-scale research study on technology in K-12 schools: Technology integration as it relates to the national technology standards. *Journal Of Research On Technology In Education (International Society For Technology In Education)*, *35*(4),489.

O Ertmer, P. A., Addison, P., Lane, M., Ross, E., & Woods, D. (1999). Examining teachers' beliefs about the role of technology in the elementary classroom. *Journal of Research on Computing in Education*, *32*(1), 54-72.