

# Evaluation of the Council Bluffs Community School District's 2019 Summer Program

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Iowa Reading Research Center



**Student Reading Success Through Research and Collaboration**

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## Summary of Student Outcomes in Grades 1-5

The [Council Bluffs Community School District's](#) summer reading program demonstrated the following positive effects on participating students' pre- to posttest growth in reading skills as measured by Reading Assessment for Prescriptive Instructional Data (RAPID).

Grade level	Positive reading outcomes
1	Reading Success Probability (overall reading ability), Vocabulary Pairs, and Following Directions (oral language comprehension)
2	Vocabulary Pairs and Spelling
3	Reading Success Probability (overall reading ability), Word Recognition, Vocabulary Knowledge, and Syntactic Knowledge
4	Reading Success Probability (overall reading ability), Word Recognition, Vocabulary Knowledge, Syntactic Knowledge, and Reading Comprehension
5	Reading Success Probability (overall reading ability), Word Recognition, Vocabulary Knowledge, Syntactic Knowledge, and Reading Comprehension

*Note.* No effects were statistically significant.

The following positive effects of the summer reading program were found when comparing the RAPID scores of students who participated in the summer reading program with non-participating students who were eligible for but did not participate in the program.

Grade level	Positive reading outcomes
1	Reading Success Probability (overall reading ability), Word Reading*, Vocabulary Pairs, and Following Directions (oral language comprehension)
2	Reading Success Probability (overall reading ability), Word Reading, Following Directions (oral language comprehension), and Spelling
3	Reading Success Probability (overall reading ability), Word Recognition, and Vocabulary Knowledge
4	No positive effects
5	Syntactic Knowledge

*Note.* \*Only the effects on Word Reading in Grade 1 were statistically significant.

In addition, positive effects of the summer reading program were found on the Measures of Academic Progress (MAP) outcome for students in Grades 1, 2, and 5 who participated in the summer reading program when compared with their non-participating peers.

Teachers' fidelity of implementing the summer curriculum was positively associated with students' growth on all RAPID subtests as well as overall reading in all grade levels. The effect of teacher fidelity was statistically significant only for the Grade 1 Word Reading outcome. Fidelity also was positively associated with students' growth on MAP in Grades 1, 2, and 5. However, it did not demonstrate a statistically significant effect.

Despite the influence that the summer program teachers can have on participating students' growth during the break, findings suggest that instruction during the regular academic year contributes more to students' spring-to-fall changes in performance. This emphasizes the value of the district using the summer program to explore its literacy curriculum and instruction at a deeper level and use the evaluation results to guide decisions they make about what to change during the regular academic year.



## Overview

In 2019, the Council Bluffs Community School District (CBCSD) continued its tradition of offering a summer learning and enrichment program (summer program) to elementary students identified by school personnel as being at risk of reading failure. As part of its continuous improvement efforts, CBCSD district personnel identified the following priorities for its 2019 summer program:

- Refining the recruitment of students with low Formative Assessment System for Teachers (FastBridge, herein referred to as FAST) scores to distinguish between those with “some risk” and those with “high risk,” concentrating on the latter.
- Differentiating the professional development offered to summer teachers based on fidelity reports from previous summers.
- Increasing fidelity of teachers’ implementation by providing them ongoing feedback throughout the program.
- Including Grades 1-5 in the evaluation, rather than limiting the statistical analysis of student performance to the lowest grade levels.
- Creating an intervention schedule that allowed for a logical flow of instruction in the classroom.
- Changing the screening measure used to evaluate students’ pre- to posttest growth.

The Iowa Reading Research Center (IRRC) at the University of Iowa College of Education continued in its role as external evaluator of the summer program, analyzing the data gathered on students who had just completed kindergarten and Grades 1-4. Throughout this report, the students are referenced by the grade level they were entering in the fall after the summer program concluded (i.e., Grades 1-5).

### Reading Assessment

In previous years, students’ pre- and posttest performance was measured with FAST (the universal screening and progress monitoring measure sponsored by the state of Iowa) and RAPID (an assessment included for the summer program evaluation because it provides an overall Reading Success Probability Score [RSP] and scores on individual components of reading). The RAPID subtests varied by grade level as shown in **Table 1**.

Although FAST scores from the 2018-19 school year were used as in previous years for the purposes of identifying students eligible for the summer program, it was not administered at posttest (fall 2019). Rather, the Measures of Academic Progress (MAP) test replaced FAST in an effort to address the high variability in student performance consistently observed when using FAST scores.

**Table 1.** RAPID Reading Subtests Administered in Each Grade

Subtest	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Word Reading	X	X			
Spelling		X			
Word Recognition			X	X	X
Vocabulary Pairs	X	X			
Following Directions (oral language comprehension)	X	X			
Vocabulary Knowledge			X	X	X
Syntactic Knowledge			X	X	X
Reading Comprehension			X	X	X

All students in Grades 1-5 who were eligible for the summer program were pretested with RAPID in the spring of 2019 (between May 20 and May 31) and posttested in the fall of 2019 (between August 27 and Sept 6). The demographics of the students who did (treatment) and did not participate (control) in the summer program are provided in **Table 2**.

**Table 2.** Demographic Characteristics of Treatment and Control Students by Grade Level

Sample size	Female	Black	Hispanic	White	FRL	EL	IEP
<b>Grade 1</b>							
Treatment ( <i>n</i> = 57)	47.4%	10.5%	3.5%	84.2%	50.9%	3.5%	19.3%
Control ( <i>n</i> = 90)	44.4%	7.8%	16.7%	75.6%	61.1%	11.1%	33.3%
<b>Grade 2</b>							
Treatment ( <i>n</i> = 51)	45.1%	7.8%	25.5%	64.7%	49.0%	15.7%	33.3%
Control ( <i>n</i> = 85)	49.4%	7.1%	5.9%	84.7%	45.9%	8.2%	41.2%
<b>Grade 3</b>							
Treatment ( <i>n</i> = 58)	39.7%	8.6%	10.3%	81.0%	41.4%	10.3%	41.4%
Control ( <i>n</i> = 116)	50.0%	7.8%	12.1%	76.7%	50.9%	12.9%	48.3%
<b>Grade 4</b>							
Treatment ( <i>n</i> = 34)	38.2%	5.9%	11.8%	82.4%	41.2%	14.7%	73.5%
Control ( <i>n</i> = 122)	48.4%	5.7%	23.8%	68.0%	55.7%	21.3%	59.0%
<b>Grade 5</b>							
Treatment ( <i>n</i> = 34)	52.9%	8.8%	14.7%	73.5%	52.9%	11.8%	67.6%
Control ( <i>n</i> = 109)	43.1%	6.4%	17.4%	73.4%	50.5%	18.3%	74.3%

*Note:* FRL = free or reduced-price lunch; EL = English learners; IEP = individualized education program.

## Prioritizing Enrollment in the Summer Program

Each year, CBCSD has set guidelines for ensuring students experiencing reading difficulties are prioritized for participation in the summer program. The 2019 guidelines were based on scores from FAST, which is administered three times (fall, winter, and spring) during the regular school year. Because planning for the summer program must begin early, only the fall and winter testing waves were used to determine eligibility. FAST scores from the

spring 2019 testing wave were considered pretest, and those from the fall 2019 testing wave were considered posttest.

The priorities for student enrollment were as follows:

- High Priority = designated at “high risk” on both fall and winter FAST testing.
- Moderate Priority = designated “some risk” on fall FAST and “high risk” on winter FAST, or missing a fall FAST and designated “high risk” on winter FAST.
- Final priority = designated “high risk” on fall FAST and “some risk” on winter FAST, with the two scores averaged and rank ordered from lowest average score (higher priority) to higher average score (lower priority).

Occasionally, non-eligible siblings of eligible students were permitted to participate in the summer program. In addition, students who recently transferred into the district without sufficient data at the time of summer enrollment may have been recommended by their principals for participation. Any students who did not meet eligibility criteria as described above were not considered in the analyses of student outcomes.

## **Providing Structured Core Reading Instruction**

Summer program participants spent 3 hours per day (approximately 9:00 AM – 12:30 PM with a 10-minute break and a 20-minute lunch) participating in reading instruction. CBCSD utilized its *Wonders* comprehensive core reading curriculum from the regular academic year for whole-group instruction. *Wonders* includes three primary components intended to be taught daily: Whole-Group Reading (60 minutes/day), Whole-Group Language Arts (30 minutes/day), and Small-Group Differentiated Instruction (combined total of 90 minutes/day). An additional 10 minutes per day was allotted for a “brain break,” and teachers were allowed to administer short assessments on Fridays as necessary.

Within each *Wonders* whole-group component, there were multiple lessons and activities, as outlined in the “lesson path” included with the teachers’ materials. Because the summer program participants were considered to be below benchmark, teachers used materials from the grade level students had just completed (i.e., the grade of their spring enrollment). To ensure the lessons were not repetitions of what had been taught during the school year, the district identified the units teachers should deliver:

- Grade 1 was to start with Unit 4 of the kindergarten materials, but teachers could pull additional letters or words from Units 1-3.
- Grades 2-5 were to start with Unit 3 of the preceding grade-level materials.

To ensure the lessons were at an appropriate level of difficulty, teachers were advised to use the “approaching level” materials for the whole-group lessons. However, more flexibility was allowed during the small-group lesson time. Within each class, teachers formed small groups based on students’ needs as identified in their RAPID subtest scores.

The teacher had discretion to choose either “approaching” or “on-level” lessons from the *Wonders* curriculum that targeted the appropriate skills.

While the teacher met with one group at a time, the other students worked independently on literacy activities such as writing to sources, computer-delivered practice, independent reading, listening comprehension, and fluency. Students were not permitted to spend more than 30 minutes working independently before they received feedback or other instruction from the teacher, so the small-group rotations may have been interspersed with the whole-group lessons. Across the 1.5 total hours of small-group time, teachers were advised to have 3-4 rotations. This meant that each group might have met with the teacher one time, or one or more of the groups might have met with the teacher twice. This depended on the size of the class and the type of activities students were doing.

### **Offering More Intensive Supports**

Students with the lowest performance on RAPID were prioritized for the small-group, push-in intervention. This was delivered by a reading intervention teacher to small groups of no more than 5 students, taking the place of one small-group segment in which students otherwise would have been working independently. In other words, students received their usual small-group instruction from the core reading teacher and another rotation of small-group instruction from the interventionist. It is considered a “push-in” model because the interventionist met with the students in their core reading class, rather than pulling the small group out of the class to deliver the instruction in another room.

Intervention lessons were drawn from the *WonderWorks* and *Foundational Skills Kit* materials that were aligned with the skills and content of *Wonders*. In addition, students used apprentice-level readers from the preceding grade level, and some groups in Grades 1 and 2 used decodable texts from kindergarten or Grade 1, respectively.

### **Distributing the Summer Program**

To offer students an extended period of time for summer learning, CBCSD offered the summer program for a total of 30 days between June 10 and July 26. There was a one-week break around Independence Day that was planned to accommodate the high rate of absences experienced at that time during previous years. Because students attended 5 days per week, the total time in summer reading instruction was 90 hours.

# Results of the Summer Program

## Data Cleaning

Students were removed from analysis if they were listed with a grade level other than 1-5. One student was removed from the analysis for being listed with different grade levels for his or her pretest and posttest administrations.

Pretest RAPID scores were only considered from May 2019. Some students were additionally administered RAPID in March 2019, but those scores were not considered for this study.

For students who were listed as having multiple teachers, their regular classroom teacher (i.e., not their special education teacher or paraprofessional) was chosen for the analysis. One student was listed with multiple regular classroom teachers for the Spring term, perhaps having changed schools or classrooms midway through the Spring term, so one of the teachers was arbitrarily chosen for this student.

## Attrition Rates

Attrition rates for each grade level are reported in **Table 3**. The summer 2019 attrition rates were higher than the attrition rates reported in summer 2018, meaning that a smaller percentage of students were retained in the summer program at each grade level. Given the change in recruitment strategy from the previous summer, the increase in attrition was expected for 2019 and remains comparable to the attrition in other years (as well as in other research) when recruiting students with the highest demonstrated need.

**Table 3.** Attrition by Grade Level

% dropped Grade 1	% dropped Grade 2	% dropped Grade 3	% dropped Grade 4	% dropped Grade 5
18.9%	28.6%	22.7%	28.2%	27.8%

Students who were enrolled in the summer program but never attended were subsequently removed from the treatment group and considered instead in the control group.

## Effect of Summer Program on RAPID Composite and Subscale Scores

Means, standard deviations, and correlations among RAPID subtest and composite (RSP) scores during both pretest and posttest periods are reported by grade level in **Appendix A**. Note that in all grade levels, the average performance of eligible students indicated they had less than a 15% probability of reading success. First- and fourth-grade students had less than a 5% probability of reading success.

There were several considerations when analyzing the data. First, students participating in the summer program were nested in summer classrooms, but students in the control group were not because they were not in school during this time. Thus, data analyses needed to account for this partially nested structure. Additionally, the analyses took into account that students in both treatment and control groups were nested within academic year classrooms in the spring. Finally, because invited students may have opted out of participating in the summer program, the analyses accounted for potential differences between students that participated in the summer program (treatment) versus students that did not (control).

Analyses were performed in the R environment using the `twang`, `survey`, and `lme4` packages. Consequently, the data analyses for each grade level involved multiple steps:

1. Treatment and control groups were balanced by students' characteristics (gender, race, free or reduced-price lunch [FRL], English learner [EL], special education with an Individualized Education Program [IEP], and age at the time of pretest) and composite RAPID pretest score (RSP) using propensity scores. Each member of the treatment group was paired with its nearest-matching member of the control group based on these student characteristics and pretest score. Any unmatched members from the control group were removed.
2. Propensity scores were calculated for each of the two groups and then entered in the models as weights.
3. The statistical analyses were performed for each outcome and individual grade level. When the outcome of interest was the composite RAPID posttest score (RSP), only the variable representing participation (or not) in the summer program was included in the model. On the other hand, when RAPID subscale scores were the outcome of interest, the pretest score for the specific subscale was included in the model, in addition to the variable representing participation in the summer program.

All the main effects analyses took into account the nested structure of the data via cluster standard errors.

### **Main Effects on RAPID Scores**

Main effect results of summer program participation can be found in **Appendix B**. The control group at each grade level consisted of the propensity-matched students who were eligible for the summer program but did not participate. Note that the standardized mean-difference effect sizes reported in the final column take into account the differentially nested structure of the data, as described in the previous section.

Results show a statistically significant difference in Grade 1 Word Reading scores between the treatment and control groups (mean estimate = 62.00; standard error = 28.78;  $p$ -value = .04; effect size = 0.390), favoring the treatment group. There were no other statistically

significant differences in RAPID scores between the treatment and control groups at any grade level, but there were moderate positive effect sizes of summer program participation for Grade 1 RSP (0.359) and Vocabulary Pairs subtest (0.306). There were also small-to-moderate positive effects for the Spelling subtest (0.167) in Grade 2; RSP (0.146) and Vocabulary Knowledge (0.164) in Grade 3; and Syntactic Knowledge in Grade 5 (0.207). Conversely, there were small-to-moderate negative effects of summer program participation for Word Recognition (-0.195) and Vocabulary Knowledge (-0.264) in Grade 5.

### **Effect of Small-Group, Push-In Intervention on RAPID Scores**

Only a subgroup of the lowest performing students in each class received the supplemental intervention in small groups of 5 or fewer students. As with the main effects analyses, propensity scores were utilized to balance observable differences between the treatment and control groups in Grades 1-4. A small-group intervention model for Grade 5 was unable to be fit due to a very small sample size for the treatment group. These models included either RSP or Word Reading/Recognition scores as outcomes and the following three covariates: a dummy variable indicating if the student received supplemental intervention, the pretest corresponding to either the RSP or Word Reading/Recognition outcome, and the number of days the student attended the summer program. Additionally, due to small sample sizes, a few student characteristics for some models could not easily be balanced via propensity scores between treatment and control groups. When this occurred, the characteristics were included as model covariates as well.

Results for these models can be found in **Appendix C**. The results suggest that students in the small-group intervention did not reduce the gap in their test performances compared with students who received only the core summer program, and in some cases the gap significantly widened (i.e., a statistically significant negative effect for Grade 1 Word Reading: mean estimate = -102.68; standard error = 46.05;  $p$ -value = .031; effect size = -0.637). There also were moderate negative effect sizes for Grade 1 RSP (-0.430) and Grade 4 RSP (-0.309) and Word Recognition subtest (-0.632). However, due to very small sample sizes within each grade level, these results should be interpreted with caution.

### **Effect of Summer Program Attendance on RAPID Scores**

We explored the effect of attendance on posttest scores by adding “number of days attending the summer program” as a third covariate in the models. Attendance was not found to be statistically significant for any of the RAPID outcomes at any grade level.

### **Effect of Attendance in Small Groups on RAPID Scores**

By including attendance in the small-group intervention models, we were able to test for the effect of attendance in the small-group, push-in intervention on students’ posttest scores, controlling for their respective pretest scores. Attendance was not found to be statistically significant for any of the RAPID outcomes at any grade level.



## **Pre- to Post-Summer RAPID Growth for Participating Students**

In addition to comparing RAPID scores between treatment and control groups, we explored the growth in RAPID scores from pretest to posttest (i.e., spring to fall) for the treatment group of students who participated in the summer program. Results from these growth models across RAPID outcomes can be found in **Appendix D**. No RAPID outcomes demonstrated statistically significant growth between spring and fall testing periods for the treatment group. However, there were several moderate positive effect sizes for spring to fall growth, including for RSP (0.284) and the Following Directions subtest (0.233) for Grade 1; the Vocabulary Knowledge subtest for Grade 4 (0.250); and RSP (0.351), Word Recognition (0.318), Syntactic Knowledge (0.369), and Reading Comprehension (0.337) subtests for Grade 5. This shows that despite there being several negative main effects of summer program participation in Grade 5, summer program participants still showed positive score growth for all RAPID outcomes in Grade 5.

Further exploration of the variance components allowed for identifying sources of score variability that might help to detect the specific effect of the summer program. As shown in **Appendix E**, for most outcomes, a larger percentage of variability in student growth was attributable to students' academic year classroom membership than their classroom membership during the summer program. Of the 24 RAPID outcomes investigated, only three outcomes had a larger percentage of variability attributable to students' summer classroom than academic year classroom, and only one of those outcomes was more than a marginal difference (Word Reading scores in Grade 1: 9.4% attributable to summer classroom, 1.0% attributable to academic year classroom in spring of kindergarten). By contrast, 16 of the 24 RAPID outcomes had more than marginal differences in the variability attributable to academic year classroom compared to summer classroom. This was most pronounced in Grade 4 where 82.5% of RSP growth variance was attributable to students' academic year classroom in spring of third grade, but the growth variance attributable to their summer classroom was approximately 0%.

Identifying sources of variability in score growth emphasizes the importance of considering academic year experience in understanding the variation in student performance and the efficacy of the summer program. In other words, how well students might do in the fall seems to depend more on the instruction they received in the spring than the instruction they did or did not receive in the summer.

## **Effect of Summer Program on MAP Scores**

Means, standard deviations, and correlations among MAP scores during both pretest and posttest periods as well as student demographic information are reported by grade level in **Appendix F**. Correlations between MAP scores, FAST scores in spring, and RAPID composite scores (RSP) also are provided in **Appendix E**. The tables show mostly higher correlations



between MAP and FAST than between MAP and RAPID, particularly at the higher grade levels (3-5).

As with the analyses for RAPID scores, MAP scores were compared between students who participated in the summer program and students who were eligible for but did not participate in the summer program. For these analyses, we also needed to account for the differentially nested structure of the data because, although both groups were nested in classrooms in the spring, only students participating in the summer program were nested in summer classrooms. Analyses were performed in the R environment using the `pcluster`, `twang`, `survey`, and `lme4` packages.

The data analyses for each grade level involved multiple steps:

1. Using propensity scores, treatment and control groups were balanced by students' characteristics (gender, race, FRL, EL, IEP, and date of birth) and MAP pretest score (either Rausch Unit [RIT] or national percentile rank [NPR], depending on the model). In this case, restricting the control group to matched pairs with the treatment group was not needed for proper balancing and, thus, the entire control group was used in the analyses.
2. Propensity scores were then entered in the models as weights.
3. The statistical analyses were performed for each outcome and individual grade level. Because all student characteristics were balanced between the treatment and control groups by the propensity score weights, only the variable representing participation (or not) in the summer program was included in the model.

All the main effects analyses took into account the nested structure of the data via cluster standard errors.

## Main Effects on MAP Scores

Main effect results of summer reading program participation on MAP outcomes (RIT and NPR) can be found in **Appendix G**. The standardized mean-difference effect sizes take into account the differentially nested structure of the data. For both RIT and NPR, there were no statistically significant differences in average scores between the treatment and control groups at any grade level. However, there were small-to-moderate positive effect sizes for NPR in Grade 1 (0.208) and Grade 2 (0.229).

## Pre- to Post-Summer MAP Growth for Participating Students

We explored the growth in NPR scores from pretest to posttest (i.e., spring to fall) for the group of students who participated in the summer program. Only the NPR metric was considered because students were assessed at different grade levels for pretest and posttest. Thus, the RIT score metric would not be appropriate to measure growth across school years. Results from these growth models can be found in **Appendix H**. The table

shows that participating Grade 2 students demonstrated statistically significant negative growth on NPR (mean growth = -9.737; standard error = 3.026;  $p$ -value = .002; effect size = -0.560). This reflected similar growth trends seen for the non-participants, as evidenced by finding no significant differences in the main effect between treatment and control for Grade 2. Conversely, participating Grade 1 students demonstrated nearly statistically significant positive growth on NPR (mean growth = 6.226; standard error = 3.517;  $p$ -value = .080; effect size = 0.284).

Further exploration of the variance components found that, for all grade levels and outcomes, a larger percentage of variability of student growth on MAP was attributable to students' academic year classroom than their classroom membership during the summer program. On average, 19.9% of the variance was attributable to academic year classroom versus 1.2% of variance attributable to summer classroom.

As with the RAPID outcomes, a larger percentage of variability in student growth was attributable to students' academic year classroom membership than their classroom membership during the summer program. As shown in **Appendix E**, this was true for both RIT and NPR scores in all grade levels, but it was most pronounced in Grade 4 where over 40% of growth variance was attributable to students' academic year classroom in spring of third grade, but almost no growth variance was attributable to their summer classroom.

### **Effect of Summer Program Attendance on MAP Score Growth**

We additionally explored the effect of summer school attendance on NPR growth by including attendance as a covariate in the models. Just as with RAPID, attendance was not found to have a statistically significant effect on growth for NPR at any grade level.

## Fidelity of Teachers' *Wonders* Implementation

There were 15 teachers (Grade 1 = 3; Grade 2 = 4; Grade 3 = 4; Grade 4 = 2; Grade 5 = 2) delivering the summer reading instruction. All were audio recorded weekly to monitor the fidelity with which they implemented *Wonders*. The results in this section represent a sampling of the instruction delivered, rather than a full accounting of all instruction delivered in all classes.

Teachers were scored on their fidelity of implementation for three components of *Wonders*: Whole-Group Reading (Blue), Whole-Group Language Arts (Green), and Small-Group Rotations within Core Reading Instruction (Yellow). Most teachers were scored twice on each of these components: once early in the intervention and once late in the intervention.

### Fidelity of *Wonders* Whole-Group Reading Implementation

In 100% of observations, teachers implemented *Wonders* whole-group reading lessons. In 43% of observations, the teacher adhered to the suggested timing of 55–65 minutes.

**Table 4** displays the percentage of observations in which teachers at each grade implemented the recommended 60 minutes of whole-group reading instruction.

- In about one-third (36%) of early wave observations, teachers adhered to the suggested timing.
- In half of late wave observations teachers adhered to the suggested timing.

**Table 4.** Percentage of Time Teacher Implemented 55-60 Minutes of *Wonders* Whole-Group Reading by Grade

Grade	Early Wave	Late Wave	Adhered to suggested timing overall	Did not adhere to suggested timing overall
	Adhered to suggested timing	Adhered to suggested timing		
1 ( <i>n</i> = 6)	67%	67%	67%	33%
2 ( <i>n</i> = 8)	25%	25%	25%	75%
3 ( <i>n</i> = 7)	25%	33%	29%	71%
4 ( <i>n</i> = 4)	0%	50%	25%	75%
5 ( <i>n</i> = 3)	100%	100%	100%	0%
<b>Overall (<i>N</i> = 28)</b>	<b>36%</b>	<b>50%</b>	<b>43%</b>	<b>57%</b>

*Note.* *n* = number of observations.

### Materials Used for Core Reading Instruction

All teachers used the approved *Wonders* core materials. Because the students attending the summer program were not meeting grade-level benchmarks, teachers were advised to use the “approaching level” materials from the grade level that students just completed (i.e., grade of enrollment in spring 2019). Those grade levels would be one grade below that

used in this report (i.e., grades referenced throughout the report are based on students' fall 2019 grade of enrollment).

**Table 5** displays the number of observations in which a component of *Wonders* whole-group reading lessons was included in the weekly path. Observations are listed by grade level of the designated class, which is one grade above the grade of the materials used. On average, 39% of lesson components were implemented for *Wonders* core whole-group reading when required by the weekly lesson path. Note that the lowest implementation rate of 0% was in Integrate Ideas. One component, Comprehension, occurs in the weekly lesson path only on select days which never happened to coincide with the days randomly selected for teachers to be observed. Thus, there were no opportunities to observe its implementation.

**Table 5.** *Wonders* Whole-Group Reading Components Implemented by Grade

Lesson component	Grade 1 (n = 6)		Grade 2 (n = 8)		Grade 3 (n = 7)		Grade 4 (n = 4)		Grade 5 (n = 3)		Early wave		Late wave		Overall (N = 28)	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Close Reading or Shared Reading	5	0%	5	0%	6	50%	2	0%	3	33%	14	14%	7	29%	21	19%
Comprehension		N/A		N/A		N/A		N/A		N/A		N/A		N/A	0	N/A
Fluency	2	100%		N/A	1	0%		N/A		N/A	2	50%	1	100%	3	66%
Handwriting	1	100%		N/A		N/A		N/A		N/A	1	100%			1	100%
High Frequency Words	2	50%	3	33%	3	33%		N/A		N/A	2	0%	6	50%	8	38%
Integrate Ideas	3	0%	7	0%	1	0%	2	0%		N/A	4	0%	9	0%	13	0%
Introduce the Concept or Build Background	1	100%	0		2	50%	0		1	0%	2	50%	2	50%	4	50%
Listening Comprehension or Interactive Read Aloud		N/A		N/A		N/A		N/A		N/A		N/A		N/A	0	N/A
Oral Language	4	75%			2	0%		N/A		N/A	3	33%	3	67%	6	50%
Phonics	5	40%	4	0%	4	25%		N/A		N/A	5	0%	8	60%	13	23%
Phonological/Phonemic Awareness	6	100%	8	63%	5	80%		N/A		N/A	10	70%	9	89%	19	79%
Spelling		N/A	4	25%	4	50%		N/A		N/A	3	33%	5	40%	8	38%
Structural Analysis		N/A	7	29%	3	66%		N/A		N/A	4	50%	6	33%	10	40%
Vocabulary		N/A		N/A	1	100%	0		1	100%		N/A	2	100%	2	100%

*Note.* n = number of observations; # = number of observations where the component was required in the weekly lesson path; N/A = not applicable because the component was not required in the grade level or was not required in the summer unit.

Among the most frequently included components in any grade (those in 19 or more of the weekly lesson paths observed), Close Reading or Shared Reading had the lowest fidelity score (19%). This component includes up to 10 different subcomponents, so it required the teacher to complete many steps in order to demonstrate fidelity.

It should be noted that Close Reading or Shared Reading was almost always attempted, but rarely were all the specifications completed in their entirety. Common elements that were skipped by teachers during this component were:

- Make connections

- Note taking
- Integrate (more often skipped toward the end of each week than earlier in the week)
- Explain and model (teachers often invited students to give comments or answers rather than conducting a teacher modeling)
- Reread

Other components that had fewer elements also might have been attempted but not fully completed. For example, it was common to teach High Frequency Words once, but they rarely were repeated as required.

It is possible that subcomponents or steps the teacher did not complete during an observation would have been done on a different day (i.e., the day before or the day after) when the teacher was not observed. Such a scenario might suggest the complete Close Reading or Shared Reading component could not feasibly be delivered in 60 minutes, or that the teacher’s pacing needed to be improved. The data gathered do not make it possible to determine the reason for low fidelity.

### Fidelity of *Wonders* Whole-Group Language Arts Implementation

In 79% of observations (Grade 1 = 83%, Grade 2 = 75%, Grade 3 = 86%, Grade 4 = 75%, and Grade 5 = 67%), teachers implemented *Wonders* whole-group language arts.

**Table 6** displays the percentage of observations in which teachers at each grade adhered to the suggested timing of 25–35 minutes for whole-group language arts instruction. In about one quarter (28%) of observations, the teachers adhered to the suggested timing for whole-group language arts instruction. This is a notable increase from 2018 when only 6% were at the 25-35 minutes target.

**Table 6.** Percentage of Time Teacher Implemented 25-35 Minutes of *Wonders* Whole-Group Language Arts by Grade

Grade	Early Wave	Late Wave	Adhered to suggested timing overall	Did not adhere to suggested timing overall
	Adhered to suggested timing	Adhered to suggested timing		
1 ( <i>n</i> = 6)	33%	33%	33%	67%
2 ( <i>n</i> = 8)	0%	0%	0%	100%
3 ( <i>n</i> = 5)	33%	0%	20%	80%
4 ( <i>n</i> = 3)	0%	100%	67%	33%
5 ( <i>n</i> = 3)	100%	50%	80%	20%
Overall ( <i>n</i> = 25)	25%	31%	28%	72%

*Note.* *n* = number of observations.

### Materials Used for Core Language Arts Instruction

**Table 7** displays the number of observations in which a component of *Wonders* whole-group language arts lessons was included in the weekly path. Observations are listed by grade level of the designated class, which is one grade above the grade of the materials

used. In one-quarter of observations, teachers implemented the *Wonders* whole-group language arts components when required by the weekly lesson path. As can be seen in the table, two components (Grammar and Writing/Writing Process) were required at all grade levels and were frequently included in the lesson path.

**Table 7.** *Wonders* Whole-Group Language Arts Components Implemented by Grade

Lesson component	Grade 1 (n = 6)		Grade 2 (n = 8)		Grade 3 (n = 7)		Grade 4 (n = 4)		Grade 5 (n = 3)		Early Wave		Late Wave		Overall	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Grammar	4	25%	8	25%	7	14%	4	25%	3	33%	13	23%	13	23%	26	23%
Spelling	0		0		0		0		0		0		0		0	
Vocabulary	0		0		0		0		0		0		0		0	
Writing/Writing Process	6	50%	8	0%	6	33%	3	0%	2	100%	12	42%	13	15%	25	28%

*Note.* n = number of observations; # = number of observations where the component was required in the weekly lesson path.

The Spelling and Vocabulary components occur in the weekly lesson path only on select days which never happened to coincide with the days randomly selected for teachers to be observed. Thus, there were no opportunities to observe their implementation.

### Fidelity of Small-Group Rotations Within Core Reading Instruction

Overall, teachers met the guidelines of providing 3–4 teacher-led small groups in 79% of the observations (Grade 1 = 83%, Grade 2 = 75%, Grade 3 = 86%, Grade 4 = 75%, and Grade 5 = 66%). A total of 95 small groups were observed. On average, small groups were composed of 3 students (SD = 1.04; range = 1–6 students).

**Table 8** displays the number of groups implemented by grade. It is important to note that the number of small groups and the numbers of students per group could be a function of the class size and of the identified needs of the students within the class. For example, classes with fewer total students will naturally have fewer small-groups, and classes composed of students with more similar reading skill needs may have more students per group. Although some variation in the number and size of the small groups was allowable, not having any small groups was not allowable.

**Table 8.** Number of Small-Group Rotations and Group Size by Grade

Grade	Number of small-group rotations					
	0	1	2	3	4	5
1 ( <i>n</i> = 6 observations; <i>n</i> = 22 groups)			17%		83%	
2 ( <i>n</i> = 8 observations; <i>n</i> = 25 groups)			13%	75%		13%
3 ( <i>n</i> = 7 observations; <i>n</i> = 23 groups)	14%			14%	71%	
4 ( <i>n</i> = 4 observations; <i>n</i> = 13 groups)			25%	25%	50%	
5 ( <i>n</i> = 3 observations; <i>n</i> = 12 groups)				33%	33%	33%
Early Wave	7%		7%	36%	50%	
Late Wave			14%	29%	43%	14%
Overall ( <i>N</i> = 28 observations; <i>n</i> = 95 groups)	4%	0%	11%	32%	46%	7%

Note. *n* = number observed.

Among observations where the teacher led more than one small group, 82% varied the instruction between groups (Grade 1 = 83%, Grade 2 = 75%, Grade 3 = 83%, Grade 4 = 100%, and Grade 5 = 67%). This is an important indicator of the differentiation expected for small-group instruction.

### Materials Used for Small-Group Instruction

In 95% of observed small groups (Grade 1 = 100%, Grade 2 = 96%, Grade 3 = 96%, Grade 4 = 92%, and Grade 5 = 92%), the teacher used approved *Wonders* differentiated instruction materials.

**Table 9** displays the number of observations in which different *Wonders* core materials were included in the small-group instruction. Observations are listed by grade level of the designated class, which is one grade above the grade of the materials used.

**Table 9.** Materials Used in Small Groups by Grade

Materials for small-group instruction	Grade 1 ( <i>n</i> = 22)	Grade 2 ( <i>n</i> = 25)	Grade 3 ( <i>n</i> = 23)	Grade 4 ( <i>n</i> = 13)	Grade 5 ( <i>n</i> = 12)	Early Wave	Late Wave	Overall ( <i>n</i> = 95)
<i>Wonders</i> differentiated instruction: approaching level	71%	84%	78%	69%	67%	75%	75%	75%
<i>Wonders</i> differentiated instruction: on level	29%	12%	17%	23%	25%	22%	18%	20%
English learners				8%	8%	0%	4%	2%
Other materials		4%	4%			2%	2%	2%

Note. *n* = number of small groups observed.

In the majority (75%) of small groups, teachers used the *WonderWorks* approaching-level materials, followed by on-level materials (20%).



## Effects of Teacher Fidelity of *Wonders* Implementation on Student Outcomes

An overall fidelity score for each teacher was calculated as a weighted average of these three components. The components were weighted by the approximate amount of daily time the teacher was expected to spend on each component: (60 minutes x Blue fidelity) + (30 minutes x Green fidelity) + (90 minutes x Yellow fidelity) / 180 total instructional minutes. Mean fidelity scores at each grade level, both by component and overall weighted average, are provided in **Appendix I**.

We tested for the effect of teacher fidelity on student score growth on both RAPID and MAP. These estimated fidelity effects are provided in **Appendix J**. For RAPID, we found a statistically significant positive effect of teacher fidelity on score growth for Grade 1 Word Reading (mean estimate = 2.509; standard error = 1.022; *p*-value = .021). This means that for every 1% increase in teacher fidelity, a student's growth in Grade 1 Word Reading would increase on average by approximately 2.5%. We also found a nearly significant positive effect of teacher fidelity on score growth for Grade 1 Vocabulary Pairs (mean estimate = 1.495; standard error = 0.828; *p*-value = .075) and Grade 2 Word Reading (mean estimate = 2.729; standard error = 1.447; *p*-value = .076). There were some fidelity relationships to score growth on RAPID and MAP that were negative in Grades 3-5, but none that were statistically significant. It is important to note that a positive fidelity effect on mean score growth for an outcome does not imply that mean score growth itself for that outcome was positive. It is important to refer to the growth model results in **Appendices B** and **G** to determine where summer participants demonstrated positive score growth on RAPID and MAP, respectively.



## Fidelity of Interventionists' *WonderWorks* Implementation

There were 6 interventionists (Grade 1 = 2, Grade 2 = 2, Grade 3 = 1, Grade 4 = 1, Grade 5 = 1) delivering the small-group, push-in intervention. One interventionist was observed working with groups of fourth- and fifth-grade students. All were audio recorded weekly to monitor the fidelity with which they implemented *WonderWorks*. The results presented below represent a sampling of the instruction delivered, rather than a full accounting of all instruction delivered in all intervention groups.

A total of 83 intervention groups were observed across Grades 1-5 (Grade 1 = 29, Grade 2 = 24, Grade 3 = 17, Grade 4 = 6, Grade 5 = 7). **Table 10** provides the group sizes by grade. The average intervention group was composed of 3 students (SD = 1.2; range = 1-8 students).

**Table 10.** *WonderWorks* Intervention Group Size by Grade

Grade	Min	Max	Mean	SD
1 ( <i>n</i> = 29)	1	4	2.7	0.8
2 ( <i>n</i> = 24)	1	8	3.2	1.4
3 ( <i>n</i> = 17)	2	6	3.8	1.3
4 ( <i>n</i> = 6)	2	5	4.0	1.1
5 ( <i>n</i> = 7)	2	4	3.6	.79
Overall ( <i>N</i> = 83)	1	8	3.2	1.2

*Note.* *n* = number of observations; Min = minimum group size; Max = maximum group size; SD = standard deviation.

**Table 11** displays the percentage of observations in which teachers at each grade adhered to the suggested timing of *WonderWorks* intervention. Interventionists in Grades 3-5 had perfect adherence in observed lessons, and interventionists in Grade 1 had the lowest adherence (52%). Overall, these rates reflect an improvement over the timing of *WonderWorks* intervention reported in 2018.

**Table 11.** Percentage of Time Teacher Implemented 25-35 Minutes of *WonderWorks* Intervention Groups by Grade

Grade	Early Wave	Late Wave	Adhered to suggested timing overall	Did not adhere to suggested timing overall
	Adhered to suggested timing	Adhered to suggested timing		
1 ( <i>n</i> = 29)	100%	30%	52%	48%
2 ( <i>n</i> = 24)	75%	67%	71%	29%
3 ( <i>n</i> = 17)	100%	100%	100%	0%
4 ( <i>n</i> = 6)	100%	100%	100%	0%
5 ( <i>n</i> = 7)	100%	100%	100%	0%
Overall ( <i>N</i> = 83)	92%	60%	75%	25%

*Note.* *n* = number of observations.

## Materials Used for Small-Group, Push-In Intervention

In 94% of observations, interventionists used the approved *WonderWorks* materials.

- In 30% of observations, interventionists used Decodable Texts in addition to or instead of *WonderWorks* or *Foundational Skills Kit* related materials.
- In 17% of observations, interventionists used Interactive Worktext in addition to or instead of *WonderWorks* or *Foundational Skills Kit* related materials.

In 23% of all observations, interventionists used the *Foundational Skills Kit*. Although it was required in the Grades 1-2 interventions, it was never observed being implemented with these students. By contrast, the *Foundational Skills Kit* was optional in Grades 3-5, but it was observed being implemented in 19 observations with students at these grades (Grade 3 = 32%, Grade 4 = 32%, Grade 5 = 37%).

**Table 12** displays the number of observations in which a component of *WonderWorks* was included in the weekly path by the grade level of the designated class, which is one grade above the grade of the materials used. Overall, 71% of the time interventionists implemented the *WonderWorks* component when required by the weekly lesson path. Note that the lowest implementation rate of 0% was for the After Reading component.

**Table 12.** *WonderWorks* Lesson Components Implemented by Grade

Lesson component	Grade 1 (n = 29)		Grade 2 (n = 24)		Grade 3 (n = 17)		Grade 4 (n = 6)		Grade 5 (n = 7)		Early Wave		Late Wave		Overall (N = 83)	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Phonological Awareness	15	100%	9	66%		N/A		N/A		N/A	11	72%	13	100%	24	88%
Phonemic Awareness	29	86%	24	96%		N/A		N/A		N/A	21	76%	32	97%	53	89%
Phonics	29	83%	24	96%		N/A		N/A		N/A	21	71%	32	97%	53	87%
Build Fluency	29	31%	15	93%		N/A		N/A		N/A	15	27%	29	17%	44	20%
High Frequency Words	29	69%	24	75%		N/A		N/A		N/A	21	62%	32	78%	53	72%
Shared Read	29	79%	24	54%		N/A		N/A		N/A	21	48%	32	81%	53	68%
Oral Vocabulary	29	79%	24	63%		N/A		N/A		N/A	21	67%	32	75%	53	72%
Weekly Concept		N/A		N/A	5	100%	2	100%	3	100%	10	100%	0	0%	10	100%
Review Vocabulary		N/A		N/A	5	100%	2	100%	3	100%	10	100%	0	0%	10	100%
Read/Reread Complex Text		N/A		N/A	10	50%	4	50%	5	20%	10	0%	9	89%	19	42%
Respond to Reading		N/A		N/A	5	100%	2	0%	2	0%	0	0%	9	56%	9	56%
Before Reading		N/A		N/A	3	100%	2	100%	2	100%	7	100%	0	0%	7	100%
During Reading		N/A		N/A	7	86%	2	100%	2	100%	7	100%	4	75%	11	91%
After Reading		N/A		N/A	4	0%	0		0		0	0%	4	0%	4	0%
Review and Reteach		N/A		N/A		N/A		N/A		N/A	0		0		0	N/A
Write About Reading		N/A		N/A		N/A		N/A		N/A	0		0		0	N/A
<b>Overall</b>	<b>189</b>	<b>74%</b>	<b>144</b>	<b>67%</b>	<b>39</b>	<b>74%</b>	<b>14</b>	<b>71%</b>	<b>17</b>	<b>65%</b>	<b>175</b>	<b>65%</b>	<b>228</b>	<b>74%</b>	<b>403</b>	<b>71%</b>

*Note.* n = number of observations; # = number of observations where the component was required in the weekly lesson path; N/A = not applicable because the component was not required in the grade level or was not required in the summer unit.

## Appendix A

### Reading Assessment for Prescriptive Instructional Data (RAPID) Descriptive Statistics by Grade Level

#### Grade 1

The cells shaded in blue show the correlations between spring (pretest) and fall (posttest) administrations of the same RAPID subtest/composite.

**Table A1.** Correlations, Means, and Standard Deviations

	RSP pre	WRead pre	VP pre	FD pre	RSP post	WRead post	VP post	FD post
RSP pre	1.00	0.57	0.36	0.14	0.27	0.21	0.24	0.15
WRead pre		1.00	0.10	0.17	0.14	0.47	0.12	0.24
VP pre			1.00	0.20	0.14	0.04	0.31	0.19
FD pre				1.00	0.10	0.16	0.08	0.50
RSP post					1.00	0.57	0.20	0.08
WRead post						1.00	0.12	0.16
VP post							1.00	0.02
FD post								1.00
Mean	3.2	248.5	421.7	377.9	3.4	214.3	426.6	409.9
SD	5.2	125.0	92.2	140.4	8.4	125.8	96.4	132.7
<i>n</i>	147	147	147	147	147	147	147	147

*Note.* RSP = Reading Success Probability; WRead = Word Reading; VP = Vocabulary Pairs; FD = Following Directions; SD = standard deviation; *n* = number of students.

**Table A2.** Means and Standard Deviations for Treatment and Control Groups

RAPID score	Group	Test wave	Mean	SD	<i>n</i>	Min	Max
RSP	Treatment	Pretest	2.6	5.3	57	1	34
		Posttest	5.0	10.9	57	1	62
	Control	Pretest	3.6	5.3	90	1	23
		Posttest	2.5	6.2	90	1	47
WRead	Treatment	Pretest	245.4	111.3	57	0	422
		Posttest	243.9	128.4	57	0	565
	Control	Pretest	250.4	133.6	90	0	451
		Posttest	195.6	121.0	90	0	486
VP	Treatment	Pretest	427.0	92.8	57	222	635
		Posttest	440.6	101.2	57	237	757
	Control	Pretest	418.4	92.2	90	210	625
		Posttest	417.8	92.7	90	198	592
FD	Treatment	Pretest	394.2	132.2	57	0	696
		Posttest	430.5	120.6	57	15	707
	Control	Pretest	367.5	145.0	90	0	713
		Posttest	396.9	138.9	90	72	711

*Note.* RAPID = Reading Assessment for Prescriptive Instructional Data; SD = standard deviation; *n* = number of students; Min = minimum; Max = maximum; RSP = Reading Success Probability; WRead = Word Reading; VP = Vocabulary Pairs; FD = Following Directions.

## Grade 2

The cells shaded in blue show the correlations between spring (pretest) and fall (posttest) administrations of the same RAPID subtest/composite.

**Table A3.** Correlations, Means, and Standard Deviations

	RSP pre	WRead pre	VP pre	FD pre	SP pre	RSP post	WRead post	VP post	FD post	SP post
RSP pre	1.00	0.37	0.26	0.55	0.65	0.42	0.31	0.26	0.32	0.37
WRead pre		1.00	0.07	0.23	0.71	0.29	0.72	0.25	0.19	0.66
VP pre			1.00	0.20	0.11	0.18	0.12	0.29	0.19	0.05
FD pre				1.00	0.37	0.33	0.23	0.25	0.51	0.30
SP pre					1.00	0.40	0.64	0.22	0.30	0.72
RSP post						1.00	0.32	0.44	0.46	0.65
WRead post							1.00	0.17	0.21	0.66
VP post								1.00	0.25	0.23
FD post									1.00	0.29
SP post										1.00
	RSP pre	WRead pre	VP pre	FD pre	SP pre	RSP post	WRead post	VP post	FD post	SP post
Mean	11.1	399.4	482.9	488.5	394.5	9.0	372.1	498.5	474.3	383.2
SD	14.7	118.8	87.0	149.4	135.2	10.7	142.9	74.5	151.8	124.1
<i>n</i>	136	136	136	136	136	136	136	136	136	136

*Note.* RSP = Reading Success Probability; WRead = Word Reading; VP = Vocabulary Pairs; FD = Following Directions; SP = Spelling; SD = standard deviation; *n* = number of students.

**Table A4.** Means and Standard Deviations for Treatment and Control Groups

RAPID score	Group	Test wave	Mean	SD	<i>n</i>	Min	Max
RSP	Treatment	Pretest	11.6	15.8	51	1	71
		Posttest	9.9	11.7	51	1	57
	Control	Pretest	10.8	14.1	85	1	83
		Posttest	8.5	10.0	85	1	53
WRead	Treatment	Pretest	391.6	109.9	52	0	555
		Posttest	371.5	133.9	51	0	553
	Control	Pretest	404.1	124.3	85	0	612
		Posttest	372.4	148.8	85	0	655
VP	Treatment	Pretest	484.7	79.6	51	292	713
		Posttest	497.4	81.7	51	231	680
	Control	Pretest	481.8	91.6	85	0	670
		Posttest	499.2	70.4	85	322	767
FD	Treatment	Pretest	531.5	136.9	51	141	799
		Posttest	495.6	146.5	51	90	712
	Control	Pretest	462.7	151.4	85	0	772
		Posttest	461.5	154.4	85	0	749
SP	Treatment	Pretest	373.9	133.8	51	100	607
		Posttest	392.5	107.9	51	100	584
	Control	Pretest	406.9	135.3	85	100	641
		Posttest	377.7	133.2	85	100	565

*Note.* RAPID = Reading Assessment for Prescriptive Instructional Data; SD = standard deviation; *n* = number of students; Min = minimum; Max = maximum; RSP = Reading Success Probability; WRead = Word Reading; VP = Vocabulary Pairs; FD = Following Directions; SP = Spelling.

### Grade 3

The cells shaded in blue show the correlations between spring (pretest) and fall (posttest) administrations of the same RAPID subtest/composite.

**Table A5.** Correlations, Means, and Standard Deviations

	RSP pre	WRec pre	VK pre	SK pre	RC pre	RSP post	WRec post	VK post	SK post	RC post
RSP pre	1.00	0.38	0.43	0.05	0.63	0.13	0.09	0.09	0.07	0.04
WRec pre		1.00	0.21	-0.14	0.04	0.03	0.05	0.04	0.03	-0.09
VK pre			1.00	0.15	0.16	0.09	-0.02	0.14	0.03	0.02
SK pre				1.00	0.05	0.13	-0.01	0.14	0.11	0.15
RC pre					1.00	0.19	0.20	0.07	0.04	0.20
RSP post						1.00	0.36	0.31	0.12	0.71
WRec post							1.00	0.14	-0.02	0.03
VK post								1.00	0.05	0.03
SK post									1.00	0.17
RC post										1.00
Mean	6.8	252.7	325.9	292.4	295.2	6.5	247.2	329.3	280.1	298.6
SD	10.1	97.3	91.1	105.4	32.8	9.8	87.2	89.2	102.4	32.2
<i>n</i>	174	174	174	174	174	174	174	174	174	174

*Note.* RSP = Reading Success Probability; WRec = Word Recognition; VK = Vocabulary Knowledge; SK = Syntactic Knowledge; RC = Reading Comprehension; SD = standard deviation; *n* = number of students.

**Table A6.** Means and Standard Deviations for Treatment and Control Groups

RAPID score	Group	Test wave	Mean	SD	<i>n</i>	Min	Max
RSP	Treatment	Pretest	5.8	5.9	58	1	27
		Posttest	5.9	8.3	58	1	50
	Control	Pretest	7.3	11.6	116	1	72
		Posttest	6.9	10.4	116	1	96
WRec	Treatment	Pretest	249.1	104.2	58	0	457
		Posttest	251.1	78.7	58	0	434
	Control	Pretest	254.5	94.0	116	0	427
		Posttest	245.3	91.4	116	0	430
VK	Treatment	Pretest	311.6	88.9	58	0	440
		Posttest	335.6	79.1	58	0	541
	Control	Pretest	333.1	91.7	116	0	678
		Posttest	326.1	94.0	116	0	546
SK	Treatment	Pretest	292.4	105.9	58	0	513
		Posttest	280.5	103.7	58	0	454
	Control	Pretest	292.4	105.6	116	0	651
		Posttest	279.9	102.2	116	0	502
RC	Treatment	Pretest	297.3	26.0	58	226	353
		Posttest	295.0	28.0	58	236	387
	Control	Pretest	294.1	35.7	116	160	379
		Posttest	300.4	34.1	116	169	469

*Note.* RAPID = Reading Assessment for Prescriptive Instructional Data; SD = standard deviation; *n* = number of students; Min = minimum; Max = maximum; RSP = Reading Success Probability; WRec = Word Recognition; VK = Vocabulary Knowledge; SK = Syntactic Knowledge; RC = Reading Comprehension.

## Grade 4

The cells shaded in blue show the correlations between spring (pretest) and fall (posttest) administrations of the same RAPID subtest/composite.

**Table A7.** Correlations, Means, and Standard Deviations

	RSP pre	WRec pre	VK pre	SK pre	RC pre	RSP post	WRec post	VK post	SK post	RC post
RSP pre	1.00	0.24	0.36	0.11	0.57	0.08	0.12	0.21	0.17	0.11
WRec pre		1.00	0.15	0.21	0.18	0.12	0.19	0.19	0.10	0.10
VK pre			1.00	0.28	0.19	0.18	0.18	0.36	0.17	0.17
SK pre				1.00	0.14	0.04	0.03	0.01	0.19	0.06
RC pre					1.00	0.04	0.04	0.11	0.12	0.08
RSP post						1.00	0.24	0.42	0.22	0.66
WRec post							1.00	0.30	0.15	0.30
VK post								1.00	0.37	0.40
SK post									1.00	0.33
RC post										1.00
Mean	2.4	344.1	323.5	330.6	316.7	5.2	342.9	345.6	340.9	325.7
SD	3.6	95.6	95.0	113.7	43.3	12.9	131.0	84.3	107.5	49.4
<i>n</i>	156	156	156	156	156	156	156	156	156	156

*Note.* RSP = Reading Success Probability; WRec = Word Recognition; VK = Vocabulary Knowledge; SK = Syntactic Knowledge; RC = Reading Comprehension; SD = standard deviation; *n* = number of students.

**Table A8.** Means and Standard Deviations for Treatment and Control Groups

RAPID score	Group	Test wave	Mean	SD	<i>n</i>	Min	Max
RSP	Treatment	Pretest	1.2	0.7	34	1	5
		Posttest	2.7	5.4	34	1	29
	Control	Pretest	2.7	4.0	122	1	29
		Posttest	5.9	14.3	122	1	83
WRec	Treatment	Pretest	328.4	11.5	34	57	543
		Posttest	331.4	101.9	34	13	533
	Control	Pretest	348.5	91.0	122	67	606
		Posttest	346.1	138.2	122	0	1000
VK	Treatment	Pretest	305.8	100.5	34	0	487
		Posttest	335.0	73.6	34	176	469
	Control	Pretest	328.5	93.2	122	0	514
		Posttest	348.6	87.1	122	0	657
SK	Treatment	Pretest	305.9	139.6	34	0	550
		Posttest	320.4	135.7	34	0	546
	Control	Pretest	337.5	105.0	122	0	681
		Posttest	346.6	98.1	122	49	622
RC	Treatment	Pretest	306.8	31.6	34	254	371
		Posttest	314.6	47.8	34	232	421
	Control	Pretest	319.5	45.8	122	208	422
		Posttest	328.9	49.6	122	232	497

*Note.* RAPID = Reading Assessment for Prescriptive Instructional Data; SD = standard deviation; *n* = number of students; Min = minimum; Max = maximum; RSP = Reading Success Probability; WRec = Word Recognition; VK = Vocabulary Knowledge; SK = Syntactic Knowledge; RC = Reading Comprehension.

## Grade 5

The cells shaded in blue show the correlations between spring (pretest) and fall (posttest) administrations of the same RAPID subtest/composite.

**Table A9.** Correlations, Means, and Standard Deviations

	RSP pre	WRec pre	VK pre	SK pre	RC pre	RSP post	WRec post	VK post	SK post	RC post
RSP pre	1.00	0.02	0.20	0.45	0.68	0.12	0.00	-0.01	0.12	0.14
WRec pre		1.00	0.01	0.01	0.19	0.00	0.09	0.02	-0.09	0.02
VK pre			1.00	-0.11	0.17	-0.01	0.12	0.01	-0.13	-0.01
SK pre				1.00	0.27	0.18	-0.06	0.10	0.27	0.20
RC pre					1.00	0.18	0.03	-0.01	0.17	0.24
RSP post						1.00	-0.04	0.22	0.49	0.78
WRec post							1.00	0.14	-0.05	0.01
VK post								1.00	0.05	0.29
SK post									1.00	0.42
RC post										1.00
Mean	5.8	340.5	385.5	374.1	333.5	8.4	375.9	391.0	383.5	344.6
SD	10.6	137.4	68.2	116.1	47.4	15.4	119.9	76.9	106.2	52.0
<i>n</i>	143	143	143	143	143	143	143	143	143	143

*Note.* RSP = Reading Success Probability; WRec = Word Recognition; VK = Vocabulary Knowledge; SK = Syntactic Knowledge; RC = Reading Comprehension; SD = standard deviation; *n* = number of students.

**Table A10.** Means and Standard Deviations for Treatment and Control Groups

RAPID score	Group	Test wave	Mean	SD	<i>n</i>	Min	Max
RSP	Treatment	Pretest	4.3	5.9	34	1	32
		Posttest	9.1	18.1	34	1	78
	Control	Pretest	6.3	11.7	109	1	69
		Posttest	8.2	14.5	109	1	80
WRec	Treatment	Pretest	309.2	149.6	34	0	518
		Posttest	353.5	126.6	34	91	534
	Control	Pretest	350.3	132.6	109	0	594
		Posttest	382.8	117.5	109	0	622
VK	Treatment	Pretest	376.1	64.8	34	154	518
		Posttest	377.6	92.6	34	0	592
	Control	Pretest	388.4	69.2	109	0	494
		Posttest	395.2	71.2	109	0	542
SK	Treatment	Pretest	363.2	123.4	34	0	543
		Posttest	403.2	86.4	34	119	559
	Control	Pretest	377.5	114.1	109	0	651
		Posttest	377.4	111.3	109	0	621
RC	Treatment	Pretest	328.3	47.1	34	240	440
		Posttest	345.4	53.0	34	273	498
	Control	Pretest	335.1	47.6	109	242	458
		Posttest	344.4	51.9	109	240	510

*Note.* RAPID = Reading Assessment for Prescriptive Instructional Data; SD = standard deviation; *n* = number of students; Min = minimum; Max = maximum; RSP = Reading Success Probability; WRec = Word Recognition; VK = Vocabulary Knowledge; SK = Syntactic Knowledge; RC = Reading Comprehension.



## Appendix B

**Table B1.** Main Effects Model Results for Reading Assessment for Prescriptive Instructional Data (RAPID; Students in Summer Program vs. Eligible, Non-Attending Students)

Grade	Outcome	Mean difference	Standard error	<i>t</i> -statistic	<i>p</i> -value	Effect size
1	RSP	2.100	1.483	1.416	0.168	0.359
1	WRead	62.000	28.784	2.154	0.040*	0.390
1	VP	36.479	18.602	1.961	0.060	0.306
1	FD	16.280	19.966	0.815	0.422	0.099
2	RSP	0.556	2.369	0.235	0.816	0.035
2	WRead	14.069	25.623	0.549	0.588	0.071
2	VP	-6.021	14.939	-0.403	0.691	-0.059
2	FD	17.873	22.771	0.785	0.439	0.092
2	SP	30.471	19.451	1.566	0.129	0.167
3	RSP	1.072	1.741	0.615	0.544	0.146
3	WRec	3.325	16.037	0.207	0.837	0.027
3	VK	22.566	21.611	1.044	0.306	0.164
3	SK	-3.589	22.555	-0.159	0.875	-0.022
3	RC	-0.219	5.367	-0.041	0.968	-0.006
4	RSP	-0.917	1.400	-0.655	0.519	-0.109
4	WRec	-11.391	31.801	-0.358	0.723	-0.056
4	VK	-14.235	20.559	-0.692	0.495	-0.106
4	SK	-10.832	28.838	-0.376	0.711	-0.075
4	RC	-1.582	13.403	-0.118	0.907	-0.025
5	RSP	-2.461	4.241	-0.580	0.567	-0.103
5	WRec	-30.799	30.672	-1.004	0.326	-0.195
5	VK	-15.705	21.999	-0.714	0.483	-0.264
5	SK	35.599	24.967	1.426	0.167	0.207
5	RC	-11.070	14.206	-0.779	0.444	-0.128

*Note.* RSP = Reading Success Probability; WRead = Word Reading; VP = Vocabulary Pairs; FD = Following Directions; SP = Spelling; WRec = Word Recognition; VK = Vocabulary Knowledge; SK = Syntactic Knowledge; RC = Reading Comprehension; \* = Statistically significant results at  $\alpha < .05$ .



## Appendix C

**Table C1.** Small-Group Intervention Model Results (Subgroup of Students Receiving Push-In, Supplemental Intervention)

Grade	Outcome	Mean difference	Standard error	t-statistic	p-value	Effect size
1	RSP	-6.996	4.114	-1.701	0.096	-0.430
1	WRead	-102.675	46.048	-2.230	0.031*	-0.637
2	RSP	1.215	4.316	0.281	0.780	0.077
2	WRead	29.516	36.826	0.802	0.428	0.217
3	RSP	1.540	2.112	0.729	0.470	0.165
3	WRec	-27.684	27.079	-1.022	0.314	-0.225
4	RSP	-2.273	2.224	-1.022	0.318	-0.309
4	WRec	-76.903	39.744	-1.935	0.066	-0.632

*Note.* RSP = Reading Success Probability; WRead = Word Reading; WRec = Word Recognition; \* = Statistically significant results at  $\alpha < .05$ . Also, a model for Grade 5 could not be fit due to very small sample sizes.

## Appendix D

**Table D1.** Growth Model Results for Reading Assessment for Prescriptive Instructional Data (RAPID; Summer Program Students Only)

Grade	Outcome	Mean growth	Standard error	t-statistic	p-value	Effect size
1	RSP	2.399	1.489	1.611	0.110	0.284
1	WRead	-5.956	21.321	-0.279	0.781	-0.049
1	VP	15.953	16.328	0.977	0.331	0.163
1	FD	29.521	20.574	1.435	0.155	0.233
2	RSP	-2.847	2.503	-1.138	0.258	-0.199
2	WRead	-22.811	20.486	-1.113	0.269	-0.184
2	VP	8.218	13.805	0.594	0.553	0.100
2	FD	-45.274	24.805	-1.825	0.072	-0.308
2	SP	13.415	21.059	0.637	0.526	0.113
3	RSP	0.462	1.240	0.373	0.710	0.066
3	WRec	17.878	17.146	1.043	0.299	0.183
3	VK	15.308	13.780	1.111	0.269	0.182
3	SK	1.166	18.793	0.062	0.951	0.011
3	RC	-1.141	4.611	-0.247	0.805	-0.043
4	RSP	1.283	0.848	1.513	0.137	0.158
4	WRec	6.036	23.717	0.255	0.800	0.057
4	VK	23.100	18.140	1.273	0.209	0.250
4	SK	8.006	28.385	0.282	0.779	0.057
4	RC	0.306	10.420	0.029	0.977	0.007
5	RSP	4.765	3.260	1.461	0.149	0.351
5	WRec	44.294	30.692	1.443	0.155	0.318
5	VK	1.471	19.485	0.075	0.940	0.019
5	SK	40.000	24.480	1.634	0.111	0.369
5	RC	17.029	12.001	1.419	0.161	0.337

*Note.* RSP = Reading Success Probability; WRead = Word Reading; VP = Vocabulary Pairs; FD = Following Directions; SP = Spelling; WRec = Word Recognition; VK = Vocabulary Knowledge; SK = Syntactic Knowledge; RC = Reading Comprehension; \* = Statistically significant results at  $\alpha < .05$ .

## Appendix E

**Table E1.** Sources of Variation for Reading Assessment for Prescriptive Instructional Data (RAPID) Score Growth (Summer School Students Only)

Grade	Outcome	Percent of Score Growth Variation attributable to:	
		Summer classroom	2019 spring classroom
1	RSP	0.0%	7.1%
1	WRead	9.4%	1.1%
1	VP	2.6%	13.7%
1	FD	4.1%	17.2%
2	RSP	0.0%	15.4%
2	WRead	5.8%	19.8%
2	VP	0.0%	25.3%
2	FD	1.9%	22.0%
2	SP	0.0%	16.2%
3	RSP	0.0%	2.1%
3	WRec	2.2%	0.0%
3	VK	1.2%	13.4%
3	SK	0.0%	3.8%
3	RC	0.0%	6.2%
4	RSP	0.0%	82.5%
4	WRec	0.0%	11.8%
4	VK	0.0%	32.5%
4	SK	0.0%	30.5%
4	RC	1.6%	0.0%
5	RSP	0.0%	3.2%
5	WRec	0.0%	16.3%
5	VK	0.0%	0.0%
5	SK	0.0%	12.7%
5	RC	0.0%	3.3%

*Note.* RSP = Reading Success Probability; WRead = Word Reading; VP = Vocabulary Pairs; FD = Following Directions; SP = Spelling; WRec = Word Recognition; VK = Vocabulary Knowledge; SK = Syntactic Knowledge; RC = Reading Comprehension.

**Table E2.** Sources of Variation for Measures of Academic Progress (MAP) Score Growth (Summer School Students Only)

Grade	Outcome	Percent of score growth variation attributable to:	
		Summer classroom	2019 spring classroom
1	RIT	1.1%	18.6%
1	NPR	0.0%	17.1%
2	RIT	0.0%	8.3%
2	NPR	0.0%	3.7%
3	RIT	0.6%	9.1%
3	NPR	1.2%	3.1%
4	RIT	1.6%	43.3%
4	NPR	0.0%	46.4%
5	RIT	3.3%	23.3%
5	NPR	4.6%	25.8%

*Note.* RIT = Rausch Unit; NPR = national percentile rank

## Appendix F

### Measures of Academic Progress (MAP) Descriptive Statistics by Grade Level

#### Grade 1

**Table F1.** Correlations

	MAP		RAPID		FAST spring
	RIT spring	RIT fall	RSP spring	RSP fall	Composite
MAP (RIT) spring	1.00	0.43	0.15	0.04	0.44
MAP (RIT) fall		1.00	0.10	0.13	0.31
RSP spring			1.00	0.27	0.25
RSP fall				1.00	0.14
FAST spring					1.00

*Note.* MAP = Measures of Academic Progress; RAPID = Reading Assessment for Prescriptive Instructional Data; FAST = Formative Assessment System for Teachers; RIT = Rausch Unit; RSP = Reading Success Probability.

**Table F2.** Measures of Academic Progress (MAP) Scores: Treatment vs. Control

Group	Outcome	Test wave	Mean	SD	<i>n</i>	Min	Max
Treatment	RIT	Spring	150.4	8.6	63	127	171
		Fall	154.4	10.1	63	123	173
Control (w/RAPID)	RIT	Spring	149.6	9.9	96	120	177
		Fall	150.9	9.3	96	121	176
Control (w/o RAPID)	RIT	Spring	159.1	10.6	474	129	195
		Fall	161.8	11.5	474	127	198
Overall	RIT	Spring	156.8	11.1	633	120	195
		Fall	159.4	11.8	633	121	198
Treatment	NPR	Spring	30.7	19.8	63	1	84
		Fall	37.1	23.8	63	1	84
Control (w/RAPID)	NPR	Spring	29.8	20.6	96	1	93
		Fall	28.7	19.0	96	1	89
Control (w/o RAPID)	NPR	Spring	51.8	25.4	474	1	99
		Fall	53.7	26.1	474	1	99
Overall	NPR	Spring	46.4	25.9	633	1	99
		Fall	48.3	26.7	633	1	99

*Note.* SD = standard deviation; *n* = number of students; Min = minimum; Max = maximum; RIT = Rausch Unit; NPR = national percentile rank; RAPID = Reading Assessment for Prescriptive Instructional Data.

**Table F3. Measures of Academic Progress (MAP) Demographics**

Percentage	Female	Black	Hispanic	White	FRL	EL	IEP
<b>Treatment</b>	46.0%	9.5%	4.8%	82.5%	47.6%	3.2%	22.2%
<b>Control (w/ RAPID)</b>	45.8%	7.3%	15.6%	77.1%	62.5%	12.5%	32.3%
<b>Control (w/o RAPID)</b>	48.7%	6.5%	11.6%	78.1%	50.4%	11.4%	9.5%

*Note.* FRL = Free or Reduced-Price Lunch; EL = English learner; IEP = Individualized Education Program; RAPID = Reading Assessment for Prescriptive Instructional Data.

## Grade 2

**Table F4. Correlations**

	MAP		RAPID		FAST spring	
	RIT spring	RIT fall	RSP spring	RSP fall	Composite	CBM-R
<b>MAP (RIT) Spring</b>	1.00	0.43	0.39	0.40	0.36	0.35
<b>MAP (RIT) Fall</b>		1.00	0.32	0.39	0.43	0.50
<b>RSP Spring</b>			1.00	0.43	0.43	0.45
<b>RSP Fall</b>				1.00	0.33	0.33
<b>FAST Composite</b>					1.00	0.90
<b>FAST CBMR</b>						1.00

*Note.* MAP = Measures of Academic Progress; RAPID = Reading Assessment for Prescriptive Instructional Data; RIT = Rausch Unit; RSP = Reading Success Probability; FAST = Formative Assessment System for Teachers; CBM-R = curriculum-based measure of reading.

**Table F5. Measures of Academic Progress (MAP) Scores: Treatment vs. Control**

Group	Outcome	Test wave	Mean	SD	<i>n</i>	Min	Max
<b>Treatment</b>	RIT	Spring	164.4	9.9	57	135	190
		Fall	155.7	8.1	57	142	182
<b>Control (w/RAPID)</b>	RIT	Spring	164.8	13.0	86	129	204
		Fall	154.5	7.5	86	139	174
<b>Control (w/o RAPID)</b>	RIT	Spring	179.8	12.8	467	139	228
		Fall	173.1	14.2	467	137	214
<b>Overall</b>	RIT	Spring	176.2	14.1	610	129	228
		Fall	168.9	15.1	610	137	214
<b>Treatment</b>	NPR	Spring	22.5	17.6	57	1	80
		Fall	14.6	13.2	57	2	70
<b>Control (w/RAPID)</b>	NPR	Spring	25.3	21.8	86	1	97
		Fall	12.9	10.5	86	1	50
<b>Control (w/o RAPID)</b>	NPR	Spring	54.4	26.6	467	1	99
		Fall	48.0	27.8	467	1	99
<b>Overall</b>	NPR	Spring	47.3	28.3	610	1	99
		Fall	39.9	28.9	610	1	99

*Note.* SD = standard deviation; *n* = number of students; Min = minimum; Max = maximum; RIT = Rausch Unit; NPR = national percentile rank; RAPID = Reading Assessment for Prescriptive Instructional Data.

**Table F6.** Measures of Academic Progress (MAP) Demographics

Percentage	Female	Black	Hispanic	White	FRL	EL	IEP
Treatment	43.9%	8.8%	26.3%	63.2%	49.1%	17.5%	35.1%
Control (w/RAPID)	48.8%	7.0%	8.1%	82.6%	44.2%	10.4%	40.7%
Control (w/o RAPID)	52.0%	5.1%	13.1%	78.8%	41.8%	11.8%	18.8%

*Note.* FRL = Free or Reduced-Price Lunch; EL = English learner; IEP = Individualized Education Program; RAPID = Reading Assessment for Prescriptive Instructional Data.

### Grade 3

**Table F7.** Correlations

	MAP		RAPID		FAST spring
	RIT spring	RIT fall	RSP spring	RSP fall	aReading
MAP (RIT) spring	1.00	0.64	0.22	0.28	0.60
MAP (RIT) fall		1.00	0.22	0.43	0.58
RSP spring			1.00	0.13	0.23
RSP fall				1.00	0.22
FAST spring					1.00

*Note.* MAP = Measures of Academic Progress; RAPID = Reading Assessment for Prescriptive Instructional Data; FAST = Formative Assessment System for Teachers; RIT = Rausch Unit; RSP = Reading Success Probability; aReading = FastBridge Adaptive Reading measure.

**Table F8.** Measures of Academic Progress (MAP) Scores: Treatment vs. Control

Group	Outcome	Test wave	Mean	SD	<i>n</i>	Min	Max
Treatment	RIT	Spring	168.8	10.6	65	152	196
		Fall	167.2	11.5	65	145	195
Control (w/RAPID)	RIT	Spring	169.5	10.7	127	144	196
		Fall	168.3	11.6	127	145	204
Control (w/o RAPID)	RIT	Spring	192.9	12.7	406	147	221
		Fall	193.2	13.4	406	149	225
Overall	RIT	Spring	185.3	16.3	598	144	221
		Fall	185.1	17.4	598	145	225
Treatment	NPR	Spring	14.3	14.8	65	1	68
		Fall	14.8	16.0	65	1	68
Control (w/RAPID)	NPR	Spring	15.3	14.5	127	1	68
		Fall	16.1	16.4	127	1	85
Control (w/o RAPID)	NPR	Spring	59.4	24.7	406	1	98
		Fall	61.5	25.0	406	1	99
Overall	NPR	Spring	45.1	30.2	598	1	98
		Fall	46.8	31.1	598	1	99

*Note.* SD = standard deviation; *n* = number of students; Min = minimum; Max = maximum; RIT = Rausch Unit; NPR = national percentile rank; RAPID = Reading Assessment for Prescriptive Instructional Data.

**Table F9.** Measures of Academic Progress (MAP) Demographics

Percentage	Female	Black	Hispanic	White	FRL	EL	IEP
Treatment	41.5%	10.8%	9.2%	80.0%	43.1%	9.2%	46.2%
Control (w/ RAPID)	48.0%	7.9%	11.8%	77.2%	49.6%	11.8%	46.5%
Control (w/o RAPID)	49.5%	6.2%	12.8%	78.6%	40.9%	10.6%	27.6%

*Note.* FRL = Free or Reduced-Price Lunch; EL = English learner; IEP = Individualized Education Program; RAPID = Reading Assessment for Prescriptive Instructional Data.

## Grade 4

**Table F10.** Correlations

	MAP		RAPID		FAST Spring
	RIT spring	RIT fall	RSP spring	RSP fall	aReading
MAP (RIT) spring	1.00	0.62	0.16	0.28	0.67
MAP (RIT) fall		1.00	0.07	0.22	0.68
RSP spring			1.00	0.07	0.11
RSP fall				1.00	0.26
FAST spring					1.00

*Note.* MAP = Measures of Academic Progress; RAPID = Reading Assessment for Prescriptive Instructional Data; FAST = Formative Assessment System for Teachers; RIT = Rausch Unit; RSP = Reading Success Probability; aReading = FastBridge Adaptive Reading measure.

**Table F11.** Measures of Academic Progress (MAP) Scores: Treatment vs. Control

Group	Outcome	Test wave	Mean	SD	<i>n</i>	Min	Max
Treatment	RIT	Spring	177.7	12.3	36	152	198
		Fall	175.4	12.5	36	151	200
Control (w/RAPID)	RIT	Spring	177.4	12.1	132	152	198
		Fall	177.4	13.5	132	143	215
Control (w/o RAPID)	RIT	Spring	201.6	12.0	455	147	239
		Fall	202.7	12.3	455	151	235
Overall	RIT	Spring	195.1	16.1	623	147	239
		Fall	195.8	17.0	623	143	235
Treatment	NPR	Spring	14.1	14.1	36	1	48
		Fall	13.4	14.5	36	1	56
Control (w/RAPID)	NPR	Spring	13.9	13.3	132	1	48
		Fall	16.3	16.9	132	1	87
Control (w/o RAPID)	NPR	Spring	56.8	23.7	455	1	99
		Fall	60.9	23.4	455	1	99
Overall	NPR	Spring	45.2	28.7	623	1	99
		Fall	48.7	29.6	623	1	99

*Note.* SD = standard deviation; *n* = number of students; Min = minimum; Max = maximum; RIT = Rausch Unit; NPR = national percentile rank; RAPID = Reading Assessment for Prescriptive Instructional Data.



**Table F12.** Measures of Academic Progress (MAP) Demographics

Percentage	Female	Black	Hispanic	White	FRL	EL	IEP
Treatment	36.1%	5.6%	11.1%	83.3%	44.4%	13.9%	75.0%
Control (w/RAPID)	48.5%	5.3%	23.5%	68.9%	54.5%	22.0%	59.8%
Control (w/o RAPID)	50.5%	5.1%	12.5%	80.2%	36.9%	8.1%	42.4%

*Note.* FRL = Free or Reduced-Price Lunch; EL = English learner; IEP = Individualized Education Program; RAPID = Reading Assessment for Prescriptive Instructional Data.

## Grade 5

**Table F13.** Correlations

	MAP		RAPID		FAST spring
	RIT spring	RIT fall	RSP spring	RSP fall	aReading
MAP (RIT) spring	1.00	0.72	0.21	0.21	0.69
MAP (RIT) fall		1.00	0.27	0.27	0.74
RSP spring			1.00	0.12	0.24
RSP fall				1.00	0.20
FAST spring					1.00

*Note.* MAP = Measures of Academic Progress; RAPID = Reading Assessment for Prescriptive Instructional Data; FAST = Formative Assessment System for Teachers; RIT = Rausch Unit; RSP = Reading Success Probability; aReading = FastBridge Adaptive Reading measure.

**Table F14.** Measures of Academic Progress (MAP) Scores: Treatment vs. Control

Group	Outcome	Test Wave	Mean	SD	<i>n</i>	Min	Max
Treatment	RIT	Spring	188.6	13.2	36	160	214
		Fall	188.9	12.5	36	155	204
Control (w/RAPID)	RIT	Spring	189.6	13.2	113	159	219
		Fall	187.2	13.0	113	151	213
Control (w/o RAPID)	RIT	Spring	208.3	10.5	465	154	238
		Fall	209.1	11.5	465	150	236
Overall	RIT	Spring	203.7	13.8	614	154	238
		Fall	203.9	15.0	614	150	236
Treatment	NPR	Spring	19.4	19.4	36	1	71
		Fall	20.2	14.8	36	1	46
Control (w/RAPID)	NPR	Spring	20.8	19.5	113	1	81
		Fall	18.4	15.5	113	1	69
Control (w/o RAPID)	NPR	Spring	55.5	22.5	465	1	98
		Fall	58.4	23.6	465	1	98
Overall	NPR	Spring	47.0	26.5	614	1	98
		Fall	48.8	27.7	614	1	98

*Note.* SD = standard deviation; *n* = number of students; Min = minimum; Max = maximum; RIT = Rausch Unit; NPR = national percentile rank; RAPID = Reading Assessment for Prescriptive Instructional Data.

**Table F15.** Measures of Academic Progress (MAP) Demographics

<b>Percentage</b>	<b>Female</b>	<b>Black</b>	<b>Hispanic</b>	<b>White</b>	<b>FRL</b>	<b>ELL</b>	<b>IEP</b>
<b>Treatment</b>	55.6%	8.3%	13.9%	75.0%	50.0%	11.1%	63.9%
<b>Control (w/RAPID)</b>	45.1%	6.2%	17.7%	73.5%	50.4%	19.5%	73.5%
<b>Control (w/o RAPID)</b>	46.5%	5.6%	11.4%	82.2%	38.9%	10.1%	52.0%

*Note.* FRL = Free or Reduced-Price Lunch; EL = English learner; IEP = Individualized Education Program; RAPID = Reading Assessment for Prescriptive Instructional Data.

## Appendix G

**Table G1.** Main Effects Model Results for Measures of Academic Progress (MAP) RIT (Rausch Unit; Students in Summer Program vs. Eligible, Non-Attending Students)

Grade	Mean difference	Standard error	<i>t</i> -statistic	<i>p</i> -value	Effect size
1	1.839	1.654	1.112	0.275	0.152
2	1.692	1.382	1.225	0.231	0.180
3	-0.415	1.832	-0.227	0.822	-0.029
4	-0.840	3.936	-0.213	0.833	-0.046
5	0.724	2.428	0.298	0.768	0.049

**Table G2.** Main Effects Model Results for Measures of Academic Progress (MAP) National Percentile Rank (NPR; Students in Summer Program vs. Eligible, Non-Attending Students)

Grade	Mean difference	Standard error	<i>t</i> -statistic	<i>p</i> -value	Effect size
1	4.980	3.563	1.397	0.173	0.208
2	3.017	2.149	1.404	0.171	0.229
3	-0.445	2.718	-0.164	0.871	-0.022
4	-3.089	3.792	-0.815	0.423	-0.131
5	0.762	2.938	0.259	0.797	0.043

## Appendix H

**Table H1.** Growth Model Results for Measures of Academic Progress (MAP) National Percentile Rank (NPR; Summer Program Students Only)

Grade	Mean growth	Standard error	<i>t</i> -statistic	<i>p</i> -value	Effect size
1	6.226	3.517	1.770	0.080	0.284
2	-9.737	3.026	-3.218	0.002*	-0.560
3	1.655	2.692	0.615	0.540	0.105
4	-1.617	2.643	-0.612	0.543	-0.104
5	1.186	3.519	0.337	0.738	0.066

*Note.* \* = Statistically significant results at  $\alpha < .05$ .

## Appendix I

**Table 11.** Teacher Fidelity Descriptives by Grade Level

Grade Level	Component	Mean	SD	<i>n</i>	Min	Max
1	Blue	54.5	19.1	3	32.5	66.1
	Green	33.3	38.2	3	0	75
	Yellow	54.2	14.4	3	37.5	62.5
	Overall	50.8	16.1	3	33.8	65.8
2	Blue	22.9	16.1	4	0	37.5
	Green	12.5	14.4	4	0	25
	Yellow	40.6	12.0	4	25	50
	Overall	30.0	9.8	4	18.8	38.9
3	Blue	50.3	26.2	4	16.7	75
	Green	25.0	28.9	4	0	50
	Yellow	28.1	21.4	4	0	50
	Overall	35.0	15.8	4	24.3	58.3
4	Blue	0.0	--	2	0	0
	Green	12.5	17.7	2	0	25
	Yellow	56.3	8.8	2	50	62.5
	Overall	30.2	7.4	2	25	35.4
5	Blue	33.3	47.1	2	0	66.7
	Green	62.5	53.0	2	25	100
	Yellow	56.3	26.5	2	37.5	75
	Overall	49.7	37.8	2	22.9	76.4
Total	Blue	34.9	27.9	15	0	75
	Green	26.7	30.6	15	0	100
	Yellow	44.2	18.8	15	0	75
	Overall	38.2	17.3	15	18.8	76.4

*Note.* Blue = whole-group reading lessons; Green = whole-group language arts lessons; Yellow = small-group rotations; SD = standard deviation; *n* = number of students; Min = minimum; Max = maximum.

## Appendix J

**Table J1.** Teacher Fidelity Effect on Student Growth: Model Results for Reading Assessment for Prescriptive Instructional Data (RAPID)

Grade	Outcome	Fidelity effect	Standard error	t-statistic	p-value
1	RSP	0.055	0.054	1.021	0.310
1	WRead	2.509	1.022	2.455	0.021*
1	VP	1.495	0.828	1.805	0.075
1	FD	1.172	1.001	1.171	0.263
2	RSP	0.029	0.163	0.179	0.858
2	WRead	2.729	1.447	1.887	0.076
2	VP	0.407	0.907	0.449	0.655
2	FD	-0.873	1.732	-0.504	0.620
2	SP	0.442	1.354	0.326	0.745
3	RSP	-0.031	0.056	-0.558	0.583
3	WRec	-0.660	0.687	-0.960	0.340
3	VK	0.265	0.705	0.376	0.709
3	SK	0.255	0.743	0.343	0.732
3	RC	-0.117	0.172	-0.681	0.498
4	RSP	0.021	0.096	0.218	0.828
4	WRec	-1.398	2.382	-0.587	0.559
4	VK	1.724	1.912	0.901	0.371
4	SK	1.190	2.975	0.400	0.691
4	RC	-0.692	1.179	-0.587	0.575
5	RSP	-0.016	0.062	-0.264	0.793
5	WRec	0.469	0.649	0.722	0.473
5	VK	-0.154	0.465	-0.331	0.744
5	SK	-0.232	0.501	-0.463	0.646
5	RC	-0.223	0.228	-0.979	0.331

*Note.* RSP = Reading Success Probability; WRead = Word Reading; VP = Vocabulary Pairs; FD = Following Directions; SP = Spelling; WRec = Word Recognition; VK = Vocabulary Knowledge; SK = Syntactic Knowledge; RC = Reading Comprehension; \* = Statistically significant results at  $\alpha < .05$ .

**Table J2.** Fidelity Effect on Growth: Model Results for Measures of Academic Progress (MAP) National Percentile Rank (NPR)

Grade	Fidelity effect	Standard error	t-statistic	p-value
1	0.295	0.168	1.751	0.083
2	0.107	0.186	0.577	0.565
3	-0.178	0.110	-1.608	0.112
4	-0.154	0.293	-0.527	0.600
5	0.132	0.079	1.667	0.100