

Derby High School Comparison Study Student Achievement Report

Derby, Kansas, is a school district of about 7,000 students located in a suburb southeast of Wichita and includes a lower poverty area of south Wichita. Thirty percent of our population is in the lower socioeconomic group. Our ethnic populations are Native American 2%, Asian 5%, African American 6%, Hispanic 6%, Caucasian 81%. Due to the low number of students belonging to ethnic populations in our study, they will not be reported separately. Our population employment is mainly comprised of aircraft industry and Air Force families. Many families located here because our school district has a strong reputation for excellence. Derby School District is above the state average on state math assessment, but that data has not been improving at the rate required to meet No Child Left Behind requirements.

Our high school grades 9-12 have a student population of almost 2,200 students. Five years ago, we started researching ways to better meet the needs of our students with different learning styles and decided to pilot a course using the Core-Plus Mathematics program. We called the class Contemporary Math. Parent meetings were held with our eighth-grade parents and students to inform them of the study. These were well received. Entry into the study was by application for two years of the class and limited to 43 students with two different teachers. Since there were more applications than could be accommodated, students were randomly chosen to participate in the pilot classes of Contemporary Math. Most of the selected students were those who would normally have been recommended for Algebra 1 as freshmen. Each of the 43 Contemporary Math students was matched with a ninth-grade Algebra 1 student based on their seventh-grade state math assessment scores. The two groups were compared on achievement using the Kansas 10th Grade State Assessment. The two groups were not matched by gender, ethnicity, or socioeconomic status.

The two mathematics faculty teaching the Contemporary Math courses attended week-long professional development workshops each summer in preparation for teaching the courses. This professional development for the teachers of Contemporary Math seemed reasonable since there was new content in the program and the expectation of a variety of types of instruction during mathematics class periods. Our study would be comparing student achievement for students taught by teachers (some experienced and some with little experience) teaching the traditional courses with students taught a quite different program (Contemporary Math) by experienced classroom teachers who had not previously taught the new program.

Also included in this report are the results from a beliefs survey administered to both groups of students as entering freshmen and again towards the end of their sophomore year.

Comparison Using 2002 Kansas 10th Grade State Assessment

Starting scores based on the Spring 7th grade 1999 KS State Math Assessment for 43 matched pairs was 52.65% for the traditional students and 52.88% for the 43 Core-Plus students.

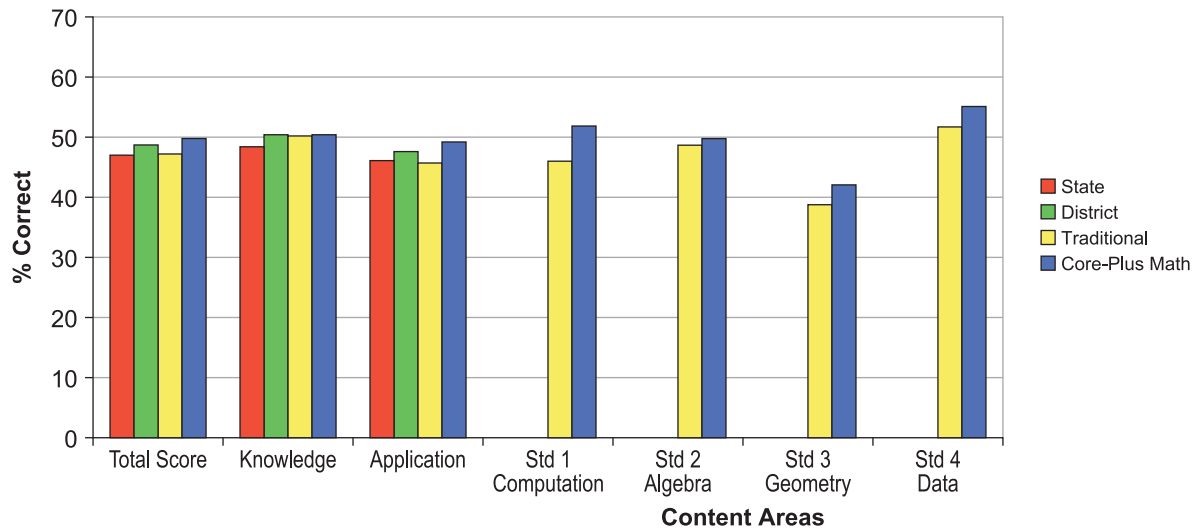
Composition of 43 Matched Pairs

	Ethnic	Male	Female	Free/reduced Lunch	Recommended for math placement below algebra
Traditional	7	22	21	3	0
Core-Plus	9	25	18	4	3

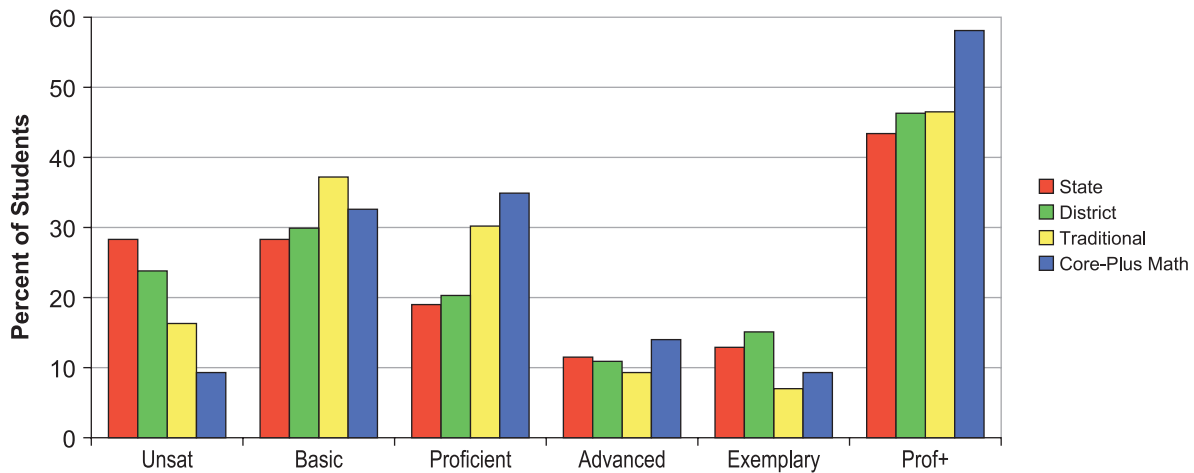
Matched Pairs Results for 2002 10th Grade KS Assessment by Percent Correct

	State	District	Traditional N = 43	Core-Plus N = 43
Total Score	47.0	48.7	47.21	49.77
Knowledge	48.4	50.4	50.23	50.42
Application	46.1	47.6	45.67	49.19
Std 1 computation			45.98	51.84
Std 2 algebra			48.65	49.74
Std 3 geometry			38.74	42.05
Std 4 data			51.67	55.07

Comparison of Matched Pairs on 2002 Kansas State Assessment



Proficiency Levels on KS State Math Assessment 2002



Enrollment in Senior-Level Mathematics

	Traditional N = 20 of 43	Core-Plus N = 34 of 43
Percent enrolled in senior math	46.5%	79.1%

Note that **32.6%** more Core-Plus students than traditional students enrolled in a senior-level mathematics course. (Options for traditional courses were College Algebra or PreCalculus.)

Data from a Beliefs Survey

The pre- and post-indicators of mathematical disposition in the tables below were administered the fall of the students' freshman year 2000 and the spring of the students' sophomore year 2002.

I want to take a math course taught in the same way next year.

	Pre-agree	Post-agree
Core-Plus	26.3%	72.7%
Traditional	36.1%	27.5%

I feel really pleased doing math at school when the problems are challenging.

	Pre-agree	Post-agree
Core-Plus	22.8%	68.1%
Traditional	36.5%	46.2%

This course made mathematical ideas interesting to me.

	Pre-agree	Post -agree
Core-Plus	25.9%	55.3%
Traditional	31.4%	20.0%

Learning math helps people know if something makes sense.

	Pre-agree	Post-agree
Core-Plus	57.9%	75.0%
Traditional	61.5%	47.4%

Most of the problems in the course are realistic.

	Pre-agree	Post-agree
Core-Plus	47.4%	70.8%
Traditional	61.2%	35.9%

This course helped me feel confident that I can solve math problems.

	Pre-agree	Post-agree
Core-Plus	45.6%	66.0%
Traditional	53.9%	40.0%

I learned more mathematical ideas by using the calculator.

	Pre-agree	Post-agree
Core-Plus	56.4%	73.0%
Traditional	44.9%	43.2%