



New Century Education

## SCIENTIFIC RESEARCH UPDATE

**Curriculum:** Math

**Student Population:** Middle School, Economically Disadvantaged, Academically Underperforming, Limited English Proficient

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### *Seventh Grade Math Students Achieved Statistically Significant Gains Using New Century in a Randomized/Controlled Study*

#### RESEARCH SUMMARY

**Location:** Middle Schools, Grant Joint Union High School District, Sacramento, California. (This district was subsequently consolidated into the Twin Rivers Consolidated School District.)

**Targeted Student Population:** 7th grade "Strategic Students." (District classification for underperforming students functioning one to two grade levels below their academic grade.) These students did not represent the most seriously underperforming, or "Intensive" students. The study included 454 7th graders, distributed across six schools. Due to a high mobility rate, the sample size for analysis was reduced to 306 students from the original 454 students. Of these, 45.4% were in the experimental condition and 54.6% were in the control condition.

**Student Demographics:** Caucasians (30.4%), Hispanics (30.8%), African Americans (18.9%), Asians and Pacific Islanders (15.2%), Native American (1.1%). Of these students, 34.8% did not speak English as the predominant language at home; 18.3% spoke Spanish as the predominate language, and of the 17 other languages, Hmong was the second most popular. 39.0% of students participated in free and reduced lunch programs.

**Research Design:** Students were assigned randomly to control versus experimental conditions and nested both within grade and condition. Experimental induction involved exposure to New Century curriculum. Experimental students were expected to use the curriculum for a minimum of 90 minutes per week during the regularly scheduled math classes. Control students did not have access to the technology, instead receiving the same instruction that they would have received had the experiment not taken place.

**Assessment Instruments:** California Standards Test (CST), a criterion referenced test and the California Achievement Test (CAT 6), a norm referenced test. Both tests administered near the first of May.

**Results:** A total of 306 students (167 control group and 139 experimental group) had data

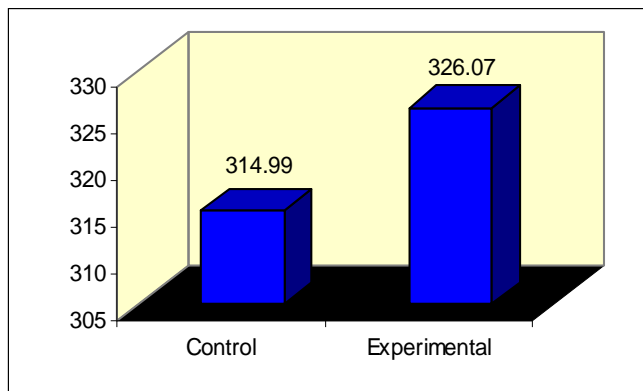


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available for both the 2004 (pretest) and the 2005 (posttest) administrations of the CST. An analysis of covariance (ANCOVA) was performed in which condition was treated as a fixed, independent groups factor, and the pretest was treated as a covariate. The results of this analysis produced a statistically significant effect for condition  $p=.004$  in favor of the experimental students over control students. The adjusted mean difference approximated one third of a standard deviation ( $d=.34$ ).

### CST 7<sup>th</sup> Grade Mathematics Scores Partitioned by Condition

	Control	Experimental
	M=313.60	M=327.73
Posttest	S=40.21	S=41.84
	N=167	N=139
	M=313.55	M=317.53
Pretest	S=32.84	S=31.15
	N=167	N=139



### ANCOVA Analysis: Mean 2005 CST 7<sup>th</sup> Grade Math Scores Adjusted for 2004 CST 7<sup>th</sup> Grade Math Scores and Partitioned by Condition

Consistent outcomes were observed when the CAT 6 results were analyzed.

**Report:** *New Century Education Corporation, Northern California Evaluation: 7th Grade Mathematics, Academic Year 2004-2005* Authors: Cometrika, Inc., a collaboration of professors at Michigan State University and California State University, Franklin J. Boster, Ph.D., James Au Yun, Ph.D., Renee Strom, Ph.D.

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