

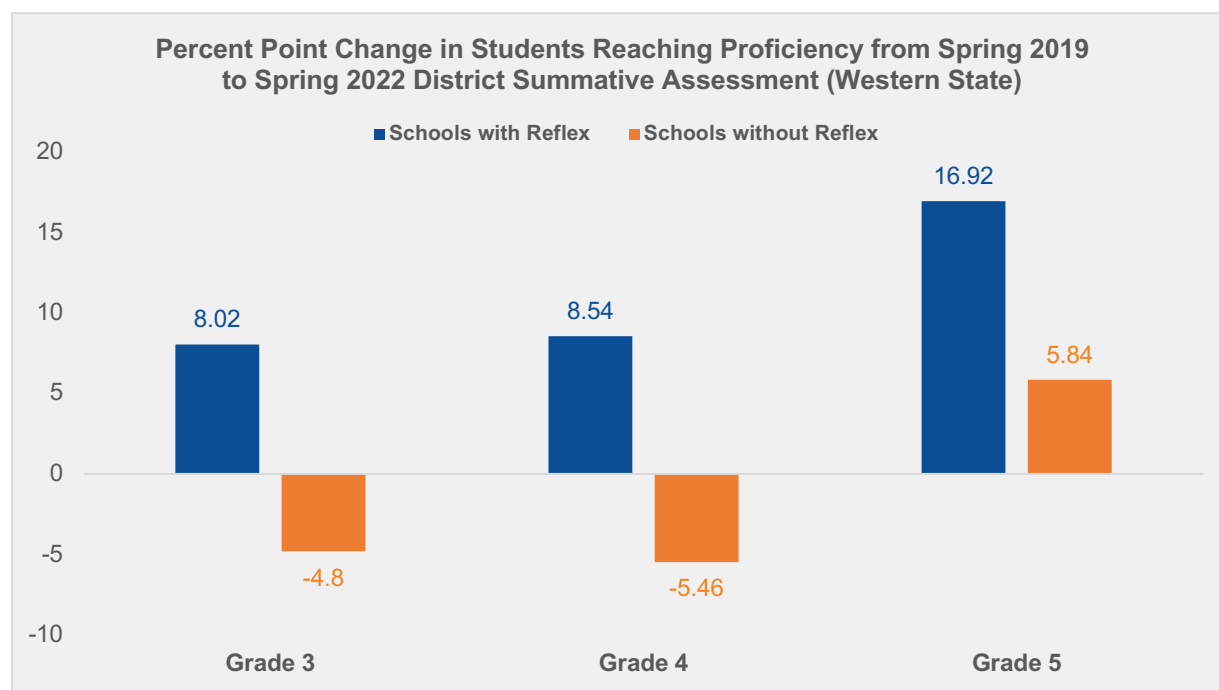
EFFICACY RESEARCH

Preventing Math Learning Loss During the Pandemic with the *Reflex* Program

Covid and remote learning has led to missed math instruction and documented decreases in standardized math test scores across the country. A recent longitudinal report from Cambium Assessment found significant learning loss among students in math, with the number of students observed on grade level mathematics dropping as much as -21% percentage points.¹

In the following quasi-experimental design research study of over 1600 3rd – 5th grade students, we found that Reflex usage resulted in a significant increase in proficiency on 2022 end-of-year assessments, completely reversing the widely observed math learning losses in relation to COVID-related instructional disruptions. We discuss the potential of Reflex to serve as an interventional tool to increase student achievement and close growing achievement gaps.

In the context of large losses in student's math achievement, 5 schools within a Western region state that implemented Reflex between 2019 and 2022 saw double-digit increase in proficiency on summative state assessments, compared to control schools matched on 2019 test scores.



The finding is based on an analysis of state math assessment scores from Spring 2019 and Spring 2022, for a selection of 10 schools in a Western region state in the US. This state was selected based on public availability of student assessment data. Five schools ($n = 900$ students) who began implementing *Reflex* between 2020 and 2021 with high usage by students were selected for analysis. Five control schools ($n = 762$ students) which did not have any *Reflex* usage were matched based on 2019 scores (percentage of students “meeting or exceeding expectations”) for 3rd, 4th, and 5th grade cohorts. We then compared achievement scores in 2022 for control and Reflex schools as well as change from 2019 to 2022. The 10 schools analyzed here reflected the 2019 math achievement average for the entire state.

Among *Reflex* schools, we observed higher proportions of 3rd, 4th, and 5th grade students achieving or exceeding proficiency in 2022 compared to 2019. Among matched control schools, we observed lower proportions of 3rd and 4th, grade students achieving or exceeding proficiency in 2022 compared to 2019, and marginally higher 5th grade students achieving or exceeding proficiency. **A paired samples t-test found significantly higher average achievement in 2022 scores among Reflex schools ($M = 46.30$, $SD = 15.77$) compared to their matched schools ($M = 32.48$, $SD = 17.00$), $t(14) = 2.74$, $p = .016$.**

While the nature of the study does not rule out alternative explanations and many factors likely influence student achievement, we found that *Reflex* adoption during a difficult time for student learning was associated with not only dramatic reductions in learning loss but observed improvements. Given recent concerns over large COVID learning losses in Math achievement, *Reflex* serves as a promising intervention for recovering learning loss. Together, this study and other being conducted by *ExploreLearning* support the promise of *Reflex* to support all students in achieving academic excellence.

Endnotes

¹ Cambium Assessment (2022). [Learning loss in the wake of the COVID-19 pandemic](#).