

Includes Results for English Learners,
Students with Disabilities, and
Other Student Groups



Efficacy Research for *i-Ready Personalized Instruction* Reading and Mathematics

Curriculum Associates Research Brief | Updated November 2020

i-Ready Personalized Instruction Improves Students' Reading and Mathematics Achievement

Study Overview

The goal of this research study was to understand the impact of *i-Ready Personalized Instruction* (*i-Ready*) on students' reading and mathematics achievement. To do so, the Research team at Curriculum Associates conducted comprehensive research into the impact of *i-Ready* on student learning gains as measured by the *i-Ready Diagnostic* (Diagnostic) during the 2017–2018 academic year. The findings from this study demonstrate that *i-Ready* is an evidence-based intervention as defined by the Every Student Succeeds Act (ESSA). This research study meets the ESSA Level 3 criteria for Promising Evidence.

Introduction

The Curriculum Associates Research team conducted three separate analyses to determine the effects of *i-Ready* on students' reading and mathematics achievement during the 2017–2018 academic year. The first analysis examined the learning gains for students using *i-Ready* as intended relative to students who did not use *i-Ready* across Grades K–8. The second analysis examined the learning gains for students in special populations, including students with disabilities, English Learners, students who are economically disadvantaged, and students of color across Grades K–8. The third analysis was an analysis of covariance (ANCOVA) that controlled for prior spring test scores among students in Grades 1–8 to provide evidence that research on *i-Ready* meets ESSA Level 3 evidence standards.

The results from these analyses showed that, across all grades and subjects, as well as for all special populations, students using *i-Ready* as intended experienced greater learning gains than students who did not use *i-Ready*. Notably, the ANCOVA sample of more than 440,000 students using *i-Ready* for Reading and more than 420,000 students using *i-Ready* for Mathematics revealed that students using *i-Ready* as intended demonstrated positive and statistically significantly greater gains from fall to spring on the Diagnostic compared with students who did not use *i-Ready*.

In this paper, we will use the term “students of color” to refer to the categories of race and ethnic categories of Black or African American and Latino. We recognize that language changes with time and that each demographic group described is not monolithic nor is each individual within any designated demographic group in agreement on preferred language. As a company, we will continue to review, reflect on, and evolve the terminology with the goal of using bias-free, inclusive, and sensitive language labels.

Research Questions

The research was undertaken with the goal of answering three key research questions:

- How do fall to spring score gains on the Diagnostic for students using *i-Ready* instruction as intended compare to students who did not use *i-Ready*?
- How do fall to spring score gains for students in special populations using *i-Ready* instruction as intended compare to students in the same populations of students who did not use *i-Ready*?
- Are the differences in score gains between the *i-Ready* instruction group and the control group of students who did not use *i-Ready* instruction statistically significant after controlling for prior achievement?

Program Overview

i-Ready Personalized Instruction (i-Ready) is a research-based program for students in kindergarten through eighth grade with an individualized plan for instruction based on each student's performance on the online, adaptive *i-Ready Diagnostic* (Diagnostic). Once students complete the Diagnostic, *i-Ready* builds a unique lesson plan with a differentiated starting point for every learner based on their overall and domain-level placement. *i-Ready* allows teachers to add lessons and/or adjust the lesson sequence provided to individuals or groups of students. *i-Ready* is aligned to college- and career-ready standards and embeds multimedia instruction and progress monitoring into every online lesson. Lessons provide explicit instruction and extensive practice, offer supportive feedback, and build conceptual understanding for learners of all levels. To learn more about the research base behind *i-Ready*, visit CurriculumAssociates.com/Research.

Curriculum Associates recommends that all students using *i-Ready* maintain an average of 30–49 minutes of lesson time-on-task per subject per week with at least 70% of lessons passed for the year. In addition, Curriculum Associates recommends administering the Diagnostic three times per year (i.e., beginning, middle, and end of year) with 12–18 weeks between each administration. For the purposes of this study, students had to use *i-Ready* for a minimum of 30 minutes on average per week, for at least 18 distinct weeks during the 2017–2018 school year.

Outcome Measure

The Diagnostic is a valid and reliable computer-adaptive assessment for students in Grades K–12. The Diagnostic starts each student at a difficulty level based on an educated guess that is derived from their chronological grade level. As students answer questions correctly or incorrectly, the test adjusts up or down, with questions of varying difficulty, until the assessment reaches the level of difficulty that is “just right” for each student. The Diagnostic can be administered at three time points during the school year: typically during fall, winter, and spring. Multiple studies have been conducted to support the reliability and validity of the Diagnostic for Reading and for Mathematics as well as their consistency with state content standards used across the United States. The Diagnostic received high ratings from the National Center on Intensive Intervention for use as an Academic Screening and Progress Monitoring tool for both Reading and Mathematics. To learn more about the Diagnostic, visit CurriculumAssociates.com/Diagnostic.

Methodology

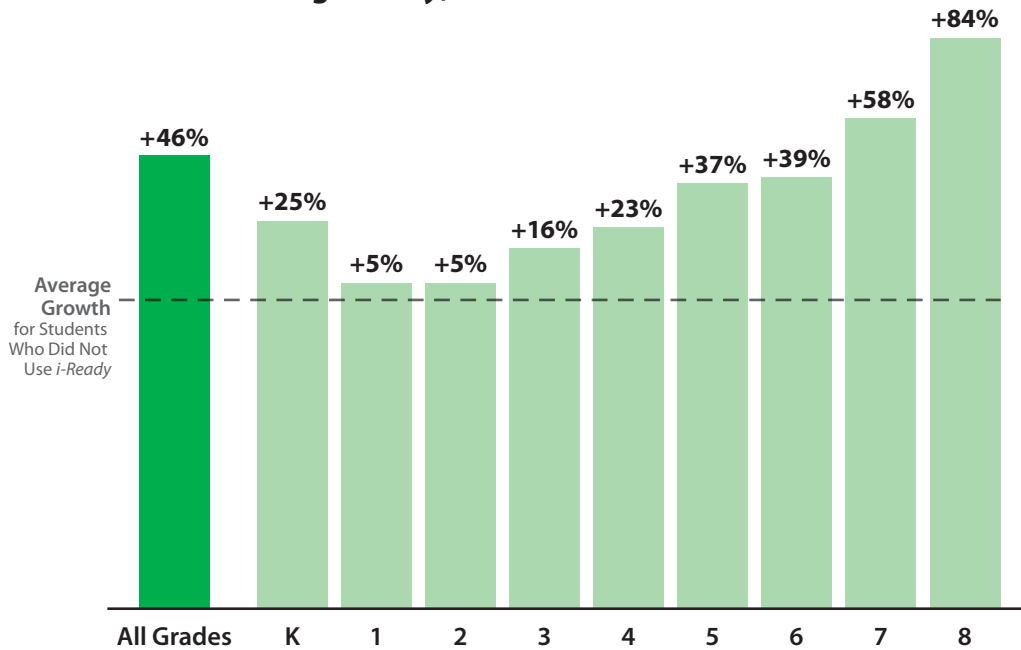
Two types of analyses were conducted to answer the above questions. In the first analysis, descriptive statistics, including mean score gains, were calculated and compared for the treatment (students using *i-Ready*) and control (students who did not use *i-Ready*) groups. A similar comparison was done with the subset of students in both groups who had certain demographic data. Percent gains were then calculated by taking the average percent gain within each grade level and population. The overall subject-level percent gains were calculated across all students in Grades K–8 within each subject based on the raw data and do not reflect the average of each grade level's percent gain.

The second analysis evaluated the score gains while controlling for prior achievement to meet ESSA Level 3 criteria. An ANCOVA analysis was performed for Grades 1–8 in Reading and Mathematics to examine the impact of *i-Ready* instruction on student score gains. Prior test scores (i.e., *i-Ready Diagnostic* spring scores from spring 2017) were included as the covariate to control for selection bias. Because kindergarten students do not have a prior spring test score, those students were removed from the analysis.

Overall Results: Students Using *i-Ready* Experienced Greater Gains

In both Reading and Mathematics, students who used *i-Ready* experienced, on average, greater learning gains than students who did not use *i-Ready*, meaning those students who used *i-Ready* tended to grow more than those who did not. See Graphs 1 and 2.

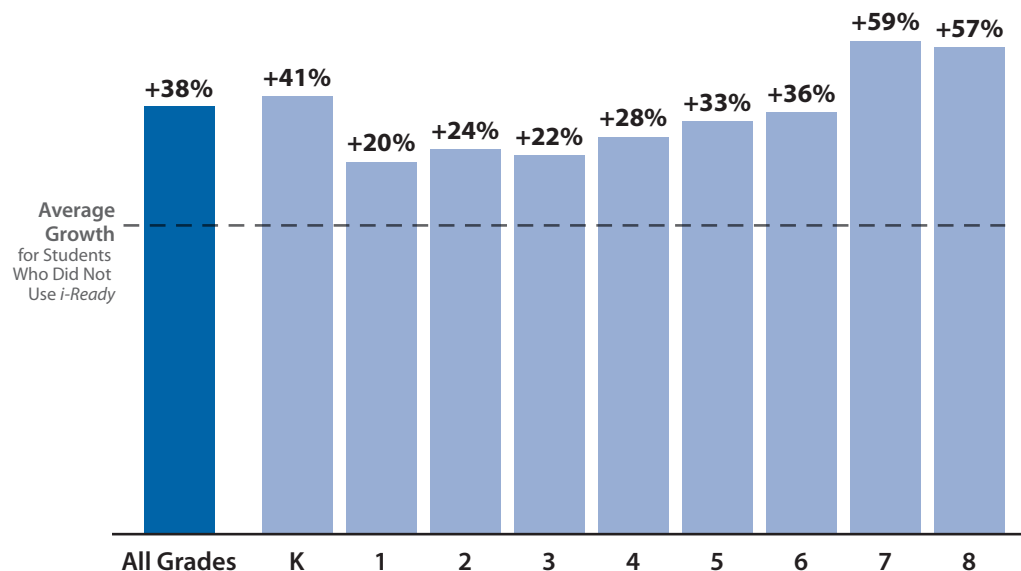
Graph 1: Reading Score Gains for Students Using *i-Ready* Relative to Students Not Using *i-Ready*, Grades K–8



Overall, students using *i-Ready* for Reading experienced score gains 46% greater than those not using *i-Ready*.

Students across all grades showed greater growth, with grade-level results ranging from 5% to 84% greater.

Graph 2: Mathematics Score Gains for Students Using *i-Ready* Relative to Students Not Using *i-Ready*, Grades K–8



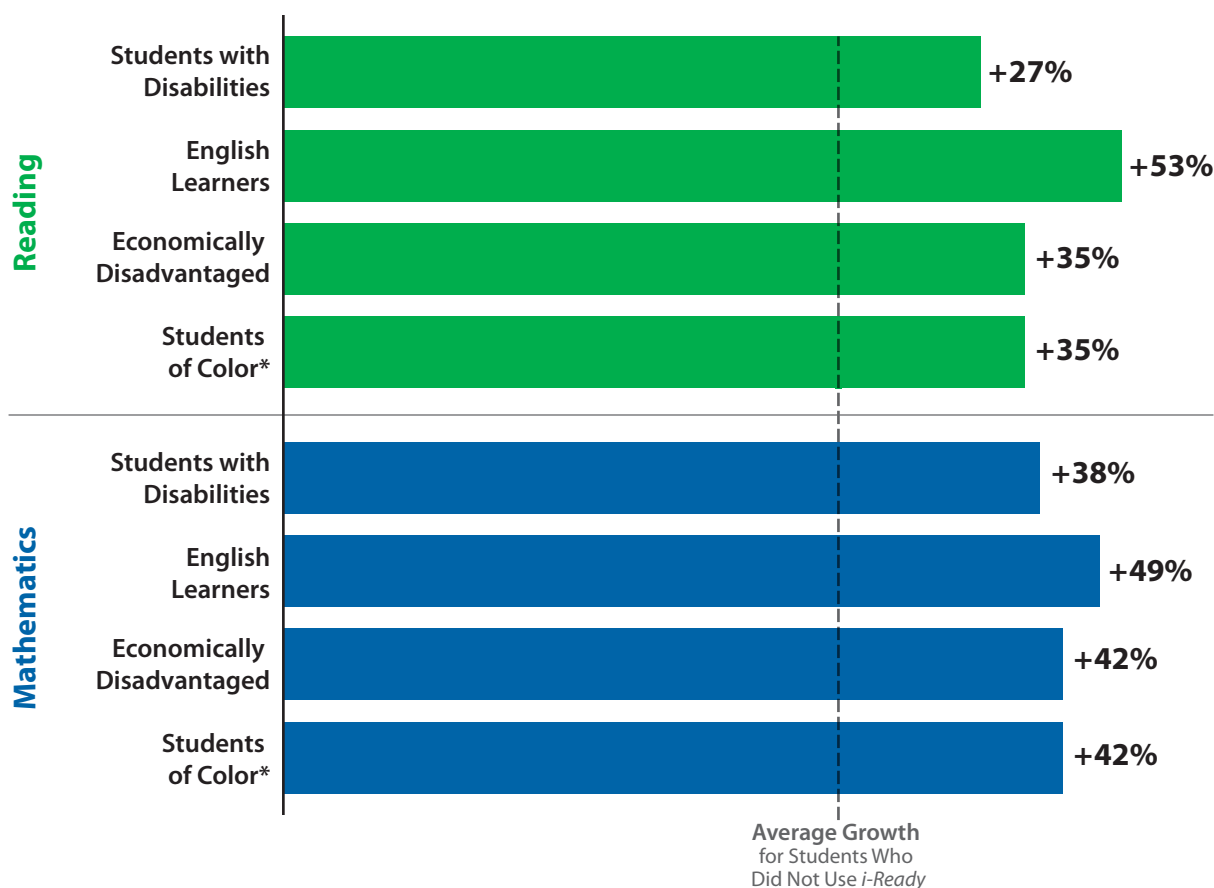
Overall, students using *i-Ready* for Mathematics experienced score gains 38% greater than those not using *i-Ready*.

Students across all grades showed greater growth, with grade-level results ranging from 20% to 59% greater.

Disaggregated Results: Students in Special Populations Using *i-Ready* Experienced Greater Gains

The impact of *i-Ready* on students with disabilities, English Learners, students who are economically disadvantaged, and students of color was also analyzed. As shown on Graph 3, students in these populations who used *i-Ready* experienced greater learning gains, on average, than students in the same populations who did not use *i-Ready*. This indicates that in general, *i-Ready* can enhance learning gains for students in these populations.

Graph 3: Score Gains for Students in Special Populations Using *i-Ready* Compared to Students in Special Populations Not Using *i-Ready*, Grades K–8



*Students of Color included students who identified as one or more of the following race(s): American Indian or Alaskan, Asian American, Black or African American, Native Hawaiian or Pacific Islander, and Other. Students who identified as having an ethnicity of Latino could also be included in the Students of Color group, as well as in the group of students who identified as White (not reported here).

ANCOVA Results: Students Using *i-Ready* Make Greater Gains Than Students Not Using *i-Ready*

To further examine the impact of *i-Ready*, the Research team conducted an ANCOVA analysis controlling for prior achievement using students' previous spring (2017) *i-Ready Diagnostic* scores. Since kindergarteners took the *i-Ready Diagnostic* for the first time during the 2017–2018 school year, they were excluded from the ANCOVA analysis. The results from a final sample of more than 440,000 Reading students and more than 420,000 Mathematics students showed that students using *i-Ready* as intended demonstrated greater learning gains compared to students who did not use *i-Ready*, even after controlling for prior achievement.

Across Grades 1–8 in Reading and Mathematics included in the ANCOVA analysis, the results included in the ANCOVA analysis, the results demonstrated positive and statistically significant findings. These results provide evidence of the relationship between use of *i-Ready* instruction and students' learning gains.

Furthermore, the findings from this analysis should give educators confidence that there is research on *i-Ready* instruction meeting the criteria for ESSA Level 3: Promising Evidence standards.

Table 1: ANCOVA Analysis Results: *i-Ready Personalized Instruction* for Reading and Mathematics, Grades 1–8

	1	2	3	4	5	6	7	8
Reading								
<i>F</i> -Statistic	$F(1,43470)$ = 162.27	$F(1,56531)$ = 12.35	$F(1,59624)$ = 256.54	$F(1,61899)$ = 272.47	$F(1,61016)$ = 429.54	$F(1,44705)$ = 140.83	$F(1,53667)$ = 172.14	$F(1,53927)$ = 227.07
<i>p</i> -value	$p < .0001$	$p < .0004$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$
Mathematics								
<i>F</i> -Statistic	$F(1,35947)$ = 924.14	$F(1,51075)$ = 1357.62	$F(1,55351)$ = 1719.29	$F(1,60592)$ = 1637.66	$F(1,63129)$ = 1166.11	$F(1,53996)$ = 181.29	$F(1,52076)$ = 485.29	$F(1,49880)$ = 290.37
<i>p</i> -value	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$

Conclusion

Findings from these analyses demonstrate how *i-Ready Personalized Instruction* is an effective online supplemental program in Reading and Mathematics.

- 1 Students using *i-Ready* instruction as intended showed greater learning gains than students who did not use *i-Ready* instruction.
- 2 On average, the students with disabilities, English Learners, students who are economically disadvantaged, and students of color who used *i-Ready* instruction experienced greater learning gains than students in the same populations who did not use *i-Ready*.
- 3 In both Reading and Mathematics, students in Grades 1–8 made positive, statistically significant gains after controlling for prior achievement, indicating that *i-Ready* meets ESSA Level 3: Promising evidence standards.

To learn more about research showing how *i-Ready* positively impacts student achievement in Reading and Mathematics, including research that meets the ESSA Level 2 criteria for Moderate Evidence, please visit CurriculumAssociates.com/i-Ready-Research.

Appendix A: Sample Sizes

Sample sizes for these analyses were based on assessment data collected through the Diagnostic and student demographic data collected from participating schools and districts. The tables below show the sample sizes for the overall impact, ANCOVA, and special population analyses.

Overall Sample Sizes

The following tables show the number of students included in the overall impact analysis.

Table 2: Students Using and Not Using *i-Ready Personalized Instruction* for Reading and Mathematics, Grades K–8

	K	1	2	3	4	5	6	7	8
Reading									
Used <i>i-Ready</i>	29,256	35,889	39,245	40,050	29,155	24,277	19,166	13,108	9,845
Did Not Use <i>i-Ready</i>	62,721	73,754	78,903	83,845	89,753	89,202	92,202	86,325	90,151
Mathematics									
Used <i>i-Ready</i>	14,680	20,970	26,503	33,744	30,767	29,041	22,191	14,920	11,680
Did Not Use <i>i-Ready</i>	59,922	79,911	83,080	81,187	86,035	90,086	87,084	82,942	81,450

ANCOVA Sample Sizes

The following tables show the sample sizes of students included in the ANCOVA analysis. The sample sizes for this analysis are smaller than the sample sizes of the overall effect analysis presented earlier, and exclude kindergarten. This is because only students who had a Diagnostic score from the spring of their prior year were included in the analysis.

Table 3: Students Using and Not Using *i-Ready Personalized Instruction* for Reading and Mathematics, Grades 1–8

	1	2	3	4	5	6	7	8
Reading								
Used <i>i-Ready</i>	21,111	24,218	22,978	17,701	14,398	9,807	7,881	5,673
Did Not Use <i>i-Ready</i>	22,676	32,650	37,004	44,573	47,001	44,705	46,192	48,669
Mathematics								
Used <i>i-Ready</i>	12,264	15,894	19,710	18,321	17,508	11,257	8,557	6,301
Did Not Use <i>i-Ready</i>	23,894	35,408	35,882	42,521	45,878	43,005	43,802	43,873

Students in Special Populations Sample Sizes

Samples for the disaggregated analyses were based on assessment data collected through the *i-Ready Diagnostic* and student demographic data collected from participating schools and districts. Study sample sizes for the special populations analysis are smaller than the sample size for the overall analysis due to differences in available demographic data.

Table 4: Students Using and Not Using *i-Ready Personalized Instruction* for Reading, Grades K–8*

Special Population	K	1	2	3	4	5	6	7	8
Students with Disabilities									
Used <i>i-Ready</i>	1,309	2,148	2,765	2,982	2,621	2,293	1,733	1,224	926
Did Not Use <i>i-Ready</i>	3,038	3,890	4,649	5,030	5,763	6,245	5,755	5,162	5,437
English Learners									
Used <i>i-Ready</i>	3,478	4,105	4,492	3,753	2,892	1,953	1,230	745	576
Did Not Use <i>i-Ready</i>	9,717	10,187	10,171	7,685	7,633	6,106	5,741	3,182	3,109
Economically Disadvantaged									
Used <i>i-Ready</i>	5,864	7,972	8,333	7,494	6,931	5,532	4,364	3,198	2,641
Did Not Use <i>i-Ready</i>	3,965	4,438	5,223	7,297	8,962	8,976	10,201	11,357	11,363
Students of Color									
Used <i>i-Ready</i>	14,735	16,631	18,162	17,651	13,500	10,646	7,656	5,486	4,078
Did Not Use <i>i-Ready</i>	12,987	14,947	15,428	20,103	21,190	21,125	20,853	21,246	22,632

*Providing demographic data to Curriculum Associates is optional for educators, so the number of students listed in the rows for “Students with Disabilities,” “English Learners,” “Students of Color,” and “Economically Disadvantaged” does not add up to the number of students listed in the “Overall Sample” section on the prior page.

Table 5: Students Using and Not Using *i-Ready Personalized Instruction* for Mathematics, Grades K–8*

Special Population	K	1	2	3	4	5	6	7	8
Students with Disabilities									
Used <i>i-Ready</i>	659	1,307	2,131	2,839	2,767	2,612	1,650	1,194	961
Did Not Use <i>i-Ready</i>	3,017	4,112	4,971	5,493	5,814	6,406	5,635	5,106	5,074
English Learners									
Used <i>i-Ready</i>	1,726	2,634	3,177	3,670	3,076	2,308	1,073	773	586
Did Not Use <i>i-Ready</i>	9,124	10,235	10,847	8,239	7,845	6,133	5,276	3,196	3,243
Economically Disadvantaged									
Used <i>i-Ready</i>	2,975	5,607	6,567	8,647	7,650	7,121	4,172	2,775	2,183
Did Not Use <i>i-Ready</i>	6,058	6,760	7,708	9,080	9,915	10,469	10,039	10,902	10,443
Students of Color									
Used <i>i-Ready</i>	7,403	9,645	12,216	15,107	13,312	11,982	7,906	5,459	4,097
Did Not Use <i>i-Ready</i>	13,460	18,373	18,396	20,171	21,245	22,279	21,418	22,154	22,362

*Providing demographic data to Curriculum Associates is optional for educators, so the number of students listed in the rows for “Students with Disabilities,” “English Learners,” “Economically Disadvantaged,” and “Students of Color” does not add up to the number of students listed in the “Overall Sample” section on the prior page.



Built to address the rigor of the new standards, *i-Ready* helps students make real gains. *i-Ready* collects a broad spectrum of rich data on student abilities that identifies areas where a student is struggling, measures growth across a student's career, supports teacher-led differentiated instruction, and provides a personalized instructional path within a single online solution.

To learn more about evidence on the impact of *i-Ready*, please visit CurriculumAssociates.com/Research.

