



RESEARCH BRIEF

Using Lexia Core5 Reading to Address Learning Loss and Accelerate Learning

Insights from a 2020–21
Nationwide Study

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Summary

This study analyzed associations between Lexia® Core5® Reading (Core5) usage and MAP Growth Reading test scores from fall 2020 and winter 2021. Students were using Core5 to address pandemic-related learning loss and accelerate learning. The sample included 12,956 students from 35 schools in California, Michigan, and North Carolina. On average, students met Core5 usage targets for an average of nine weeks between fall 2020 and winter 2021.

Key Findings

- Over 80% of students who used Core5 did not have learning loss.
- Over 40% of students who used Core5 exceeded their MAP Growth targets.
- Core5 helped all students learn during pandemic-induced disruptions in 2020–21, regardless of their gender, race/ethnicity, English Learner status, or special education status.

Introduction

In spring 2020, schools across the United States rapidly shifted from traditional in-person instruction to fully remote learning to reduce transmission of the COVID-19 virus. Shortly after the initial round of school closures, education researchers began to explore how disruptions induced by the pandemic impacted student learning. These investigations focused primarily on understanding how schools and districts implemented remote instruction and on quantifying “learning loss” using test scores.¹ The results from these studies revealed widespread challenges in the implementation of digital-based remote instruction, while suggesting that the pandemic may have introduced delays in the development of students’ foundational academic skills. As education systems begin to recover from the

effects of the pandemic, investing in programs that address learning loss by providing focused skill development may be more likely to accelerate learning.

Pandemic-related disruptions to the development of students’ literacy skills will limit their ability to use reading to learn other content. Lexia Learning has spent over three decades developing reading programs that blend the use of technology with teacher-led instruction. Core5 for grades pre-K–5 includes online and offline activities to promote phonological awareness, phonics, structural analysis, automaticity/fluency, vocabulary, and comprehension. Prior research has found that Core5 is effective at improving students’ reading outcomes in blended learning classrooms. In this study, we focus on students’ use of Core5 in fully remote and hybrid

instructional environments during the 2020–21 school year. The objective of this investigation was to explore the extent to which Core5 could help address pandemic–related learning loss and help students learn faster than expected.

Study Design

Lexia partnered with school districts in three states across the U.S. to better understand how using Core5 impacted learning outcomes. Each school district began the 2020–21 school year with fully remote learning, with one district transitioning to a hybrid model in late fall 2020. We explored two research questions:

- 1. What is the relationship between using Core5 and learning loss?**
- 2. What is the relationship between using Core5 and accelerating learning?**

Core5 provides students with personalized weekly usage targets (20–80 minutes) that are based on students' performance on an auto–placement tool and on formulas that estimate students' likelihood of reaching reading proficiency by the end of the academic year. We used the number of weeks that students met their personalized usage targets as the best measure of Core5 usage consistent with its design.

In this study, we analyze data for 12,956 students in grades 1–5 distributed across 35 schools in California, Michigan, and North Carolina. Approximately 46% of students identified as White, 28% as Hispanic, 19% as Black, and 7% as identified with other ethnicities. English Learners comprised 13% of the data,

and 12% of students received special education services. All schools administered the MAP Growth Reading (MAP) assessment to students in fall 2020 and winter 2021. MAP measures foundational reading skills and generates a composite scale score in Rasch Units (RIT). MAP scores are accompanied by projected fall-to-winter growth targets for all students. In our sample, these targets ranged from 1 to 16 RIT points with an average projected growth of 7 points. Students' actual fall-to-winter growth is the difference between their fall 2020 and winter 2021 test scores. We flagged students as having “learning loss” if their winter 2021 RIT score was 3 or more points lower than the score earned in fall 2020.² We flagged students as having “accelerated learning” if their actual growth on the MAP Growth assessment exceeded their projected growth targets. We used logistic regression to explore relationships between students' Core5 usage and these two MAP Reading test score outcomes (i.e., learning loss and accelerated learning).

Results

From September 2020 to February 2021, students met Core5 usage targets for an average of nine weeks. White students met usage targets for ten weeks, on average, compared to Black and Hispanic students who met usage targets for eight weeks. English Learners met usage targets for an average of seven weeks compared to nine weeks for non-English Learners. Special education students met usage targets for an average of eight weeks compared to nine weeks for students not receiving special services.

Students in lower grades spent more weeks meeting Core5 usage targets (eleven weeks for grade 1 and ten weeks for grades 2 and 3) compared to students in higher grades (seven weeks for grades 4 and 5). We also observed considerable variation in the average number of weeks students met Core5 usage targets across schools; students in one school met targets for an average of just one week compared to students in another school who met targets for an average of sixteen weeks.

Descriptive statistics for the major groups of interest in this study are presented in the table—students with and without learning loss and students who did not meet, met, and exceeded MAP Growth projected growth

targets. About 80% of students (n=10,403) did not have learning loss from fall 2020 to winter 2021. However, only 45% of students met (n=590) or exceeded (n=5,246) their projected growth targets. Students without learning loss scored 9 points higher on the Winter test than their Fall test, on average. Similarly, students who exceed learning loss scored 14 points higher, on average, on the Winter test than their Fall test. Black and Hispanic students, English Learners, and special education students are over-represented in the learning loss subgroup. These students are also over-represented in the group of students not meeting projected growth targets.

Descriptive Statistics

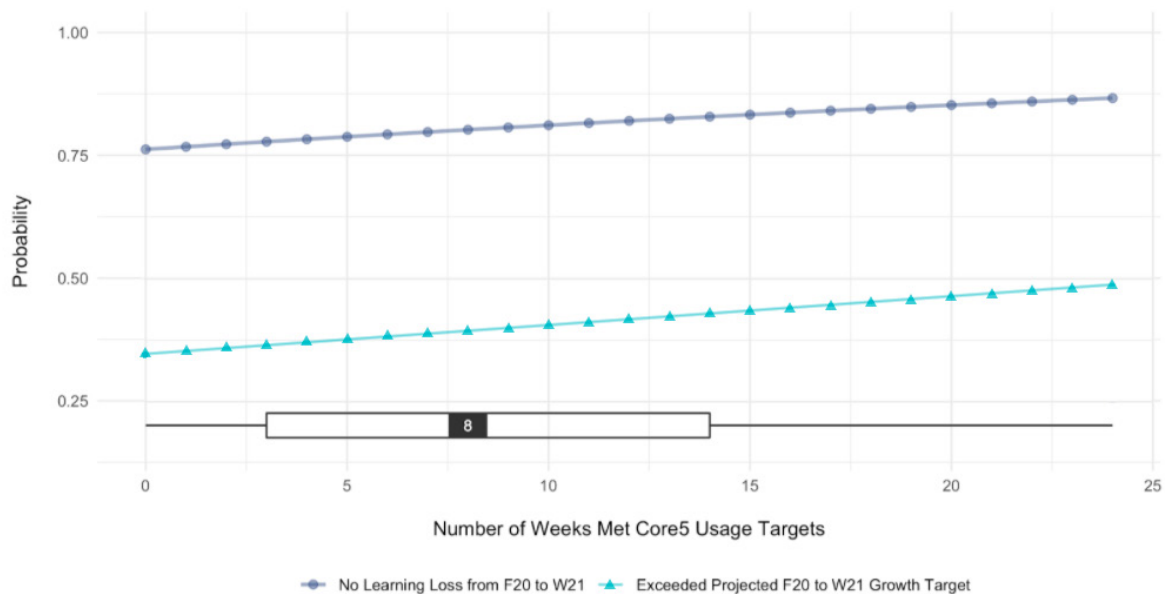
	Fall 20 to Winter 21 Learning Loss		MAP Growth Projected Growth Target		
	Yes	No	Not Met	Met	Exceeded
Mean (SD) Fall-Winter Actual Growth	-10 (10)	9 (9)	-2 (9)	6 (2)	14 (8)
Mean (SD) Weeks Met Core5 Target	8 (7)	9 (7)	9 (7)	9 (6)	10 (7)
% Female	47%	51%	49%	54%	50%
% White	38%	48%	42%	51%	51%
% Black	27%	17%	21%	17%	17%
% Hispanic	28%	27%	30%	26%	25%
% English Learner	14%	12%	15%	10%	10%
% Special Education	13%	11%	13%	10%	10%
n Students	2,553	10,403	7,120	590	5,246

Note: The statistics in this table are produced by aggregating student-level data. In the first two rows, SD refers to the standard deviation.

The figure presents the results from our logistic regression analyses. We specified multiple models to explore the sensitivity of our findings (see the technical report), statistically controlling for fall 2020 MAP Reading scores, grade, gender, race/ethnicity, English Learner status, special education status, grade, and school site. Results were consistent across all model specifications. The boxplot near the bottom of the figure depicts the distribution of the Core5 usage variable. The median number of weeks students in our sample met usage targets was eight. The x-axis plots the number of weeks students met Core5 usage targets from September 2020 to February 2021. The y-axis plots predicted probabilities of students not having learning loss (dark blue line) and predicted probabilities of students exceeding their MAP Growth projected targets (teal line).

To answer the first research question related to the relationship between using Core5 and learning loss, we specified a logistic regression model with learning loss as the outcome variable (no learning loss = 1; learning loss = 0) and weeks meeting Core5 usage targets as the main predictor. We found that the more weeks students met Core5 usage targets, the higher students' predicted probability of not having learning loss. Since there were approximately three to four months between fall and winter MAP test administrations, a meaningful amount of Core5 usage in this study would be 12 weeks (i.e., meeting usage targets every week for three months or meeting usage targets three weeks per month for four months). Students who met Core5 usage targets for 12 weeks had an 82% probability of having no learning loss.

Use of Core5 and Probability of MAP Growth Reading Outcome



To answer the second research question related to the relationship between using Core5 and learning acceleration, we specified a logistic regression model with learning acceleration as the outcome (1 = exceeded MAP Growth projected target; 0 = met or did not meet MAP Growth projected target) and weeks meeting Core5 usage targets as the main predictor. Similar to the learning loss results presented above, we found that the more weeks students met Core5 usage targets, the higher students' predicted probability of exceeding their growth targets. Students who met the usage targets for 12 weeks had a 42% probability of having accelerated learning.

For both analyses, we found no statistically significant differences by students' demographic characteristics or by grade. Regardless of student demographic characteristics, productive use of Core5 increased the probability that students did not experience learning loss and increased the probability that students would exceed their

MAP Growth projected targets. Although these results are positive and promising, we cannot conclude that Core5 causes these results since this is a correlational study. Given the multitude of factors that impacted teaching and learning during the pandemic, there may be other features that are driving these results that we were not able to account for in our analyses. These results may also not generalize to other districts or different kinds of schools, since we only evaluated the effectiveness of Core5 for districts that were already using the program with students in 2020–21.

Want to Learn More?

Lexia Research & Analytics will publish a full technical report in late 2021 with additional details of the study design, data, methods, and findings. If you would like to receive notification of when the technical report is available, please contact research@lexialearning.com.

Footnotes

¹ We use the term “learning loss” in this report to refer to an observable decrease in standardized test scores. Although this term is deficit-oriented and detracts from the diverse ways students learned in non-traditional educational environments, we choose to use “learning loss” to more effectively situate our findings within the broader literature on Covid-19 education research. See the technical report for a more detailed synthesis of the Covid-19 studies we reviewed.

² According to the technical manual for the MAP assessment (NWEA, 2011), the MAP test is terminated once a student's standard error of measurement is less than the predefined value of 2.9 (p. 49). Although we do not have standard errors for every student's RIT scale score, a student's estimated scale score ± 3 points gives a 68% confidence interval of their true ability estimate. Scores that fall outside of this confidence interval are more likely to indicate true differences in ability, rather than differences attributable to measurement error.

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