USA District Like Mine (Low Performers) Math Outcomes Analysis 2018/19

Grade Levels: 3, 4, 5
ST Math Program: Gen-5
Analysis Type: Z-score of math proficiency
Treatment-Years: 2018/19
Baseline-Year: 2012/13, 2013/14, 2014/15, 2015/16, 2016/17, or 2017/18
Subgroup: All

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Abstract

This analysis evaluates low performing grades using ST Math in the USA in 2018/19. It identifies those grades with nominal or better implementation of the ST Math program, and matches them to randomly selected, similar math-performance comparison grades. The nominal ST Math users are an aggregation of 51 grades, consisting of grades 3, 4, and 5 at 41 schools, with an average baseline z-score of -1.92. Refer to Figures 2 and 3 for the math performance and demographic distributions. They were matched to 51 similar, randomly selected control grades at 47 schools that never used ST Math. Grade-wise growth in math proficiency was evaluated (i.e. growth in same grade, same school, from Baseline to 2018/19) on the mean z-scores of percent Proficient or Advanced (see Section 3.1). Grades 3, 4, and 5 aggregated showed an ST Math effect of 0.34 z-score points.

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1 Introduction

1.1 Background

This is a quasi-experimental analysis at the grade-mean level. Entire grades represent the units of analysis, and outcome measures are the multi-year changes in grade-mean z-score of Proficient or Advanced. The treatment grades used the ST Math program for 1, 2, 3, 4, 5, or 6 years, beginning in the 2013/14, 2014/15, 2015/16, 2016/17, 2017/18, or 2018/19 school year, respectively. The study hypothesis is treatment grades using ST Math will outperform similar matched control grades, using their "business as usual" conditions of instructional content and professional development. The control grades were selected to have similar demographic and math attributes (See Figures 2 and 3) to the treatment grades during the baseline year (2012/13, 2013/14, 2014/15, 2015/16, 2016/17, or 2017/18), and did not use ST Math in 2018/19. The treatment grades' selection pool was all low performing schools using ST Math in grades 3, 4, and 5 in the USA. The control grades' pool was all schools not using ST Math in grades 3, 4, and 5 in the USA. This study method measures effectiveness of the ST Math program when nominally implemented.

1.2 Program Description

Spatial-Temporal Math (ST Math) is game-based, instructional software for K–12 students, created by the MIND Research Institute (MIND). The purpose of the program is to boost math comprehension through visual learning. The ST Math software games begin without language or symbol abstractions by posing math problems as purely visual puzzles. In this way, three objectives are accomplished: i) language proficiency prerequisites to engage with the program are minimal, ii) non-mathematical distractions (e.g. back-stories for word problems) are minimized or eliminated – thereby reducing load on working memory, and iii) the actual math in the problem can be represented clearly, simply, and unambiguously. Interactive, animated visual manipulatives provide informative feedback on student solutions. A score of 100 percent on a game level comprised of 4-12 puzzles is required for progression through the levels. Failure requires a re-play of the level, via a new quasi-random set of puzzles. In this way, progression is self-paced.

Besides the self-paced progress made by students in their one-to-one environment, the program is designed to be referenced by teachers during their regular math instruction. It is supplemental to core or basal math instruction and instructional materials. As the great majority of grade-level math standards are covered in the ST Math digital curriculum, completion of 100% of the entire ST Math curriculum (i.e. completing every Game) is required to cover all grade-level math standards. Teachers receive initial training, either face to face or through self-guided online instruction. The training covers account startup, as well as math learning and growth mindset goals, the pedagogical approach to learning in a visual experiential game, monitoring and intervention of the student 1:1 game play, and connecting of ST Math content to classroom content and pacing.

For students to achieve nominal progress through the program, there is a recommended time-on-task requirement of 90 minutes per week over about 30 weeks. Consistent application of 90 minutes per week throughout the school year is normally sufficient to result in a grade's average ST Math content coverage exceeding 50% by year-end. In this study, we include grades that have achieved 40% or more content coverage (Progress) by April 15th.

This is a passive study with no experimental setup or extraordinary communications to any schools. All schools in this study therefore received normal program implementation support through the year from MIND support managers. This support includes bundled startup services of approximately 2-4 hours of training either in-person or online, access to live webinars, regular online and push reports on usage and progress, email/phone helpdesk, and proactive monitoring for gaps or issues by MIND support representatives.

MIND Research Institute initiated, funded, and exercised editorial control over this study.

2 Data Collection

Since this analysis uses grades as the unit of analysis, and states publish grade-mean state standardized test scores, the data for student math outcomes is collected from each state education agency's research files (retrieved from state websites). The treatment students use ST Math student accounts served by MIND. Student ST Math usage data is aggregated to grade-level means by MIND.

2.1 Treatment Grades Pool and Selection

The Treatment grades pool originated with all low performing schools and grades using ST Math in the USA. From these schools, every grade that had used the ST Math program only for the year 2018/19 was identified. They comprise the Treatment grades pool for this evaluation of multi-year usage.

2.1.1 Enrollment Filter

Because the analysis uses grade-mean data, such as grade-mean scale scores or grade-mean proficiency level percentages, it is necessary that the program also be a grade-wide treatment, with the great majority of students in each grade receiving treatment. Otherwise, the grade-means reported by the state of 100% of *tested* students would not be valid measures of a smaller fraction of *treatment* students. MIND's site implementation requirement is that an entire grade, including all teachers and all classes within that grade, use the ST Math program. We validate how closely this is the case for each individual treatment grade by comparing the number of ST Math student accounts at a grade level to the reported enrollment at that grade level. We discard from the Treatment pool any grade with a ratio of ST Math student accounts to reported grade enrollment lower than 85%.

2.1.2 Content Coverage Filter

Furthermore, the outcomes measure is a summative year-end test, i.e. the standardized math assessment of that state. The math assessment thus covers all the math standards for that entire grade level. Meanwhile, the ST Math program curriculum (arranged into Learning Objectives) is also aligned to each state's math standards. To infer that the ST Math content is having a valid effect on student outcomes on the summative assessment, we discard any grade with grade-mean of ST Math Progress for its students lower than 40% by April.

Progress is a percentage, and is defined as Levels completed by the student, divided by the total number of Levels in the grade-level curriculum. Note that student achievement of at least 40% progress in ST Math is accomplished primarily by teacher assignment of computer session time to students. With sufficient time on task, students make progress. The program helps them self-pace through providing real-time informative feedback for each puzzle.

2.2 Control Grades Pool and Selection

The control grades are randomly selected from a control pool of schools in the USA. Though they are randomly selected, they are also matched to be similar to the Treatment grades' math attributes and demographics during the baseline Baseline year. The matched attributes include:

- grade-mean z-score of percent Proficient or Advanced
- percentage of students receiving free or reduced lunch at the school-level (using the demographic data from MDR).

The method of matching used is propensity score matching, via the "matchit" program in R, with "mahalanobis" as the distance measure.

3 Data Analysis

The set of all low performing schools and grades using ST Math in the USA is evaluated for Enrollment percentage and Progress percentage parameters. A filtered Treatment set (TRT) of all ST Math grades with $\geq$ 85% Enrollment and $\geq$ 40% Progress is identified. State math assessment data is tabulated. A matching set of Control grades based on baseline year state math assessment is selected.

Changes in math performance, i.e. the difference in math performance of a grade from a baseline year to the final year, are evaluated and tabulated. Statistical tests of the significance of the difference in math performance changes between Treatment grades and Control grades are performed. Finally, a grade-by-grade disaggregation is performed.

3.1 Z-scores

In order to analyze across all states with different math assessments, a new z-score of that test's math proficiency is calculated. For each year being analyzed, by grade, a z-score takes the difference of the grade mean percent proficient and the mean of all percent proficient statewide for that year, and then divides it by the standard deviation of all percent proficient statewide for that year. Here is a fictional example to illustrate the calculation of a z-score for the 2015/16 exam:

School A, Grade 3, Percent Proficient: 70
Average across all schools statewide, Grade 3: 50
Standard deviation across all schools statewide, Grade 3: 20
Z-score=((School A, Grade 3, Percent Proficient)-(Average across all schools, Grade 3))/(Standard deviation across all schools, Grade 3)

Z-score=$\frac{70-50}{20} = 1$

The z-score is calculated for every grade across all years being analyzed, using the full state data set of schools for the averages and standard deviations. The use of z-scores is a valid statistical method to normalize any dataset and to enable analysis across otherwise uncomparable exams. In this report, we only analyze z-scores.

3.2 Percentile Ranking

These newly calculated z-scores can then be converted into a percentile ranking. Each percentile ranking shows the grade's performance relative to the others in that year and grade. For example, for a specific grade 3, a percentile ranking of 50 shows that this grade 3 performed at the average of all third grades in the state for that testing year.

3.3 Final Treatment and Control

3.3.1 ST Math Grade-Aggregated Implementation ($\geq$ 85% Enrollment Grades Only)

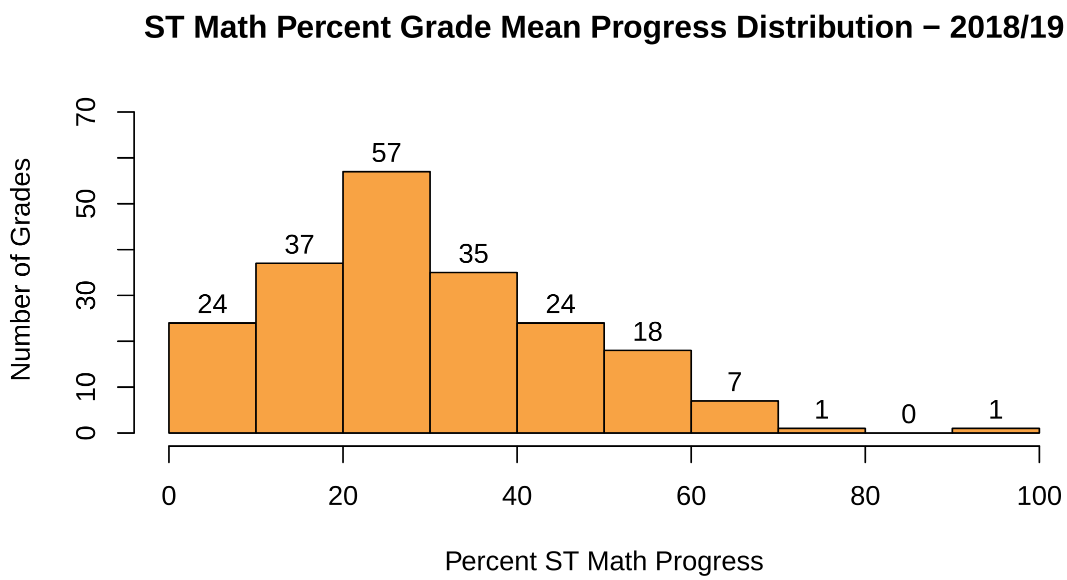

Figure 1: Histogram of ST Math Percent Progress for $\geq$ 85% Enrollment Grades 2018/19

For all ST Math grades with Enrollment $\geq$ 85%, Figure 1 shows the frequency distribution of grade-average Progress percentage through the program. Note that we will only be using grades with $\geq$ 40% Progress as the Treatment Group.

Table 1 provides descriptive statistics of the Progress distribution. Table 2 shows the number of remaining treatment grades after applying enrollment and progress filters.

	Min.	Max.	Average	S.D.
ST Math % Progress	0.0	95.9	29.5	16.6

Table 1: Descriptive Statistics of ST Math Percent Progress for >= 85 percent Enrollment Grades

Grades with >= 85% Enrollment:	204
Grades with in addition >= 40% Progress:	51

Table 2: Number of ST Math Grades with >= 85 percent Enrollment and with >= 40 percent progress

3.3.2 Filtering Treatment and Controls

Table 3 shows the total number of grades in the Treatment pool, the number of grades that exceeded the 85% Enrollment figure, and also the 40% Progress filter. Other rows in the table indicate counts of numbers of students (2018/19 from state testing count) and counts of number of schools represented. The number of matched Control (CTRL) grades, students, and schools is also shown.

	Grade 3	Grade 4	Grade 5	Total
ST Math Using Grades	142	116	88	346
ST Math Using Schools	142	116	88	249
ST Math Students	8340	7195	5560	21095
ST Math Grades (Enroll >= 85%)	85	68	51	204
TRT Grades (Enroll >= 85% & Prog >= 40%)	17	20	14	51
TRT Schools (Enroll >= 85% & Prog >= 40%)	17	20	14	41
TRT Students (Enroll >= 85% & Prog >= 40%)	1359	1309	908	3576
CTRL Grades	17	20	14	51
CTRL Schools	17	19	14	47
CTRL Students	1022	1209	881	3112

Table 3: Treatment Pool Filtering and Controls: Counts of Grades, Schools, and Students

3.3.3 Match of Controls to Treatment

Figure 2 shows the density plots of the baseline z-score of percent students at state assessment Proficient or Advanced (left plot) and the percentage of students needing free or reduced lunch (right plot) for treatment grades overlayed on control grades, showing the closeness of the match obtained between Treatment and Control sets of grades in the baseline year.

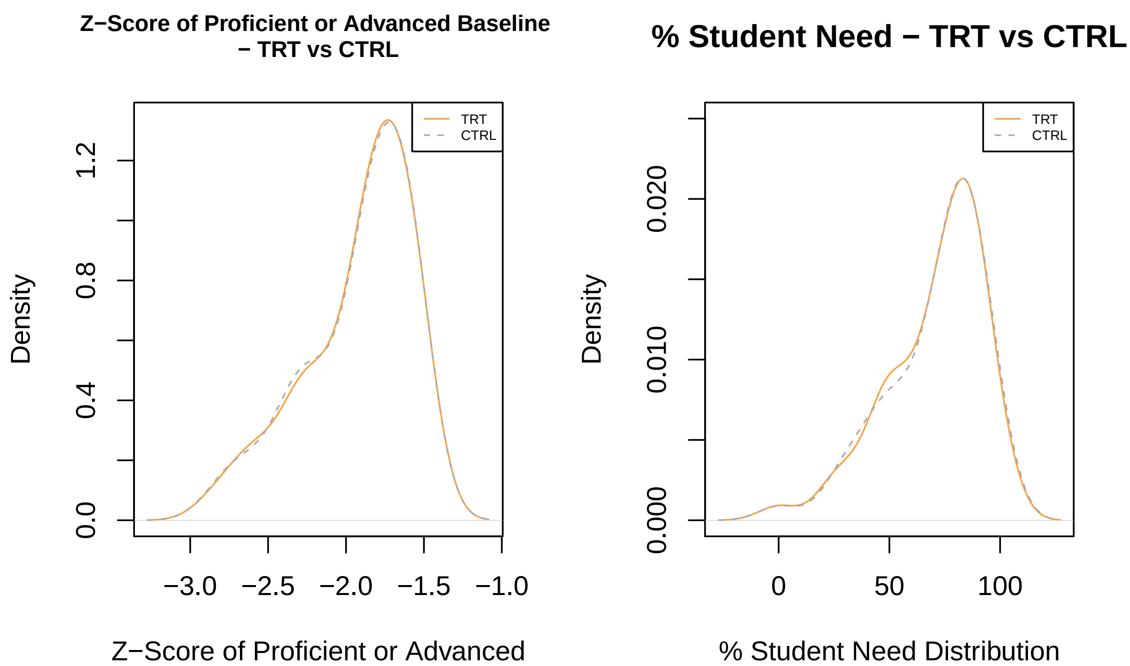

Figure 2: Baseline Year Density Plots Showing Math Scores and Percent Student Need Match between TRT and CTRL - Baseline

Table 4 shows the difference of the means of Treatment versus Control in the baseline year, with accompanying p-values, for mean z-score of percent Proficient or Advanced and for percent of students receiving free or reduced lunch. The large p-values show the differences between the Treatment and Control grades are not statistically significant.

	Mean(TRT)	SD(TRT)	Mean(CTRL)	SD(CTRL)	Estimate	P-Value	Effect Size
Z-Score of Proficient or Advanced - Baseline	-1.92	0.34	-1.93	0.35	0.00	0.97	0.01
Percent Free or Reduced Lunch	70.57	21.97	70.92	22.08	-0.35	0.94	-0.02

Table 4: Matching TRT and CTRL

3.4 Grade-Aggregated Analysis

Table 5 shows for both Treatment (TRT) and Control (CTRL) aggregation across grades of z-score distributions. The far right column also shows the average ST Math Progress for the TRT set.

	# Grades	# Schools	# Students	Z-Score	Percentile	ST Math Per Comp.
TRT.Baseline	51	41	3356	-1.92	3.31	–
TRT.18.19	51	41	3323	-0.84	25.65	52.38
TRT.Delta	–	–	–	1.08	22.33	–
CTRL.Baseline	51	47	3367	-1.93	3.25	–
CTRL.18.19	51	47	3112	-1.18	18.78	–
CTRL.Delta	–	–	–	0.74	15.53	–

Table 5: All Grades Together Growth

Figure 3 shows the changes in mean z-scores of percent Proficient or Advanced for the grade-aggregated Treatment and Control sets.

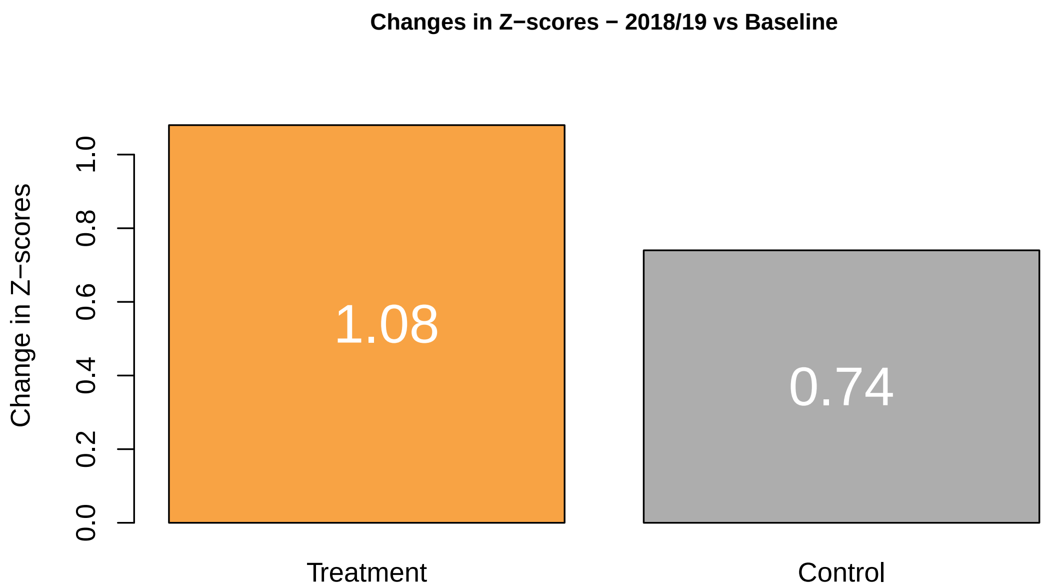

Figure 3: Changes in z-scores (See Section 3.1) for Grade-Aggregated TRT and CTRL datasets between Baseline and 2018/19

Further, Table 6 shows the statistics for the *differences* in changes between TRT and CTRL (Treatment - Control) for these same z-score changes as in the above figure. [1]

	Estimate	P-Value	Int.Low	Int.High
Z-Score	0.34	0.04*	0.02	0.65

Table 6: Statistics for the Differential Changes in Math Scores Growth (TRT - CTRL)

Finally, Figure 4 shows the changes in mean percentile ranking between TRT and CTRL.

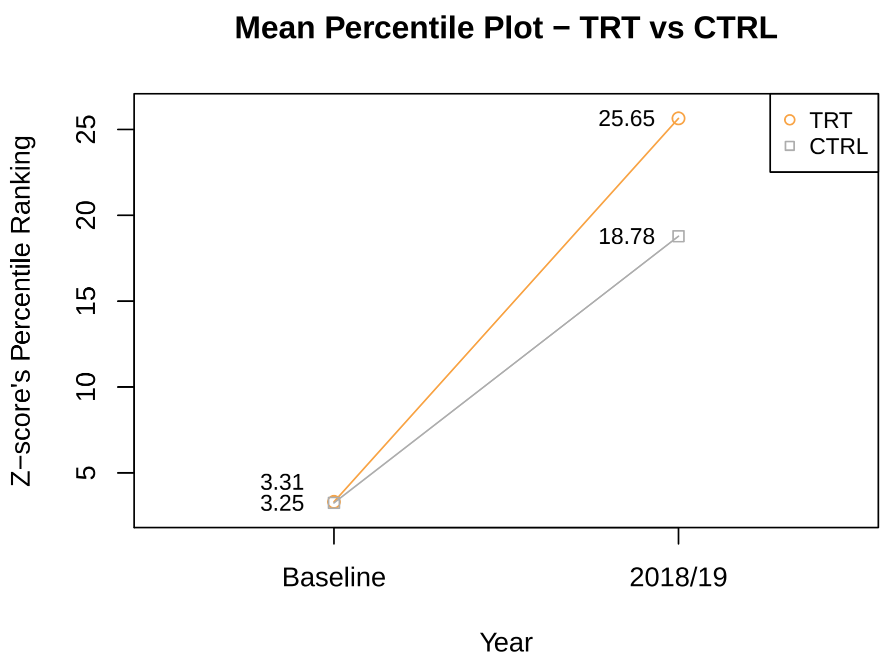

Figure 4: Changes in Percentile Ranking for TRT and CTRL Datasets between Baseline and 2018/19

[1]* statistically significant $p<0.05$

3.5 Grade-Level Analysis

3.5.1 Grade Level Result Tables

The following tables (Table 7, 8, and 9) present a disaggregation of results by grade level. The far right column in each table also shows the average ST Math Progress for the TRT set.

	# Grades	# Schools	# Students	Z-Score	Percentile	ST Math Per Prog.
TRT.Baseline	17	17	1171	-1.93	3.29	–
TRT.18.19	17	17	1179	-0.73	26.24	54.36
TRT.Delta	–	–	–	1.19	22.94	–
CTRL.Baseline	17	17	1155	-1.92	3.47	–
CTRL.18.19	17	17	1022	-1.08	21.12	–
CTRL.Delta	–	–	–	0.84	17.65	–

Table 7: Grade 3 - Yearly Math Performance and Counts for TRT and CTRL Datasets

	# Grades	# Schools	# Students	Z-Score	Percentile	ST Math Per Prog.
TRT.Baseline	20	20	1314	-1.78	4.10	–
TRT.18.19	20	20	1306	-0.77	28.30	51.98
TRT.Delta	–	–	–	1.00	24.20	–
CTRL.Baseline	20	19	1317	-1.78	3.90	–
CTRL.18.19	20	19	1209	-1.04	21.45	–
CTRL.Delta	–	–	–	0.74	17.55	–

Table 8: Grade 4 - Yearly Math Performance and Counts for TRT and CTRL Datasets

	# Grades	# Schools	# Students	Z-Score	Percentile	ST Math Per Prog.
TRT.Baseline	14	14	871	-2.13	2.21	–
TRT.18.19	14	14	838	-1.08	21.14	50.54
TRT.Delta	–	–	–	1.05	18.93	–
CTRL.Baseline	14	14	895	-2.13	2.07	–
CTRL.18.19	14	14	881	-1.51	12.14	–
CTRL.Delta	–	–	–	0.62	10.07	–

Table 9: Grade 5 - Yearly Math Performance and Counts for TRT and CTRL Datasets

3.5.2 Grade-Level Analysis of Changes in Z-scores of Proficient or Advanced

Figure 5 shows the changes in the grade-mean z-scores of students for the TRT and CTRL datasets, disaggregated by grade:

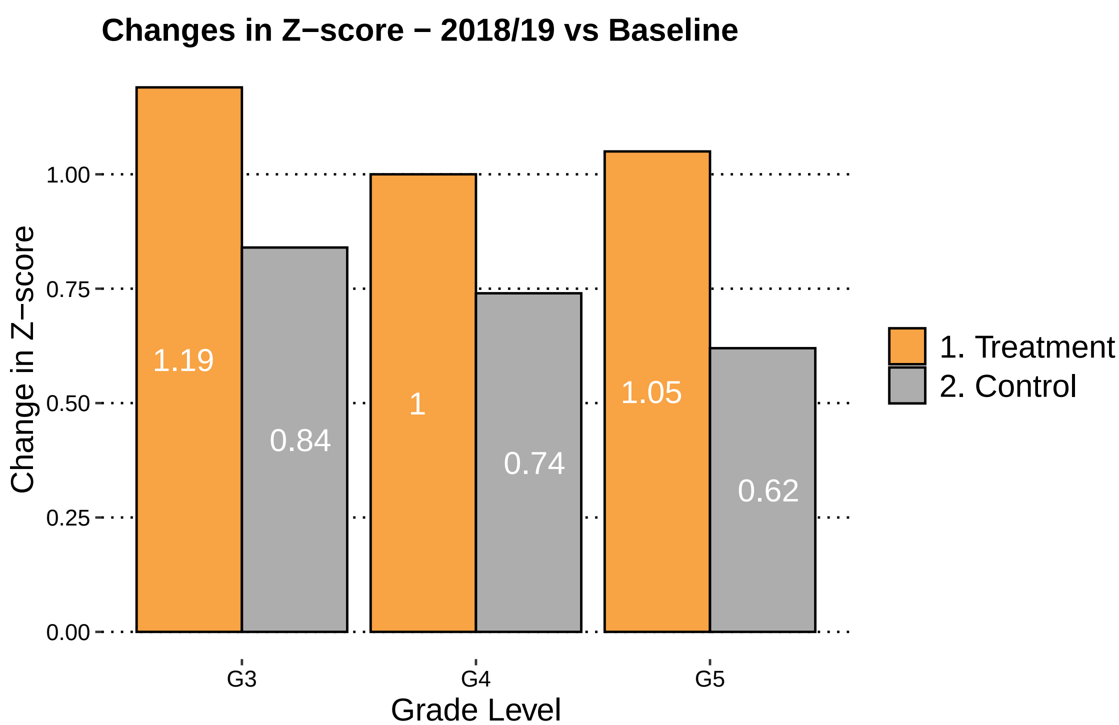

Figure 5: Changes in Grade-Mean Z-score (See Section 3.1) for TRT and CTRL Datasets between Baseline and 2018/19

Table 10 shows the statistics for the differences between TRT and CTRL (Treatment - Control) for these same z-score changes as shown in Figure 5.

	Estimate	P-Value	Int.Low	Int.High
Grade 3	0.35	0.21	-0.21	0.92
Grade 4	0.26	0.35	-0.30	0.82
Grade 5	0.43	0.14	-0.14	1.00

Table 10: Statistics for the Differential Changes in Z-scores (See Section 3.1) Growth, (TRT - CTRL)

4 Effect Size

The following table shows the effect sizes for z-score of Proficient or Advanced.

	Z-Score of Proficient or Advanced Effect Size
Grade 3	0.98
Grade 4	1.20
Grade 5	1.09
All Grades	0.98

Table 11: Cohen's d Effect Size

5 Findings Summary

USA low performing grades 3, 4, and 5 using ST Math for the year 2018/19 averaged 22.3% ST Math Progress. 62/346 grades (18%) averaged covering more than 40% of ST Math content. A statistically significant difference was found in this analysis for grade-aggregated results. Looking at Table 6, a statistically significant differences was found for grade-aggregated z-score, with an estimate of 0.34 points favorable for the ST Math treatment set.

6 Confounders

Despite best efforts in minimizing confounders to the results of this analysis, there still remain a few input variables that could be significant in affecting differences of state test score outcomes between the Treatment and Control sets. One issue is the lack of randomization of grades chosen to receive the ST Math treatment. Instead of randomized selection, Treatment grades are self-selected. Self-selection can be an indication of districts or schools with a focus on math, an appetite for change, and with a spotlight on math training. Furthermore, not all grades using the ST Math program are chosen for analysis. Each grade must pass two specific filters to be considered for the Treatment set: the first being an enrollment filter of at least 85% of students in each grade using the program, and the second being a progress filter of at least 40% of the program completed on average by students in that grade. These filters might indicate relatively high-functioning schools with a team of relatively effective teachers in that grade, thus resulting in better instruction overall. A mitigation of this possible confounder is our selection of treatment groups on the grade level, rather than the teacher level, so there is no cherry picking of teachers: the full range of teachers in each grade is included. Moreover, the specific teachers may often be the same in the baseline year as in the current year, so the Treatment growth is not due to teacher differences. Finally, a possible confounder lies in the "business as usual" conditions at the matched control grades chosen for each analysis. It's unknown whether these control grades used other programs that could affect the comparison of the two sets of grades.

7 Lists of Schools

7.1 Treatment Schools

The following table lists the treatment schools and grades (after 85% enrollment and 40% progress filtering) used in the analysis.

PID	IID	State	District	School Name	GRADE
23272	JAM5MN	AR	VAN BUREN SCHOOL DISTRICT	JAMES R. TATE ELEM. SCHOOL	4
11455086	INN73X	CA	Innovations Academy	Innovations Academy	5
120117	MON7CG	CA	Stockton Unified	Monroe Elementary	3
169709	JOH0HX	CT	Meriden School District	John Barry School	4, 3
10007090	RAY2MC	FL	LEE	RAY V. POTTORF ELEMENTARY SCHOOL	4
199558	BLA2LM	FL	PINELLAS	BLANTON ELEMENTARY SCHOOL	3
199900	LEA2LN	FL	PINELLAS	LEALMAN AVENUE ELEMENTARY SCHOOL	5, 3
199912	LEA0RS	FL	PINELLAS	LEALMAN INNOVATION ACADEMY	5
200365	SKY2LS	FL	PINELLAS	SKYCREST ELEMENTARY SCHOOL	3
200597	SEV2LM	FL	PINELLAS	SEVENTY-FOURTH ST. ELEMENTARY	4
243226	JOH41K	IA	Cedar Rapids CSD	Johnson Elementary School	5, 3
250487	BUC42O	IA	Davenport CSD	Buchanan Elementary School	4
250542	FIL42O	IA	Davenport CSD	Fillmore Elementary School	5, 4, 3
250619	HAY42O	IA	Davenport CSD	Hayes Elementary School	5
250657	JEF42O	IA	Davenport CSD	Jefferson Elementary School	4, 3, 5
250683	MAD42O	IA	Davenport CSD	Madison Elementary School	5
250695	HAR42O	IA	Davenport CSD	Truman Elementary School	4, 5
250712	MON42O	IA	Davenport CSD	Monroe Elementary School	4
250786	WAS42O	IA	Davenport CSD	Washington Elementary School	5, 4
250815	WIL0RW	IA	Davenport CSD	Wilson Elementary School	3
235932	EDG40J	IA	Edgewood-Colesburg CSD	Edgewood-Colesburg Elementary School	4
245119	JCH3VB	IA	Marshalltown CSD	J C Hoglan Elementary School	3
245171	WOO3VB	IA	Marshalltown CSD	Woodbury Elementary School	3
245975	FRA42K	IA	Muscatine CSD	Franklin Elementary School	5
430613	BAR0RV	MA	Lowell	Bartlett Community Partnership	4
556097	SHE514	MO	COLUMBIA 93	SHEPARD BLVD. ELEM.	5
1828635	SAN4K6	MT	Billings Elem	Sandstone School	3
10908688	BEA0RV	MT	Billings Elem	Beartooth School	4
665105	DRL08J	NH	Salem	Dr. L. F. Soule School	3
665117	MAR08J	NH	Salem	Mary A. Fisk Elementary School	4
1051612	WVS0RS	TX	TULIA ISD	W.V. SWINBURN E	3
1063483	SOU6HE	UT	Davis District	South Clearfield School	4
1064499	ACA6HO	UT	Granite District	Academy Park School	4
1064839	LAK0RS	UT	Granite District	Lake Ridge School	3
1064970	PHI6HO	UT	Granite District	Philo T. Farnsworth School	4, 5
1064994	PLY6HO	UT	Granite District	Plymouth School	5
10030334	GEA0RS	UT	Granite District	Gearld Wright School	4
1068926	CRO1RP	VA	Albemarle County	Crozet Elementary	3
4014144	AGN1RM	VA	Albemarle County	Agnor-Hurt Elementary	4
1072197	DGC1QT	VA	Clarke County	D.G. Cooley Elementary	3
10010607	ROG43S	WI	Milwaukee	Rogers Street Academy	4

Table 12: Treatment Schools (TRT Dataset)

7.2 Control Schools

The following table lists the control schools and grades (matched control grades to treatment grades) used in the analysis.

PID	State	District	School Name	GRADE
28947	AR	TEXARKANA SCHOOL DISTRICT	UNION ELEMENTARY SCHOOL	4
92807	CA	Salinas City Elementary	Monterey Park Elementary	5
128195	CA	San Jose Unified	Empire Gardens Elementary	3
158865	CT	Bridgeport School District	Blackham School	3
170514	CT	New Haven School District	John C. Daniels	4
181408	FL	ALACHUA	SIDNEY LANIER CENTER	5
181587	FL	BAY	CEDAR GROVE ELEMENTARY SCHOOL	5
1413321	FL	BROWARD	MORROW ELEMENTARY SCHOOL	3
192471	FL	HILLSBOROUGH	LOCKHART ELEMENTARY MAGNET SCHOOL	4
185272	FL	MIAMI-DADE	FIENBERG/FISHER K-8 CENTER	4
201292	FL	POLK	GRIFFIN ELEMENTARY SCHOOL	3
10914297	FL	ST. LUCIE	SAMUEL S. GAINES ACADEMY	3
243903	IA	Columbus CSD	Roundy Elementary School	3, 4, 5
249323	IA	Council Bluffs CSD	Bloomer Elementary School	5
249373	IA	Council Bluffs CSD	Edison Elementary School	5
247741	IA	Des Moines Independent CSD	Cattell Elementary School	5
247777	IA	Des Moines Independent CSD	Brubaker Elementary School	5
247868	IA	Des Moines Independent CSD	Garton Elementary	5
248070	IA	Des Moines Independent CSD	Lovejoy Elementary School	4
248109	IA	Des Moines Independent CSD	Morris Elementary School	3
248185	IA	Des Moines Independent CSD	Monroe Elementary School	5
253996	IA	Fort Dodge CSD	Cooper Elementary School	3
254005	IA	Fort Dodge CSD	Duncombe Elementary School	4
241826	IA	Iowa City CSD	Kirkwood Elementary School	5
241852	IA	Iowa City CSD	Mark Twain Elementary	3
240250	IA	Mount Pleasant CSD	Van Allen Elementary School	4
246022	IA	Muscatine CSD	Madison Elementary School	4
253166	IA	Ottumwa CSD	James Elementary School	3
231194	IA	Waterloo CSD	Lowell Elementary School	3, 4, 4
10012928	MA	Holyoke Community Charter (District)	Holyoke Community Charter School	4
558382	MO	DREXEL R-IV	DREXEL ELEM.	5
605313	MT	Frenchtown K-12 Schools	Frenchtown Elementary School	3
609618	MT	Laurel Elem	Fred W Graff School	4
663236	NH	Contoocook Valley	Pierce Elementary School	3
661032	NH	Nelson	Nelson Elementary School	4
1004736	TX	AVINGER ISD	AVINGER SCHOOL	3
1063689	UT	Duchesne District	Duchesne School	4
1064982	UT	Granite District	Pioneer School	5
1065211	UT	Granite District	Western Hills School	3
12114259	UT	Greenwood Charter School	Greenwood Charter School	4
1068108	UT	Ogden City District	Bonneville School	4
1068146	UT	Ogden City District	Gramercy School	5
1068213	UT	Ogden City District	James Madison School	4
4362903	VA	Chesterfield County	Marguerite F. Christian Elementary	4
1072850	VA	Fairfax County	Fort Hunt Elementary	3
4290128	VA	Fairfax County	Deer Park Elementary	3
5264926	WI	Racine Unified	Julian Thomas Elementary	4

Table 13: Matched Control Schools (CTRL Dataset)