

Case Study

Harlan Board of Education: DOMA Basic Math Skills and Unique Math

Customer Profile: The Harlan County school district, located in Harlan, Kentucky, includes eight K-8 schools, three 9-12 schools, and two ungraded schools. This school district serves a large number of students that are eligible for the free or reduced lunch program; 68% of the students in Harlan County are eligible, compared to the Kentucky state average of 44%. The Harlan County Board of Education has been using DORA and DOMA Basic Math Skills at various school sites since 2005. Two of the elementary schools using Unique Math were chosen to participate in a study during the 2007-2008 school year.

At a Glance...	
Product Used	DOMA Basic Math Skills Unique Math
School and Students	2 Elemen. Schools, 118 Students
Deployment Type	Regular Classes
Time Period	Two Months
Benefits	- Effective online basic math instruction - Easy teacher control and monitoring
Results	- Correlation between use of UM and gains

Program Objective:

Unique Math was used to enhance instruction for both at-risk and normal students at two elementary school sites. These schools were supplementing their lessons with multiple programs concurrently, so it was not clear what impact any specific program had on the students' performance. Identifying the program that was driving the improvement in student abilities was necessary in validating the use of Unique Math. In order to isolate the influence of Unique Math from the other programs, grade level advancement was charted against Unique Math usage.

Study Methodology and Data:

Students were to be assessed before and after the study on three different math skills: Number skills, Fractions, and Measurement. During the study, students would perform activities daily using Unique Math at their own pace. The average time between the first and second assessments was 52 days or approximately 2 months. Students who did not complete the second assessment were not included in the study. Between the two schools, there were 118 students included in the study. The students' scores were divided into four groups depending on usage: Low, Low-med, Med-high, and High. Low usage was defined as completing from 1 to 100 activities in Unique Math. Low-med usage was 101 to 200 activities. Med-high usage was 201 to 300 activities. High usage was for students completing 301 or more activities. Activities take an average of 4 to 5 minutes to complete.

Results:*

There were robust gains on the Number Skills sub-test for both Low and High usage groups. The gains on this sub-test indicate that this skill is less dependent on the extent of Unique Math usage than on other skills. Conversely, sub-test results for Fractions and Measurement indicate there is a direct relationship between the extent of Unique Math usage and progress; the High usage group had higher gains. For Measurement, the difference associated with Unique Math usage is statistically significant. To find any differences associated with usage is remarkable, given how well even the Low usage students did in terms of gains. The figure below shows gains for the 118 students on Number Skills, Fractions, and Measurement, as assessed by DOMA. The figure also shows the difference in gains for the 54 Low usage students as compared to the gains for the 64 High usage students. The blue line is for Number Skills, the red line is for Fractions, and the green line is for Measurement. The average amount of time between pre-test and post-test for the Low usage group and the High usage group is one and a half months and two months, respectively. The amount of gain expected on average would be 0.15 for the Low usage group and 0.20 grade-level units for High usage group, based on progressing one grade level each school year, approximately 10 months. Both groups exceed these levels on all three skills.

Conclusions:*

DOMA and Unique Math had a very positive impact on development of important math skills for young students ages 5, 6, and 7. Although overall, the amount of gain is increased by increased usage of Unique Math, gains even for students in the Low usage group were at or above the average level expected. The greatest gains were made by the high usage students.

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