



Do
The
Math

CLEAR CREEK INDEPENDENT SCHOOL DISTRICT

EFFICACY STUDY

Do The Math® is a supplemental program intended to assist students in Grades K–5 who are struggling with fundamental arithmetic skills. The program is organized into 13 scaffolded modules that focus on building fluency with whole numbers and fractions. Through a series of 30-minute lessons, *Do The Math* offers comprehensive teacher support and step-by-step instructions aimed at helping students develop the skills and number sense they need to accurately and efficiently compute and reason and to apply their skills and reasoning to solve problems.

This evaluation involved 51 Grade 2 classrooms in 26 schools that implemented *Do The Math* in 2016–2017 in the Clear Creek Independent School District in Texas. All 51 Grade 2 classrooms implemented Addition and Subtraction, Modules A and B.

The evaluation sought to answer the following five research questions:

- 1 To what extent did students' scores on the Math Inventory (MI) improve after participating in *Do The Math*?
- 2 Did Math Inventory score gains vary by ethnicity for *Do The Math* students?
- 3 Did student factors influence *Do The Math* students' Math Inventory score gains?
- 4 Did teacher factors influence *Do The Math* students' Math Inventory score gains?
- 5 To what extent did students' scores on *ProgressSpace* improve after participating in *Do The Math*?



METHODS

SAMPLE

The analytic sample includes a total of 236 Grade 2 *Do The Math* students who received *Do The Math* in 2016–2017. Participants in the study were identified as students in need of additional math support from locally administered assessment tools.

MEASURES

Student assessment. RMC Research conducted analyses on two assessment outcomes: Math Inventory (MI), and *ProgressSpace*. Math Inventory is a computer adaptive assessment developed by HMH that is aligned to the Common Core State Standards and reports results based on the Quantile Framework for Mathematics. *ProgressSpace* is a *Do The Math* embedded assessment. Only *Do The Math* students in the district are assessed using the Math Inventory and *ProgressSpace*.

Teacher implementation. Data collected from teachers included number of years teaching math intervention, number of times per week *Do The Math* is taught, number of minutes per *Do The Math* session, and whether they had received *Do The Math* coaching from their school math coach.

FINDINGS

MATH INVENTORY GAINS

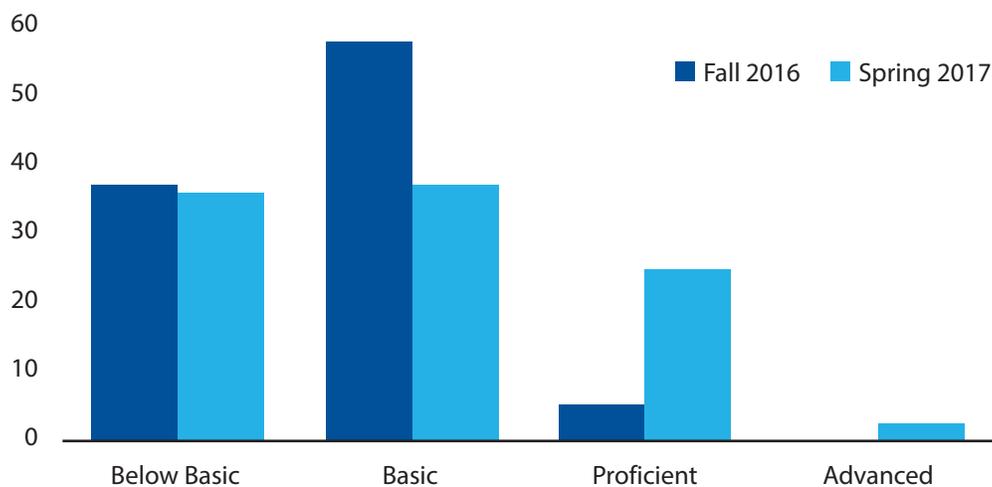
Q Research Question 1. *To what extent did students' scores on the Math Inventory (MI) improve after participating in Do The Math?*

A RMC Research conducted a paired sample t-test to evaluate the extent to which students' scores on the Math Inventory (MI) improved after participating in *Do The Math*. On average, *Do The Math* students experienced statistically significant improvement on the Math Inventory between fall and spring assessments, $t(233) = 14.19, p < .001, d = 0.93$. After participating in *Do The Math*, students scored an average of 174.24 points higher on the Math Inventory, a large and notable increase that placed many students into a higher performance level. Table 1 presents Math Inventory scores for *Do The Math* students and Figure 1 presents performance level placement in fall and spring.

TABLE 1. MATH INVENTORY SCORES

GROUP	<i>n</i>	FALL 2016	SPRING 2017	GAIN
<i>Do The Math</i>	234	102.09 (82.65)	276.37 (172.43)	174.24 (187.81)

FIGURE 1. MATH INVENTORY LEVELS



Note. Fall 2016 Math Inventory Performance Levels: 0-60 (Below Basic), 65-255 (Basic), 260-450 (Proficient), 455-1500 (Advanced). Spring 2017 Math Inventory Performance Levels: 0-205 (Below Basic), 210-400 (Basic), 405-600 (Proficient), 605-1500 (Advanced).

MATH INVENTORY GAINS BY ETHNICITY

Q **Research Question 2.** *Did Math Inventory score gains vary by ethnicity for Do The Math students?*

A Regression analyses were used to examine the relationship between student demographic characteristics on Math Inventory gains; findings showed that special education status and ethnicity contributed significantly to Math Inventory gains.

Special education students' scores were significantly lower than non-special education students in both fall 2016 and spring 2017 but gains on the Math Inventory were equivalent.

Non-Hispanic students' scores were significantly higher than Hispanic students' scores in both fall 2016 and spring 2017, and although gains on the Math Inventory were significantly greater for non-Hispanic students ($d = 1.00$) than for Hispanic students ($d = 0.84$) it is important to note that the effect sizes for both groups are large. Table 2 presents Math Inventory scores broken out by Hispanic and non-Hispanic students. The analyses revealed no contributions of socioeconomic status or gender on Math Inventory gains.

TABLE 2. SUBGROUP DIFFERENCES IN MATH INVENTORY SCORES

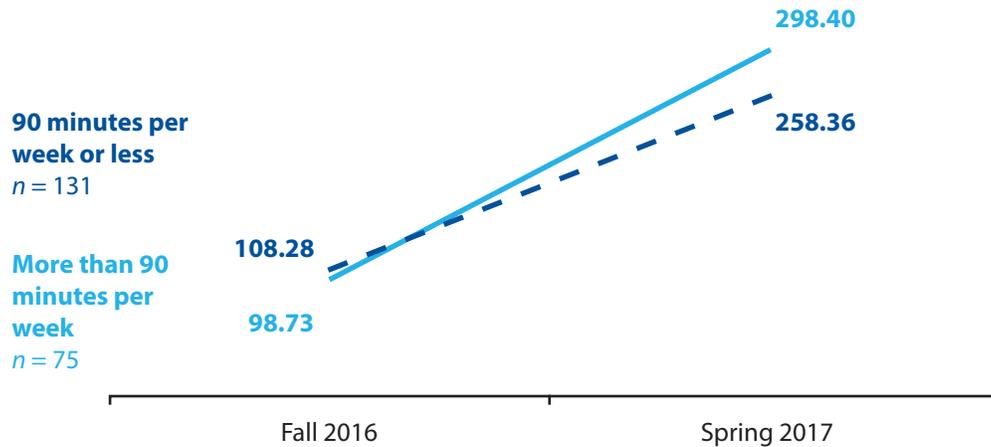
ETHNICITY	<i>n</i>	FALL 2016	SPRING 2017	GAIN
Hispanic	104	97.60 (85.15)	253.27 (172.06)	155.67 (186.21)
Non-Hispanic	130	105.69 (80.75)	294.85 (171.14)	189.15 (188.48)

MATH INVENTORY GAINS BY PROGRAM USE

Q **Research Question 3.** *Did student factors influence Do The Math students' Math Inventory score gains?*

A During the study students varied with respect to the amount of time they spent in the program. An analysis was conducted to examine the impact of this variability. Results indicate students with greater than 90 minutes per week of instruction did significantly better on the Math Inventory than those with less instruction (Figure 2).

FIGURE 2. INFLUENCE OF *DO THE MATH* INSTRUCTIONAL MINUTES ON MATH INVENTORY GAINS



INFLUENCE OF TEACHER CHARACTERISTICS ON MATH INVENTORY GAINS

Q Research Question 4. *Did teacher factors influence Do The Math students' Math Inventory score gains?*

A Similar regression analyses were used to examine the relationship between teacher factors on Math Inventory gains; findings showed that minutes of *Do The Math* taught per week contributed significantly to Math Inventory gains (i.e., students who received more minutes of *Do The Math* instruction per week had greater gains). Teacher's number of years teaching, and whether the teacher had received *Do The Math* coaching from their school math coach did not significantly contribute to Math Inventory gains.

PROGRESSSPACE (DO THE MATH STUDENTS)

Q Research Question 5. *To what extent did students' scores on the ProgressSpace improve after participating in Do The Math?*

A Table 3 presents *ProgressSpace* scores for students' beginning- and last (mid- or end- of) module assessment. RMC Research conducted a paired sample *t*-test to evaluate the extent to which *Do The Math* students' *ProgressSpace* Module A and Module B scores changed over time. On average, *Do The Math* students experienced statistically significant increases on Module A between beginning-of-module and mid-¹ or end-of-module assessment, $t(235) = 18.63, p < .001, d = 1.21$. The mean gain on Module A was 20.09 points. The 167 *Do The Math* students with pre- and posttest scores on Module B also experienced statistically significant increases between beginning-of-module and mid-² or end-of-module assessment, $t(166) = 11.25, p < .001, d = 0.87$. The mean gain on Module B was 15.09 points. Of note, students who completed the end-of-module assessment demonstrated significantly greater gains than students with a mid-module assessment as their final score.

¹ Of the 236 students that completed Module A, 23 did not complete an end of unit assessment; the midpoint assessment served as the posttest.

² Of the 167 students that completed Module B, 47 did not complete an end of unit assessment; the midpoint assessment served as the posttest.



TABLE 3. PROGRESSSPACE SCORES

MODULE	<i>n</i>	BEGINNING-OF-MODULE ASSESSMENT	LAST MODULE ASSESSMENT	GAIN
Module A	236	53.92 (14.92)	74.01 (16.88)	20.09 (16.56)
Module B	167	45.31 (13.47)	60.42 (18.45)	15.09 (17.36)

Regression analyses were used to examine the relationship between student demographic characteristics and teacher factors on *ProgressSpace* gains. Findings showed that minutes of *Do The Math* taught per week contributed significantly to Module A and Module B gains (i.e., students who received more minutes of *Do The Math* instruction per week had greater gains). Special education students' scores were significantly lower than non-special education students at both beginning of Module A and last Module A assessment, and Hispanic students' scores were significantly lower than non-Hispanic students, but the gains between subgroups were equivalent. No differences between special education and non-special education students or between Hispanic and non-Hispanic students existed for Module B. Contributions of socioeconomic status, gender, teacher's number of years teaching, and whether the teacher had received *Do The Math* coaching from their school math coach or HMH coach were not significant.

SUMMARY

A sample of students who received *Do The Math* intervention in Grade 2 during the 2016–2017 school year in the Clear Creek Independent School District participated in this study. Analysis of change on the Math Inventory for *Do The Math* students revealed that *Do The Math* students made significant gains on the Math Inventory between fall and spring. Those gains were significantly larger for non-Hispanic than for Hispanic students, though effect sizes (as measured by Cohen's *d*) were large (i.e., greater than 0.80) for both subgroups. Findings also showed a significant and positive relationship between minutes of *Do The Math* instruction per week and Math Inventory gains.

Similar results were seen for *ProgressSpace* assessments. Student gains on both Module A and Module B were significant, and students who completed the end-of-module assessment demonstrated significantly greater gains than those whose final assessment was taken mid module. Similar to other findings (i.e., Math Inventory), students in classes with more minutes of *Do The Math* instruction per week made greater gains on both Module A and Module B of *ProgressSpace*.

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