An Evaluation of the Efficacy of the Algebra'scool System

Completed during the 2004-2005 school year.

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The Princeton Review
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Abstract

In a 7-month study of the *Algebra'scool* DVD-based instructional system, students using the system substantially outperformed their control counterparts. During the course of the study, those students using the *Algebra'scool* product saw gains in performance in excess of three times those of their control counterparts not using the product. Mastery of algebra skills is critical prerequisite for students' acquisition of secondary and post-secondary mathematics concepts.

Introduction

The Princeton Review[1] has performed a study of assessment results of students using the *Algebra'scool* product from BestQuest Teaching Systems using classrooms in two schools within the same Arkansas school district. The study ran from October 2004 through May 2005. This pre-test and post-test study was based on the skills measured by the Arkansas Benchmark Examination, using simulated versions of this assessment developed by The Princeton Review.

Sample

Two groups of students were evaluated – one group using the product and one not using the product (n=122 and n=124, respectively). At the beginning of the 2004-2005 school year, students in both groups scored very consistently on an assessment tied to state Algebra standards and measures, with the experimental group performing slightly below the control group (25.36% vs. 26.64%).

Method

Students were tested at the beginning of the school year (in October) and at the end of the school year (in May). Those students in the experimental group were provided with the *Algebra'scool* program in addition to their regular classroom instruction. Students in the control group were not exposed to the product. Data were analyzed to compare students' demonstrated mastery of skills and their growth from the beginning to the end of the school year.

[1] The Princeton Review is not associated with Princeton University or the Educational Testing Service.

Results

Students in both the experimental and control groups began the year with very similar performance on the pre-test. At the end of the school year, though both groups saw gains in performance, those students who had been in classes using the *Algebra'scool* product performed significantly better than those in the control group.

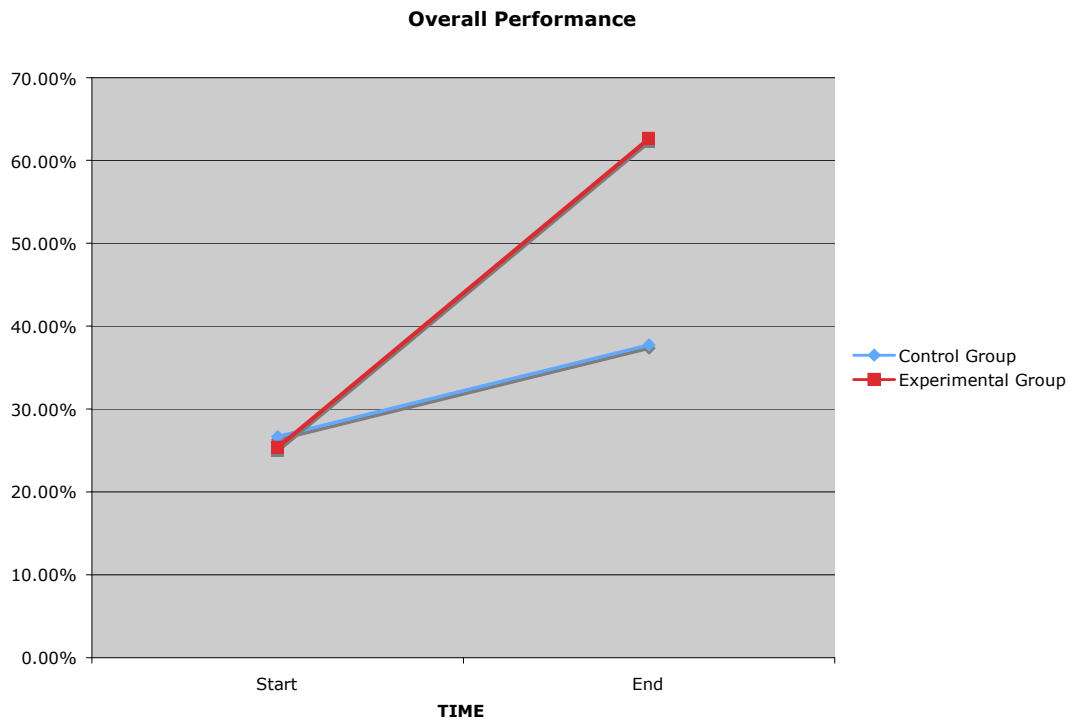

Figure 1: Overall student performance on start- and end-of-year assessments.

	Pre-Test (October 2004)	Post-Test (May 2005)
Control Group	26.64%	37.73%
Experimental Group	25.36%	62.64%

Students' performance on a skill-by-skill basis were also monitored throughout the course of the study. Again, performance of those students who used the *Algebra'scool* product significantly outpaced that of those who did not use the product.

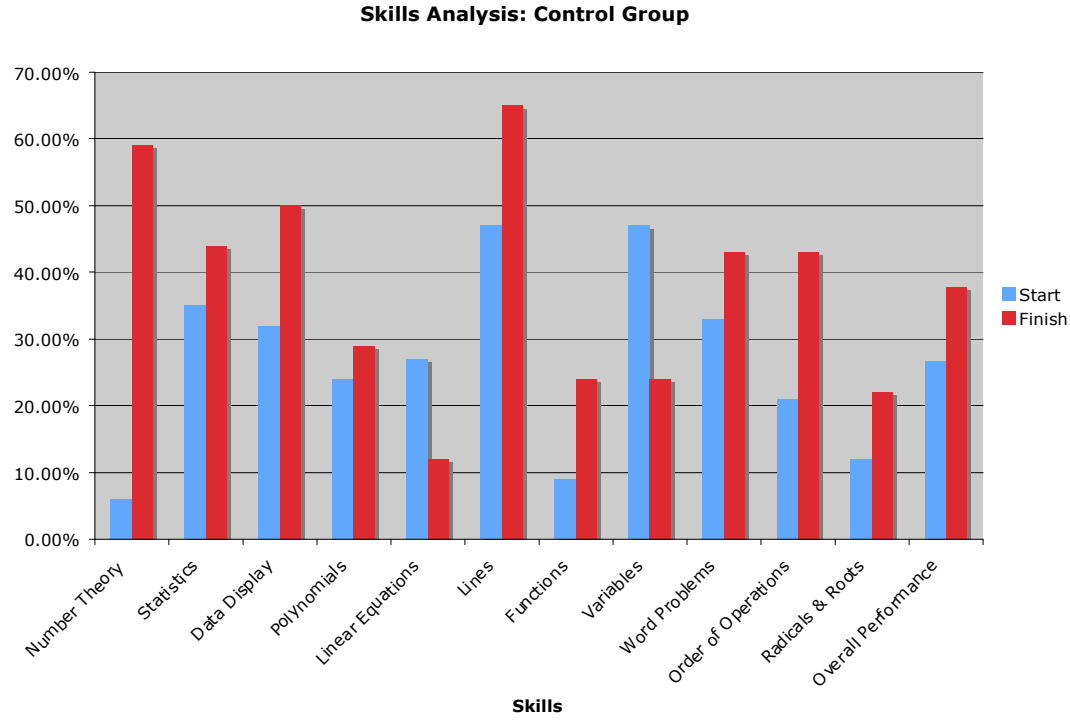

Figure 2: Skill breakdown at start- and end-of-year for students not using the Algebra'scool product (control group).

	Pre-Test	Post-Test
Number Theory	6.00%	59.00%
Statistics	35.00%	44.00%
Data Display	32.00%	50.00%
Polynomials	24.00%	29.00%
Linear Equations	27.00%	12.00%
Lines	47.00%	65.00%
Functions	9.00%	24.00%
Variables	47.00%	24.00%
Word Problems	33.00%	43.00%
Order of Operations	21.00%	43.00%
Radicals & Roots	12.00%	22.00%
Overall Performance	26.64%	37.73%

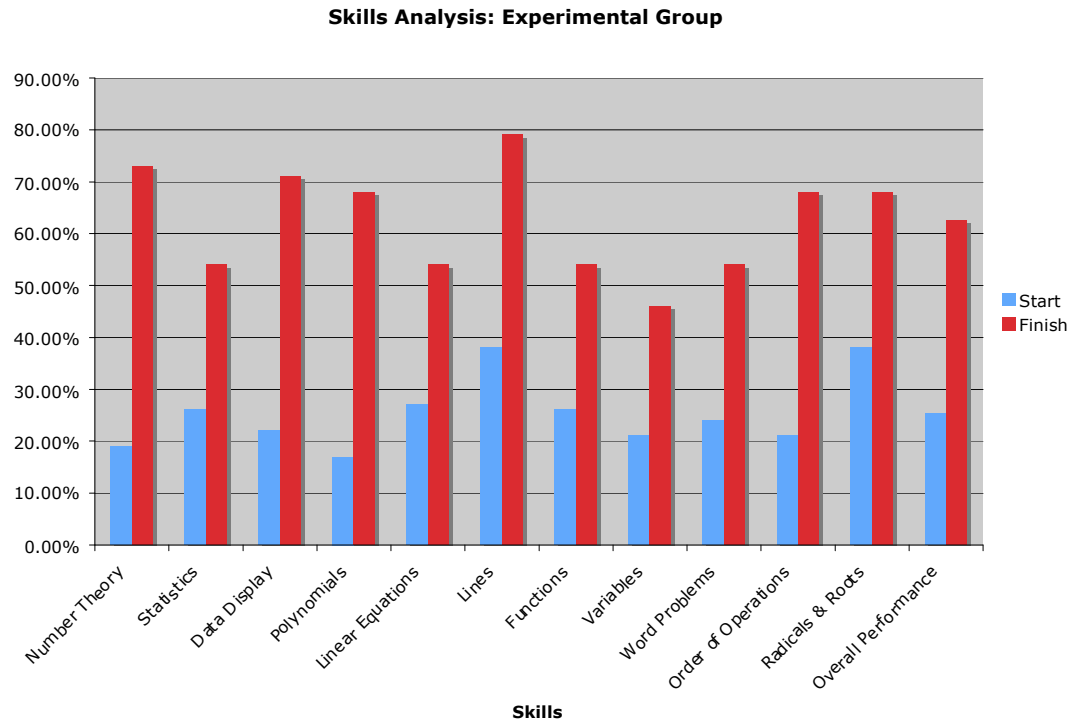

Figure 3: Skill breakdown at start- and end-of-year for students using the Algebra'scool product (experimental group).

	Pre-Test	Post-Test
Number Theory	19.00%	73.00%
Statistics	26.00%	54.00%
Data Display	22.00%	71.00%
Polynomials	17.00%	68.00%
Linear Equations	27.00%	54.00%
Lines	38.00%	79.00%
Functions	26.00%	54.00%
Variables	21.00%	46.00%
Word Problems	24.00%	54.00%
Order of Operations	21.00%	68.00%
Radicals & Roots	38.00%	68.00%
Overall Performance	25.36%	62.64%

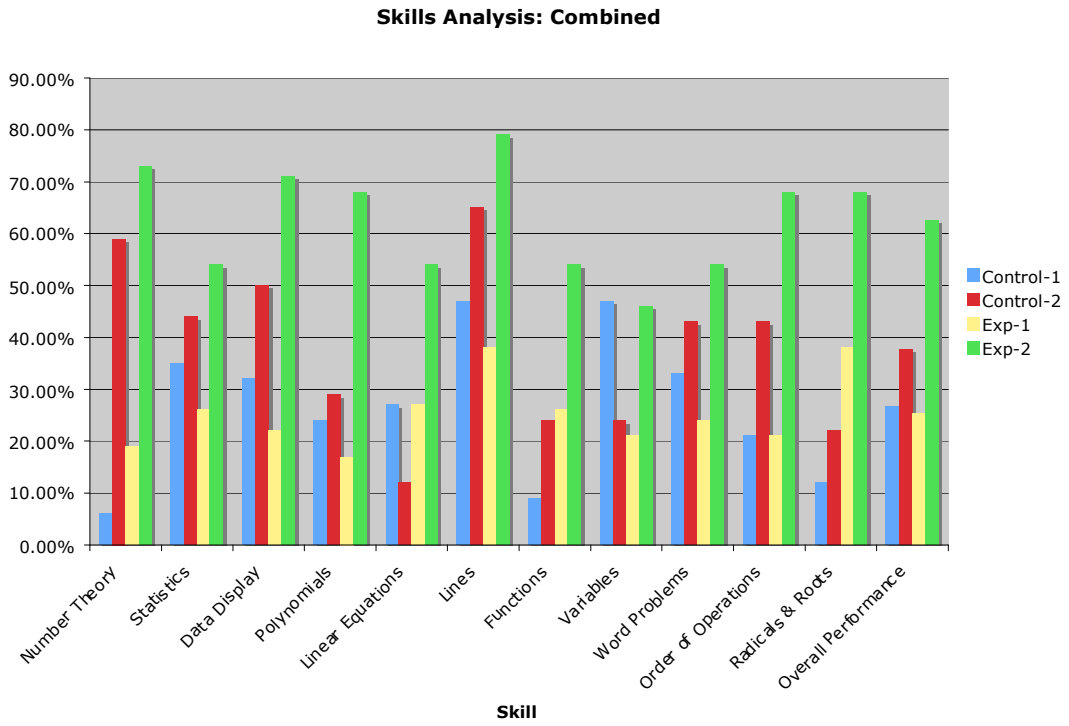

Figure 4: Skill breakdown at start- and end-of-year for all students involved in the study.

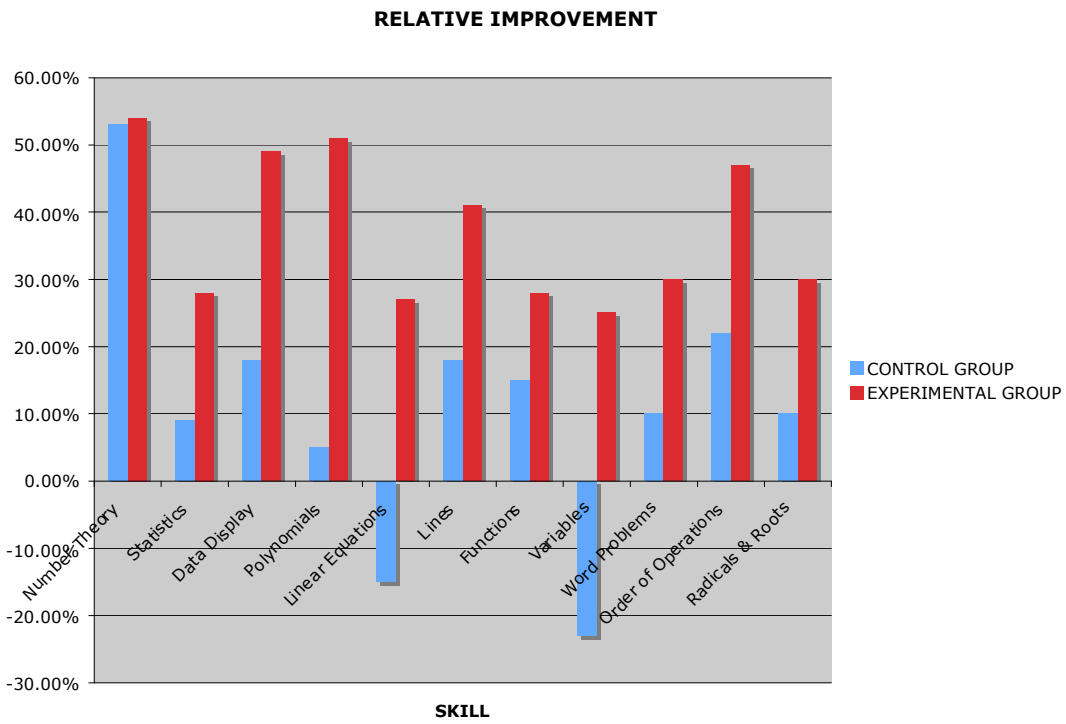

Figure 5: Change in performance from beginning- to end-of-year for all students.

	CONTROL GROUP	EXPERIMENTAL GROUP
Number Theory	53.00%	54.00%
Statistics	9.00%	28.00%
Data Display	18.00%	49.00%
Polynomials	5.00%	51.00%
Linear Equations	-15.00%	27.00%
Lines	18.00%	41.00%
Functions	15.00%	28.00%
Variables	-23.00%	25.00%
Word Problems	10.00%	30.00%
Order of Operations	22.00%	47.00%
Radicals & Roots	10.00%	30.00%

Conclusion

This study faces certain limitations, including a relatively small sample size and a lack of strict controls over how intensively students in the experimental group used the *Algebra'scool* product. Despite these challenges, however, it is apparent that students using the *Algebra'scool* system substantially outperformed their control counterparts.

While students in both the experimental and control groups did demonstrate gains relative to the standards set by the Arkansas Benchmark Examination, the students in the experimental group saw a mean performance increase in excess of three times that of students in the control group. The engaging rich media content and real-world applications provided through the *Algebra'scool* program provide a high-interest teaching tool to enable students to master algebra skills.