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BRIEF

Progress toward pandemic recovery: Continued signs of rebounding achievement at the start of the 2022–23 school year

December 2022

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KEY FINDINGS

- **Students lost less ground over summer 2022 compared to prepandemic trends.**
- **Academic rebounding in reading and math continued in fall 2022; however, rebounding is not even across school years and summers, especially in reading.**
- **The youngest students in the sample (current third-graders who were kindergarteners when the pandemic began) have the largest reading achievement gap and showed the least rebounding.**
- **Even with continued rebounding, student achievement remains lower than in a typical year and full recovery is likely still several years away.**

This brief continues NWEA's ongoing research agenda examining how the COVID-19 pandemic has affected student achievement in reading and math. Our prior research[i, ii, iii] shows that the impact of the pandemic on student achievement steadily accumulated over the course of the 2020–21 school year and hit the low point in spring of 2021 (i.e., this is the term when we generally observed the largest magnitude of gaps between test scores during the pandemic relative to historical trends). Over the course of the 2021–22 school year, achievement gains started to mirror prepandemic trends, and because of this rebounding,[1] the gap between midpandemic achievement relative to a typical year started to narrow, albeit modestly.[iii] Here, we examine whether we continue to see signs of improvement at the start of the 2022–23 school year and how learning patterns across the summer of 2022 contribute to continued rebounding. To do this, we examine test score data from nearly 7 million students in grades 3–8 who took MAP® Growth™ assessments in reading and math in approximately 25,000 public schools between 2020–21 and fall 2022 ("COVID sample") and compared these data to a roughly comparable sample of students who tested between 2017–18 and fall 2019 ("pre-COVID sample").

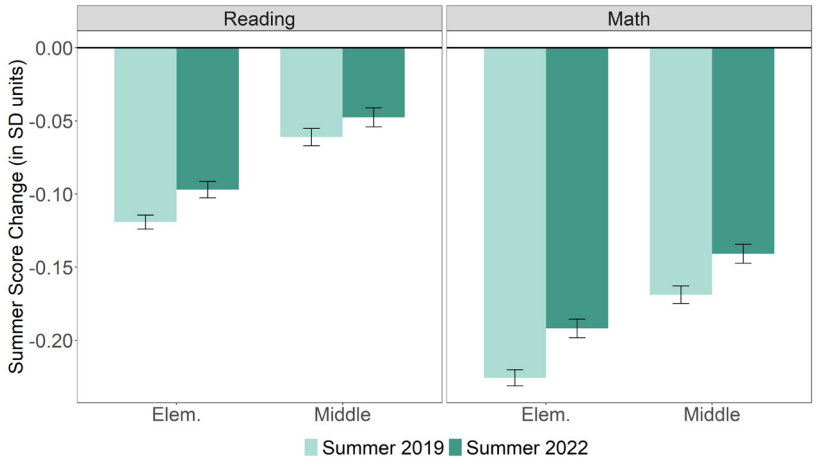
Students lost less ground in summer 2022 compared to historical patterns

During the summer months, students typically tend to lose some of the gains they make during the school year (i.e., "summer slide" phenomenon[iv, v]). To understand the magnitude of slide during summer 2022 relative to typical trends, we calculated change in test scores between spring 2022 and fall 2022 and compared this to the change in test scores in the prepandemic summer of 2019.[2] Figure 1 depicts the change in scores in reading and math over these two summers (expressed in standard deviation units) separately for elementary and middle school students. Although we found that scores did decline on average during summer 2022, Figure 1 shows that declines were smaller than a typical summer (i.e., the darker bars are shorter than the lighter bars). Trends in both years are consistent with prior research that shows summer slide is typically more extreme in math than reading and in younger students compared to older students.[vii]

[1] We define **rebounding** as patterns of achievement gains that mirror or exceed prepandemic trends. "Rebounding" is not interchangeable with "recovery"; rather, the former describes progress toward the latter. We use the term **achievement gap** to indicate the difference between the COVID and pre-COVID samples in a grade level (reported here as standardized differences in average test scores).

[2] We estimated the rates of summer learning using a growth model that accounts for time before/after testing in the spring and fall. See the technical appendix[vi] for more details on the model.

Figure 1: Test score declines during the summer in 2019 and 2022 for reading (left panel) and math (right panel) separately by grade level



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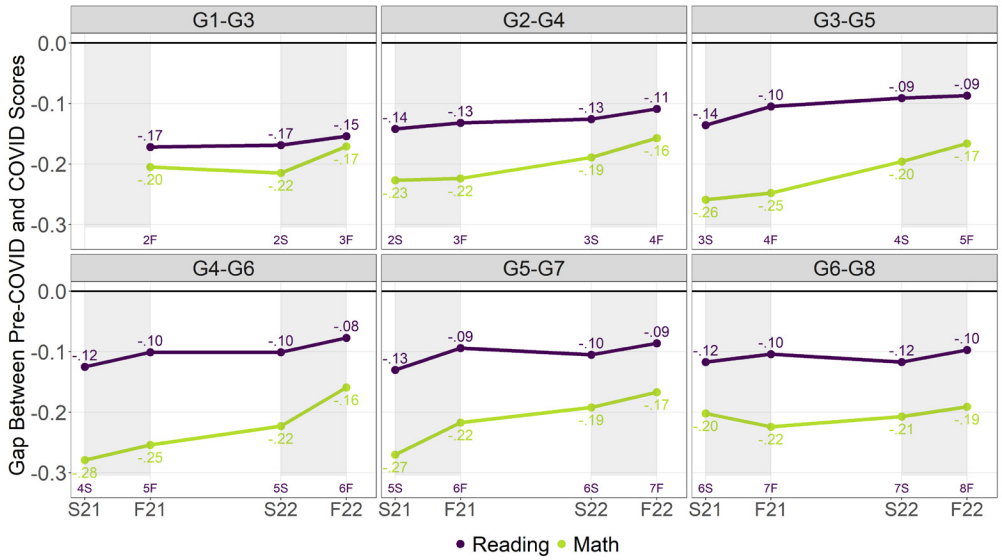
Note. Summer drops are reported as the total score change across the summer in the unit of the standard deviation of the prior spring score. The elementary school results include students in grades 3–5 in fall and the middle school results include students in grades 6–8 in fall. See the technical appendix[vi] for calculation details.

Gaps between COVID and pre-COVID test scores are narrowing, but rebounding is nonlinear

To understand if students are continuing to rebound at the start of the 2022–23 school year, we calculated the achievement gap (i.e., standardized mean differences) between test scores of the COVID sample and the pre-COVID sample for six longitudinal cohorts starting with spring 2021 (the term when gaps were at their widest for most grades) through fall 2022. Figure 2 displays the achievement gaps (shown as points) at four timepoints (spring 2021, fall 2021, spring 2022, and fall 2022) and changes in those gaps (lines connecting the points) in reading and math for six cohorts.

Figure 2. Changes in achievement gaps between pre-COVID and COVID test scores in reading and math between spring 2021 and fall 2022 by cohort



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Note. The panels are organized by the longitudinal grade cohort and plot standardized mean differences between test scores for the COVID sample and the pre-COVID sample across four time points for reading (in purple) and math (in green). For example, the G2-G4 panel tracks the cohort of students moving from grade 2 in spring 2021 through to grade 4 in fall 2022 and shows the difference in test scores compared to the pre-COVID sample (students who were in grade 2 in spring 2018 through grade 4 students in fall 2019). Spring 2021 test scores are not included for the 1-3 cohort given our previous research showed anomalies for the youngest students in the 2020–21 school year when remote testing was more prevalent.[viii] The shaded vertical area denotes summer.

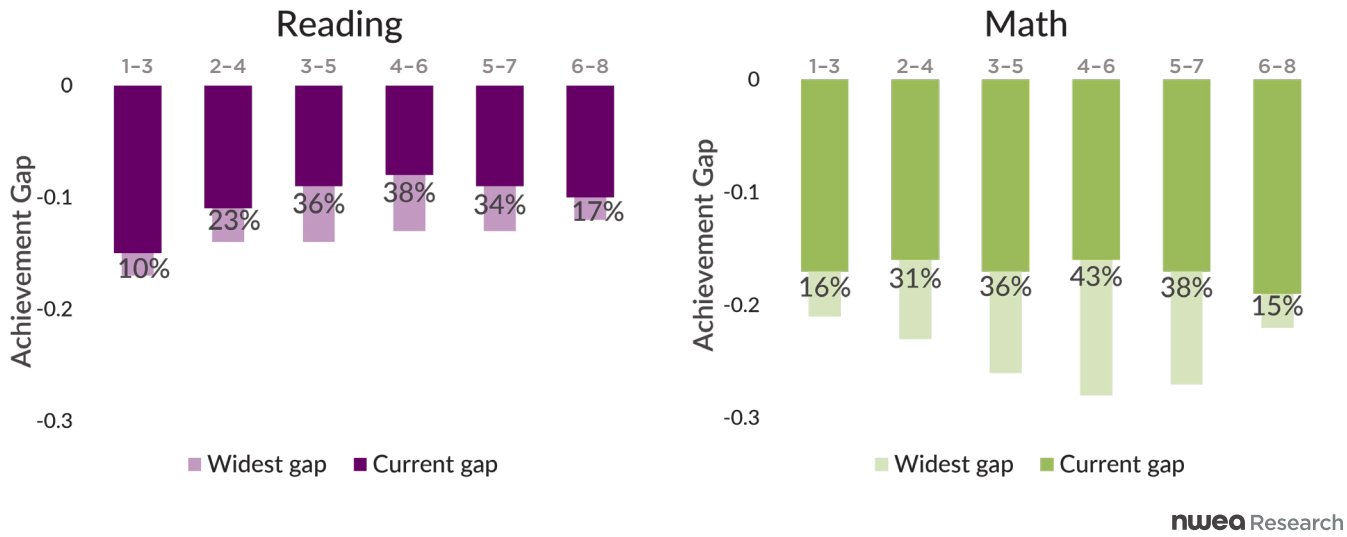
Math and reading achievement remained significantly lower in fall 2022 compared to prepandemic levels; however, compared to prior timepoints, we continued to see improvements (i.e., the magnitude of the gaps between the COVID and pre-COVID samples are shrinking) across subjects and cohorts.[3] Shrinking achievement gaps between spring 2022 and fall 2022 may seem contradictory with the pattern of score declines we observed during summer 2022. However, given students in the COVID sample lost less ground over summer 2022 compared to the pre-COVID sample, the gap between these groups continued to shrink.

Looking across the four timepoints, we see that recovery is not linear across the school year and summer months, especially in reading. Reading gaps tended to improve primarily during summers (i.e., the gaps reduced between spring and fall) but did not change during the school year (which is still consistent with rebounding because this indicates gains for the COVID sample were consistent with the pre-COVID sample; see Figure A1 in the technical appendix[vi]). In contrast, math gaps shrunk during both the summer and the school year in most cohorts. Regardless of the slower rate of improvement in reading, the math gaps remain considerably larger.

Most students are still years away from a full recovery, especially the youngest and oldest students we studied

Figure 3 plots achievement gaps at their widest point (the lighter shaded bars)[4] compared to fall 2022 levels (the darker shaded bars) and the cumulative percent reduction in the gaps. Math gaps have shrunk by slightly larger percentages (15–43%) compared to reading (10–38%). The oldest (students in eighth grade in fall 2022) and the youngest cohorts (students in third grade in fall 2022) show less improvement in reading and math (gaps have only decreased by 10–17%) compared to the other cohorts (gaps have decreased by 23–43%).

Figure 3. Cumulative reduction in achievement gaps in reading (left panel) and math (right panel) by cohort



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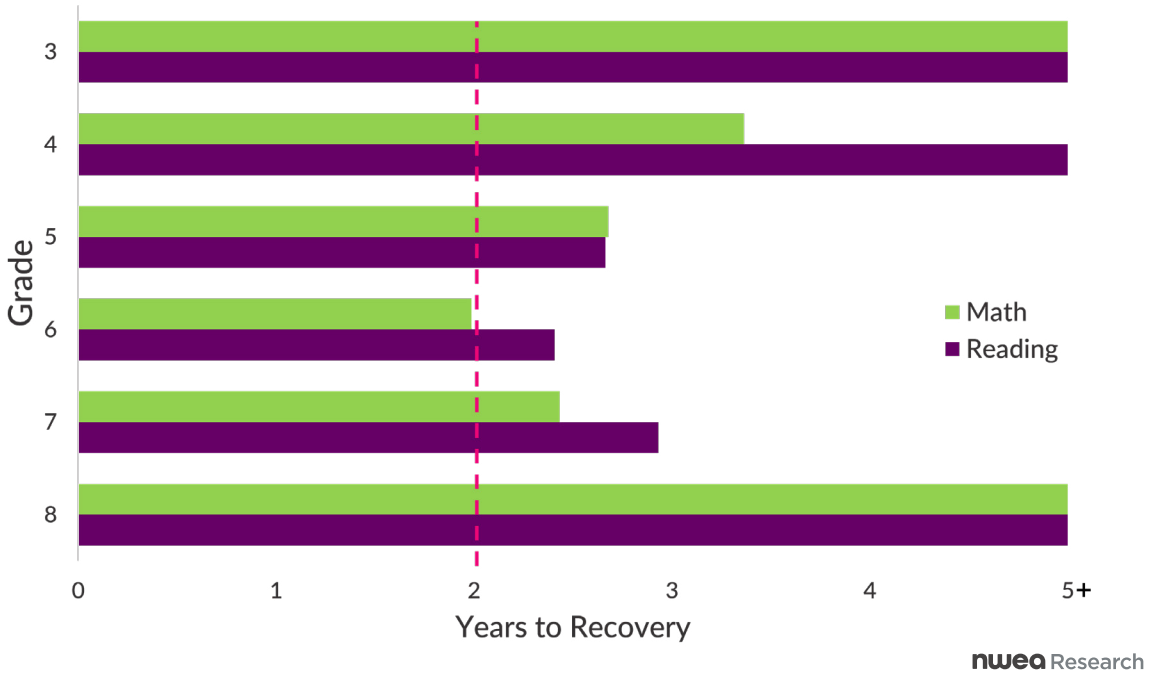
Note. The achievement gaps reported in this figure are the standardized difference between the pre-COVID and COVID samples in fall 2022 ("current gap") relative to the largest observed gap across timepoints ("widest gap") for a cohort. The percentages reflect the change in gaps proportional to the size of the widest gap.

[3] As a point of comparison, the 2022 NAEP[ix, x] results showed that fourth-graders dropped 0.16 SDs in math (five scale points relative to a 2019 score SD of 32) and 0.08 SDs (three scale points relative to a 2019 score SD of 39) in reading between winter 2019 and winter 2022.

[4] The widest gaps between COVID samples relative to historical averages were observed in spring of 2021, except for the G6–8 cohort, where the widest gap in math was in fall of 2022. There are also a few exceptions in when gaps were at their widest point when disaggregating by race/ethnicity and school-poverty (see Figure A4 in the technical appendix[vi]).

Figure 4 plots estimates of the years required to fully close achievement gaps. These estimates are based on extrapolating the cumulative rate of improvement given the difference between fall 2022 gaps relative to gaps at their widest point for each cohort.[5] In general, we continue to see that the timeline for recovery is several years out at best and extends past the September 2024 deadline schools have for committing federal recovery funds. The oldest (students in eighth grade in fall 2022) and the youngest cohorts (students in third grade in fall 2022) have experienced less improvement and as a result have the longest estimated timelines for recovery. For the oldest cohort, recovery would not be attainable before the end of high school if rebounding continues at the current rate.

Figure 4. Estimated years to reach full recovery by subject and grade



Note. These estimates were calculated by dividing the fall 2022 achievement gap by the cumulative rate of change between a cohort's widest gap and the fall 2022 gap. Given the imprecision in some of our upper-end estimates, we report any estimate over 5 years as 5+. The vertical red line represents the deadline for committing federal ESSER funds (September 2024). Grade refers to the grade students are in during the 2022–23 school year.

Improvements are evident across groups; however, Black and Hispanic students, as well as students in high-poverty schools, still have the longest road to recovery in most grades

Finally, we examined whether rebounding is occurring equally across student groups. Comparing the size of achievement gaps in fall 2022 against prior timepoints shows that, in general, all groups are rebounding. See Figure A4 in the technical appendix[vi] that accompanies this report for plots of achievement gaps between test scores of the COVID sample and the pre-COVID sample disaggregated by school-poverty level and race/ethnicity. Despite signs of rebounding, students in high-poverty schools and Black and Hispanic students have been disproportionately impacted, especially in the youngest grades. As a result, these students still have the most ground to regain.

[5] While we see in Figure 2 that rebounding is not a linear process in some grades, our best estimate for years to full recovery is based on the cumulative change from the widest achievement gap to now (which averages over some of the nonlinearity by season).

Summary

At the start of the 2022–23 school year, we continue to see evidence that students are rebounding from the impacts of the pandemic. The distance between students' math and reading achievement relative to prepandemic levels continues to narrow from the low point in spring 2021 when pandemic-induced achievement gaps were at their widest. It is encouraging to see that students are continuing to improve, but we are likely still several years away from reaching full academic recovery, and this timeline is misaligned with the availability of federal funding to support recovery. We continue to see the largest achievement gaps for students attending high-poverty schools and for Black and Hispanic students, but we also see evidence of rebounding for all groups.

We also found that rebounding is happening more slowly in reading than math. This is because reading gaps primarily remained unchanged during the school year and only shrank during the summer months. In contrast, math gaps are larger overall, but progress has been swifter because improvements in math happened during the summer months and during the school year.

We have already shown that older students were improving slowly,[iii] and this continues to be true at the start of 2022–23. The oldest students we studied (eighth-graders in fall 2022) have experienced minimal improvements in math and reading, and the estimated timeline to full recovery (5+ years) for these students still falls past the end of high school. The youngest students we studied (third-graders in fall 2022) also experienced minimal improvements. Notably, these students, who were kindergarteners when the pandemic began, had the largest reading achievement gap of any of the cohorts. Consistent with other data,[xi, xii] the sluggish improvements we see for this group suggests that disrupted learning at such a critical juncture was particularly detrimental to acquiring foundational reading skills, and this is having a lingering effect on the youngest students' reading development.

Continued improvements in fall 2022 were in part explained by muted test score declines over the summer months in 2022 compared to prepandemic trends. Seeing declining test scores over the summer months (even if they were reduced compared to typical) may not feel like a victory to educators, but students lost less ground than normal during summer 2022, and this further reduced the distance between current achievement levels relative to prepandemic trends.

Supported by billions of dollars from the American Rescue Plan, an estimated 90% of school districts offered summer learning programs during summer 2022,[xiii] suggesting that an unprecedented number of students may have received academic supports during this summer. However, we cannot determine whether the muted summer slide trends we observed were directly caused by expanded summer learning opportunities. Indeed, although schools made unprecedented efforts to deliver additional learning opportunities during summer 2022, there is also evidence that these opportunities were underutilized and were typically not delivered at the scale required to curb summer slide.[xiv, xv] This is not to say that targeted recovery strategies are not critical. In fact, we urge schools and districts to continue to use data to understand which students have been most harmed and then provide supports in proportion to students' unmet needs. However, we must not lose sight of the incredible resiliency students have shown in the face of this crisis and the buoyancy we are seeing in achievement as a result of that resilience.

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Details on the methodology behind these analyses can be found in:
Kuhfeld, M., & Lewis, K. (2022). Technical appendix for: Progress towards pandemic recovery: Continued signs of rebounding achievement at the start of the 2022-23 school year.

Suggested citation:
Lewis, K., & Kuhfeld, M. (2022). Progress towards pandemic recovery: Continued signs of rebounding achievement at the start of the 2022–23 school year. NWEA.

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