

Examining the Continued Impact of the Pandemic on Student Achievement in GVSU Charter Schools - Year 2 Report

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Using NWEA MAP data from K-12 schools authorized by Grand Valley State University (GVSU), this report examines the continued impact of the pandemic on student achievement.

Key findings include:

- Students' achievement in spring 2022 was lower compared to the pre-pandemic period, with larger declines in math as compared to reading.
- Students made larger achievement gains in 2022 as compared to the prior year.
- Student achievement gains in math and reading in 2022 were mostly comparable to 2019 and provide evidence of learning rebounding to the pre-pandemic period.

Recommendations include:

- Consider implementing learning acceleration programs to move students back to grade-level mastery.
- Integrate evidenced-based math and reading interventions into core classroom instruction.

Introduction

In December 2021, Basis Policy Research (Basis) released a [report](#) examining the continued impact of the COVID-19 pandemic on student achievement in Grand Valley State University (GVSU) charter schools. Findings revealed students made achievement gains in math and reading in 2021 but at a lower rate as compared to prior years. Furthermore, Basis researchers found that students' achievement in spring 2021 was lower compared to the pre-pandemic period; achievement in spring 2021 was between 8 to 18 percentile points lower than spring 2019, with larger declines in math as compared to reading.

This report continues examining the impact of the pandemic on student achievement in GVSU charter schools. Here, Basis researchers analyze math and reading achievement two full academic years since the onset of the pandemic. In this report, we analyze trends in math and reading in 2021-22 and examine how achievement during the pandemic compares to prior years. We also explore how overall achievement differs across student groups (i.e., grade-level, race and ethnicity) where possible. Findings from this report aim to provide GVSU, district, and schools leaders with insights to support teaching and learning.

Research Questions

This report examines the following research questions:

1. How does student achievement in spring 2022 compare to the pre-pandemic period? To what extent does achievement vary by race and ethnicity?
2. To what extent did student learning rebound in the past year?

Results

1 | How does student achievement in spring 2022 compare to the pre-pandemic period? To what extent does achievement vary by race and ethnicity?

Basis researchers examined how students' math and reading achievement in grades three through eight in 2021-22 (henceforth titled 2022) compares to students in the same grade in 2018-19 (henceforth titled 2019). This approach seeks to understand where students finished this past school year relative to the pre-pandemic period. We calculated median achievement percentile by grade-level in spring 2019 and 2022. Basis researchers restricted the sample to (a) students with complete assessment data¹ (fall 2018/spring 2019, fall 2020/spring 2021, or fall 2021/spring 2022) and (b) students enrolled in GVSU schools who administered the NWEA assessment each term². The sample includes 12,747 students across 20 GVSU schools from 2019 to 2022. Student demographics by grade are comparable year over year.

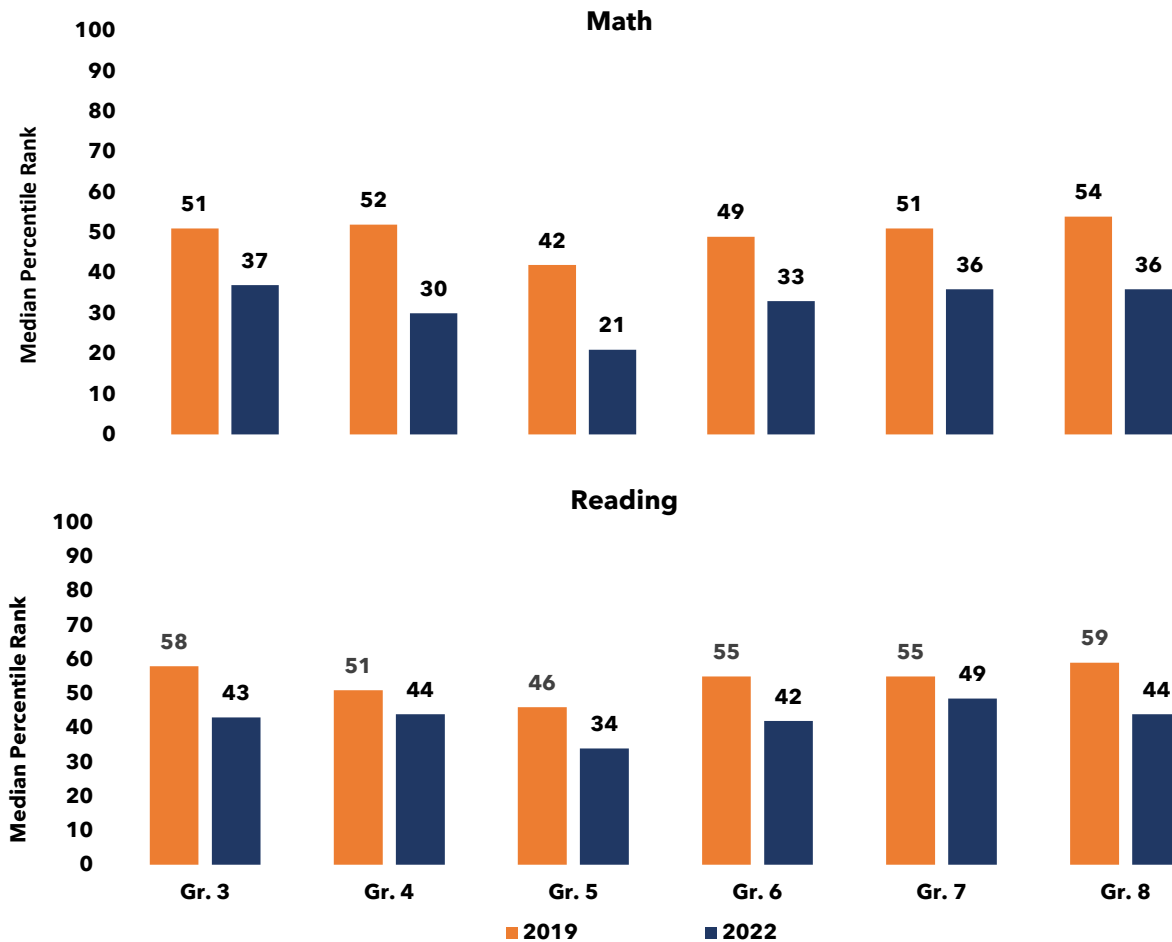
Students' achievement in spring 2022 was lower compared to the pre-pandemic period, with larger declines in math as compared to reading.

Figure 1 displays the median achievement percentiles in math and reading in spring 2019 and 2022. Results indicate that math and reading achievement was lower in spring 2022 relative to spring 2019. The decline in achievement ranged from 14 to 22 percentile points in math and 6 to 15 percentile points in reading. Spring 2022 math and reading achievement levels lagging the pre-pandemic period is consistent with findings from NWEA's nationwide analysis of assessment data (Kuhfeld & Lewis, 2022); however, the magnitude of percentile rank differences in GVSU schools is larger than results nationwide.

¹ Students with fall assessment data and missing spring assessment data were excluded from the sample.

² Fall 2018, Spring 2019, Fall 2020, Spring 2021, Fall 2021, and Spring 2022 represent the six assessment terms included in this report.

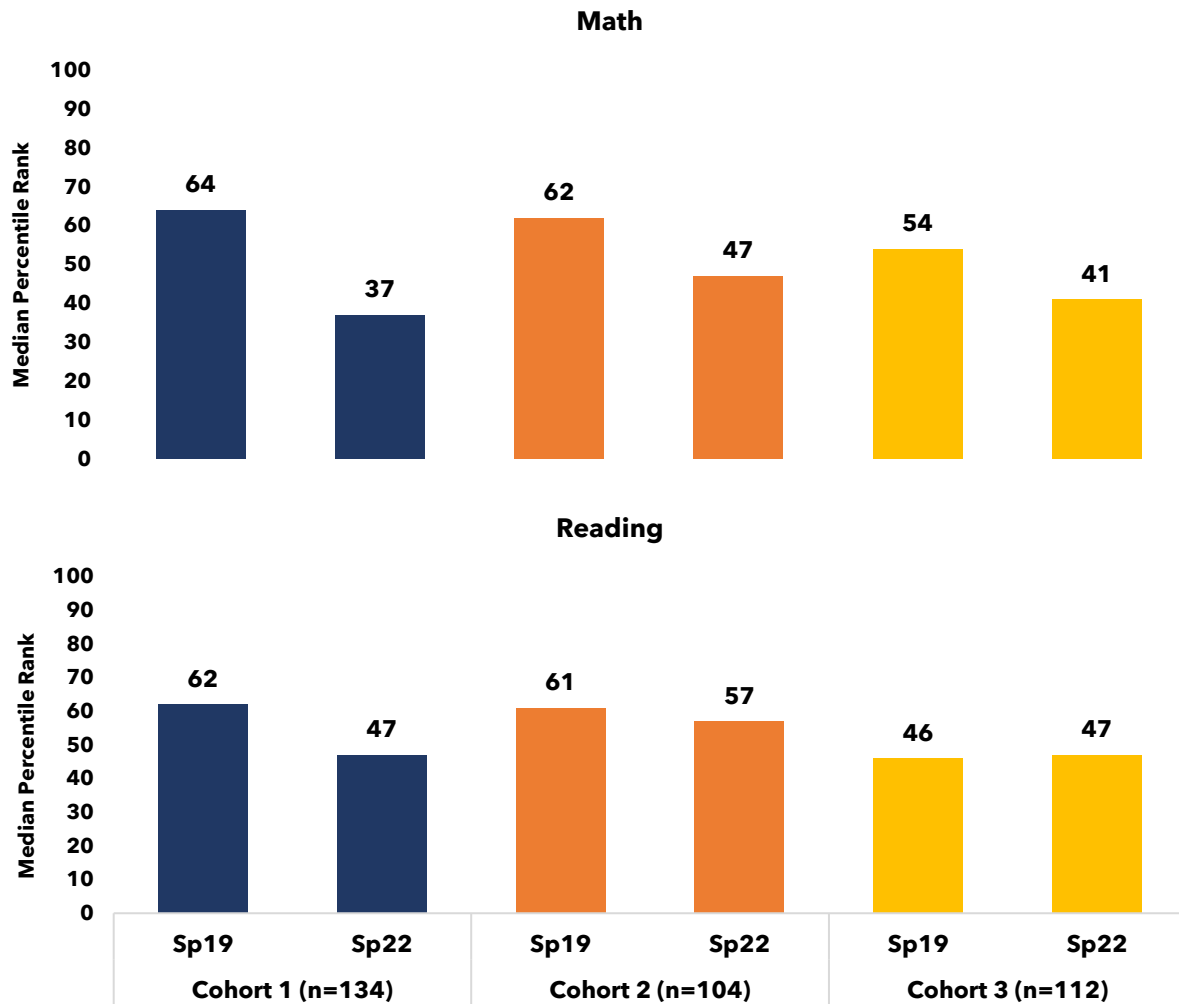
Figure 1: NWEA MAP achievement percentiles in math and reading by grade level in spring 2019 and 2021.



Source: NWEA Map Growth, spring assessment; author’s analyses.

Alternatively, we explored achievement trends for students with valid test results for the six terms (Fall 2018 to Spring 2022) included in this report. This restriction created three cohorts of students: cohort one (grade three in fall 2018 – grade six in spring 2022), cohort two (grade four in fall 2018 – grade seven in spring 2022), and cohort three (grade five in fall 2018 – grade eight in spring 2022). This sample allows us to explore within student change over time. Figure 2 displays the median achievement percentiles in math and reading in spring 2019 and 2022 by cohort. Math achievement is mostly consistent with the larger sample of students (see Figure 1), with declines ranging from 13 to 27 percentile points in math. For example, students in cohort one scored at the 64th percentile in math in 2019 (i.e., third grade achievement) but scored at the 37th percentile in math in 2022 (i.e., sixth grade achievement). The observed decline in reading achievement is less severe when compared to math, ranging in magnitude from 4 to 14 percentile points in cohorts one and two while achievement in cohort three improved by one percentile point in spring 2022.

Figure 2: NWEA MAP achievement percentiles in math and reading by cohort in spring 2019 and 2021.



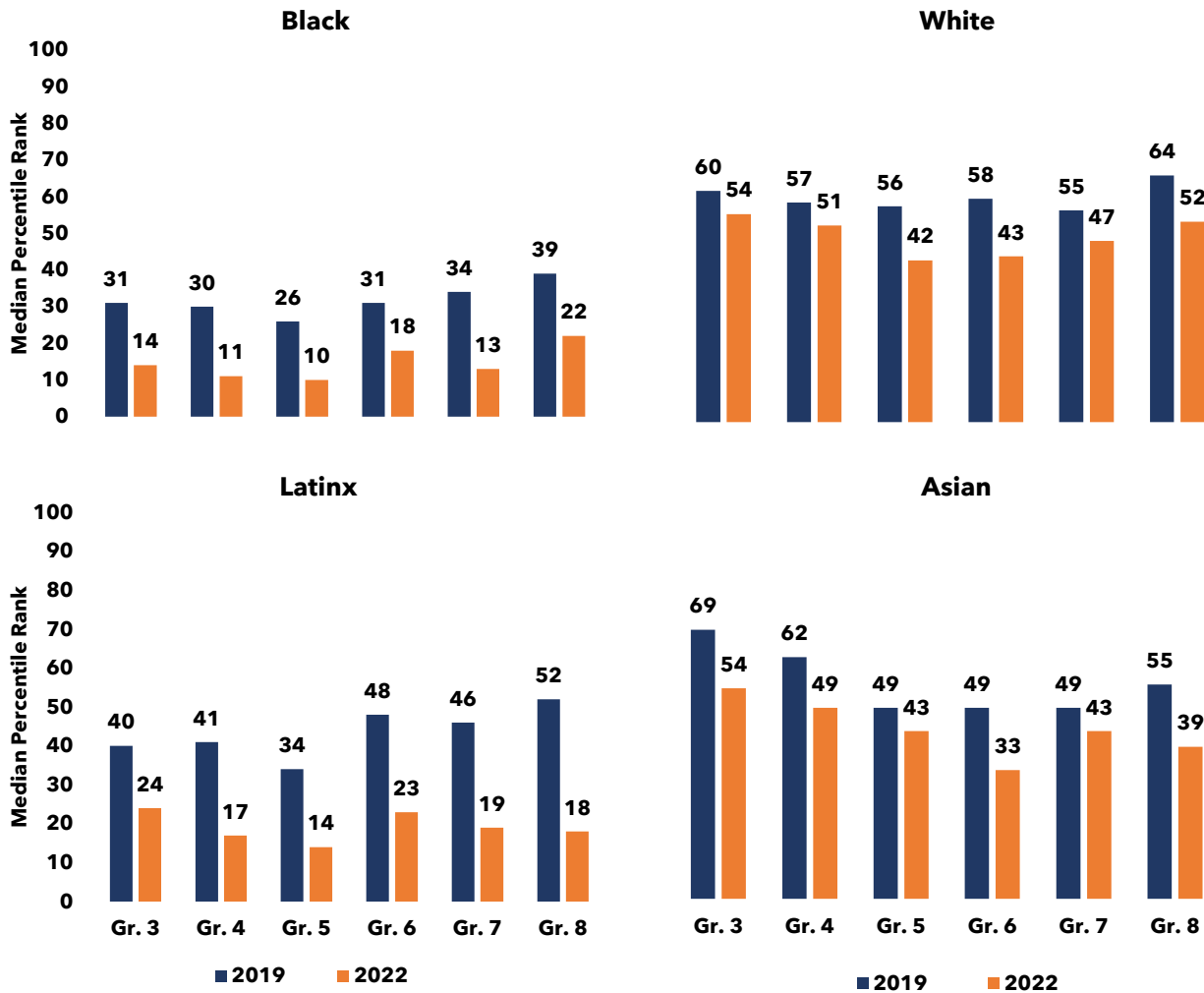
Source: NWEA Map Growth, spring assessment; author’s analyses.

Black and Latinx students had larger declines in math and reading relative to White peers.

Figure 3 displays changes in median percentile rank in math and reading from 2019 to 2022 disaggregated by race and ethnicity and grade level. Black or African American (henceforth titled Black), Hispanic or Latinx (henceforth titled Latinx), and White students across grade levels experienced declines in math and reading achievement in spring 2022 when compared to the pre-pandemic period. However, the magnitude of the decline varied across groups, with Black and Latinx students experiencing the largest declines. For example, the observed decline in spring 2022 relative to spring 2019 ranged in magnitude from 14 to 19 percentile points for Black fourth grade students in reading and math and 24 to 35 percentile points for Latinx fourth grade students in math and reading. In contrast, the magnitude of decline for White fourth grade students ranged from 6 to 13 percentile points in math and reading. Results in Figure 3 are consistent with earlier reports indicating that students from historically marginalized groups enrolled in

GVSU schools were adversely impacted from the pandemic (See Figure 4 in December 2021 GVSU NWEA [report](#))³.

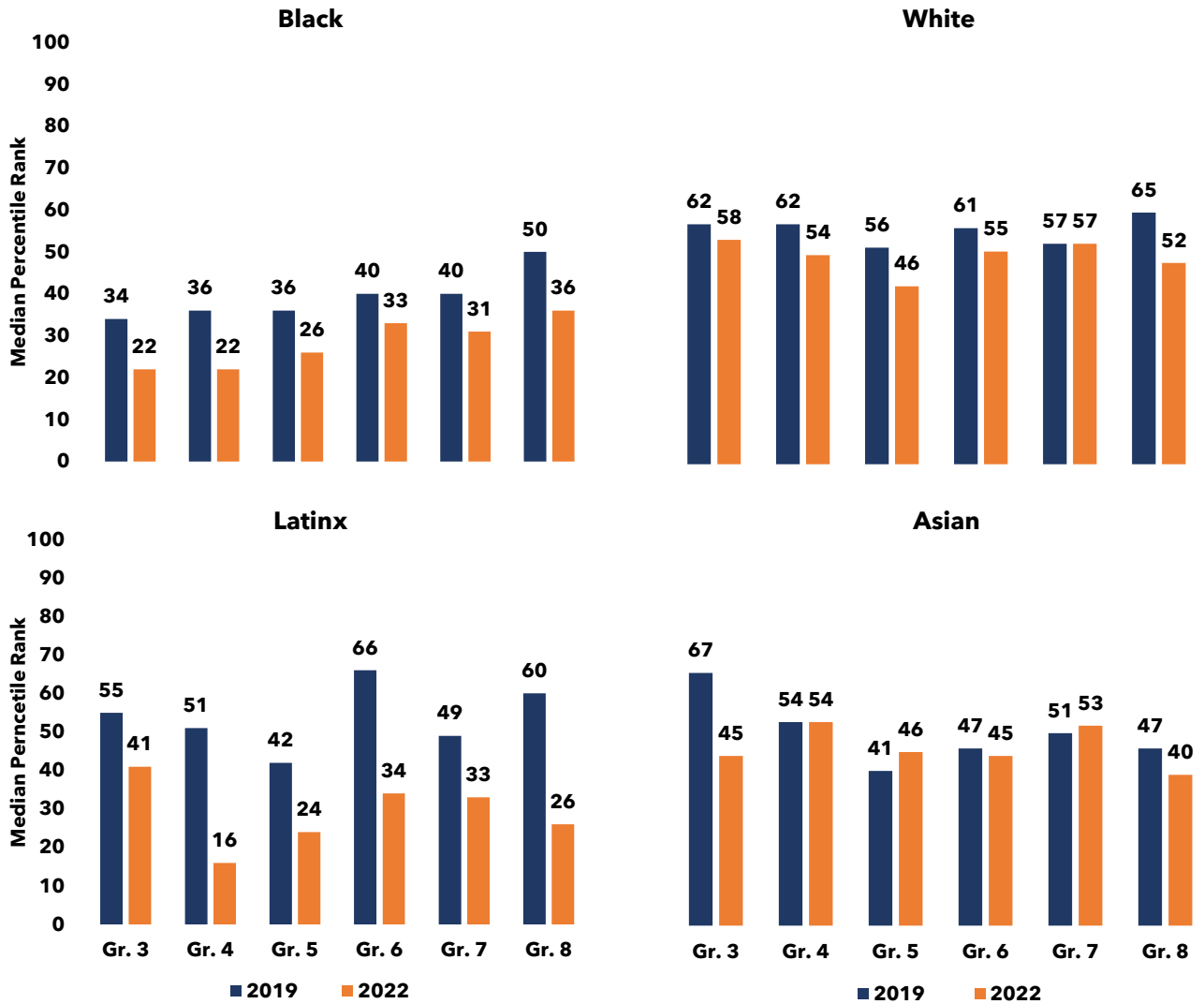
Figure 3: NWEA MAP achievement percentiles in math by race and grade level in spring 2019 and 2021



Source: NWEA Map Growth, spring assessment; author's analyses.

³ The current and past reports analyzing the impact of the pandemic on student achievement in GVSU schools use changing samples of schools and students who take the NWEA MAP assessment over time. Thus, previous reports use somewhat different samples and comparing results across reports is not recommended.

Figure 4: NWEA MAP achievement percentiles in reading by race and grade level in spring 2019 and 2021



Source: NWEA Map Growth, spring assessment; author’s analyses.

2 | To what extent did student learning rebound in the past year?

A prominent finding in the past report was students made achievement gains in math and reading in 2021 but at lower rates compared to the pre-pandemic period. Thus, Basis researchers sought to understand whether achievement gains made in 2022 provide evidence of student learning “bouncing back” or “rebounding” to pre-pandemic levels. To do so, we examined how students’ math and reading growth in grades three through eight in 2022 compares to students in the same grade in prior years. Basis researchers calculated mean RIT scores to assess student growth between fall and spring terms in 2019, 2020-21 (henceforth titled 2021), and 2022. We restricted the sample to (a) students with complete assessment data (fall 2018/spring 2019, fall 2020/spring 2021, or fall 2021/spring 2022) and (b) students

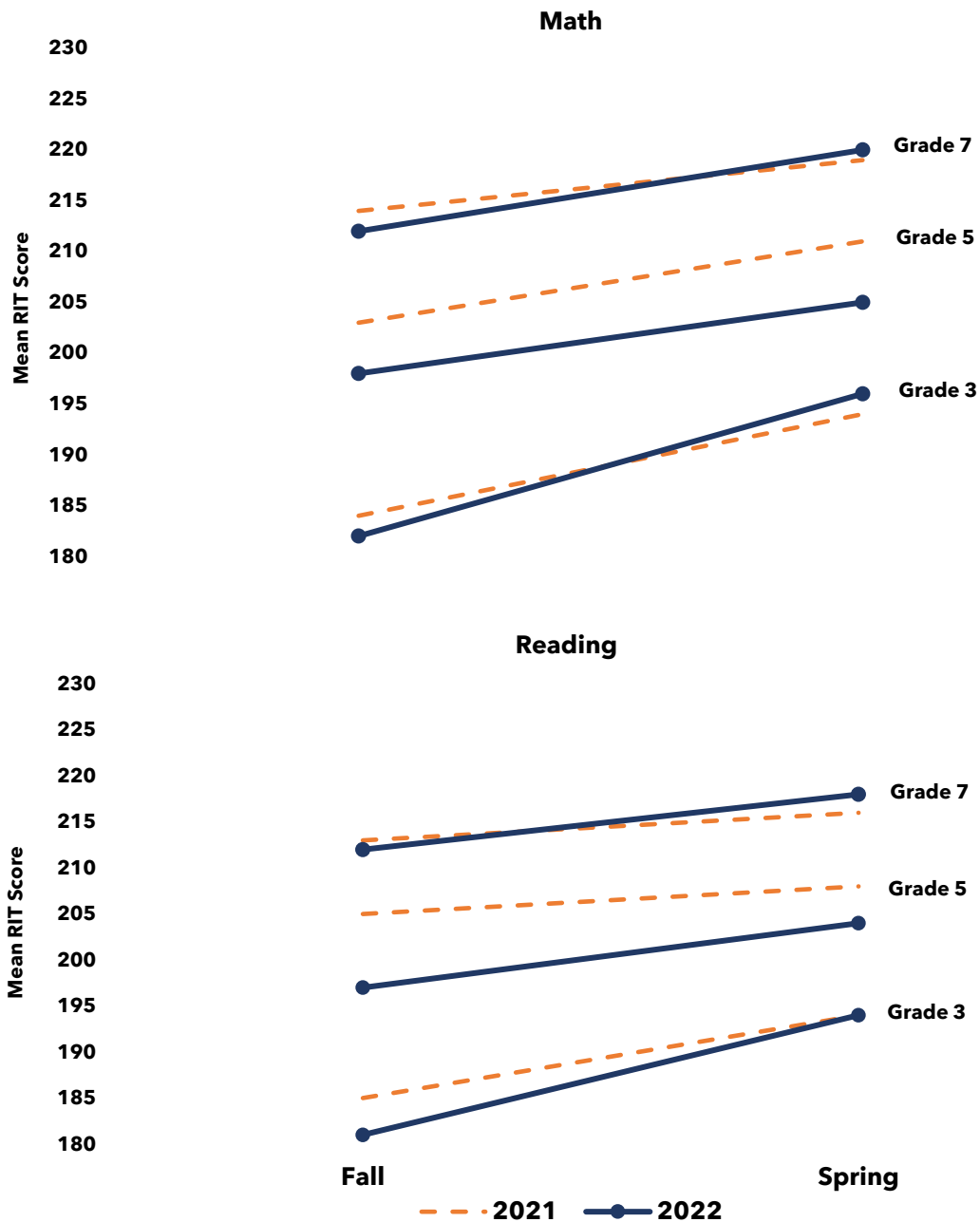
enrolled in GVSU schools who administered the NWEA assessment each term. The sample includes 12,747 students across 20 GVSU schools from 2019 to 2022.

Students made larger achievement gains in 2022 as compared to the prior year.

Figure 5 displays mean math and reading RIT scores for select grades (i.e., three, five, seven) and test periods (i.e., fall and spring) in 2021 (dashed lines) and 2022 (solid lines). On average, students demonstrated gains across select grades⁴ in 2022. For example, third grade students in 2022 improved by 13 and 15 RIT points respectively in math and reading in the spring as compared to the fall. Results also reveal students across grades made larger gains in math and reading in 2022 as compared to 2021. Third, fifth, and seventh grade students in 2022 outpaced students in 2021 by between three to four RIT points in reading. The solid lines (2022) have steep upward trends and are not parallel with the dotted lines (2021) indicating academic achievement in 2022 outpaced math and reading gains made in the 2021. This resulted in students in grades three and seven performing better in spring 2022 as compared to spring 2021 despite starting from behind prior year performance in the fall. Additionally, when we compared the distribution of within-student math and reading growth in 2021 and 2022 for students in the same grade, a larger proportion of students demonstrated positive growth in math and reading in 2022. The difference in proportions is particularly stark in grades three and four (See Appendix B, Figures B1-2). The lone exception to these larger trends is fifth grade math gains in 2022 lagged 2021 achievement by one RIT point. Finally, the trends presented in Figure 5 remains mostly constituent when results are disaggregated by grade-level (i.e., fourth, sixth, and eighth) and race and ethnicity (Appendix B, Figures B3-6).

⁴ Students are expected to make larger RIT score gains in earlier grades.

Figure 5: Mean fall and spring math RIT scores by year and select grades



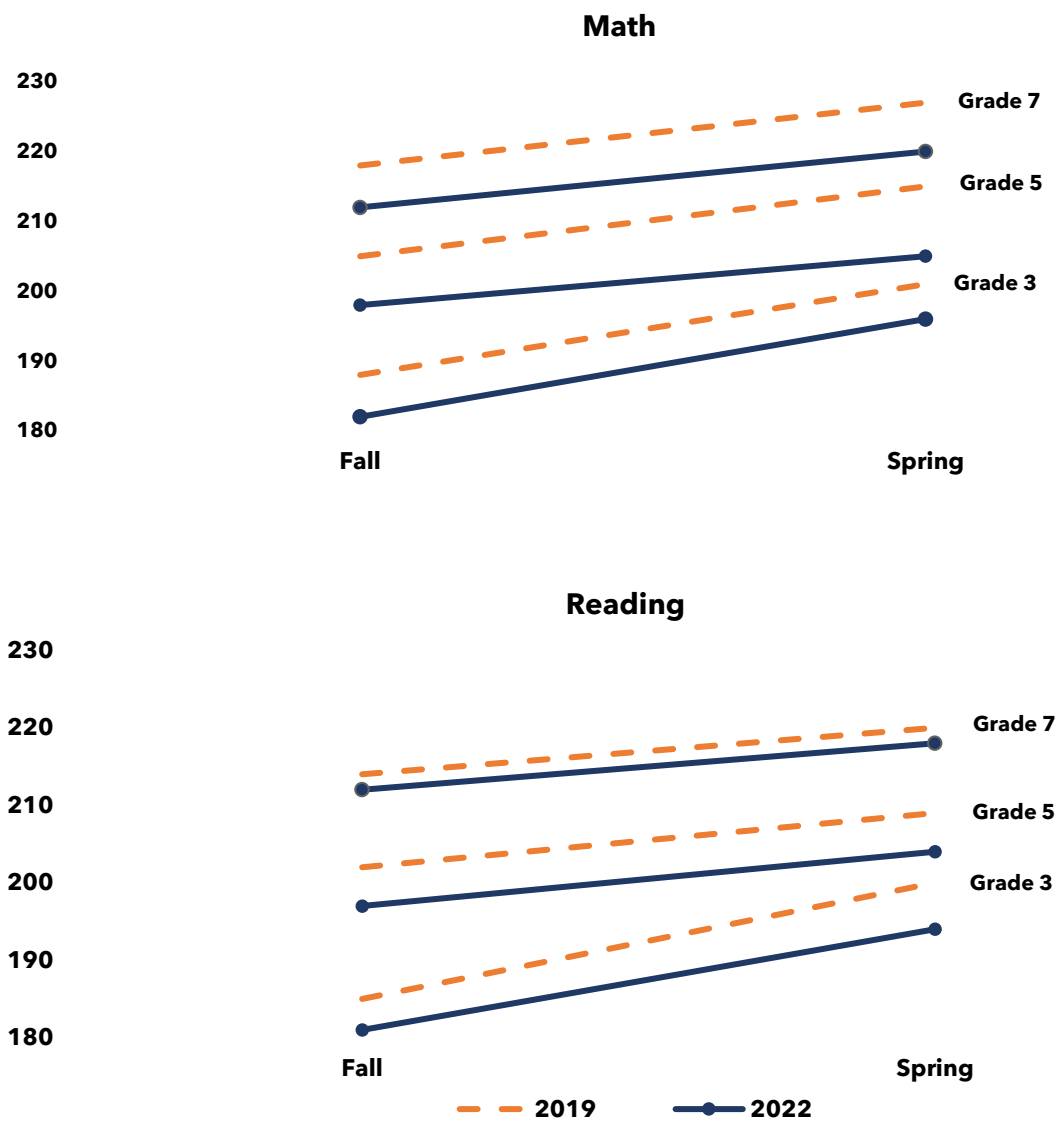
Source: NWEA Map Growth, fall and spring assessment; author’s analyses.

Student achievement gains in math and reading in 2022 were mostly comparable to 2019 and provide evidence of learning rebounding to the pre-pandemic period.

Next, we explored whether student growth in the past year is comparable to the pre-pandemic period. Figure 6 displays mean math and reading RIT scores for select grades (i.e., three, five, seven) and test periods (i.e., fall and spring) in 2019 (dashed lines) and 2022 (solid lines). Results indicate that fall to

spring growth across most grade-levels in the past year was comparable to the pre-pandemic period. The solid lines (2022) have upward trends and are mostly parallel with the dotted lines (2021). Outside of fifth grade math and third grade reading, the difference between fall to spring RIT score growth in 2019 and 2022 ranged from between zero to one point in math and reading. We also found comparable trends when we compared the distribution of within-student math and reading growth in 2019 and 2022 for students in the same grade. A similar proportion of students demonstrated positive growth in math and reading in 2022 when compared to the pre-pandemic period (See Appendix B, Figures B1-2). Fall to spring growth in 2022 provides evidence of learning rebounding to pre-pandemic levels. This finding is particularly meaningful considering student achievement gains in 2021 (i.e., mid-pandemic period) lagged the pre-pandemic period. Finally, the trends presented in Figure 6 remains most constant when results are disaggregated by grade-level (i.e., fourth, sixth, and eighth).

Figure 6: Mean fall and spring math and reading RIT scores by year and select grades

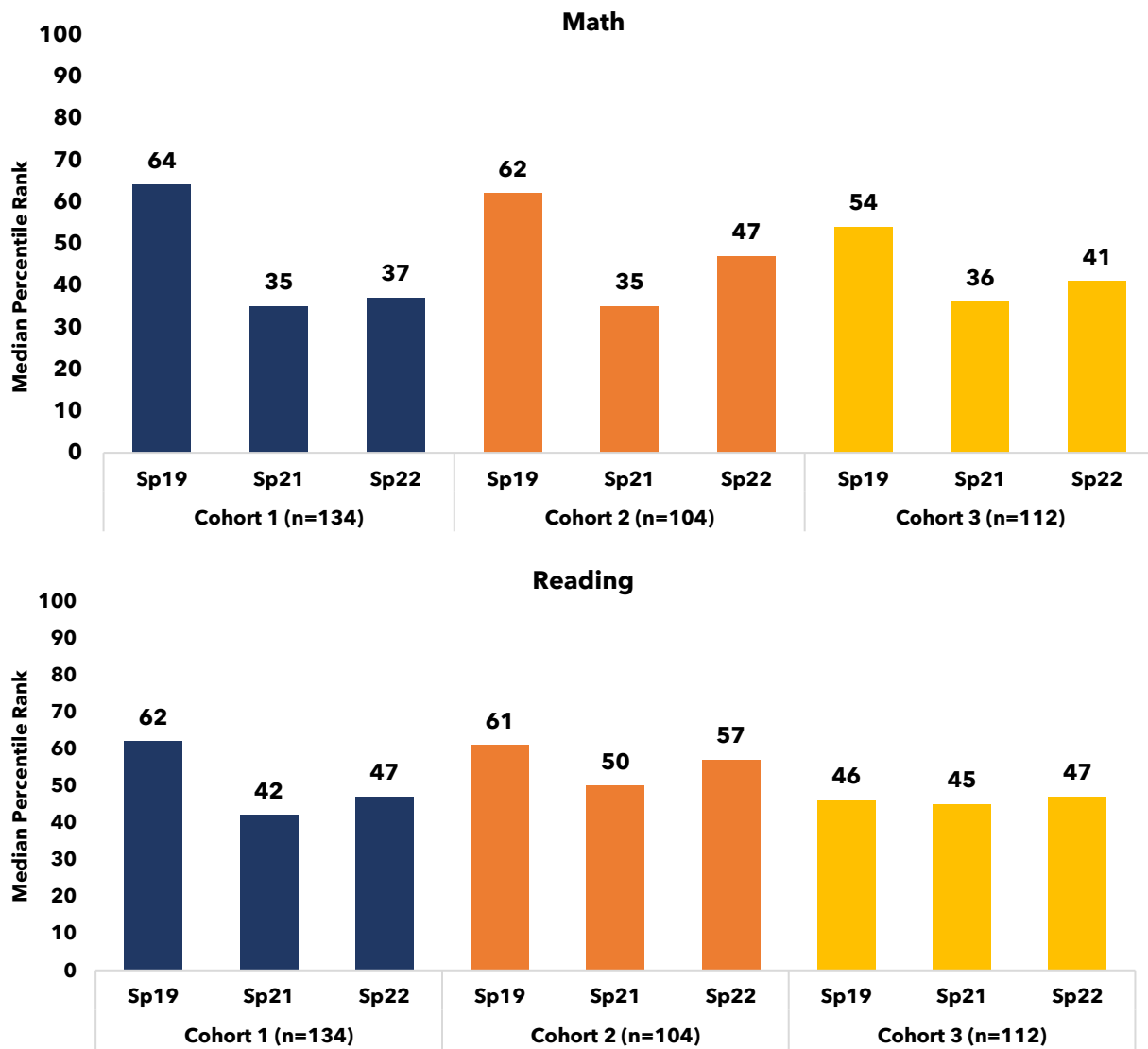


Source: NWEA Map Growth, fall and spring assessment; author's analyses.

Students' percentile rank improved in 2022 when compared to the prior year.

Finally, we explored whether the achievement gains made in the past year improved students' math and reading percentile rank relative to the prior year. To do so, we explored changes in normative achievement for students with valid test results for the six terms (fall 2018 to spring 2022) included in this report. As previously described, this sample allows us to explore within-student change over time. Results in Figure 7 indicate students' normative position in math and reading across cohorts improved in the past year. The increase in spring 2022 achievement relative to spring 2021 ranged in magnitude from 2 to 12 percentile points in math and 2 to 7 percentile points in reading. These improvements provide promising evidence of student achievement rebounding in the past year.

Figure 7: Change in students' relative position in reading percentile rank from spring 19 to spring 2022



Source: NWEA Map Growth, spring assessment; author's analyses.

Discussion

Findings from this report provide further evidence of how the pandemic has adversely affected students' academic achievement. Results indicate students' achievement in spring 2022 were lower compared to the pre-pandemic period, with larger declines in math (14 to 22 percentile points) than reading (6 to 15 percentile). The gaps between achievement in spring 2022 relative to the pre-pandemic period signal that students have considerable ground to make up in pursuit of returning to pre-pandemic achievement levels. Further, we found continued evidence that the pandemic has disproportionately impacted students from historically marginalized groups, with Black and Latinx students experiencing larger declines in math and reading relative to White peers.

Despite the gaps in achievement between spring 2022 and the pre-pandemic period, there is reason for optimism moving forward. Students made larger achievement gains in 2022 as compared to the prior year, with some grade levels performing better in spring 2022 as compared to spring 2021 despite starting the year behind prior year performance. Consequently, students' spring 2022 percentile ranks improved when compared to the prior year. Finally, student achievement gains in math and reading in 2022 were mostly comparable to 2019 and provide evidence of learning rebounding to the pre-pandemic period. However, achievement gains in the coming years will need to outpace pre-pandemic gains to narrow the current gap in achievement rankings. Considering these findings, we suggest the GVSU CSO and its stakeholders consider the following two recommendations when planning for the future.

Consider implementing learning acceleration programs to move students up to grade-level mastery.

While fall to spring achievement gains in 2022 largely mirror pre-pandemic growth trends, student achievement in spring 2022 remains considerably lower than the pre-pandemic period. Further, the gaps in student achievement will persist if fall to spring achievement gains made in future years remain comparable to gains observed in the pre-pandemic period. Thus, narrowing the gaps in student achievement will require fall to spring achievement in future years to outpace yearly gains made during the pre-pandemic period. One possible approach to narrowing gaps and moving students up to grade-level mastery is implementing learning acceleration (LA) programs, whereby grade-level concepts and skills are prioritized and remediation is strategically built into grade-level learning. The concept of LA has produced promising evidence that students exposed to grade-level content and less remediation struggle less and learn more in an academic year (TNTP, 2021). The New Teacher Project's [LA Planning Guide](#) provides a framework for how schools could integrate these programs within the context of the traditional school day. Figure 8 below provides an overview of the process for developing a comprehensive strategy to accelerate student learning. The content described below is derived from the TNTP LA Planning Guide, with more detailed information included in the above link.

Step 1: Establish Your Starting Point. The strategies that schools choose to adopt should target gaps in student learning, social and emotional health, and existing inequities hindering the student experience and subsequent school performance. As a starting point, schools should use myriad data sources to build a comprehensive understanding of the student experience and performance. Potential questions to consider include:

- What knowledge and skills do my students have proficiency with? How do results vary by content and/or grade-level?

- What knowledge and skills do my students need additional support with? How do results vary by content and/or grade-level?
- To what extent do students feel connected in school? Do current policies and practices support students’ social and emotional health?
- To what extent do current policies and practices reinforce existing inequities?

Suggested data sources include, but are not limited to, benchmark assessment data, student and faculty surveys, student and faculty focus groups, parent and guardians focus groups, and document review of school policies and practices. Finally, schools should not transition to developing a comprehensive strategy for accelerating learning until they have an intricate understanding of the current state of student performance and the student experience in school.

Figure 8: TNTP Framework for Creating LA Strategy



Source: [TNTP Learning Acceleration for All Toolkit](#)

Step 2: Develop your vision and goals. The vision and goals schools establish should reflect (a) the insights gained in step one and (b) aspirations for how schools will move students from the current to desired state. The TNTP LA planning guide recommends developing a vision guided by four values, to include: engage stakeholders, prioritize social and emotional health, prioritize students’ exposure to grade-level content, and address existing inequities. Upon drafting a three-to-five-year vision for narrowing gaps in achievement, schools need to develop measurable goals aligned to results derived in step one. Sample goals could include:

- All students will have access to grade-level content.
- The percentage of students who report feeling connected in school will increase by 20 percent.
- The difference in percentage of students by race and ethnicity who report feeling connected declines by 5 percent.
- The percentage of teachers who report feeling satisfied to work in their current school will increase by 25 percent.
- The percentage of parents or caregivers who report the school actively involves them in decision related to student learning increases by 15 percent.

Schools could subsequently establish measures to gauge yearly progress. Measures might include percentage of assignments where students experience grade-level content, percentage of students who report feeling connected on an annual student survey, and percentage of teachers who report feeling satisfied on annual school operations survey.

Step 3: Develop a strategy. As presented in Figure 8, when developing a strategy that aligns to the vision and respective goals established in step two, schools should (a) identify barriers impeding progress towards goals, (b) develop strategies that address barriers and problems of practice, and (c) prioritize strategies for implementation. Additionally, the TNTP LA Planning Guide (Page 11) provides a series of questions schools might consider when developing their strategy. Finally, when considering implementing and refining the strategy, school leaders might consider the following:

- To what extent do faculty and staff believe these strategies will address areas most critical to student learning? Social and emotional health?
- Am I providing faculty and staff with sufficient training and resources to implement these strategies?
- Am I modeling the behaviors I need my faculty and staff to demonstrate to effectively implement these strategies?
- Have I delegated outside tasks to ensure I can effectively address implementation of these strategies?
- To what extent have I planned for future sustainability of strategies?

Integrate evidenced-based math and reading interventions into core classroom instruction.

Selecting and implementing evidence-based math and reading interventions to be integrated into school LA programs (see recommendation one) or using these interventions as a separate approach to narrow disparities in academic achievement. Basis researchers recommend schools consider the following when selecting evidence-based interventions:

1. **Identify gaps in student learning.** NWEA assessment data includes students' performance on different math (e.g., Operations and Algebraic Thinking, Number and Operations) and reading (e.g., literacy text, informational text) goals. School leadership and continuous improvement teams should use this data to identify goals students have persistently struggled with since the onset of the pandemic. Upon identification of select math and reading goals, school leadership should prioritize goals needing immediate attention from goals that could be spiraled into core content over time.
2. **Use the What Works Clearinghouse to Select Evidence-Based Interventions.** The What Works Clearinghouse (WWC) uses a rigorous and consistent set of standards to review evidence of interventions or program effectiveness. WWC publishes interventions meeting these rigorous standards and provides details on outcomes of interest (e.g., reading fluency), the effectiveness rating (i.e., summary of effectiveness of an intervention), grades examined, and the improvement index (i.e., expected change in percentile rank for student receiving intervention). School leadership could access the [WWC](#) to identify literacy or mathematics interventions (a) proven to improve academic outcomes and (b) align to gaps identified in step one.

Finally, it is imperative schools prioritize access to evidence-based interventions for students from historically marginalized groups. Although math and reading achievement declined across all races and ethnicities, the decline is particularly noticeable for students from historically marginalized groups. For example, the observed decline in spring 2022 relative to spring 2019 ranged in magnitude from 12 to 17 percentile points for Black third grade students in reading and math and 15 to 16 percentile points for Latinx third grade students in math and reading; in contrast, the magnitude of the decline for White third grade students ranged from 4 to 6 percentile points in math and reading. To close gaps such as this, it is essential to use evidence based interventions.

References

- Accelerate, don't remediate*. TNTP. (2021). Retrieved November 9, 2022, from <https://tntp.org/publications/view/teacher-training-and-classroom-practice/accelerate-dont-remediate>
- Kuhfeld, M., & Lewis, K. (2022). Student achievement in 2021-22: Cause for hope and continued urgency. NWEA. <https://www.nwea.org/research/publication/student-achievement-in-2021-22-cause-for-hope-and-continued-urgency>

Appendices

Appendix A: Methods

Data Sources. Findings are based on student-level NWEA MAP data provided by the GVSU CSO. The CSO shared fall and spring assessment data from 2018-19, 2020-21, and 2021-22, resulting in six testing administrations. Spring 2020 NWEA assessment data is missing due to pandemic-related school closures. Assessment data included students' school name, term (i.e., fall, spring), subject, RIT (Rasch unIT) score and test percentile. Finally, Basis researchers applied NWEA 2020 norms to 2018-19 assessment data to ensure students' percentile ranks were based on the same norms.

Sample. In total, 32,491 students in grades three through eight had at least one valid math and reading test score across six NWEA administrations. We further restricted the sample to students (a) with valid math and reading test scores in both fall and spring administrations and (b) enrolled in schools administering the NWEA in each term. This analytic sample sought to reduce the extent changes in observed results is influenced by differences in students and schools tested over time. In total, the analytic sample includes 12,747 students across 20 GVSU schools from fall 2018 to spring 2022. The sample of students with complete data in 2018-19, 2020-21, and 2021-22 by grade-level was mostly comparable in terms of gender and race.

Finally, Basis researchers developed a second analytic sample to complement the primary analyses associated with the second research questions. We restricted the original analytic sample to 350 students with complete data from all six NWEA administrations. This restriction produced three longitudinal cohorts of students from third grade in 2018-19 to sixth grade in 2021-22 (n=134), fourth grade in 2018-19 to seventh grade in 2021-22 (n=104), and fifth grade in 2018-19 to eighth grade in 2021-22 (n=112).

Measures. Basis researchers used NWEA MAP Growth reading and mathematics assessment scores in this report. We include student (Rasch unIT) scores for fall and spring assessments and corresponding achievement percentiles. Achievement percentiles for each test administration were calculated using NWEA 2020 MAP Growth norms.

Analytic Strategy. Below we describe the analytic strategy for each research question included in this report.

1 | How does student achievement in spring 2022 compare to the pre-pandemic period? To what extent does achievement vary by race and ethnicity?

Basis researchers calculated the median student percentile in spring 2019, spring 2021, and spring 2022 by grade-level and subject to answer this research question. Moreover, we analyzed results by grade-level and student race.

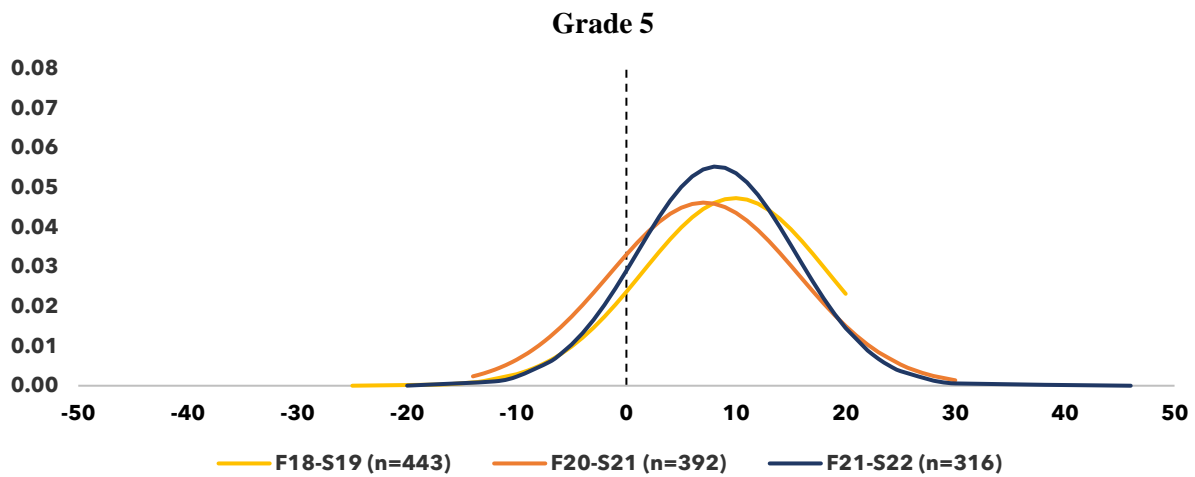
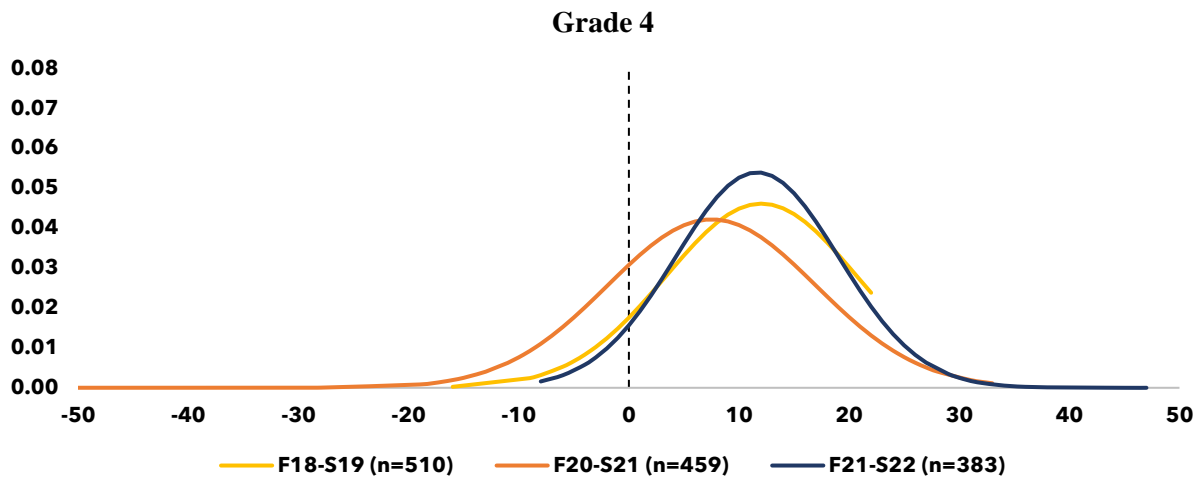
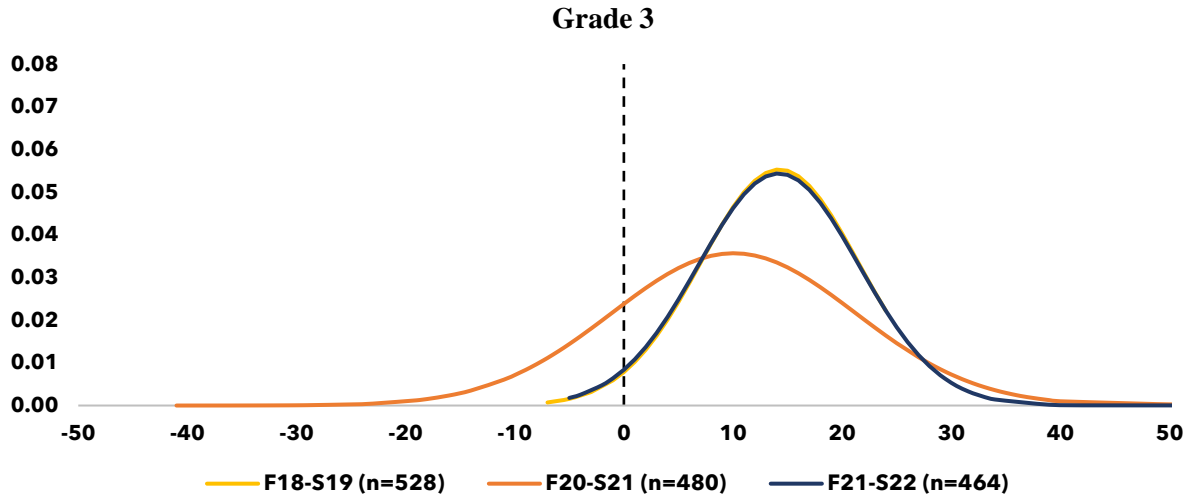
2 | To what extent did student learning rebound in the past year?

Basis research calculated mean RIT score by grade-level in fall 2018, spring 2019, fall 2020, spring 2021, fall 2021, and spring 2022. We then calculated mean change in RIT scores by grade-level between fall and spring test administrations to determine how student growth in 2021-22 compares to 2018-19 and 2020-21. Moreover, we compared the distribution of students' RIT score differences between the pre-

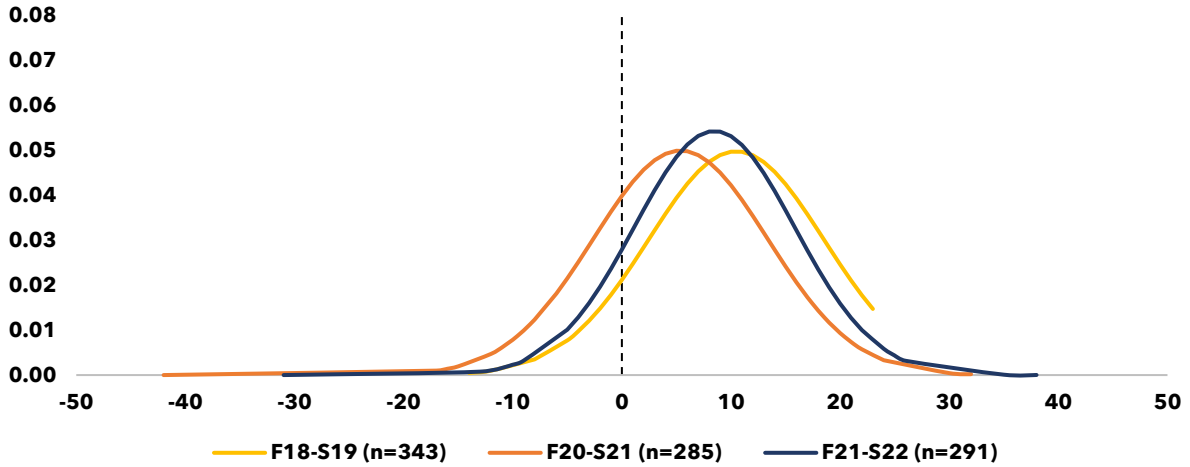
(fall 2018 to spring 2019), mid- (fall 2020 to spring 2021), and late-COVID periods (fall 2021 to spring 2022). This approach highlights students' raw growth but likely conceals growth for older students due to younger students growing at higher rates on NWEA assessments.

Appendix B: Additional Figures

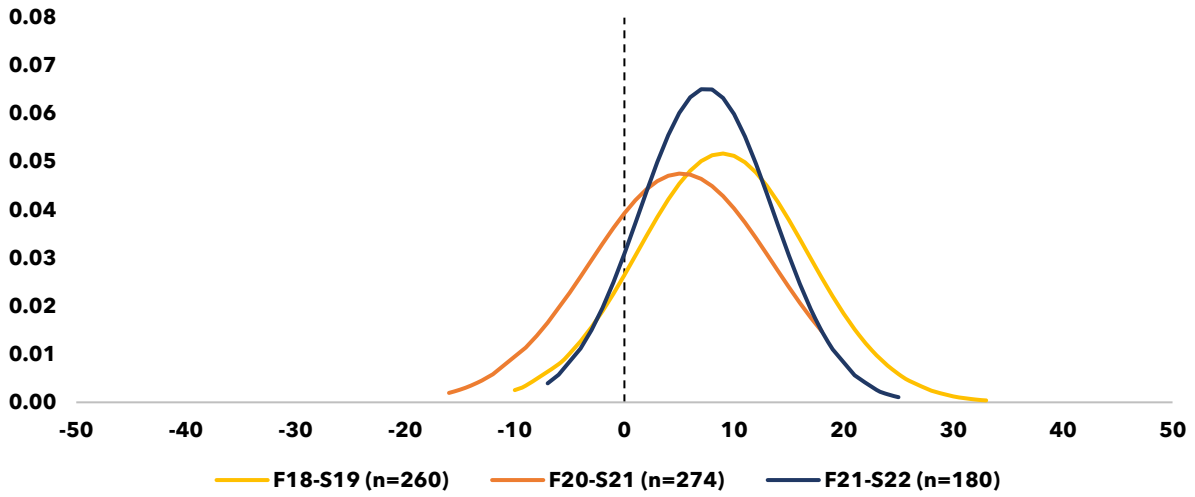
Figure B1: Distribution of math RIT score change from fall 2018 to spring 2019, fall 2020 to spring 2021, and fall 2021 to spring 2022



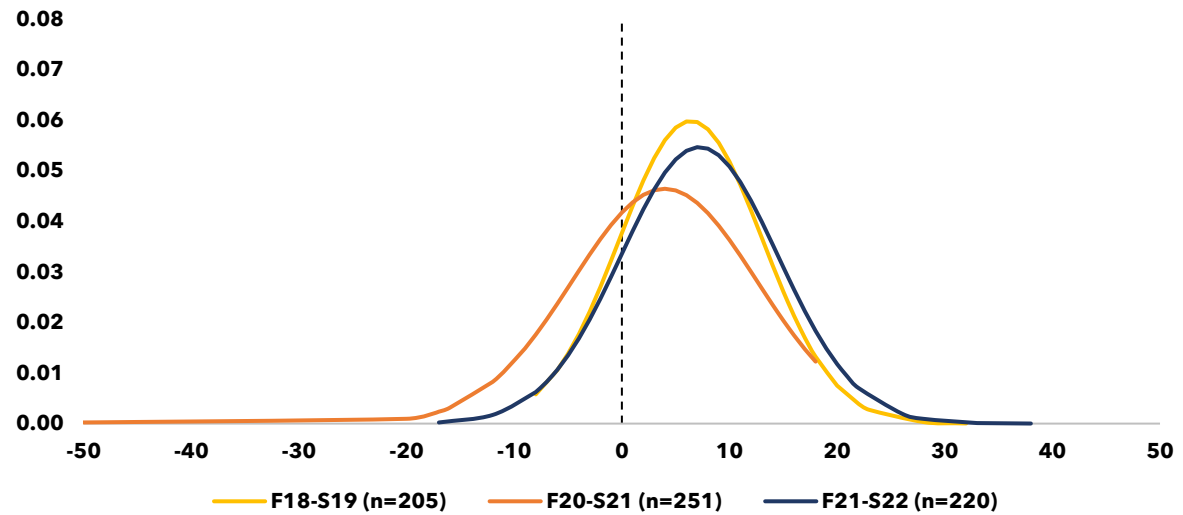
Grade 6



Grade 7

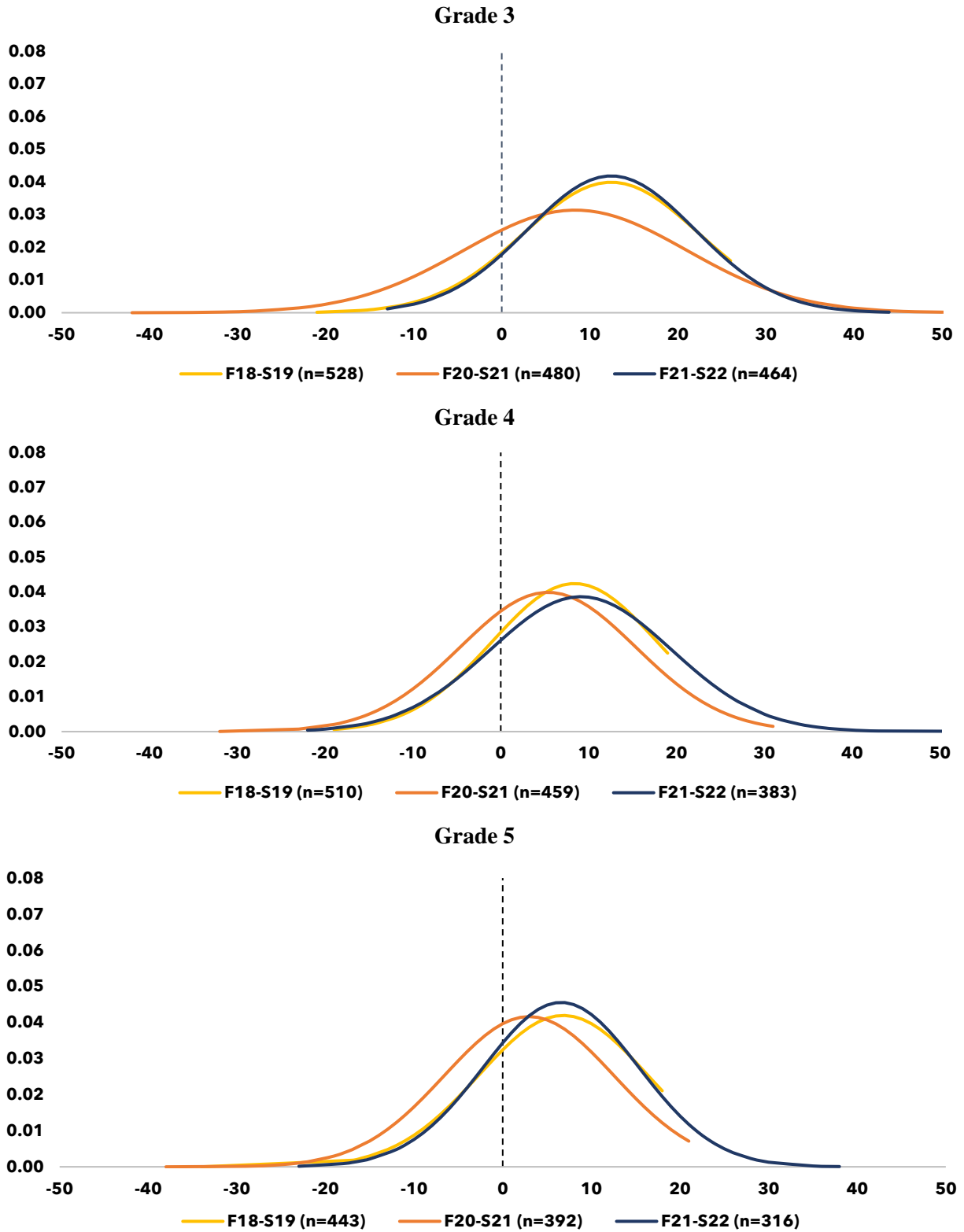


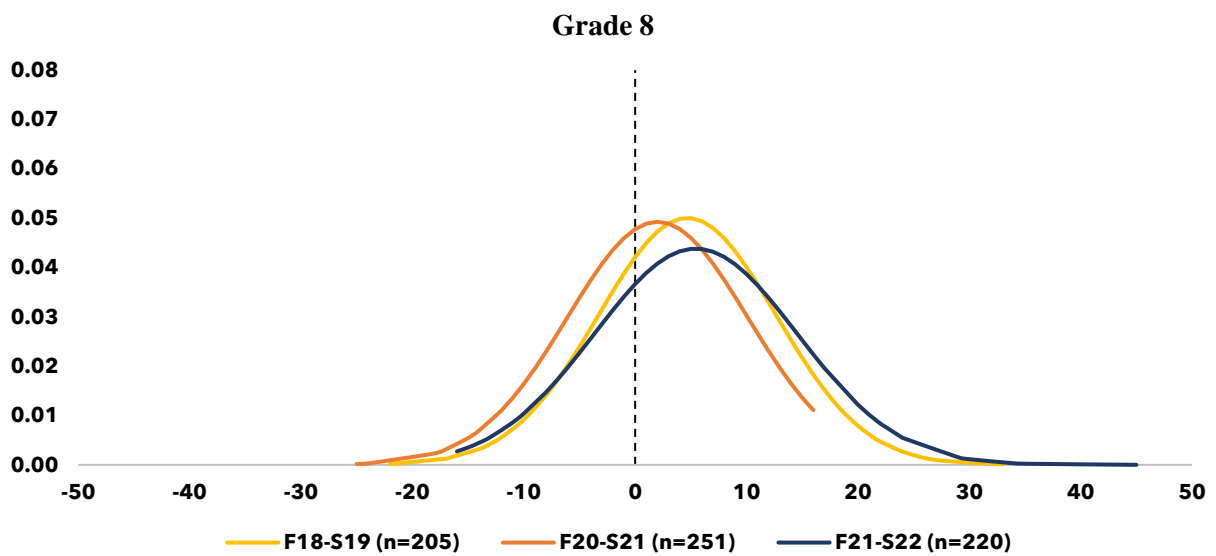
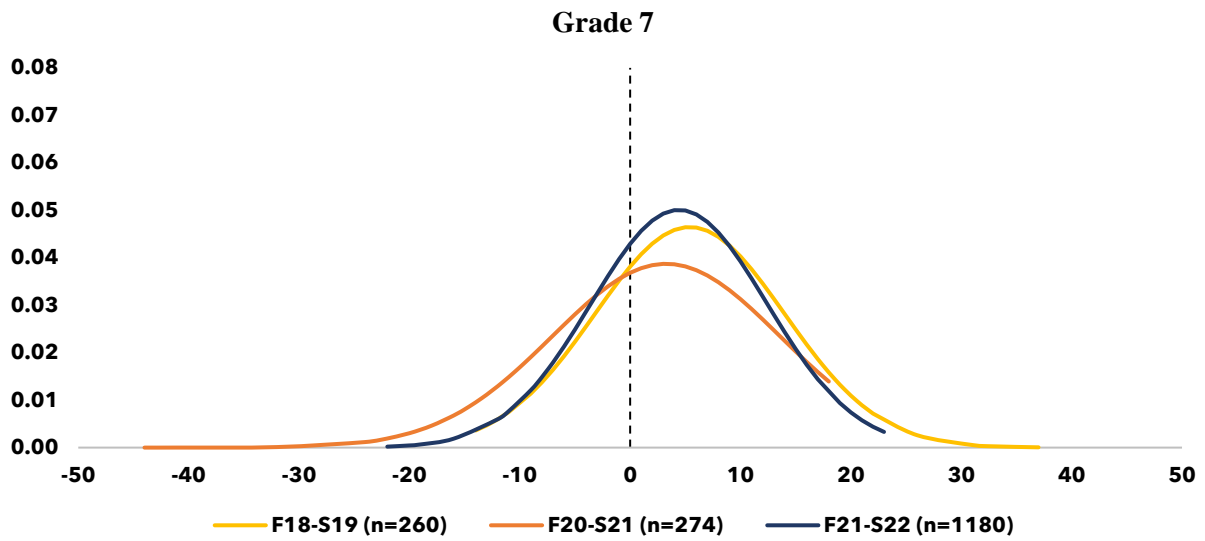
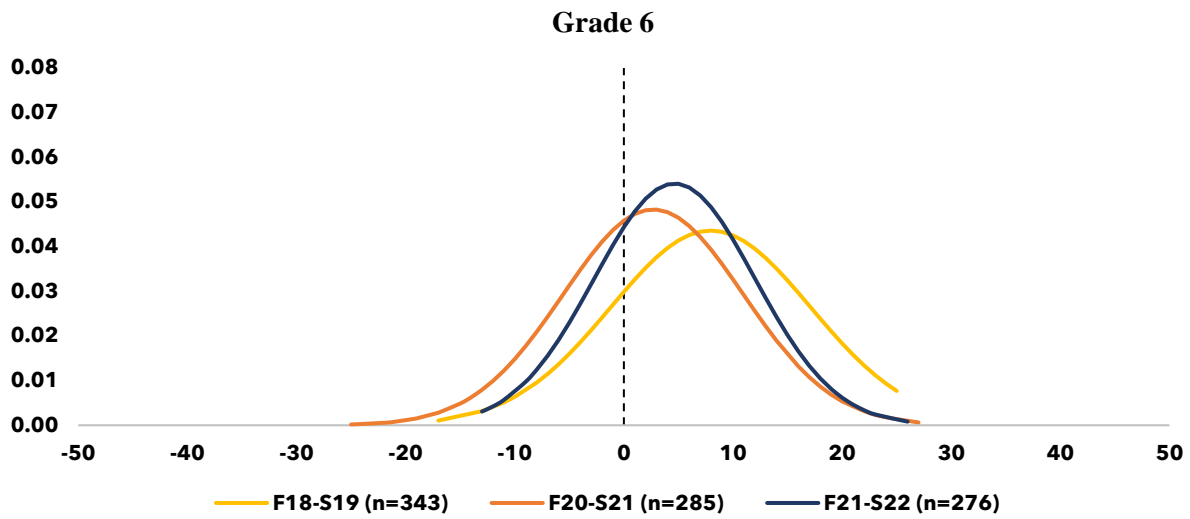
Grade 8



Source: NWEA Map Growth, fall and spring assessment; author's analyses

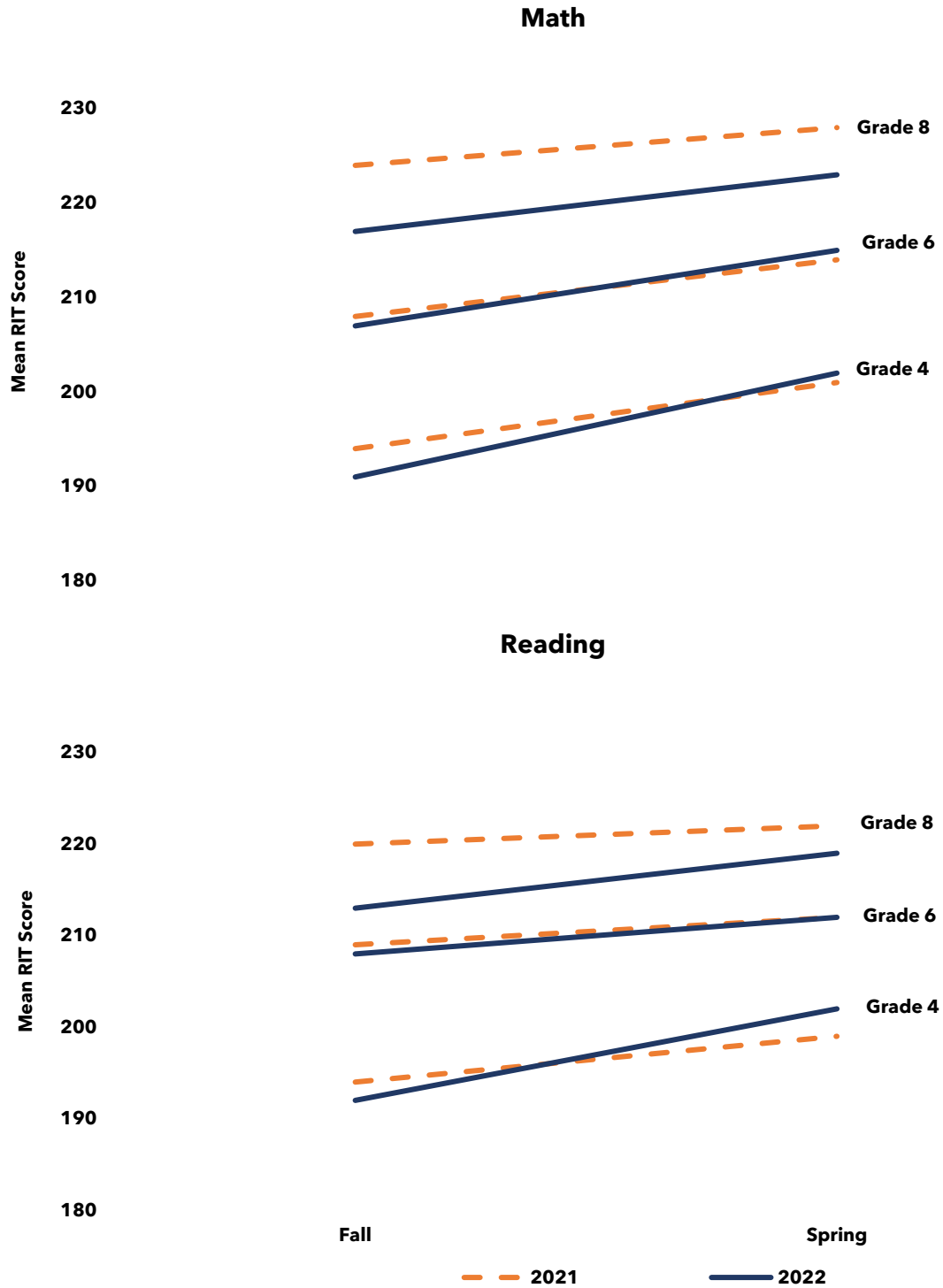
Figure B2: Distribution of reading RIT score change from fall 2018 to spring 2019, fall 2020 to spring 2021, and fall 2021 to spring 2022





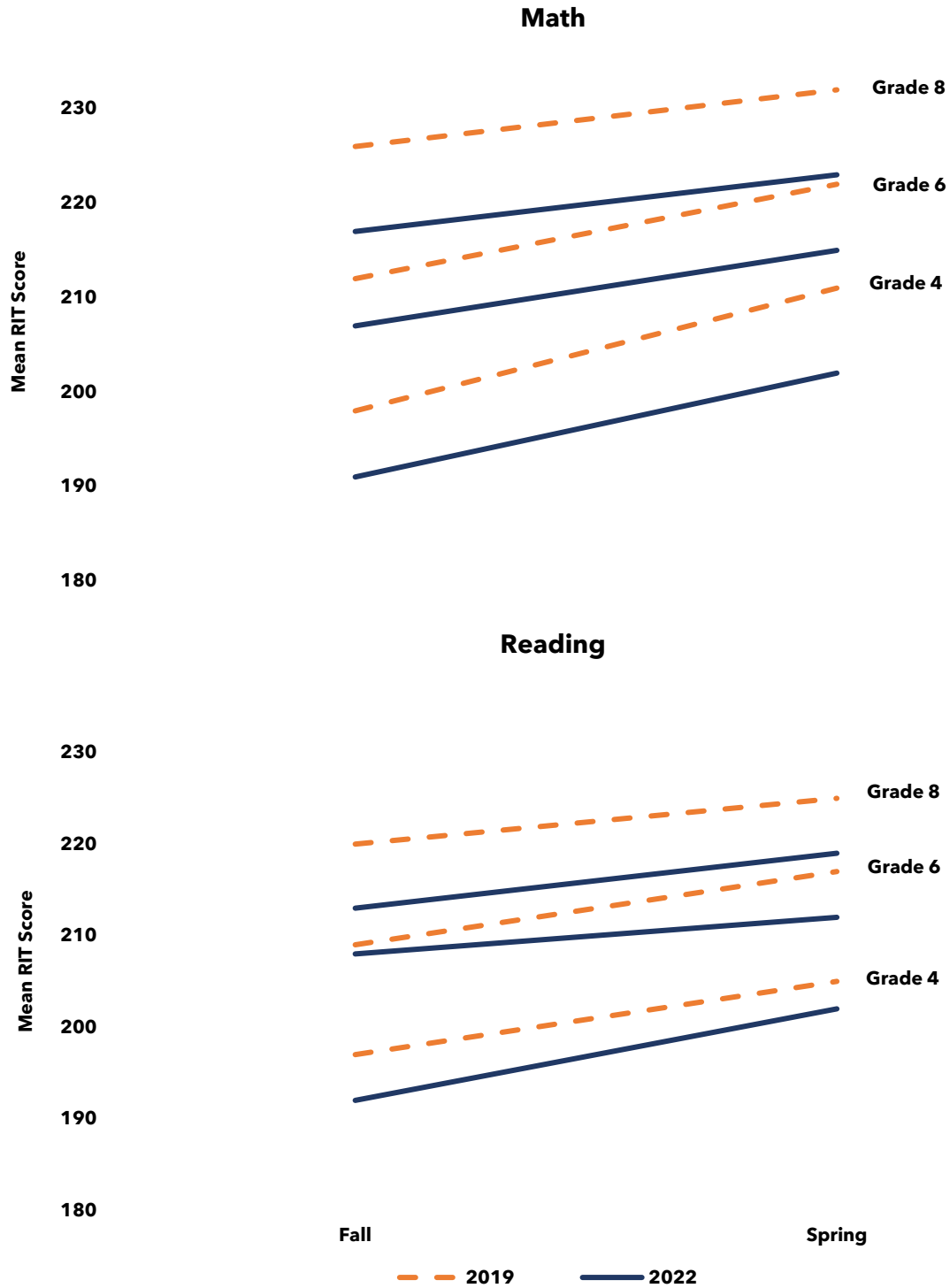
Source: NWEA Map Growth, fall and spring assessment; author's analyses

Figure B3: Mean fall and spring math and reading RIT scores by year and select grades



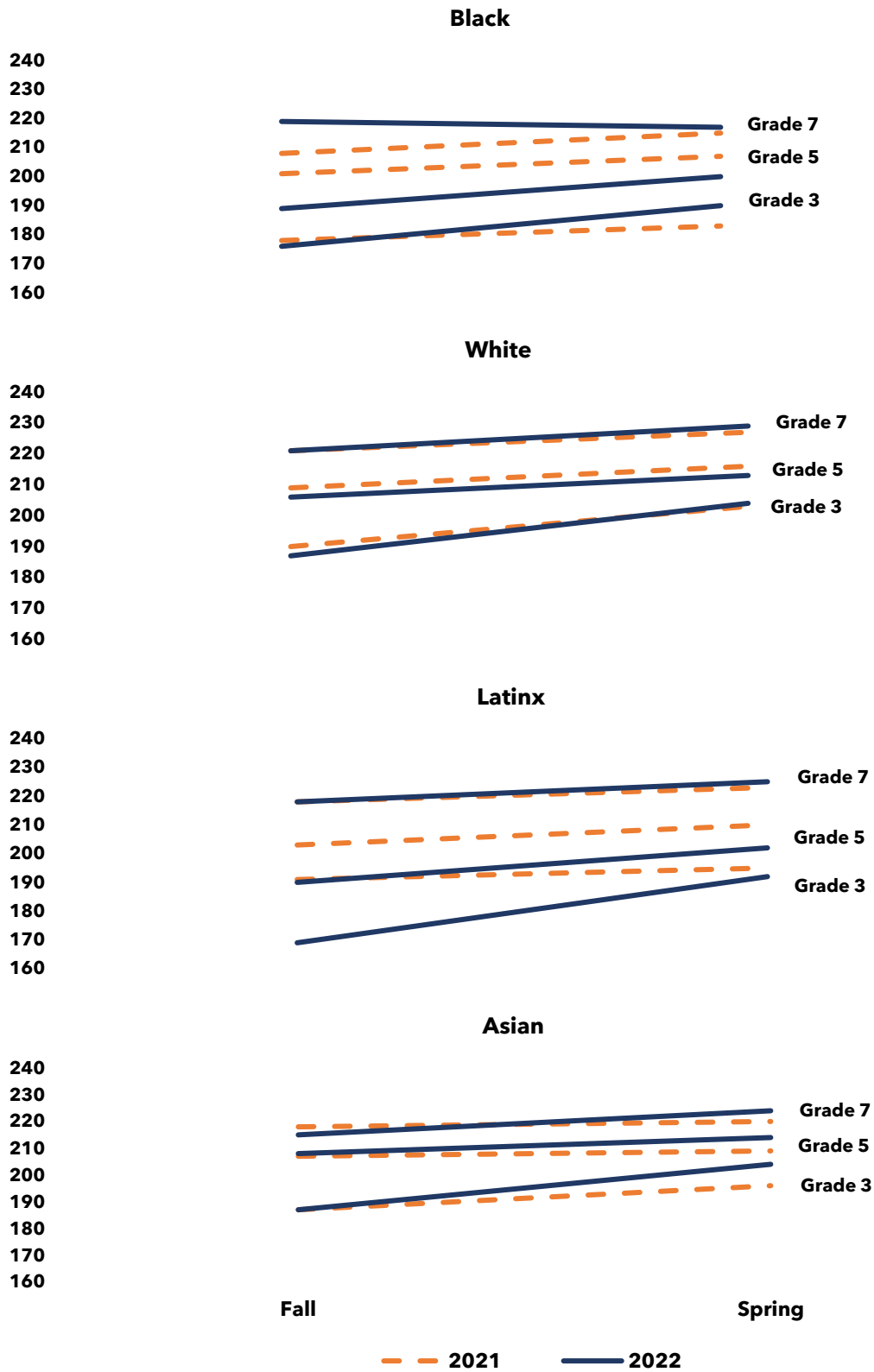
Source: NWEA Map Growth, fall and spring assessment; author's analyses

Figure B4: Mean fall and spring math and reading RIT scores by year and select grades



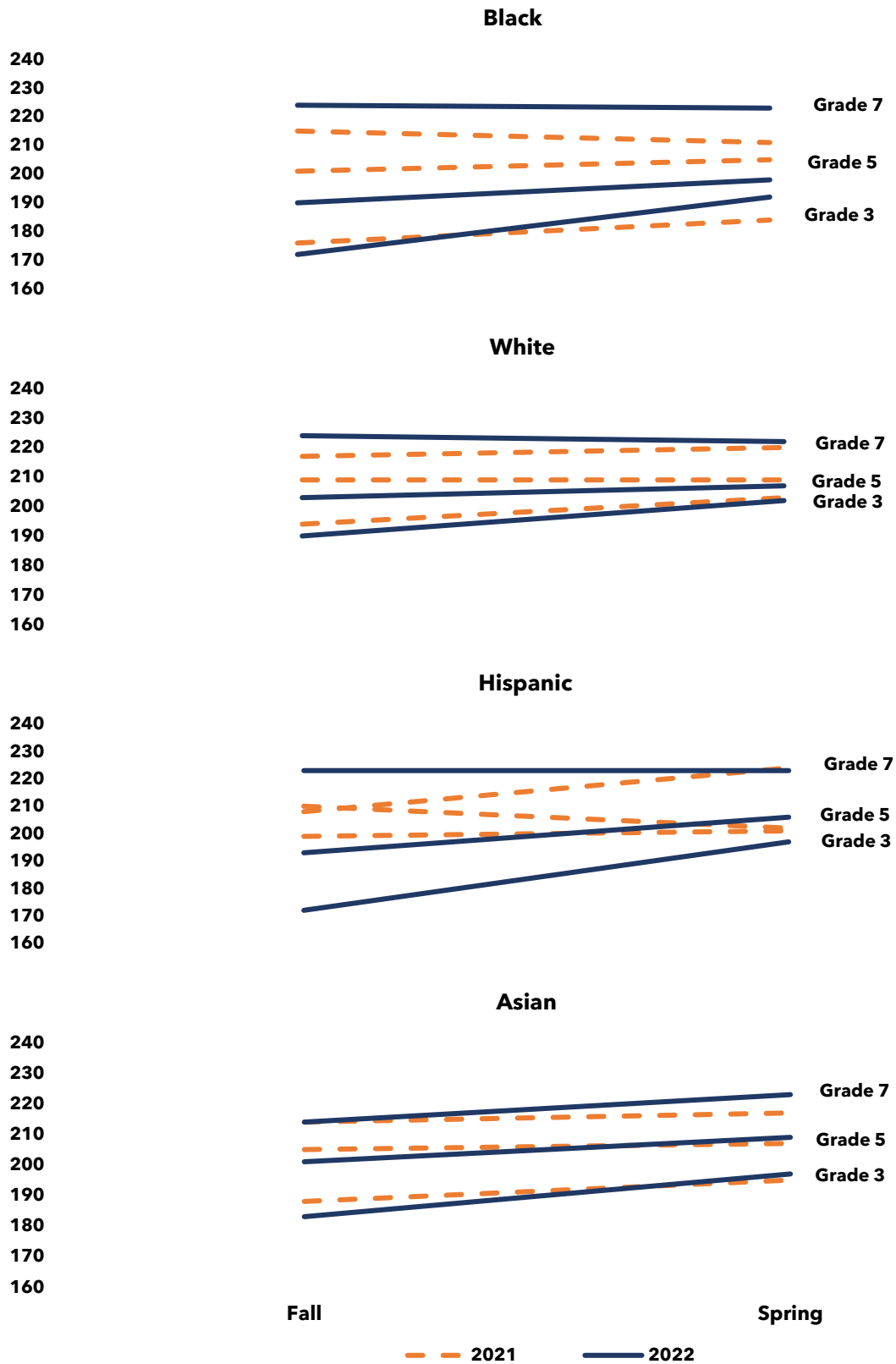
Source: NWEA Map Growth, fall and spring assessment; author's analyses

Figure B5: Mean fall and spring math RIT scores by race, year, and select grades



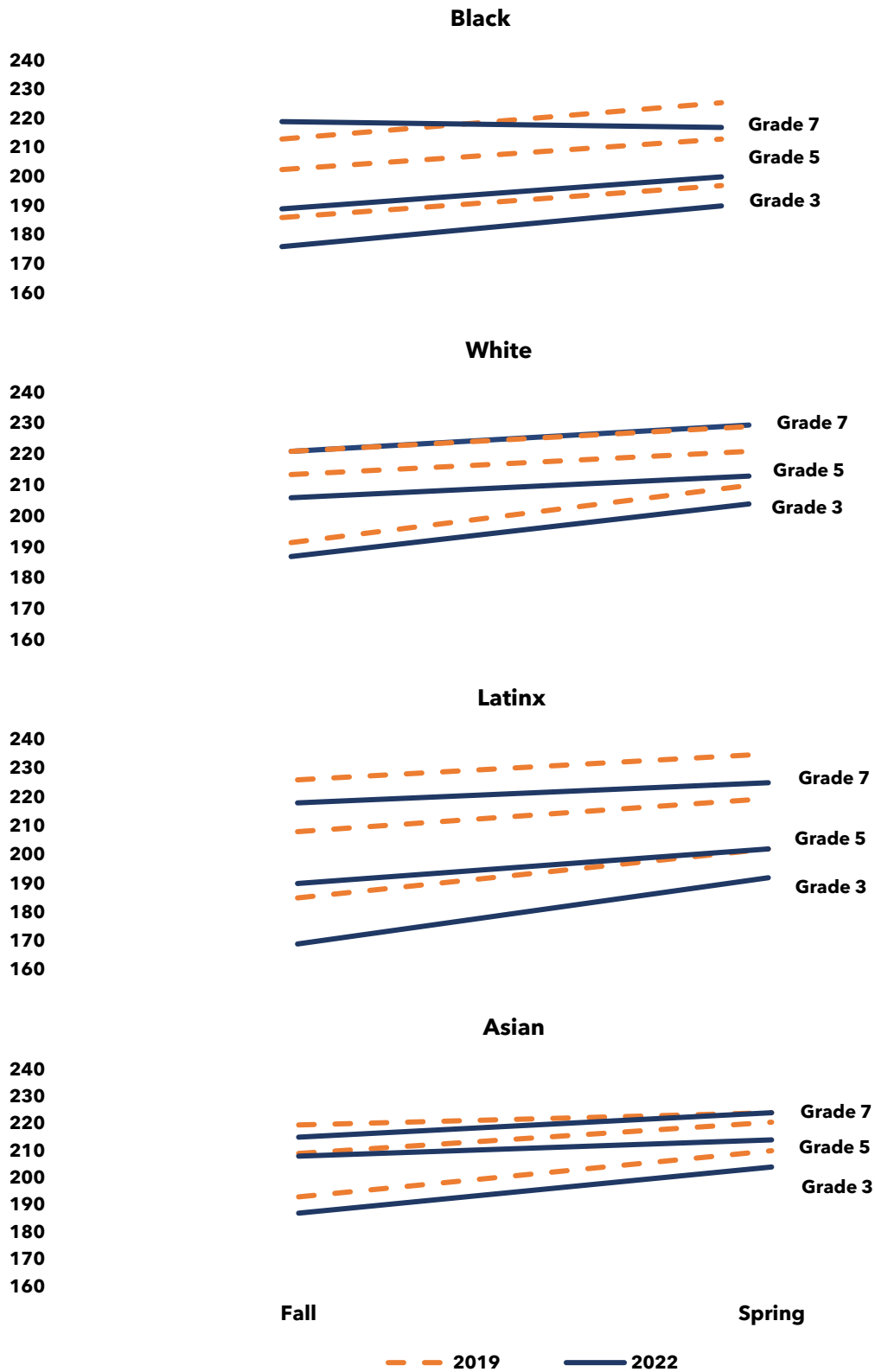
Source: NWEA Map Growth, fall and spring assessment; author's analyses

Figure B6: Mean fall and spring reading RIT scores by race, year, and select grades



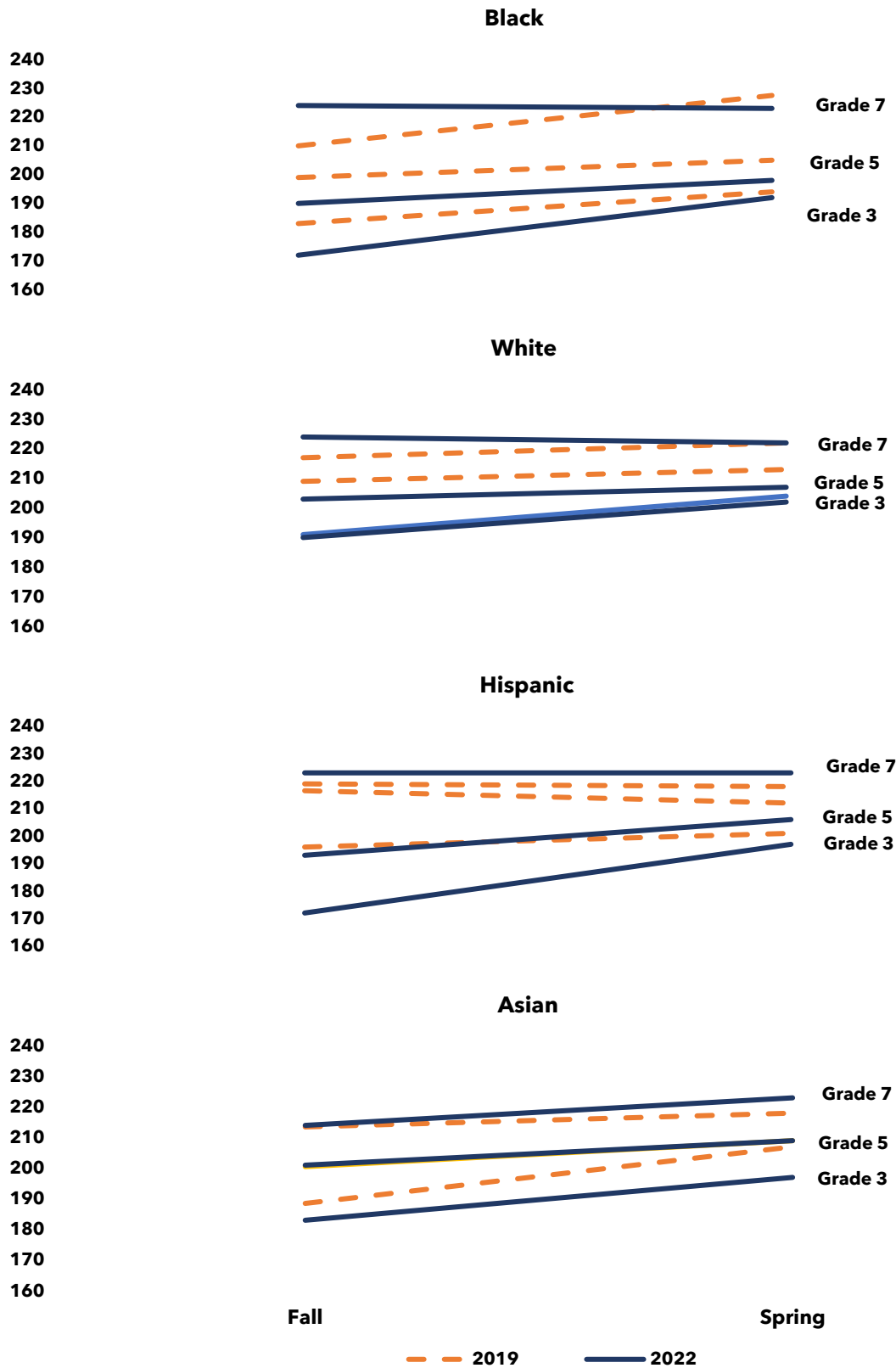
Source: NWEA Map Growth, fall and spring assessment; author's analyses

Figure B7: Mean fall and spring math RIT scores by race, year, and select grades



Source: NWEA Map Growth, fall and spring assessment; author's analyses

Figure B8: Mean fall and spring reading RIT scores by race, year, and select grades



Source: NWEA Map Growth, fall and spring assessment; author's analyse