Student Well-Being and Learning Conditions During the Pandemic

Evidence from the CORE Districts

Caroline Wang
Libby Pier
Robert H. Meyer
Nichole Webster

June 2021

Student Well-Being and Learning Conditions During the Pandemic

Evidence from the CORE Districts

Caroline Wang, Libby Pier, Robert H. Meyer, & Nichole Webster
Education Analytics

PACE
Policy Analysis for California Education
CORE-PACE RESEARCH PARTNERSHIP

Contents

Executive Summary

Since spring 2020, the COVID-19 pandemic has been abruptly interrupting regular instruction in almost all schools in the U.S. One year later, policymakers, district administrators, and educators are still balancing the benefits and risks of returning K–12 students to fully in-person school. Many are concerned about the pandemic's disruption to students' academic progress. In California, educators have been focused equally on students' mental and emotional health, social relationships, and learning environment, given that many students have been learning remotely since the onset of the pandemic.

Anticipating the need for schools and districts to understand their students' social-emotional well-being, the CORE Districts in California developed survey instruments to collect such information in the 2020–21 school year. The surveys were administered remotely, as all participating districts offered distance-only instruction. In this report, we draw on data from the *Student well-being and learning conditions diagnostic survey* taken by 32,000 students in Grades 4–12 from three districts at the beginning of the 2020–21 school year. We then highlight results from 15,000 students who also responded to the *Comprehensive interim survey* a few months later.

Results showed that students generally rated their learning environment at school (in 2019–20, before school closures) and learning environment online (in spring 2020, after school closures) relatively highly and consistently across grades. However, students had relatively lower ratings for their personal and interpersonal well-being. Students' responses varied across grades; we discovered different response patterns between boys and girls, English learners and non-English learners, and students with and without disabilities. When connecting students' well-being with academics, we found that secondary school students' interpersonal well-being was most correlated with academic achievement. Middle schools at which students reported higher interpersonal well-being also tended to have higher academic achievement in fall 2020 and higher academic growth from fall 2019 to fall 2020 on average.

Comparing responses between fall 2020 and winter 2020–21, students' home/online learning environment consistently improved across grades. This is a testament to the efforts of administrators, educators, families, and parents to improve online learning experiences for students throughout the 2020–21 school year. However, likely due to the continuation of remote learning, students in Grades 5–12 reported that they did not like school as much in winter 2020–21 compared with how they had felt at the beginning of the school year. This report brings data to bear on the areas of student well-being that are most relevant at each developmental stage, so that all education stakeholders are able to focus their efforts on meeting the most pressing needs of each group of students.

Student Well-Being and Learning Conditions During the Pandemic: Evidence from the CORE Districts

Since the beginning of COVID-19-related school closures in March 2020, educators across the country have faced unprecedented challenges in continuously supporting their students. In addition to concerns about students' academic learning, educators in California's CORE districts and the CORE Data Collaborative[1] have been focused equally on students' well-being and on learning conditions during the pandemic. To support the need for schools and districts to understand their students' social-emotional well-being (Hough et al., 2021), the CORE Districts developed a series of survey instruments to collect information from individual students and staff at the beginning of and throughout the 2020–21 school year (CORE Districts, 2020a).

This report summarizes findings from the *Student well-being and learning conditions diagnostic survey* administered remotely at the beginning of the 2020–21 school year. It also highlights some initial findings from the *Comprehensive interim survey*, which was also administered remotely in winter 2020–21 after several months of distance learning. The aim is to provide actionable insights for K–12 educators, policymakers, and other stakeholders into how remote learning affected students' social-emotional well-being and their learning environments, given that the primary mode of instruction in all participating districts was distance only. We hope this report allows students' voices to be heard as these stakeholders consider how best to continue to serve students and meet their needs during this challenging time.

Student Diagnostic Survey Overview

The pandemic has altered students' typical education experiences in innumerable ways. To maximize the support of educators as they work to understand students' well-being and learning conditions during school closures, the CORE Districts established a survey development team consisting of members from CORE Districts, Education Analytics, and Policy Analysis for California Education. The survey development team recognized the disruptions to students' mental and social-emotional health, social relationships, and learning environments, which became areas of focus for the student survey. The team's survey development process built on best practices from the CORE Districts' annual social-emotional learning and culture/climate

---

[1] The CORE Districts are a consortium of eight California school districts—Fresno, Garden Grove, Long Beach, Los Angeles, Oakland, Sacramento, San Francisco, and Santa Ana—that are recognized nationally for their collective efforts to improve outcomes for the one million students they serve. The consortium is the first in the country to initiate a large-scale panel survey measuring students' social-emotional learning skills and incorporating nonacademic measures alongside traditional academic indicators to inform a holistic index of school quality. The CORE Data Collaborative is a network of local educational agencies that unites the eight CORE school districts with other districts across California to ensure CORE innovations and insights can impact students throughout the state. For more details, see https://coredistricts.org/about-us and https://coredistricts.org/our-improvement-data/data-collaborative-community

surveys (Education Analytics, 2019). The team identified key topic areas, collected a pool of research-based survey items under each topic area, and selected candidate items for large group reviews. Throughout the process, CORE Districts collected feedback from district members for the survey development team. Knowing the importance of providing actionable data to classroom teachers and administrators at multiple levels, CORE Districts facilitated several rounds of reviews, focus groups, and interviews with district-level and school-level administrators and educators. The final student diagnostic survey includes a total of 26 survey items across four topic areas (a complete list of survey items is in Appendix A). Table 1 lists the four topic areas the survey was designed to measure, the description of each topic area, and sample items.

Considering that schools were planning to adopt various instructional modes—including remote, hybrid, and in-person learning—at the beginning of the 2020–21 school year, the student diagnostic survey was developed to be flexible and to accommodate different modes of administration. The survey was designed to be used for universal screening for students in Grades 4–12, while avoiding questions intended to surface trauma or abuse. Such questions would require follow up by school counselors or medical professionals that the survey development team was unsure would be available at all school sites (CORE Districts, 2020b).

Most survey items had five response options, such as (1) "Never," (2) "Once in a while," (3) "Sometimes," (4) "Frequently," and (5) "Always," with (5) indicating a higher rating of the student's well-being and their learning environment. Two items asked students, "How often did you feel worried?" and "How often did you feel sad?" These items were reverse coded in our analysis, so that high scores on all items corresponded to positive or desirable responses. In addition to self-rating items using a 5-point Likert scale, the survey included three free response items asking students to share their perceptions with their teachers in the new school year (items 24–26, see Appendix A), one item where students were to check all options that apply (item 22), and one item on a 4-point scale (item 23). In this report, we focus on student responses from the 21 items on the survey that were on a 5-point Likert scale (items 1–21). We provide highlighted responses from the three free response items in the last section of the report.

Table 1. Topic Areas, Descriptions, and Sample Items on the Student Diagnostic Survey

Topic area	Description	Sample item
Personal well-being	Questions about students' well-being in the previous few days or week, focusing on the degree to which individual students were experiencing generally positive or negative affect and a sense of resiliency.	During the past week, how often did you feel happy? *(Never, Once in a while, Sometimes, Frequently, Always)*
Interpersonal well-being	Questions about students' interpersonal support in the previous few days or week, including support students offer to others as well as their connection with the social network from which they can receive support.	Do you have a friend your age who helps you when you are having a hard time? *(Almost never, Once in a while, Sometimes, Often, Almost all the time)*
Learning environment (2019–20 year at school and spring 2020 online)	Questions looking back, asking about students' experience over the previous year at school and during spring 2020 online, following school closure.	Last year at school, was there at least one teacher or other adult in your school that really cared about you? *(Almost never, Once in a while, Sometimes, Often, Almost all the time)*
About me	Questions that allow students to share their perceptions of their learning strengths, interests, and challenges with their new teacher(s).	What are three words that describe you? *(Free response)*

Source. CORE Districts (2020b)

Survey Sample

Approximately 32,000 students in 126 schools from three districts that are part of the CORE Data Collaborative answered the diagnostic survey at the beginning of the 2020–21 school year. The number of participants was relatively evenly spread across Grades 4–12, with the smallest sample in Grade 6 (n = 3,015) and the largest sample in Grade 9 (n = 3,669). Most students took the survey within the first month of school via remote administration. The three districts participated voluntarily in the survey; not all three participating districts administered the survey to all of their students. The proportion of Grade 4–12 students who answered the survey (compared to the total student population in each of the three districts) was 73 percent, 41 percent, and 1 percent, respectively.[2] In order to assess how representative survey respondents were within the districts in which they were enrolled and in the state of California, we examined demographic data and Smarter Balanced Assessment Consortium (SBAC) ELA and math test scores (from the most recent SBAC administration, in spring 2019) for students in the survey sample compared to data and scores across the population of the three districts and in California. This comparison is summarized in Table 2.

---

[2] We do not have information on which schools or teachers administered the survey to their students, thus we are unfortunately unable to calculate the survey response rates.

Table 2. Percentage of Students in Each Student Subgroup in California (Grades K–12), in Participating Districts (Grades 4–12), and in the Survey Sample (Grades 4–12)

Subgroup	Survey sample	California student population*	Participating districts' student population	Difference between survey sample and California population	Difference between survey sample and districts' population
Female	51.6	N/A **	48.1	N/A**	3.5
Asian American	4.6	9.3	7.2	-4.7	-2.6
Black	3.3	5.3	11.9	-2.0	-8.6
Latinx	85.3	54.9	69.3	30.4	16.0
White	3.1	22.4	6.1	-19.3	-3.0
Economically disadvantaged	77.4	60.7	74.3	16.7	3.1
English learner	26.3	18.6	27.9	7.7	-1.6
Student with disabilities	7.6	11.7	11.2	-4.1	-3.6
SBAC 2019 ELA: standard met or exceeded	35.5	50.9	33.0	-15.4	2.5
SBAC 2019 math: standard met or exceeded	28.2	39.7	25.4	-11.5	2.8

* Based on students enrolled in Grades K–12 in the 2019–20 school year. ** Student gender is not reported publicly by the California Department of Education.

Source. California Department of Education, 2019–2020a; California Department of Education, 2019–2020b; EdSource, 2019.

The comparison shows that, across the three districts, Latinx students were overrepresented in the survey sample by 16 percentage points. There were also more female students and economically disadvantaged students as well as fewer students with disabilities who participated in the survey compared to these districts' student populations. The 2018–19 academic performance of students who took the survey was slightly higher in both ELA and math than that of those students in the same district who did not take the survey.

We further compared the student populations in participating districts with those of California as a whole in order to understand how representative our sample of districts was compared to the state overall (see Table 2). On average, surveyed districts had a higher proportion of Latinx students, economically disadvantaged students, and English learners (ELs). Students in surveyed districts had proficiency levels of academic performance that were below the California state average. We urge readers to take into consideration the demographic characteristics and academic performance of this survey sample when interpreting the results presented in this report, given this is not a representative sample of California as a whole.

Student Well-Being and Learning Conditions Survey Results

Exploratory Factor Analysis

Exploratory factor analysis (EFA) is a data deduction method that helps to identify the underlying structure of and associations among a large group of variables (Kim & Mueller, 1978). Parallel analysis is a commonly used technique to determine the optimal number of factors in EFA by comparing the information provided by the observed data matrix to the information generated from a simulated matrix from a random sample of the same size (Horn, 1965; O'Conner, 2000). For each item, EFA computes a *factor loading*, which quantifies the relationship between each item and each underlying factor; ideally, each item loads onto one and only one factor with a value of 0.3 or higher. We first conducted EFA and parallel analysis to explore the optimal number of factors across all items, to compare the goodness-of-fit statistics from each factor solution, and to examine the factor structure of the student surveys[3] so that items could be grouped accordingly in the final factor solution.

The EFA results largely aligned with the main topic areas that the survey was designed to measure.[4] To maintain consistency in item groupings across responses from the diagnostic survey (administered from late August through late September 2020) and the comprehensive interim survey (administered from late October through mid-December 2020), we omitted a few items in the analyses reported here that loaded differently across the surveys. We also omitted a few items that did not load strongly on any of the factors. In the end, we formed four groups of items as displayed in Table 3.

---

[3] In this report, we include results from the diagnostic survey administered at the beginning of the school year and the comprehensive interim survey administered in the winter. In addition, four districts administered the comprehensive interim survey in fall 2020, though we do not report the results of that survey in this report. When conducting the EFA, we aimed to find a consistent factor structure across all three sets of surveys. Therefore, data from all three survey administrations were used to determine jointly the factor structure of the survey items. The EFA was repeated within each of the three surveys and each grade level before determining the final factor structure.

[4] Our main purpose was to expose and summarize response patterns in students' well-being and learning environment topic areas over the previous year, rather than confirming the fit between the data and a hypothesized measurement model or validating the measurement scales. Therefore, we do not report results from confirmatory factor analysis.

Table 3. Four Factors and Survey Items from Exploratory Factor Analysis

Factor	Items included (and response options)
Personal well-being (3 items)	During the past week, how often did you feel happy? During the past week, how often did you feel worried? During the past week, how often did you feel sad? *(Never, Once in a while, Sometimes, Frequently, Always)*
Interpersonal well-being (3 items)	When I need help, I find someone to talk to. Are there students at your school who would help you if other students are being mean to you? Do you have a friend your age who helps you when you are having a hard time? *(Almost never, Once in a while, Sometimes, Often, Almost all the time)*
School learning environment (5 items)	Last year at school, was there at least one teacher or other adult in your school that really cared about you? Last year at school, did your teachers treat you with respect? Last year at school, did your teachers care what you thought? Last year at school, did teachers go out of their way to help students? Last year at school, did your teachers work hard to help you with your schoolwork when you needed it? *(Almost never, Once in a while, Sometimes, Often, Almost all the time)*
Home/online learning environment (3 items)	When you were learning from home this past spring, how often were you able to access your schoolwork that was online? When you were learning from home this past spring, how often did your teacher have online lessons with the class? When you were learning from home this past spring, how often did you join online learning lessons with your teacher? *(Almost never, 1 day per week, 2–3 days per week, 4 days per week, 5 days per week)*

Note that three of the four factors each consists of only three items. Given this limited number of items, we calculated the mean of the raw responses of items within each of the four topics (ranging between 0 and 4).[5]

Many of our results are based on the four topics in Table 3, though we also consider response patterns based on seven individual items that did not align strongly to one of the four topics above. These individual items are:

Item 4. During the past week, how often did you feel hopeful?

(Never, Once in a while, Sometimes, Frequently, Always)

---

[5] In this report, we use the term *topics* to refer to the four groups of items that emerged from EFA, rather than referring to them as comprehensive measurement scales of psychological *constructs*, the term used in psychology and behavioral sciences to describe domains of behaviors.

Item 6. When I have a problem, I can come up with lots of ways to solve it.

(Never, Once in a while, Sometimes, Frequently, Always)

Item 9. Last year, did you feel safe at school?

(Almost never, Once in a while, Sometimes, Often, Almost all the time)

Item 15. Last year at school, did you get your work done right away instead of waiting until the last minute?

(Almost never, Once in a while, Sometimes, Often, Almost all the time)

Item 19. When you were learning from home this past spring, how often would you have someone available to help you with your schoolwork, if needed?

(Almost never, 1 day per week, 2–3 days per week, 4 days per week, 5 days per week)

Item 20. When you were learning from home this past spring, about how much time did you spend each day on schoolwork?

(0 hours, 1 hour, 2–3 hours, 4–5 hours, More than 5 hours)

Item 21. In general, would you say that you like school?

(Not at all, A little, Somewhat, Pretty much, Very much)

Figure 1 displays the factor loadings from a four-factor EFA at each grade level. The four survey topics are displayed separately in each panel. Within each panel, results are displayed by grade, with Grade 4 appearing at the bottom of each panel and Grade 12 at the top of each panel. The horizontal axis shows the factor loading of each survey item which is represented by a dot. Dots are colored to indicate the survey topic they were designed to be a part of. Note that there is no set cut point for identifying a sufficiently high factor loading. We used generally accepted cut points in the range of 0.3 and 0.4 (e.g., Osborne et al., 2008) to determine whether a factor loading is reasonably high. For instance, in the top panel, the green dots are items that were designed to be part of the "Personal Well-Being" survey topic. Across all grades, these green items have a factor loading of 0.4 or higher. In addition, there are no green items with a factor loading of more than 0.4 on any of the other three topics (i.e., there are no green dots to the right of 0.4 in the other three panels), indicating that these green items load uniquely and most strongly together in this "Personal Well-Being" grouping.

Figure 1. Four-Factor Exploratory Factor Analysis Results
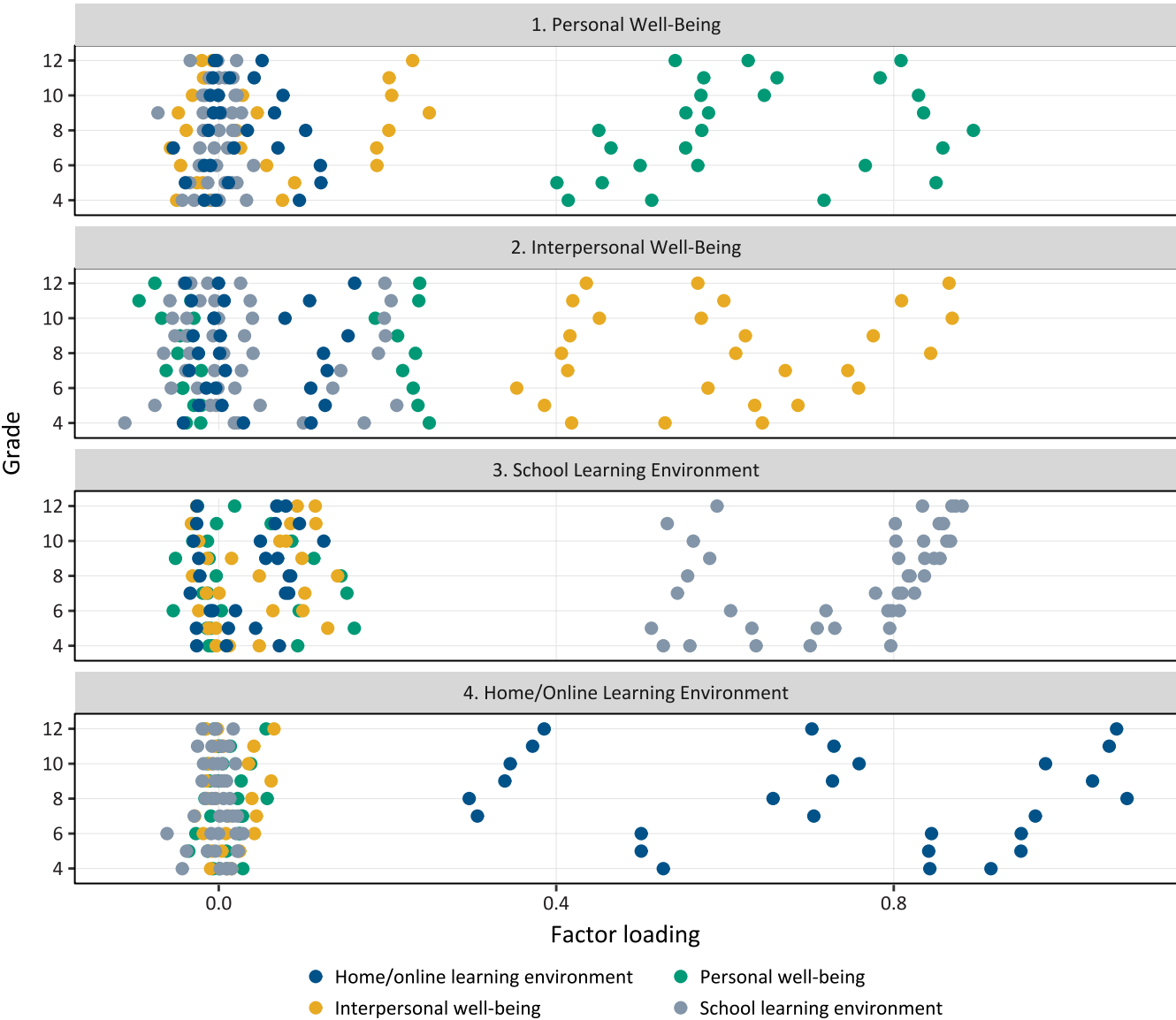
Students' Responses Across Topics and Grades

We next examined the mean and standard deviation (*SD*) of responses on each of the four main topics and on the seven selected individual items at each grade level. Note that these are raw responses from students in different grades. The following results summarize the patterns shown in the data, but these results may not be directly comparable across grades given the different ages of these students and their potentially divergent interpretations of the survey items. Similarly, numeric responses across the four topic areas are not directly comparable because response options varied across items and measured distinct concepts.

To characterize students' raw responses, we plotted the means of students' ratings on each topic area at each grade (see Figure 2). Among the four main topics, students rated their school learning environment most highly and relatively consistently across all grades. With all items on a 5-point scale, the raw scores range from 0 to 4. Students gave the highest rating to the statement that they were treated with respect by their teachers (mean = 3.38). In contrast, interpersonal well-being was rated lowest across topics. Students on average responded that only "Sometimes" they found someone to talk to when they needed help (mean = 2.24). When asked "Do you have a friend your age who helps you when you are having a hard time?" 71 percent of 12th graders responded "Often" or "Almost all the time" (mean = 2.95) whereas only 53 percent of fourth graders responded so (mean = 2.47).

Indeed, students rated their well-being and learning conditions differently across grades. High school students reported relatively higher ratings on interpersonal well-being. Elementary students reported higher ratings on personal well-being and home/online learning environment. For example, when asked "During the past week, how often did you feel worried?" more than 53 percent of fourth graders responded "Never" or "Once in a while" (mean = 2.67) while only 31 percent of 12th graders responded so (mean = 2.06). In addition, when learning online in spring 2020, high school students reported that their teachers held online lessons less frequently, and that these students less frequently joined online learning lessons than did students in Grades 4–8. Older students also reported that they were less likely to have someone available to help them with their schoolwork in spring 2020, if needed.

Several factors may have played a role in these varying responses across grades. As high school and younger students are at distinct developmental stages, they may have different social-emotional needs and realities affecting their well-being. For example, older students may have needed to take care of younger siblings and other family members, giving them less available time to attend online lessons. Our findings that response patterns differed across grades and, in particular, that students in higher grades reported lower average scores on some social-emotional areas, align to previous research using CORE's annual student social-emotional learning survey (see West et al., 2020, Figure 2). It is also worth noting that students of various ages may not have understood and interpreted these survey questions in the same ways. Readers should keep in mind these differences when considering response patterns across grades.

Figure 2. Mean Scores of Main Survey Topics, by Grade
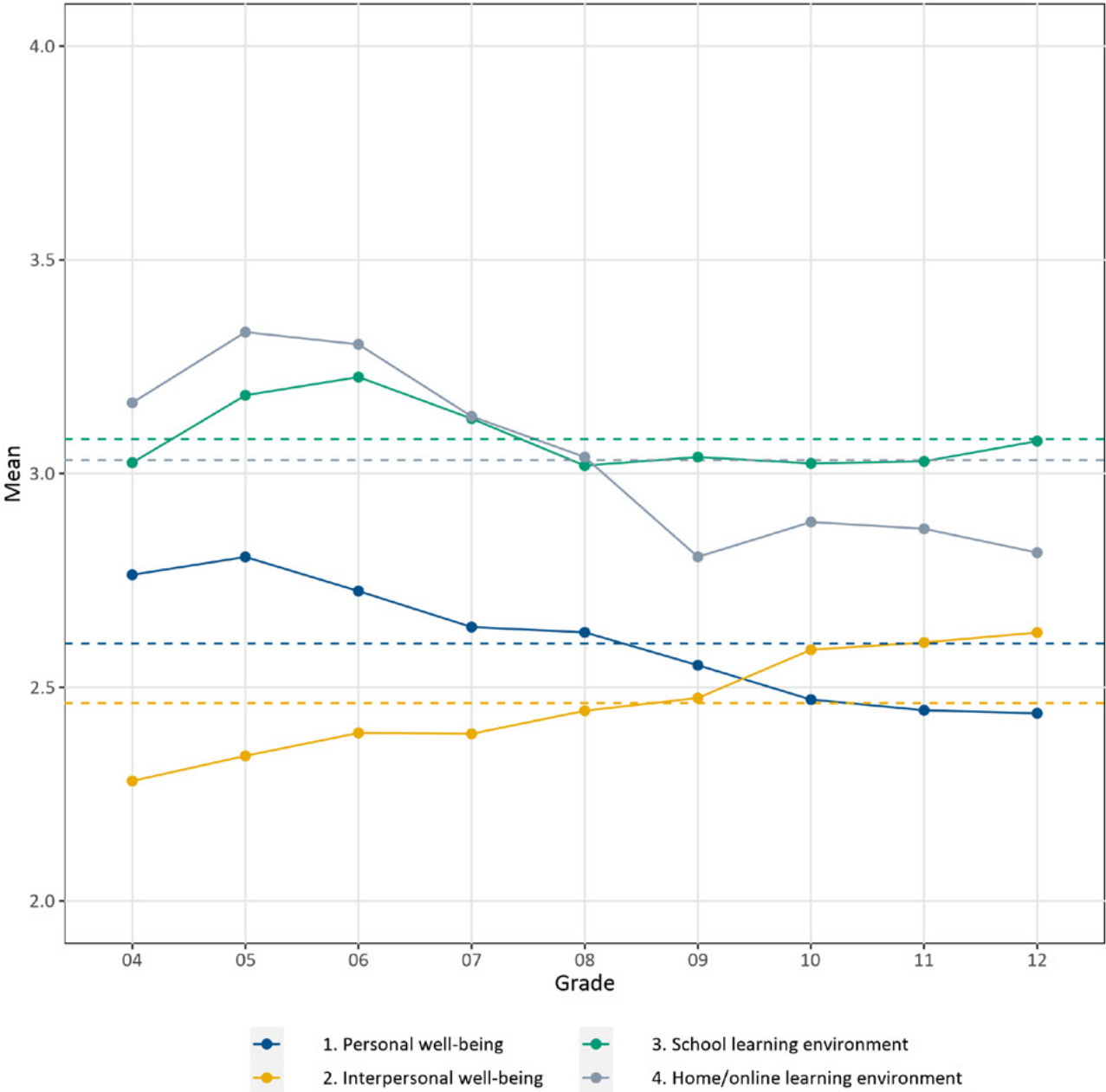
In addition to the differences in mean scores, the variance of students' ratings also varied. Figure 3 shows boxplots for each topic and each grade, where the median score is indicated by the thick black line inside each colored box; the interquartile range (i.e., between the 25th and 75th percentiles) is indicated by the bottom and top edges of each box, respectively; the 5th percentile and 95th percentile are indicated by the line below and line above each box, respectively; and outlier responses are indicated by individual dots. Overall, students' responses

about their home/online learning environment in the spring (*SD* = 0.99) and their interpersonal well-being (*SD* = 0.98) varied the most. Students' ratings on their personal well-being (*SD* = 0.78) and school learning environment (*SD* = 0.79) had smaller ranges.

Figure 3. Boxplots of Main Survey Topics, by Grade
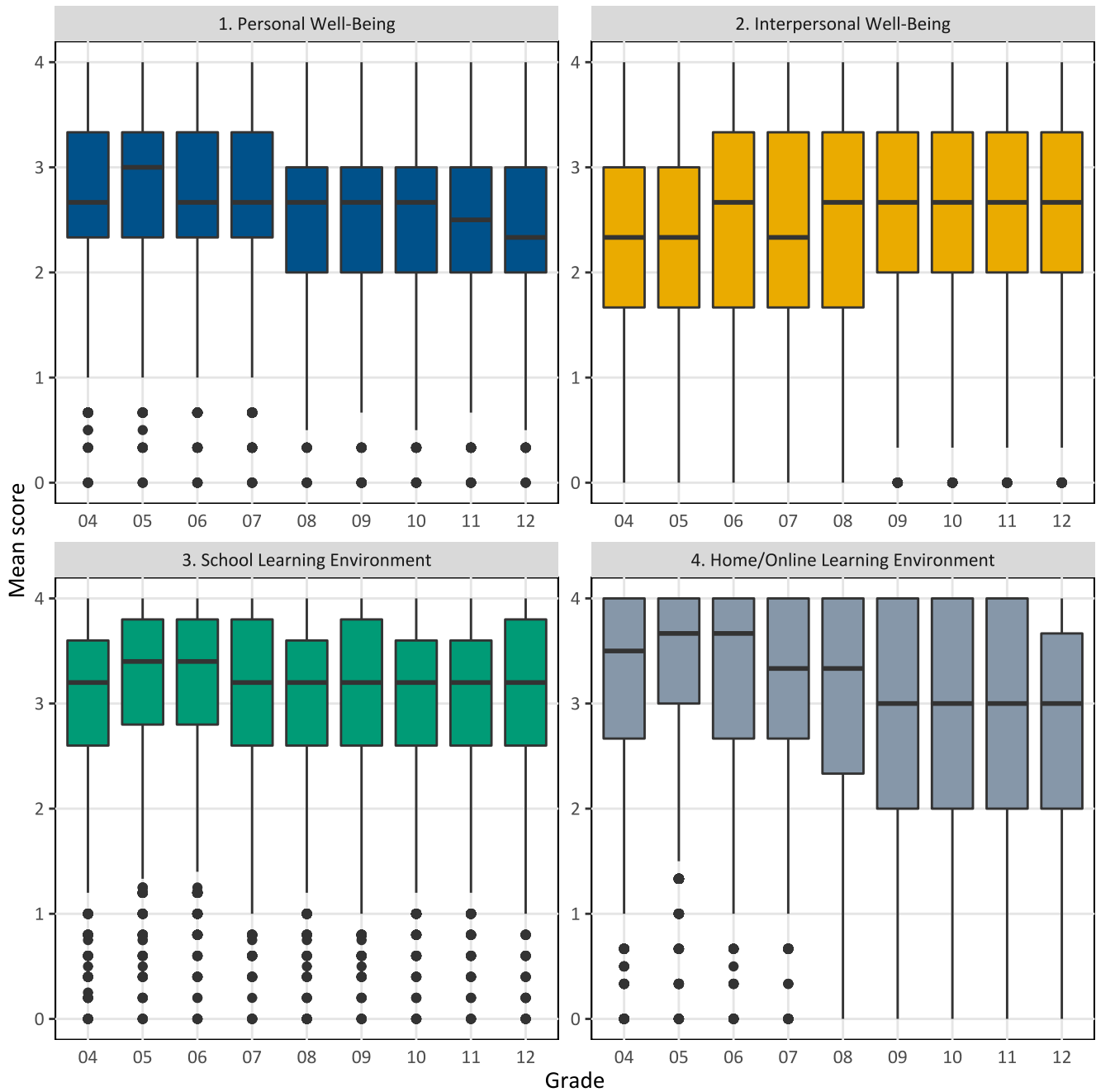
Results by Student Demographic Characteristics

To understand whether students' survey responses differed across demographic subgroups, we conducted *t*-tests to compare responses from students who were economically disadvantaged and those who were not; English learners and non-English learners; male and female students; students with and without disabilities; and students from various racial/ethnic backgrounds. The analyses were carried out separately for each demographic subgroup, grade, and survey topic. Given the multiple *t*-tests required in these comparisons, a Bonferroni correction was used to adjust for potentially inflated type-I error rates.

Somewhat surprisingly, responses were not significantly different between economically disadvantaged and noneconomically disadvantaged students in most grades and survey topics. Figure 4 shows that the survey responses between these two subgroups are very similar. Only seven (out of 36) pairs of comparisons were statistically significant. For example, economically disadvantaged students (vs. noneconomically disadvantaged students) in Grade 4 rated themselves significantly lower on personal well-being (2.73 vs. 2.86) and on home/online learning environment (3.12 vs. 3.33). In all other pairs of comparisons, economically disadvantaged students rated themselves similarly (i.e., differences were not statistically significant) or slightly higher than their peers (e.g., Grade 6 on personal well-being and Grade 8 on school learning environment).

**Figure 4.** Mean Scores of Main Survey Topics, by Economic Disadvantage Status and Grade
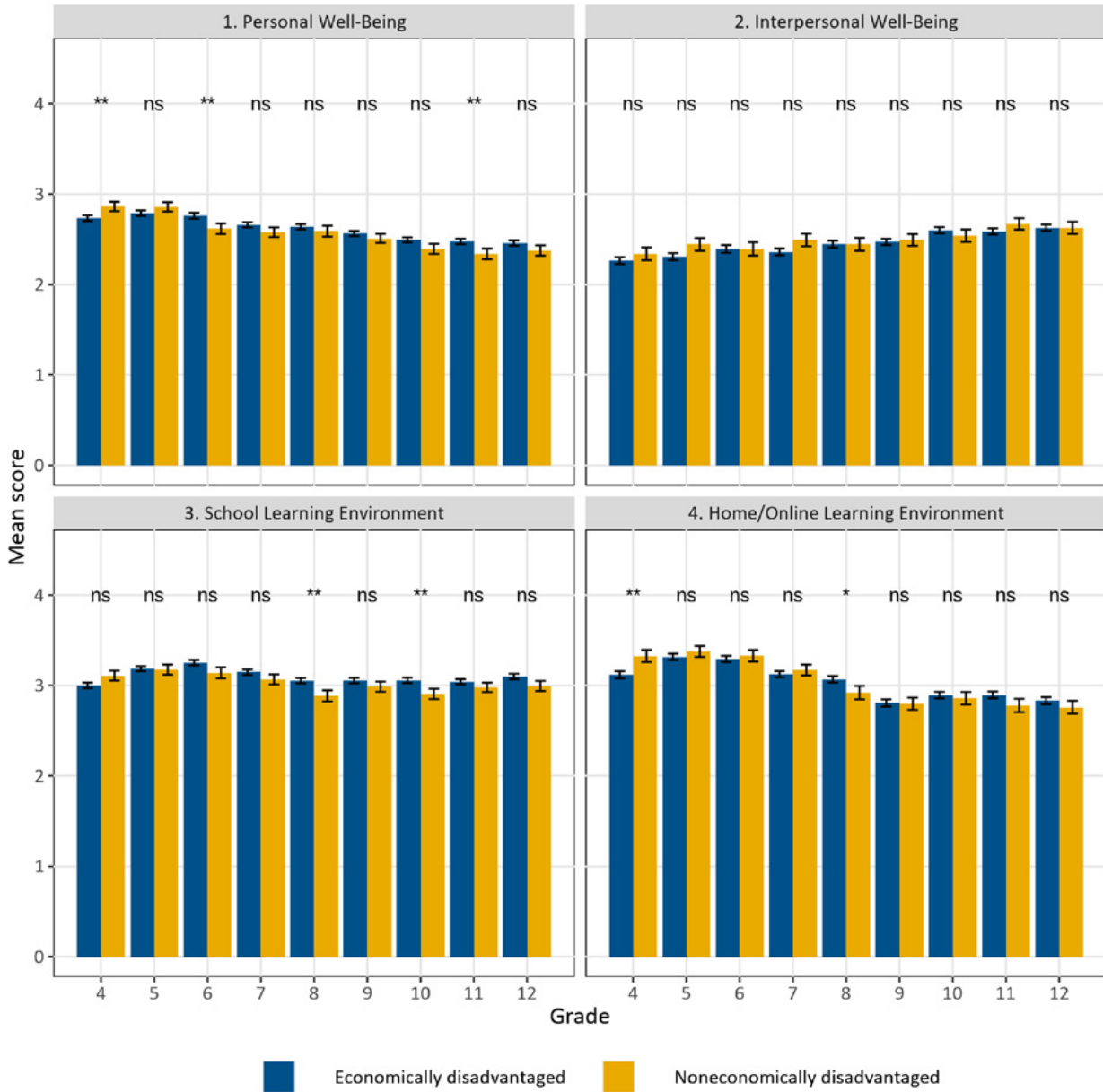
Note. ns = not significant (p-value $\geq$ 0.05); * p-value < 0.05; ** p-value < 0.01. The vertical black bars represent the 95 percent confidence interval of the difference in mean scores.

Unlike these responses by economic disadvantage status, about half of the comparisons between English learner (EL) and non-EL students were significantly different. Figure 5 shows that ELs in Grades 5–12 rated their interpersonal well-being consistently lower than non-ELs (though without statistically different results, EL students in Grade 4 also responded lower on interpersonal well-being than non-ELs). In addition, ELs in Grades 4–6 rated their home/online learning environment significantly lower than non-ELs, and ELs in Grade 4 rated their personal well-being and school learning environment lower than non-ELs. However, ELs in high school rated their personal well-being higher than their peers; they also rated their school learning environment higher (results from Grades 9 and 11 were statistically significant).

Given these results, educators, parents, and other stakeholders should pay special attention to younger EL students across all of these topics, and to interpersonal well-being for EL students across Grades 4–12.

Figure 5. Mean Scores of Main Survey Topics, by English Learner Status and Grade
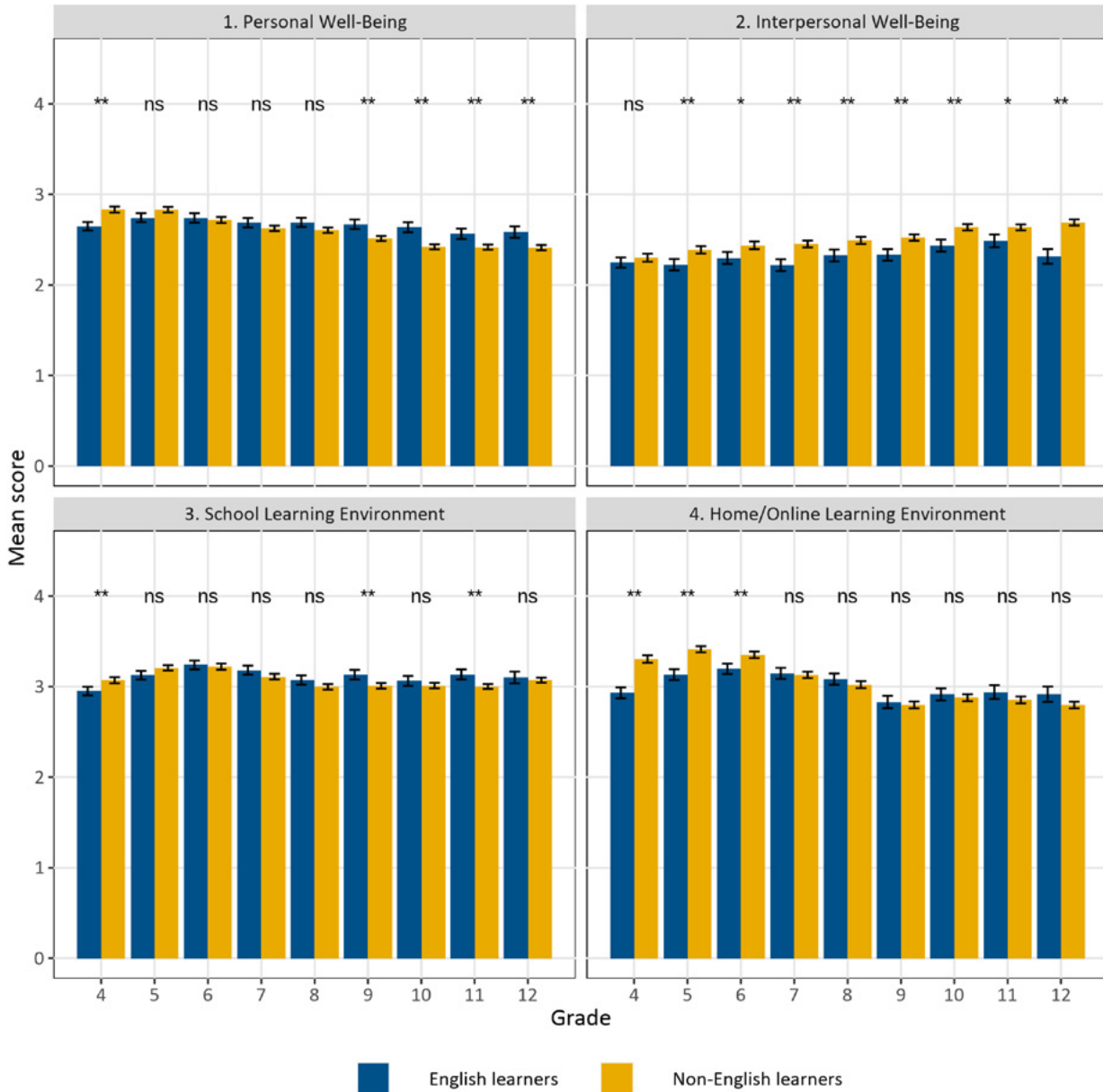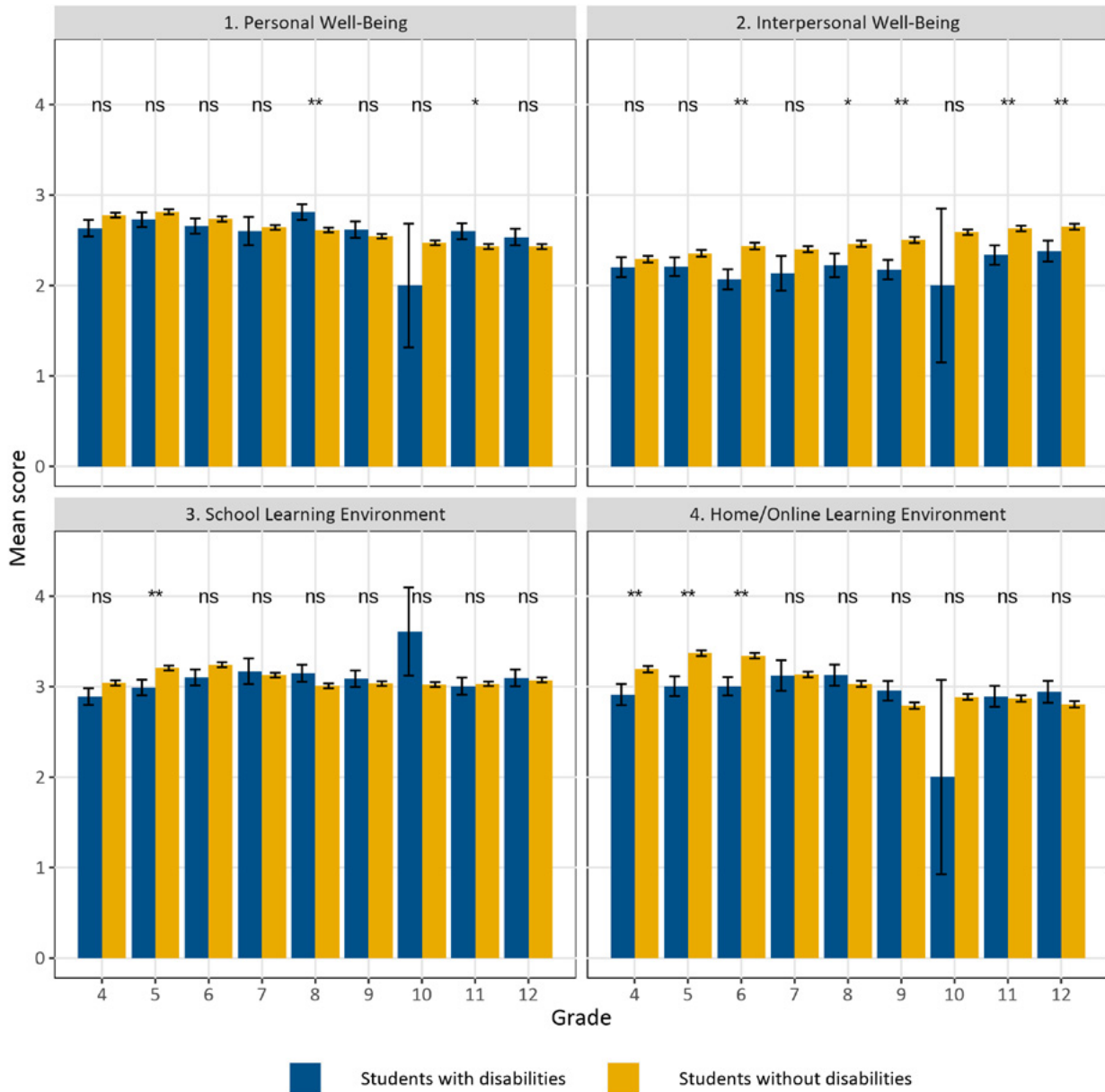

Note. ns = not significant (*p*-value ≥ 0.05); * *p*-value < 0.05; ** *p*-value < 0.01. The vertical black bars represent the 95 percent confidence interval of the difference in mean scores.

Figure 6 shows that students with disabilities reported less connection with their peers than students without disabilities, especially after transitioning to middle school (i.e., Grades 6, 8, 9, 11, and 12; note the wider confidence intervals for students with disabilities due to a smaller sample size of students with disabilities in Grade 10). Responses for younger students with disabilities were significantly lower on both school and home/online learning environments (i.e., school learning environment in Grade 5; home/online learning environment in Grades 4–6).

These results further emphasize the importance for educators, policymakers, and other stakeholders to pay special attention to supporting students with disabilities, particularly given the additional challenges the pandemic has introduced for these students as they navigate the new realm of distance learning.
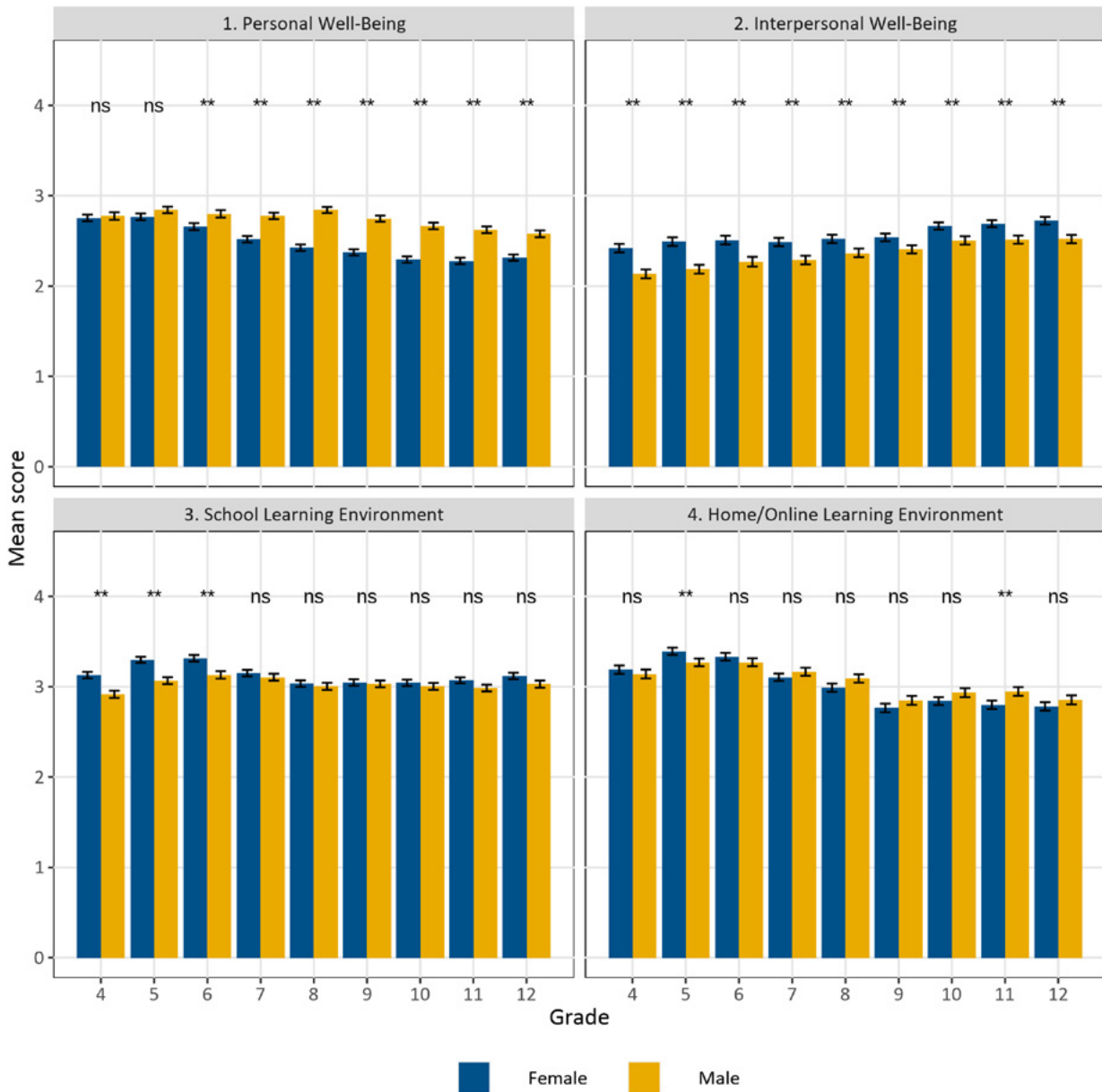
Figure 6. Mean Scores of Main Survey Topics, by Disability Status and Grade

Note. ns = not significant (*p*-value $\geq$ 0.05); * *p*-value < 0.05; ** *p*-value < 0.01. The vertical black bars represent the 95 percent confidence interval of the difference in mean scores.

Our analysis also revealed some gender differences in survey responses, primarily related to well-being topics. Figure 7 shows that girls rated their *interpersonal* well-being significantly higher than boys across Grades 4–12, whereas boys rated their *personal* well-being significantly higher in Grades 6–12. In addition, girls in Grades 4–6 rated their school learning environment significantly higher; girls in elementary grades rated their home/online learning environment slightly higher as well, but only the differences in Grade 5 were statistically significant.

Figure 7. Mean Scores of Main Survey Topics, by Gender and Grade

Note. ns = not significant (*p*-value ≥ 0.05); ** *p*-value < 0.01. The vertical black bars represent the 95 percent confidence interval of the difference in mean scores.

Most differences in survey ratings among students in various racial/ethnic subgroups within each grade were not statistically significant. These graphs are included in Figures B1–B3 in Appendix B.

Responses at the School Level

Before examining differences across schools in their students' average responses, we first compared how much of the variance can be explained between different schools versus within the same school. We found that most of the total variance in students' responses was explained within school (the variance ranged between 89 percent and 99 percent). The between-school variance only explained between 1 percent and 11 percent of the total variance across four survey topics and grade levels. On average, the between-school variation accounts for roughly 4 percent of the total variation in students' self-ratings. This small between-school variance means that most of the variation in students' survey responses is not explained by the school the student was attending but by other factors. This finding is similar to that of previous research on CORE's annual social-emotional learning survey. For instance, Fricke et al. (2019) found consistent patterns that between-school variance components in the social-emotional competencies were much smaller than those in the SBAC scores (e.g., 4 percent in social awareness vs. 22 percent in math scores). The large variations in social-emotional and well-being ratings across students within schools could mean that schools have had a smaller effect on students' well-being and their online learning environment over the past year, with more of the effect explained by factors outside school (or, perhaps, within specific classrooms). Schools may also be similar in terms of the topics that are included on the survey. Additionally, smaller between-school variance may stem from measurement errors in student self-ratings given that they were collected via short surveys, which generally provide less precise estimates of topics or competencies than do longer instruments.

Despite the low overall variation between schools, it is worth noting that, in the areas of personal well-being, interpersonal well-being, and school learning environment, there were relatively larger variances between schools at higher grades (see Figure 8), which indicates larger differences among secondary schools in these areas compared to among elementary schools. In contrast, there were very small variations between schools with regard to home/online learning environment, particularly in Grades 8–12. This indicates little difference among most secondary schools in their students' ability to access and participate in online schoolwork and online lessons in spring 2020.

Figure 8. Percent Variance Between Schools in the Total Variance of Students' Responses
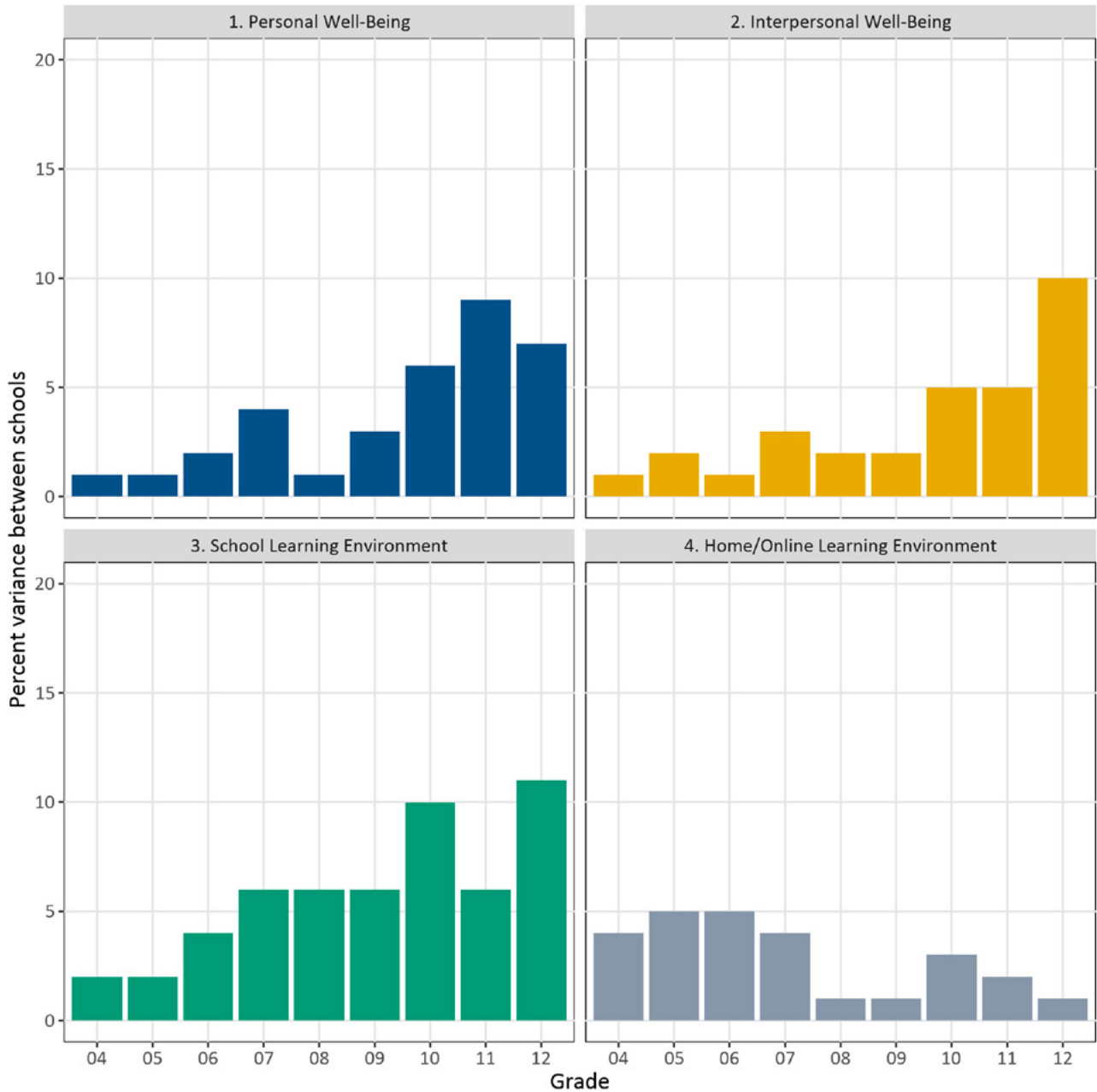
Among the 126 schools that administered the fall 2020 survey, most serve a large proportion of students who receive free and reduced-price lunch (FRL; mean = 76.9 percent) and who are Black, Indigenous, and people of color (BIPOC; mean = 95.4 percent). We compared average survey responses between those schools that serve 100 percent students who are BIPOC (school n = 43) and those that serve fewer than 95 percent students who are BIPOC (school n = 29); we also compared average responses between schools that serve a relatively small percentage

of students who receive FRL (the lowest quartile, or Q1, in the sample; school n = 32) and those that serve a relatively large percentage of such students (the highest quartile, or Q4, in the sample; school n = 32). Figure 9 shows that, in our sample, students attending schools serving a higher percentage of students who receive FRL and are BIPOC reported that they spent significantly less time each day on their schoolwork in the past spring (Item 20). Students in these schools also reported that they were less likely to have access to their online schoolwork (Item 16). On a more positive note, despite not being statistically significant, students attending these schools reported that they were less worried than students who did not attend these schools (Item 2).

Figure 9. Difference in School Means, by Percentage of Students Who Were Black, Indigenous, and People of Color Versus Free and Reduced-Price Lunch
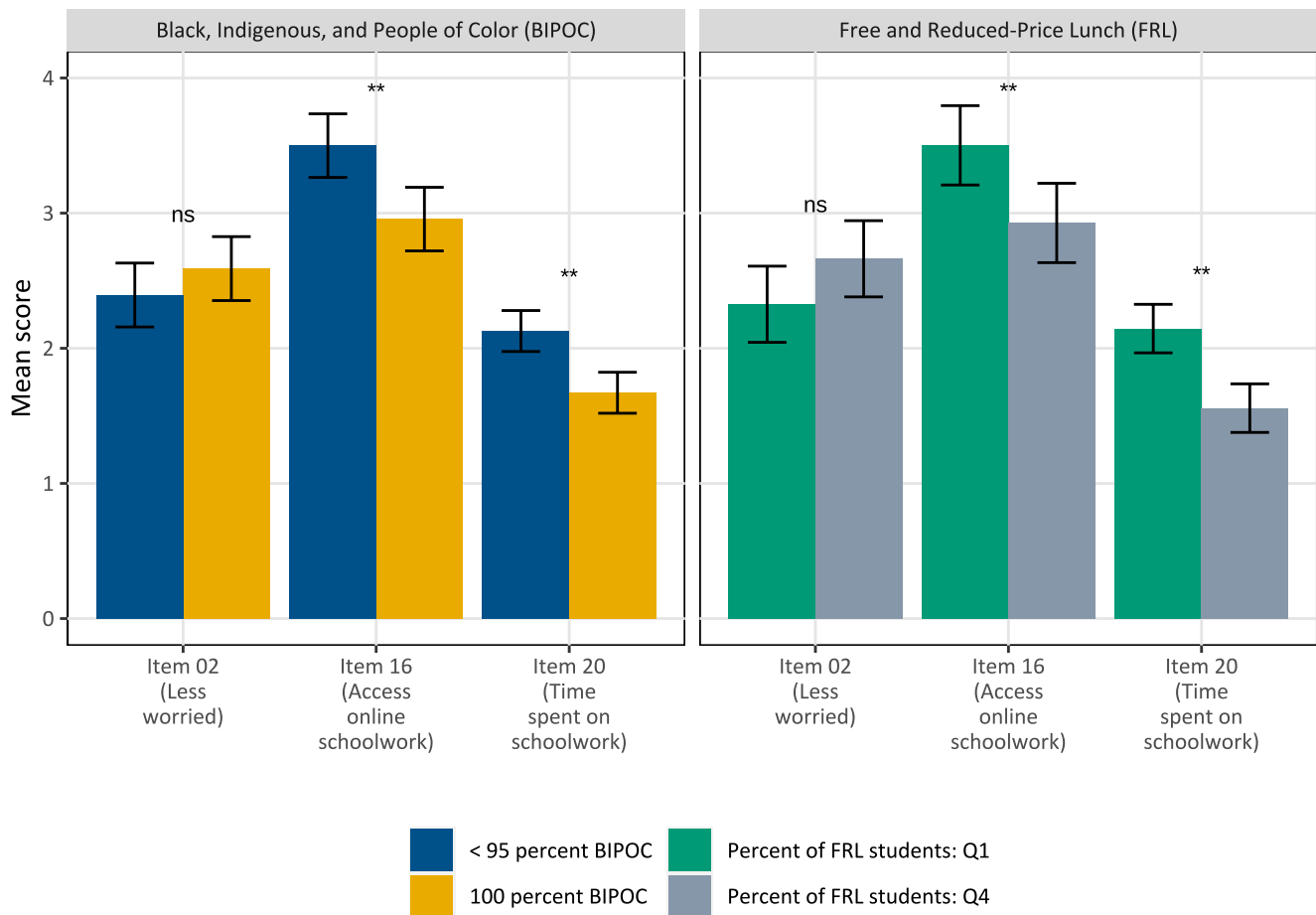

Note. ns = not significant (*p*-value ≥ 0.05); ** *p*-value < 0.01. The vertical black bars represent the 95 percent confidence interval of the difference in mean scores.

We next examined the variation among school-level means. Figure 10 displays school means within each grade band (i.e., elementary/Grades 4–5, middle/Grades 6–8, and high/

Grades 9–12). For example, the *range* of the school means for the home/online learning environment topic among elementary schools was quite large; some outlier elementary school students reported low ratings on items related to their home/online learning experiences in spring 2020 (as denoted by the black dot below the blue box in the fourth panel). Response patterns also varied among elementary, middle, and high schools for specific items. For example, in comparison with older students, on average, elementary school students reported that they had better access to online schoolwork (item 16), that their teachers had more frequent online lessons (item 17), and that they joined online lessons more frequently (item 18).

**Figure 10.** School Means by Grade Band

School type
1. Elementary school (Grades 4–5) 2. Middle school (Grades 6–8) 3. High school (Grades 9–12)
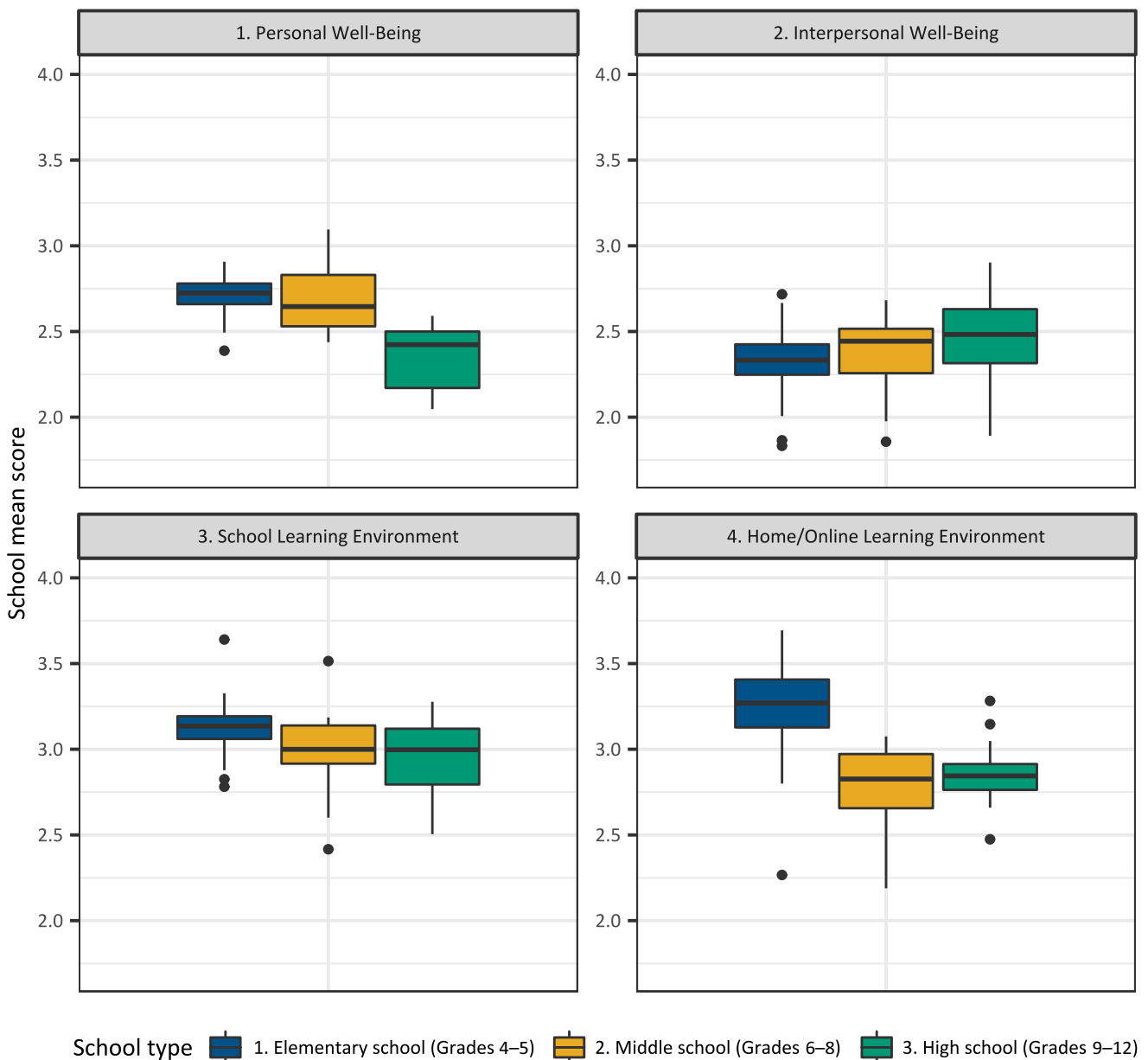
Connecting Students' Self-Reported Well-Being
with Academic Performance

Some students who participated in the fall 2020 diagnostic survey also took the NWEA MAP assessment in fall 2020. In this section, we report the association between students' academic performance and their well-being and learning conditions.

In our survey sample, about 18,000 students (55 percent) took MAP in fall 2020 in at least one subject (ELA and/or math). More than two thirds of the students between Grades 4 and 10 in our sample took at least one MAP test, but very few 11th and 12th graders took the MAP test in our survey sample (see Figure 11).

Figure 11. Number of Students Who Took MAP and Who Did Not Take MAP in the Survey Sample
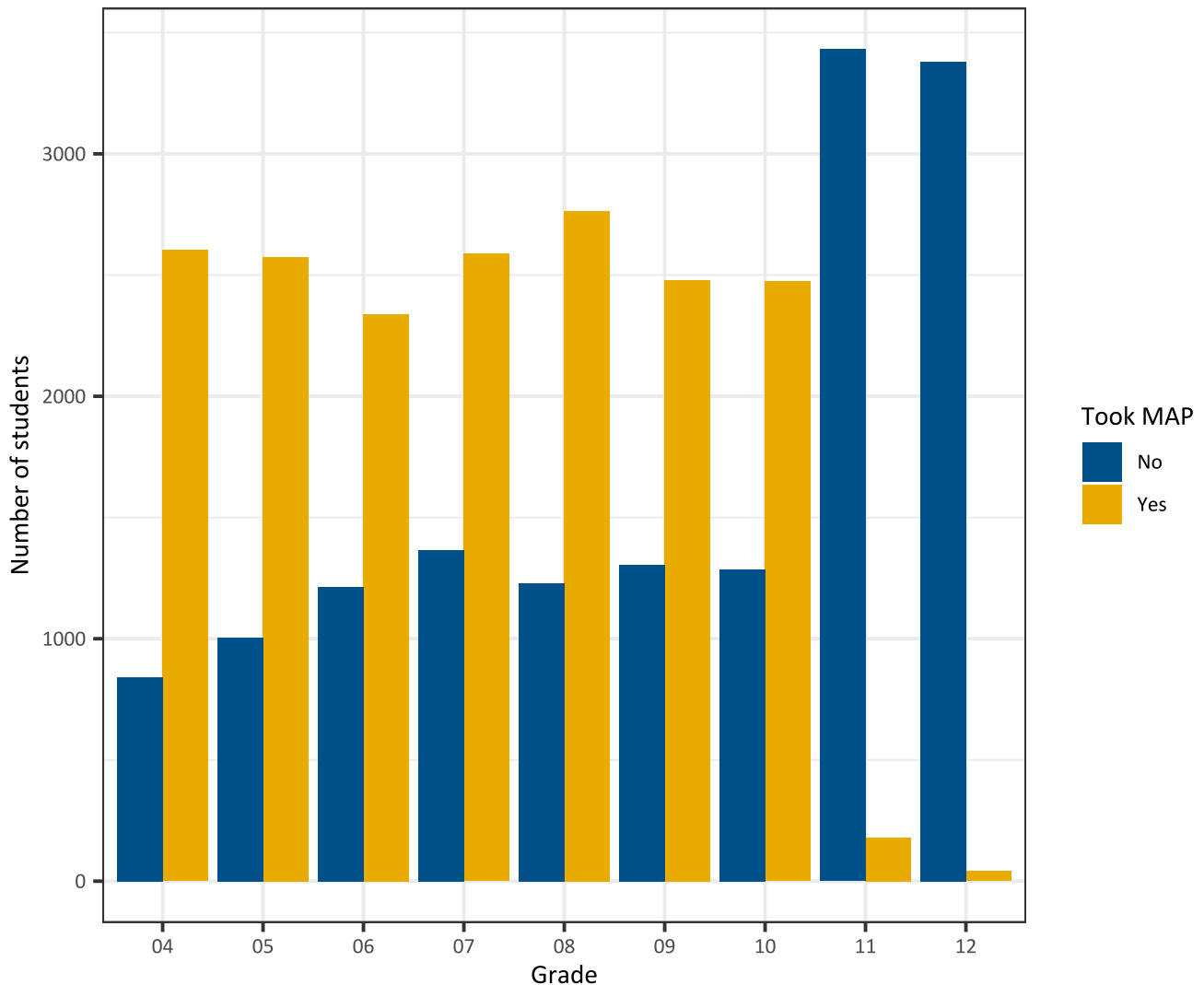
We compared students' demographic characteristics (Table 4) and students' survey responses (Table 5) between those who took MAP and those who did not. Table 4 shows that students who did and did not take the MAP test are similar in terms of gender and disability status. However, more students who were Latinx, economically disadvantaged, and English learners took the MAP test in fall 2020. These two groups of students also did not vary much in their average survey responses (see Table 5).

Table 4. Percentage of Students by Demographic Characteristic Between Those Who Took the MAP Test and Those Who Did Not

Demographic subgroup	Students who took the MAP test	Students who did not take the MAP test
Female	48.7	48.4
Asian American	3.9	8.0
Black	2.2	7.1
Latinx	88.2	71.6
White	2.9	6.1
Economically disadvantaged	82.2	70.8
English learner	26.7	23.0
Student with disabilities	8.0	7.5

Table 5. Mean *(and Standard Deviation)* of Student Survey Responses Between Those Who Took the MAP Test and Those Who Did Not

Survey topic	Students who took the MAP test	Students who did not take the MAP test
1. Personal well-being	2.68 *(0.76)*	2.51 *(0.80)*
2. Interpersonal well-being	2.45 *(0.99)*	2.47 *(0.97)*
3. School learning environment	3.13 *(0.76)*	3.01 *(0.83)*
4. Home/online learning environment	2.99 *(1.04)*	2.96 *(1.00)*

In addition to students' MAP test scores in fall 2020, we had access to the same students' MAP test scores from the previous fall, in 2019. Using students' academic achievement scores from these two time points, we were able to calculate students' academic growth over the 1-year period from fall 2019 to fall 2020 (please refer to Pier et al., 2021—and, more specifically, to α_{j20} in equation 1—for more details on the calculation of growth in MAP test scores). Table 6 displays the mean and standard deviation of MAP ELA and math test scores in both years and MAP growth estimates from the same group of students by grade. Table 6 reports MAP test scores on the assessment's original score scale, whereas the growth estimates were standardized to have a mean of zero and the same *SD* as the fall 2020 MAP test scores within each subject

and grade, across the five California districts included in the fall-to-fall MAP growth sample in Pier et al. (2021). One of these five districts administered the student diagnostic survey and was thus included in our sample. Table 6 shows that students' MAP test scores increased by 2–9 MAP score points between fall 2019 and fall 2020. However, compared to the other four California districts in the sample that administered MAP, students in lower grades (i.e., Grades 4–8 in ELA, Grades 4–7 in math) did not grow as much on average, whereas students in higher grades (i.e., Grades 9–10 in ELA, Grades 8–10 in math) grew more than average.

Table 6. Mean and Standard Deviation (*SD*) of Students' MAP ELA and Math Test Scores and Fall-2019-to-Fall-2020 Growth Estimates

| Student grade in 2020–21	MAP ELA					
	Fall 2019		Fall 2020		Fall-to-fall growth	
	Mean	*SD*	Mean	*SD*	Mean	*SD*
4	182	14.3	191	15.0	-0.86	9.47
5	193	14.7	198	15.3	-1.74	9.23
6	199	14.1	203	15.5	-1.77	9.56
7	205	14.5	208	16.0	-1.10	9.68
8	209	14.5	212	15.6	-0.61	9.79
9	214	14.7	217	15.9	0.27	9.29
10	216	15.4	219	16.7	0.23	9.53

Student grade in 2020–21	MAP math					
	Fall 2019		Fall 2020		Fall-to-fall growth	
	Mean	*SD*	Mean	*SD*	Mean	*SD*
4	185	11.5	194	12.6	-2.28	7.81
5	197	12.8	203	14.5	-1.74	7.53
6	205	13.7	207	13.2	-1.99	7.32
7	211	12.9	215	14.8	-0.96	7.66
8	215	14.3	221	16.3	0.51	8.26
9	222	16.1	227	17.5	0.98	8.05
10	225	17.3	230	18.6	1.87	8.43

Next, we examined the general pattern between students' survey responses and their academic growth from fall 2019 to fall 2020. Overall, students whose responses were in the top quartile (among the top 25 percent of all students) for each of the four survey topics consistently experienced more academic growth in both math and ELA between fall 2019 and fall 2020 (see Figure 12). The difference in growth estimates was particularly large for interpersonal well-being and school learning environments. This finding indicates that students with higher ratings on their

interpersonal well-being and their learning environment at school before school closures in spring 2020 were less affected by the pandemic academically than were those who rated these topics lower.

Figure 12. Fall 2019-to-Fall 2020 Growth in MAP ELA and Math Scores Between Students in the Bottom Quartile (Q1) and Top Quartile (Q4) of Each Survey Topic
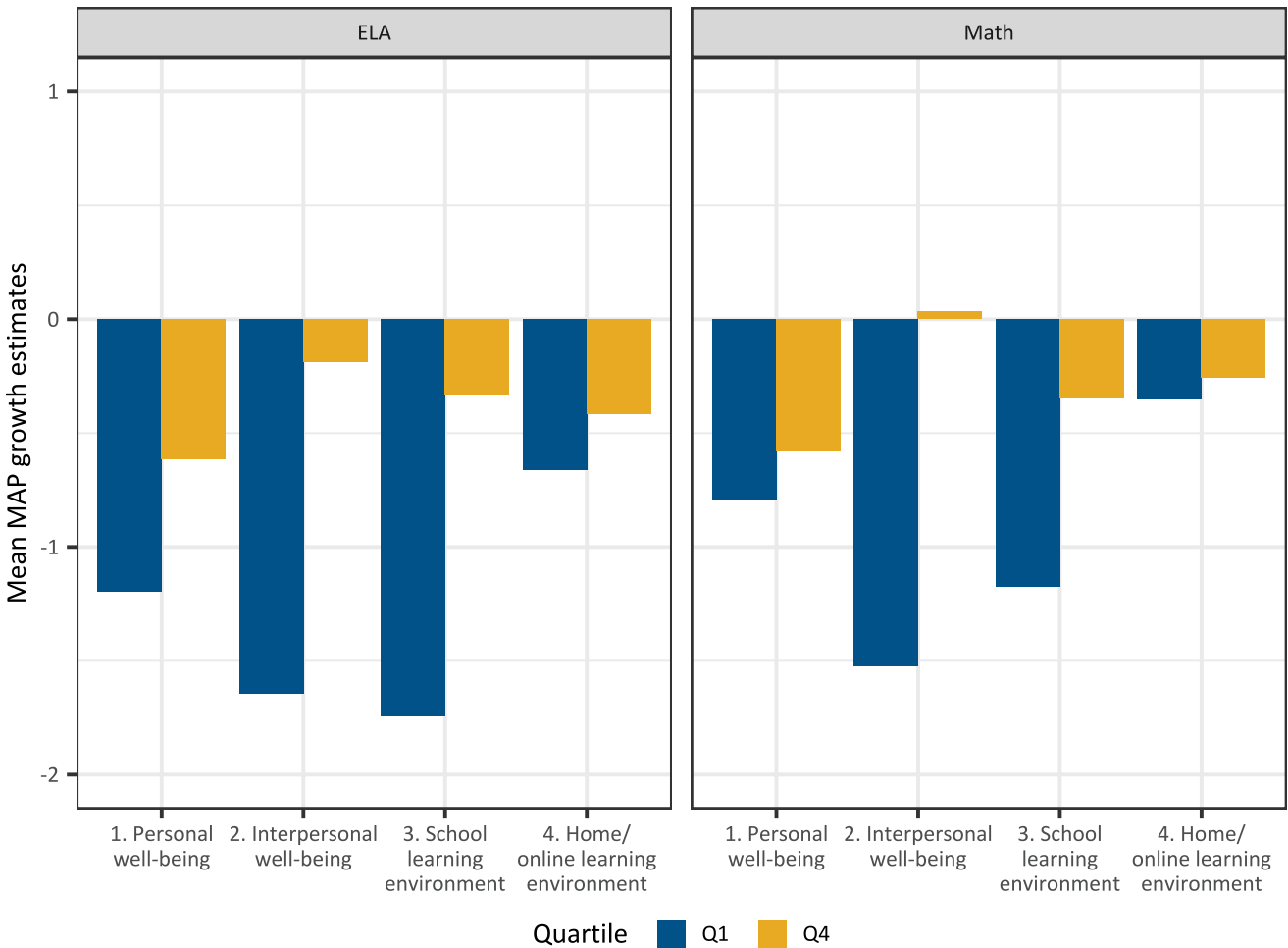
The patterns between students' ratings on well-being and learning environment and their academic growth varied across grades and demographic subgroups. We include these results in Appendix B (i.e., Figures B4–B7 and Tables B5–B6).

To further examine the relationship between students' well-being and their academic performance over the past year, we computed four sets of correlations between students' performance on MAP and their ratings on the well-being and learning conditions survey:

1. *Student-level achievement correlations:* Correlations between (a) students' MAP ELA and math scores in fall 2020 and (b) students' survey responses

2. *Student-level growth correlations:* Correlations between (a) students' MAP ELA and math growth scores from fall 2019 to fall 2020 and (b) students' survey responses

3. *School-level achievement correlations:* Correlations between (a) students' average MAP ELA and math scores in fall 2020 within a school and (b) students' average survey responses within a school

4. *School-level growth correlations:* Correlations between (a) students' average MAP ELA and math growth scores from fall 2019 to fall 2020 within a school and (b) students' average survey responses within a school

The first two types of correlations used students as the unit of analysis. The correlations with MAP scores in fall 2020 can help us understand how (and if) students' well-being and learning conditions in the 2019–20 school year (at school the first half and online the second half) were related to their test scores when they returned to school at the beginning of the 2020–21 school year. With access to students' MAP test scores in both fall 2019 and fall 2020, we were also able to examine how students' well-being and learning conditions were associated with their academic growth after experiencing school closure in the spring.

The last two types of correlations used schools as the unit of analysis, with the correlations weighted by the number of students within each school.[6] Student-level correlations are typically more straightforward to calculate and interpret; however, results at the aggregated school level allowed us to explore patterns among low-achieving (or low-growth) schools and high-achieving (or high-growth) schools. School-level correlations also dampen the random error that is more prevalent in student-level responses. Pearson's correlation coefficients were reported for each type of correlation.

Student-Level Correlations

The correlations at the student level with both MAP achievement and growth scores were relatively weak (see Tables B1–B4 in Appendix B for complete results). For most topics and individual items, the correlation between survey responses and MAP test scores were 0.2 or less, which was somewhat similar to our previous findings of relatively weak associations between state summative test scores and social-emotional competencies measured by the CORE SEL annual survey (Wang et al., 2019; West et al., 2020).

However, we found distinct patterns between elementary students and older students. For elementary students, the online learning environment topic had the strongest association with ELA (r = 0.21) and math (r = 0.22) test scores, but no such association is found ($r \approx 0$) among

---

[6] The weight was calculated as $W = \sqrt{n_{var1} \times n_{var2}}$, where n_{var1} was the student sample size in variable one and n_{var2} was the student sample size in variable two.

middle school and high school students. For middle school and high school students, interpersonal well-being was the topic that had a comparatively stronger association with ELA and math scores (*r* ranges between 0.11 and 0.13) relative to other survey topics, whereas such associations among elementary students were relatively weaker. In addition, several individual items had relatively larger associations with test scores than did others among elementary students, including "Last year at school, did you get your work done right away instead of waiting until the last minute?" (ELA *r* = 0.21, math *r* = 0.20) and "Last year, did you feel safe at school?" (ELA *r* = 0.15, math *r* = 0.13).

The student-level correlations between survey responses and academic growth from fall 2019 to fall 2020 as measured by the MAP test were also weak (*r* < 0.1). But, relatively speaking, the correlations among elementary students were slightly stronger than those among older students in topics related to personal well-being, school learning environment, and home/online learning environment. The only exception was the interpersonal well-being topic, which had a slightly higher association with academic growth among middle school students than it did among elementary students.

We recognize that students' self-ratings from a short survey are less reliable and include larger measurement error compared with longer assessments, such as those often used in the academic domain (e.g., Duckworth & Yeager, 2015). Given the COVID-19 pandemic and school closures in spring 2020, many unprecedented changes have affected these students' lives. It may be difficult for some students to reflect on their past experiences accurately and critically. MAP test scores in fall 2020 and students' growth in MAP from fall 2019 to fall 2020 also require different interpretation than do those from a normal year (Kuhfeld et al., 2020). All these factors may play a role in the relatively low correlations between students' survey responses and academic performance at the student level. We thus aggregated students' ratings at the school level in order to minimize the amount of random error in individual students' responses.

School-Level Correlations

First, we examined school-level correlations between average survey responses and average academic achievement. Overall, students' well-being and learning conditions were moderately associated with their academic achievement at the school level. This indicated that schools at which students reported higher well-being and learning conditions tended to have higher average academic achievement. Tables 7 and 8 provide school-level correlations between students' MAP ELA and math scores in fall 2020 and students' survey responses, including the four topic areas (Table 7) and seven individual items (Table 8), by grade band. There was a total of 41 elementary schools and about 20 middle schools, but only 8 high schools in the data. Given the small number of high schools, we excluded those correlations in these tables. Moreover, we reported weighted correlations in which the correlation coefficients were adjusted based on the number of students within each school, so that students were equally weighted across schools.

We continued to discover results like those at the student level: different patterns in school-level correlations between elementary and middle schools (see Table 7). In elementary grades, all four well-being and learning condition components measured by the diagnostic survey were moderately correlated with students' MAP ELA and math test scores in fall 2020 at the school level. In particular, home/online learning environment (ELA $r = 0.42$, math $r = 0.45$) and personal well-being (ELA $r = 0.45$, math $r = 0.33$) had the strongest associations with academic performance. Given the pandemic and challenges for young students to navigate online learning independently, it is not surprising that schools with young students who responded more positively about their home/online learning environment in spring 2020 tended to have higher average academic performance. Moreover, young students who reported that they felt safe at school (item 9; ELA $r = 0.67$, math $r = 0.65$) and that they did not procrastinate with schoolwork (item 15; ELA $r = 0.42$, math $r = 0.43$) also tended to have better academic performance.

In middle schools, interpersonal well-being stood out as the most important component associated with students' test scores (ELA $r = 0.76$, math $r = 0.74$). That is, middle school students who performed better academically also reported that they could more frequently find someone to talk to or that they had peer support when they were having a hard time. This was also supported by correlations with related individual items, as shown in Table 8. For example, middle school students who scored higher on the MAP test also responded more favorably to the items: "When you were learning from home this past spring, how often would you have someone available to help you with your schoolwork, if needed?" (ELA $r = 0.53$, math $r = 0.45$); "When I have a problem, I can come up with lots of ways to solve it" (ELA $r = 0.72$, math $r = 0.58$). Interestingly, middle school students' personal well-being was negatively associated with test scores. One potential reason could be that students attending schools with relatively high academic scores may feel more pressure to perform well academically, and school closures may have exacerbated their concerns. It is unclear why middle school students' home/online learning environment was negatively associated with the average test scores of these middle schools; one potential hypothesis is that students in high-achieving schools may have perceived their online learning environment as substantively worse than their typical school environment.

Table 7. School-Level Correlations Between Students' MAP ELA and Math Scores in Fall 2020 and Four Survey Topic Areas, by Grade Band

Grade band	Number of schools	Subject	Personal well-being	Interpersonal well-being	School learning environment	Home/online learning environment
Elementary	41	ELA	0.45	0.27	0.27	0.42
	41	Math	0.33	0.26	0.29	0.45
Middle	19	ELA	-0.49	0.76	0.10	-0.36
	20	Math	-0.45	0.74	0.08	-0.32

Table 8. School-Level Correlations Between Students' MAP ELA and Math Scores in Fall 2020 and Individual Items on the Survey, by Grade Band

Grade band	Number of schools	Subject	Item 4 (hopeful)	Item 6 (solve problem)	Item 9 (feel safe)	Item 15 (do work right away)	Item 19 (someone available to help)	Item 20 (time spent on schoolwork)	Item 21 (like school)
Elementary	41	ELA	0.39	0.36	0.67	0.42	0.38	0.22	0.37
	41	Math	0.30	0.42	0.65	0.43	0.42	0.21	0.38
Middle	19	ELA	0.22	0.72	0.45	-0.32	0.53	0.49	0.26
	20	Math	0.30	0.58	0.38	-0.21	0.45	0.49	0.37

Note. The full content of these individual items can be found in Appendix A.

Next, we examined school-level correlations between students' survey responses and their MAP ELA and math *growth* scores from fall 2019 to fall 2020. This analysis helped us understand whether students in high-growth and low-growth schools may have had distinct well-being and learning experiences. The correlations by grade band for the four topic areas are shown in Table 9; those for the seven individual items are shown in Table 10. These correlation coefficients required availability of MAP test scores in the last two fall administrations. Therefore, the number of schools was smaller than it was in Tables 7 and 8. The strength of association was also weaker. However, the overall pattern was similar. In middle schools (Table 9), students' interpersonal well-being was not only an important component associated with students' academic performance—it continued to be the most important component related to students' academic growth during the school year affected by the pandemic and school closures (ELA $r = 0.61$, math $r = 0.37$).

In elementary schools, associations between academic growth and survey responses were relatively weak but associations with growth in math were generally stronger than those with growth in ELA. In particular, not procrastinating with schoolwork (Table 10) had a much higher correlation with growth in math (item 15; ELA $r = 0.09$, math $r = 0.44$).

Table 9. School-Level Correlations Between Students' MAP ELA and Math Growth Scores (Fall 2019–Fall 2020) and Four Survey Topic Areas, by Grade Band

Grade band	Number of schools	Subject	Personal well-being	Interpersonal well-being	School learning environment	Home/online learning environment
Elementary	36	ELA	0.14	0.01	0.13	0.13
	36	Math	0.21	0.11	0.20	0.22
Middle	16	ELA	-0.08	0.61	-0.14	-0.16
	16	Math	0.11	0.37	-0.21	0.00

Table 10. School-Level Correlations Between Students' MAP ELA and Math Growth Scores (Fall 2019–Fall 2020) and Individual Items on the Survey, by Grade Band

Grade band	Number of schools	Subject	Item 4 (hopeful)	Item 6 (solve problem)	Item 9 (feel safe)	Item 15 (do work right away)	Item 19 (someone available to help)	Item 20 (time spent on schoolwork)	Item 21 (like school)
Elementary	36	ELA	-0.16	-0.15	0.14	0.09	-0.09	-0.02	0.05
	36	Math	0.04	0.19	0.20	0.44	0.04	0.23	0.08
Middle	16	ELA	0.13	0.28	0.09	-0.09	0.34	0.29	0.28
	16	Math	0.16	0.25	0.21	0.11	0.12	-0.34	0.27

Note. The full content of these individual items can be found in Appendix A.

Fall 2020 versus Winter 2020–21 Survey Responses

In addition to the diagnostic survey administered at the beginning of the school year, one CORE district also administered the comprehensive interim survey consisting of a set of mostly identical items in winter 2020–21. This section highlights findings from a total of 15,001 students who responded to both surveys.

First, we compared students' demographic characteristics and SBAC scores between those who only took the diagnostic survey in the fall (*n* = 23,121) and those who also took the comprehensive interim survey in the winter (*n* = 15,001). Table 11 shows that, among students who took both surveys, there were more girls, fewer English learners, and fewer students with disabilities. Moreover, a larger proportion of these students was proficient in the SBAC ELA and Math state summative tests in 2019.

Table 11. Percentage of Students in Each Subgroup Who Took the Fall Survey and Who Took Both Fall and Winter Surveys in Grades 4–12

Subgroup	Survey sample		Difference
	Students who took the fall survey	Students who took both fall & winter surveys	
Female	51.4	53.6	2.2
Asian American	2.2	2.5	0.3
Black	0.2	0.2	0
Latinx	96.1	95.9	-0.2
White	0.8	0.7	-0.1
Economically disadvantaged	82.6	82.2	-0.4
English learner	26.7	23.5	-3.2
Student with disabilities	8.0	6.8	-1.2
SBAC 2019 ELA: standard met or exceeded	34.0	38.5	4.5
SBAC 2019 math: standard met or exceeded	28.1	31.7	3.6

Next, we compared the same students' survey responses between fall 2020 and winter 2020–21. Figure 13 shows that, after a few months of virtual learning in the 2020–21 school year, students' home/online learning environment consistently improved across all grades. This improvement was larger among older students. Figure 14 further shows each of the three items included in this topic. Students were able to access online schoolwork more often (item 16), teachers provided online lessons more often (item 17), and students joined online learning lessons more often (item 18) in fall 2020 than in spring 2020. It is encouraging to see improvement in the accessibility and availability of online lessons as well as in students' participation in these online lessons. The positive changes in students' online learning environment over the course of the 2020–21 school year is a testament to the herculean effort of educators, administrators, parents, and families to improve instructional experiences for students. As additional assessment data become available in the future, we hope to be able to examine whether students' learning accelerates as remote and hybrid instructional practices continue to improve.

Figure 13. Mean Survey Responses Between Fall 2020 and Winter 2020–21 by Grade
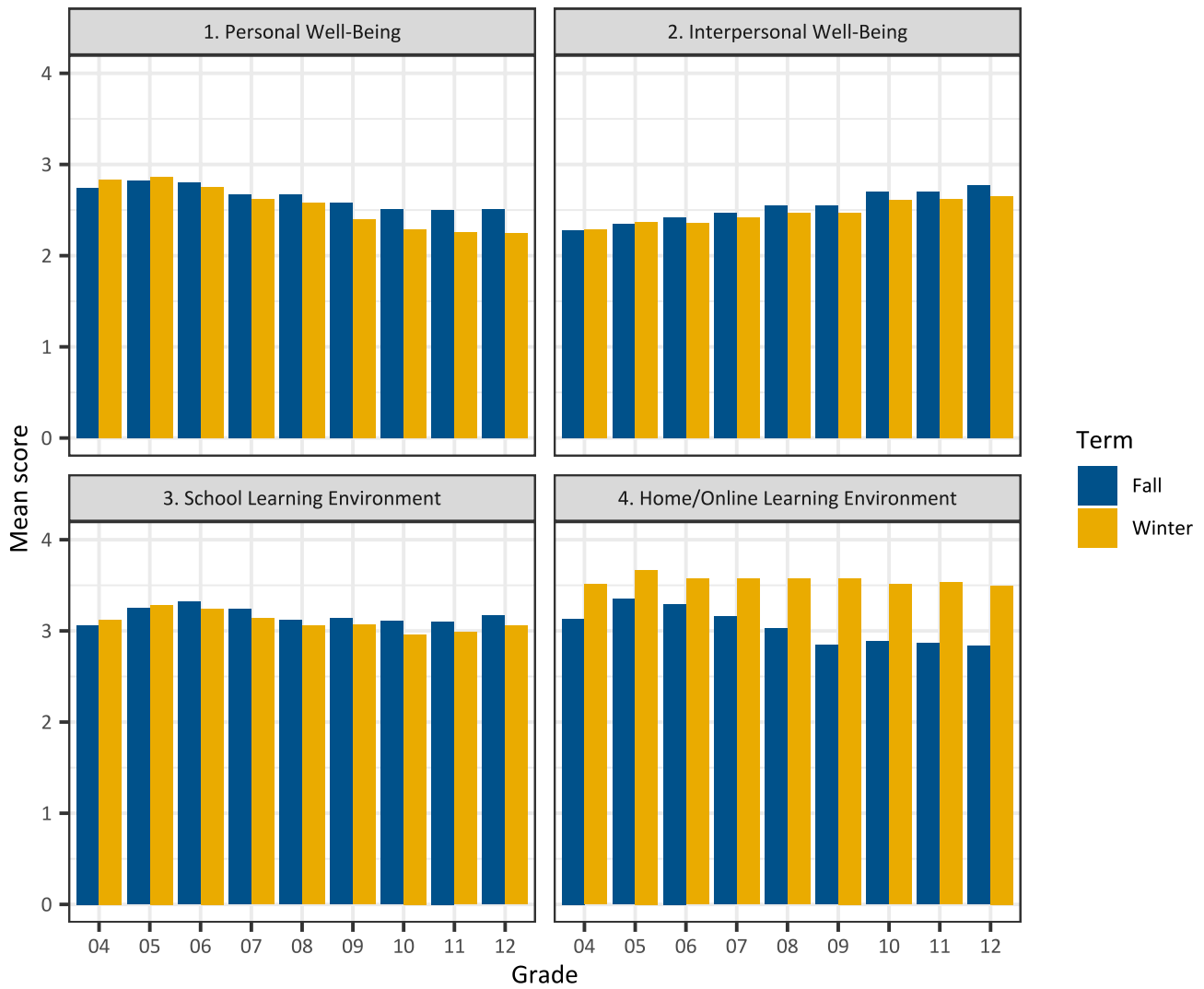
Figure 14. Mean Responses of Items in the Home/Online Learning Environment Between Fall 2020 and Winter 2020–21, by Grade
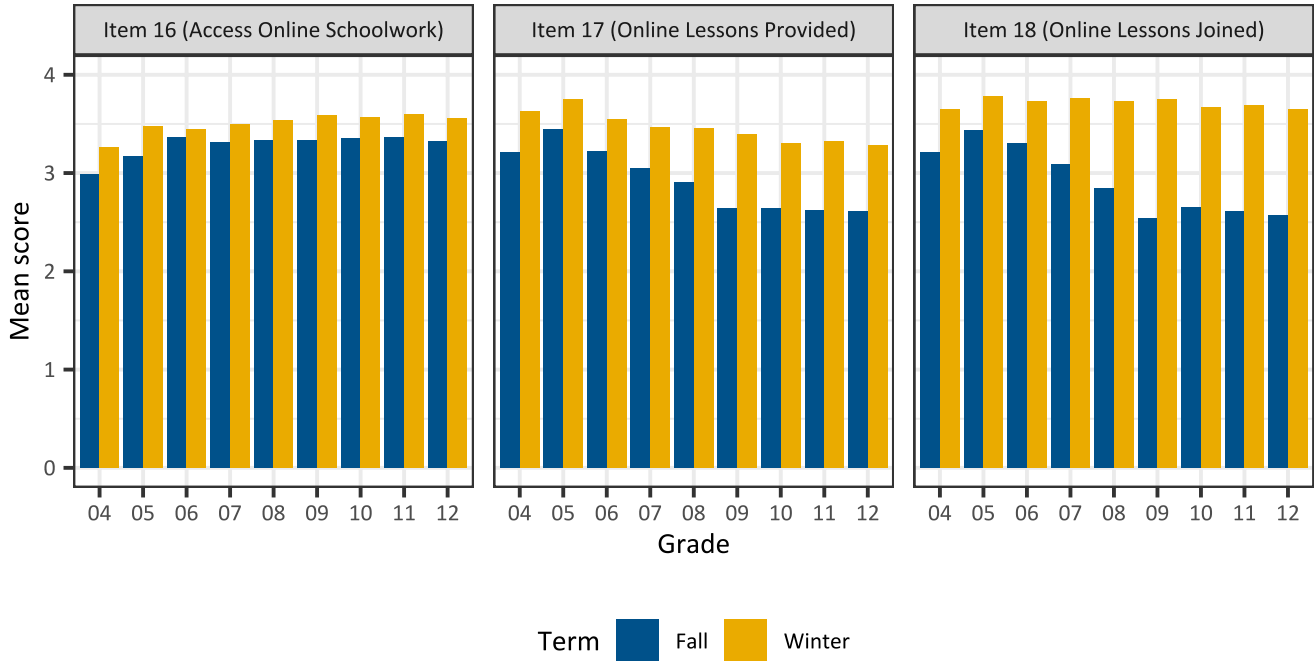
Unlike home/online learning environment ratings, students' self-ratings in the other three topic areas of the surveys were similar between fall and winter overall (see Figure 13). However, these ratings were generally slightly lower in the winter among middle school and high school students, whereas ratings were slightly higher or similar in the winter among elementary students. Item 21 in Figure 15 offers a good representation of these patterns. On average, when asked, "In general, would you say that you like school?" at the beginning of the school year and then again a few months into the school year, students in Grades 5–12 responded with a much lower rating the second time (average difference is -0.62). The only exception is fourth graders, whose ratings increased by 0.26 on a 0–4 scale.

These findings about middle and high school students are concerning, and they echo other research that underscores the need to prioritize the mental health of children and adolescents given the effects of COVID-related school closures (e.g., Novins et al., 2021; Sommer, 2021). Our results further highlight the need for educators at all levels of the educational system to attend to the most pressing well-being and learning needs of each group of students at their unique developmental stage.

Figure 15. Mean Responses of Item 21 Between Fall 2020 and Winter 2020–21, by Grade
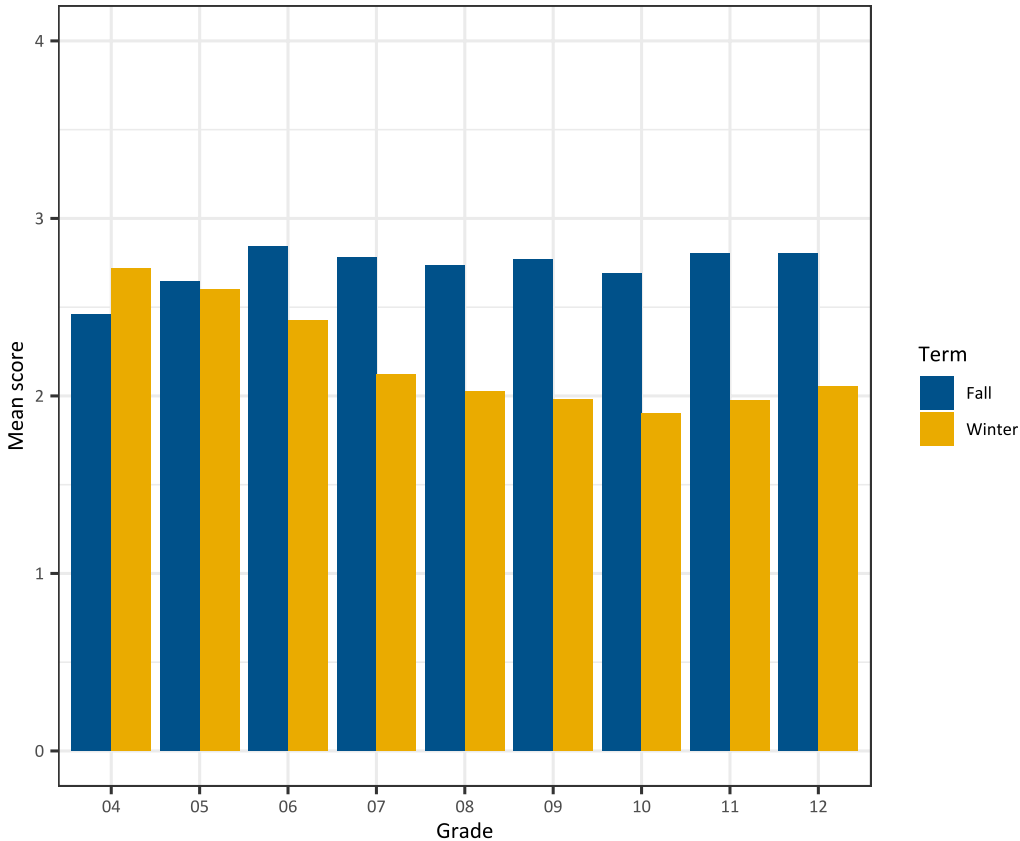
Takeaways

This school year has been a challenging time for educators and students alike. Below, we highlight a few key takeaways from what we learned from analyzing students' survey responses. We hope these lessons can help shed light on students' well-being and help inform educators as they work to create a better learning environment for students from a whole child perspective.

1. Overall, students rated their learning environment last year at school and last spring at home/online (2019–20) relatively highly and consistently across grades. However, students reported relatively lower ratings concerning their personal and interpersonal well-being.

2. Students' responses at the beginning of the 2020–21 school year varied across grades. Elementary students reported higher ratings on personal well-being and on school and home/online learning environment than did students in middle and high school. Older students reported higher ratings on interpersonal well-being.

3. Across four survey topics and grades, there were only a few statistically significant differences in responses between economically disadvantaged students and their noneconomically disadvantaged peers. There were also very few statistically significant differences in responses among students in various racial/ethnic subgroups. However, we did discover distinct response patterns between boys and girls, EL and non-EL students, and students with and without disabilities. In addition, students attending schools that serve a higher percentage of students who receive FRL and students who are BIPOC reported that they spent less time each day on their schoolwork in spring 2020 and that they were less likely to access their online schoolwork. **We urge educators, policymakers, and other stakeholders to pay special attention to the needs of English learners, students with disabilities, students who receive FRL, Black students, Indigenous students, and students of color, all of whom are more likely to be adversely impacted by the pandemic and distance learning.**

4. Connecting students' well-being with their academic performance during the pandemic, we found moderate associations when aggregating data at the school level. In other words, schools at which students reported higher well-being and learning conditions tended to have higher average academic achievement. This school-level relationship also differed between elementary and middle school students. For older students, interpersonal well-being stood out as the most important area that was associated with both average academic achievement in fall 2020 and average academic growth between fall 2019 and fall 2020.

5. Comparing students' responses at the beginning of the 2020–21 school year and a few months later, in the winter, students' home/online learning environment consistently improved across all grades. However, ratings from students in Grades 6–12 decreased in areas related to personal and interpersonal well-being as well as school learning environment. Given the continuation of mostly distance learning in California over this period, most students reported that they did not like school as much compared with how they felt at the beginning of the school year.

6. Overall, results from the winter survey conveyed a similar message to those from the fall: students in higher grades reported lower personal well-being but higher interpersonal well-being compared to students in lower grades. However, the relatively strong association between interpersonal well-being and academic performance among older students highlights the needs of older students to maintain close relationships with their peers. **Because these students are at a different developmental stage and are potentially more prone to social isolation, educators and parents should put additional effort towards creating an interactive learning environment for adolescent students.**

Finally, we share the words students most commonly used when asked to describe themselves in three words (see Figure 16), as well as a few excerpts highlighting students' voices in response to the question, "What makes you inspired to succeed?" In doing so, we hope to remind readers of the tenacity and strength students have shown, as well as the tremendous efforts of educators to overcome the challenges brought by the COVID-19 pandemic.

Figure 16. Students' Responses to "What Are Three Words That Describe You?"

"The things that make me inspired to succeed are my goals… Also, another thing that makes me inspired to succeed is that if I keep my work ethic throughout my years of school, I am sure that I will be able to go to any college of my choice."

"I find that having a teacher who shows that they're facing the same struggles and understands those of their students really helps to encourage/inspire me to work just as hard if not harder."

"Listening to talks about our future like the one Ms. R. gave us today. I honestly haven´t been feeling motivated at all about life in general and mostly about my school but Ms. R. really motivated me to get myself together and chase my dream."

References

California Department of Education. (2019–2020a). *2019–20 Enrollment by ethnicity and grade* [Data set]. https://dq.cde.ca.gov/dataquest/dqcensus/EnrEthGrd.aspx?cds=00&agglevel=state&year=2019-20

California Department of Education. (2019–2020b). *2019–20 Enrollment by subgroup for charter and non-charter schools* [Data set]. https://dq.cde.ca.gov/dataquest/dqcensus/EnrCharterSub.aspx?cds=00&agglevel=state&year=2019-20

CORE Districts. (2020a). *Social-emotional learning, well-being, and school culture* [Surveys]. https://coredistricts.org/our-improvement-data/social-emotional-learning-well-being-and-school-culture

CORE Districts. (2020b). *Student diagnostic survey: Back to school analytics project—Rally tool* [Survey]. https://docs.google.com/document/d/1H7Ujp8k53Y2eGc9eOa4WbGhGH6qDqgdyGbJEKv0PB0g/edit

Duckworth, A. L., & Yeager, D. S. (2015). Measurement matters: Assessing personal qualities other than cognitive ability for educational purposes. *Educational Researcher*, *44*(4), 237–251. https://doi.org/10.3102/0013189X15584327

EdSource. (2019). *California smarter balanced test results: 2019* [Data set]. http://caaspp.edsource.org

Education Analytics. (2019). *Measuring social emotional learning: Best practices and lessons learned for SEL Asssessment*. Online publication forthcoming June 2021 at https://edanalytics.com/resources/sel-best-practices-guide

Fricke, H., Loeb, S., Meyer, R. H., Rice, A. B., Pier, L., & Hough, H. (2019, May). *Measuring school contributions to growth in social-emotional learning* [Policy brief]. Policy Analysis for California Education. https://edpolicyinca.org/publications/stability-school-contributions-student-social-emotional-learning-gains

Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika*, *30*(2), 179–185. doi:10.1007/bf02289447

Hough, H., Witte, J., Wang, Y. C., & Calhoun, D. (2021, February). *Evidence-based practices for assessing students' social and emotional well-being* (Brief No. 13). EdResearch for Recovery. https://annenberg.brown.edu/sites/default/files/EdResearch_for_Recovery_Brief_13.pdf

Kim, J. O., & Mueller, C. W. (1978). *Factor analysis: Statistical methods and practical issues*. Sage.

Kuhfeld, M., Soland, J., Tarasawa, B., Johnson, A., Ruzek, E., & Liu, J. (2020, October 28). Projecting the potential impact of COVID-19 school closures on academic achievement. *Educational Researcher*, *49*(8), 549–565. https://doi.org/10.3102/0013189X20965918

Novins, D. K., Stoddard, J., Althoff, R. R., Charach, A., Cortese, S., Cullen, K. R., Frazier, J. A., Glatt, S. J., Henderson, S. W., Herringa, R. J., Hulvershorn, L., Kieling, C., McBride, A. B., McCauley, E., Middeldorp, C. M., Reiersen, A. M., Rockhill, C. M., Sagot, A. J., Scahill, L., . . . Zima, B. T. (2021, March 17). Editors' note and special communication: Research priorities in child and adolescent mental health emerging from the COVID-19 pandemic. *Journal of the American Academy of Child & Adolescent Psychiatry*, *60*(5), 544–554. https://doi.org/10.1016/j.jaac.2021.03.005

O'Conner, B. P. (2000, September). SPSS and SAS programs for determining the number of components using parallel analysis and Velicer's MAP test. *Behavior Research Methods, Instrumentation, and Computers*, *32*(3), 396–402. https://link.springer.com/article/10.3758/BF03200807

Osborne J. W., Costello, A. B., & Kellow, J. T. (2008). Best practices in exploratory factor analysis. In J. Osborne (Ed.), *Best practices in quantitative methods* (pp. 86–99). SAGE.

Pier, L., Christian, M., Tymeson, H., & Meyer, R. H. (2021). *COVID impacts on student learning: Evidence from interim assessments in California* [Report]. Policy Analysis for California Education. https://edpolicyinca.org/publications/covid-19-impacts-student-learning

Sommer, C. (2021, May 6). Teens are in crisis. So are their parents. *New York Times*. https://www.nytimes.com/2021/05/06/well/family/parents-teenagers-staying-at-home-coronavirus-pandemic.html

Wang, Y. C., Pier, L., Meyer, R. H., & Bolt, D. M. (2019, April 5–9). *Growth mindset versus not a fixed mindset: Comparing positively and negatively worded survey items* [Paper presentation]. 2019 Annual Meeting of the American Educational Research Association, Toronto, Canada.

West, M. R., Pier, L., Fricke, H., Hough, H., Loeb, S., Meyer, R. H., & Rice, A. B. (2020, March 23). Trends in student social-emotional learning: Evidence from the first large-scale panel student survey. *Educational Evaluation and Policy Analysis*, *42*(2), 279–303. https://doi.org/10.3102/0162373720912236

Appendix A. Student Well-Being and Learning Conditions Diagnostic Survey

This survey asks about how you are doing, as well as your behavior, experiences, and attitudes related to school. We look forward to using your feedback to make the start of your school year better. Some of the survey questions will ask you about specific periods of time (such as in the past week, last year at school, or after school closed last spring). Please pay careful attention to these time periods when you respond. Thank you for taking this survey!

Part 1: Now or the Past Few Days

For the questions in this section, please respond based on your current experiences or in the recent past (last few days):

1. During the past week, how often did you feel happy?
2. During the past week, how often did you feel worried?
3. During the past week, how often did you feel sad?
4. During the past week, how often did you feel hopeful?
5. When I need help, I find someone to talk to.
6. When I have a problem, I can come up with lots of ways to solve it.

   (Never, Once in a while, Sometimes, Frequently, Always)

7. Are there students at your school who would help you if other students are being mean to you?
8. Do you have a friend your age who helps you when you are having a hard time?

   (Almost never, Once in a while, Sometimes, Often, Almost all the time)

Part 2: Last Year at School

For the questions in this section, please respond based on your experiences last year in school (when you were at school):

9. Last year, did you feel safe at school?
10. Last year at school, was there at least one teacher or other adult in your school that really cared about you?
11. Last year at school, did your teachers treat you with respect?
12. Last year at school, did your teachers care what you thought?
13. Last year at school, did teachers go out of their way to help students?
14. Last year at school, did your teachers work hard to help you with your schoolwork when you needed it?
15. Last year at school, did you get your work done right away instead of waiting until the last minute?

    (Almost never, Once in a while, Sometimes, Often, Almost all the time)

Part 3: Learning from Home This Past Spring

For the questions in this section, please respond based on when you were learning from home this past spring:

16. When you were learning from home this past spring, how often were you able to access your schoolwork that was online?
17. When you were learning from home this past spring, how often did your teacher have online lessons with the class?
18. When you were learning from home this past spring, how often did you join online learning lessons with your teacher?
19. When you were learning from home this past spring, how often would you have someone available to help you with your schoolwork, if needed?

    (Almost never, 1 day per week, 2–3 days per week, 4 days per week, 5 days per week)

20. When you were learning from home this past spring, about how much time did you spend each day on schoolwork?

    (0 hours, 1 hour, 2–3 hours, 4–5 hours, More than 5 hours)

Part 4: Tell Us About Yourself

For the questions in this section, please respond based on how you feel now:

21. In general, would you say that you like school?

    (Not at all, A little, Somewhat, Pretty much, Very much)

22. Which type of adults have helped you the most in the past? (Check all that apply.)

    (Teacher, Counselor, Therapist, Parent, Guardian, Sibling, Other family member, Coach, Mentor, Spiritual leader, Social worker, No one, Other)

23. How do you typically form relationships with adults?

    (I rarely have relationships with adults; I wait for adults to begin a relationship with me; Sometimes I begin relationships with adults and sometimes wait for others to do it; I begin relationships with adults easily)

24. What are three words that describe you?
25. Can you tell us about a time when an adult at school really helped you?
26. How do you like to spend your free time?

    (Free response)

Appendix B. Supplemental Analysis Results

Table B1. Student-Level Correlations Between Students' MAP ELA and Math Scores in Fall 2020 and Four Survey Topic Areas, by Grade Band

Grade band	Maximum number of students*	Subject	Personal well-being	Interpersonal well-being	School learning environment	Home/online learning environment
Elementary	6,767	ELA	0.12	0.09	0.15	0.21
	6,765	Math	0.15	0.05	0.11	0.22
Middle	6,590	ELA	-0.06	0.11	0.04	-0.07
	6,511	Math	-0.01	0.13	0.05	-0.08
High	2,596	ELA	-0.12	0.13	0.07	-0.04
	2,392	Math	-0.09	0.13	0.07	-0.03

* The numbers of students are slightly different between different pairs of MAP subject – survey topic correlations. The maximum number of students is reported in Tables B1–B4.

Table B2. Student-Level Correlations Between Students' MAP ELA and Math Scores in Fall 2020 and Individual Items on the Survey, by Grade Band

Grade band	Maximum number of students*	Subject	Item 4 (hopeful)	Item 6 (solve problem)	Item 9 (feel safe)	Item 15 (do work right away)	Item 19 (someone available to help)	Item 20 (time spent on schoolwork)	Item 21 (like school)
Elementary	6,767	ELA	0.03	0.10	0.15	0.21	0.09	-0.02	0.11
	6,765	Math	0.02	0.11	0.13	0.20	0.06	-0.02	0.11
Middle	6,590	ELA	-0.01	0.08	0.07	0.05	0.05	-0.01	0.06
	6,511	Math	0.02	0.11	0.09	0.07	0.03	0.002	0.08
High	2,596	ELA	-0.07	0.08	0.08	-0.03	0.09	0.04	0.04
	2,392	Math	-0.03	0.09	0.07	0.00	0.09	0.06	0.06

Note. The full content of these individual items can be found in Appendix A.

Table B3. Student-Level Correlations Between Students' MAP ELA and Math Growth Scores (Fall 2019–Fall 2020) and Four Survey Topic Areas, by Grade Band

Grade band	Maximum number of students*	Subject	Personal well-being	Interpersonal well-being	School learning environment	Home/online learning environment
Elementary	6,526	ELA	0.08	0.04	0.07	0.08
	6,518	Math	0.08	0.03	0.04	0.06
Middle	6,235	ELA	0.01	0.05	0.05	-0.03
	6,166	Math	0.02	0.08	0.06	-0.01
High	2,320	ELA	-0.02	0.05	0.08	0.00
	2,103	Math	-0.04	0.04	0.02	0.00

Table B4. Student-Level Correlations Between Students' MAP ELA and Math Growth Scores (Fall 2019–Fall 2020) and Individual Items on the Survey, by Grade Band

Grade band	Maximum number of students*	Subject	Item 4 (hopeful)	Item 6 (solve problem)	Item 9 (feel safe)	Item 15 (do work right away)	Item 19 (someone available to help)	Item 20 (time spent on schoolwork)	Item 21 (like school)
Elementary	6,526	ELA	0.02	0.04	0.08	0.07	0.07	0.01	0.02
	6,518	Math	-0.004	0.02	0.03	0.07	0.05	0.001	0.003
Middle	6,235	ELA	0.003	0.03	0.04	0.04	0.03	0.01	0.06
	6,166	Math	0.02	0.05	0.06	0.04	0.003	0.02	0.07
High	2,320	ELA	-0.01	0.03	0.08	0.06	0.05	0.10	0.04
	2,103	Math	-0.03	0.02	-0.01	0.03	0.05	0.08	0.01

*Note.* The full content of these individual items can be found in Appendix A.

Table B5. Fall 2019-to-Fall 2020 Growth in MAP ELA Scores (and Number of Students) for Students in the Bottom Quartile (Q1) and Top Quartile (Q4) of Each Survey Topic, by Demographic Subgroups

Subgroup	1. Personal well-being		2. Interpersonal well-being		3. School learning environment		4. Home/online learning environment	
Quartile	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
Female	-0.72 (2,142)	0.12 (1,650)	-1.14 (1,156)	0.30 (2,394)	-0.96 (1,664)	-0.04 (2,345)	-0.25 (1,541)	-0.12 (2,637)
BIPOC	-1.21 (3,448)	-0.62 (3,968)	-1.66 (2,758)	-0.19 (4,052)	-1.78 (3,631)	-0.34 (4,090)	-0.68 (2,912)	-0.43 (5,179)
Economically disadvantaged	-1.24 (2,963)	-0.70 (3,379)	-1.78 (2,359)	-0.12 (3,411)	-1.85 (3,133)	-0.33 (3,537)	-0.85 (2,494)	-0.45 (4,394)
English learners	-2.67 (1,000)	-1.44 (1,226)	-2.48 (969)	-0.95 (958)	-2.71 (1,126)	-0.93 (1,170)	-2.47 (836)	-0.87 (1,409)
Students with disabilities	-2.67 (275)	-1.67 (313)	-3.02 (315)	-1.51 (218)	-3.64 (347)	-1.02 (298)	-2.69 (251)	-1.23 (366)
All students	-1.20 (3,482)	-0.62 (3,994)	-1.64 (2,780)	-0.19 (4,080)	-1.74 (3,669)	-0.33 (4,118)	-0.66 (2,936)	-0.42 (5,218)

Table B6. Fall 2019-to-Fall 2020 Growth in MAP Math Scores (and Number of Students) for Students in the Bottom Quartile (Q1) and Top Quartile (Q4) of Each Survey Topic, by Demographic Subgroups

Subgroup	1. Personal well-being		2. Interpersonal well-being		3. School learning environment		4. Home/online learning environment	
Quartile	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
Female	-0.22 (2,104)	-0.36 (1,627)	-1.12 (1,144)	0.40 (2,372)	-0.40 (1,641)	-0.17 (2,330)	0.33 (1,476)	-0.09 (2,626)
BIPOC	-0.76 (3,372)	-0.57 (3,891)	-1.49 (2,702)	0.04 (3,989)	-1.14 (3,554)	-0.35 (4,048)	-0.34 (2,761)	-0.24 (5,143)
Economically disadvantaged	-0.88 (2,891)	-0.49 (3,309)	-1.44 (2,318)	0.02 (3,358)	-1.16 (3,062)	-0.32 (3,505)	-0.37 (2,369)	-0.25 (4,356)
English learners	-1.80 (989)	-0.71 (1,200)	-1.64 (947)	-0.31 (966)	-1.54 (1,120)	-0.70 (1,157)	-1.17 (832)	-0.45 (1,397)
Students with disabilities	-2.55 (264)	-1.37 (310)	-1.65 (315)	-1.15 (218)	-2.28 (342)	-0.87 (299)	-1.24 (237)	-0.05 (369)
All students	-0.79 (3,402)	-0.58 (3,919)	-1.52 (2,725)	0.03 (4,017)	-1.18 (3,592)	-0.35 (4,078)	-0.35 (2,781)	-0.26 (5,184)

Figure B1. Mean Scores of Main Survey Topics for Asian American and White Students, by Grade
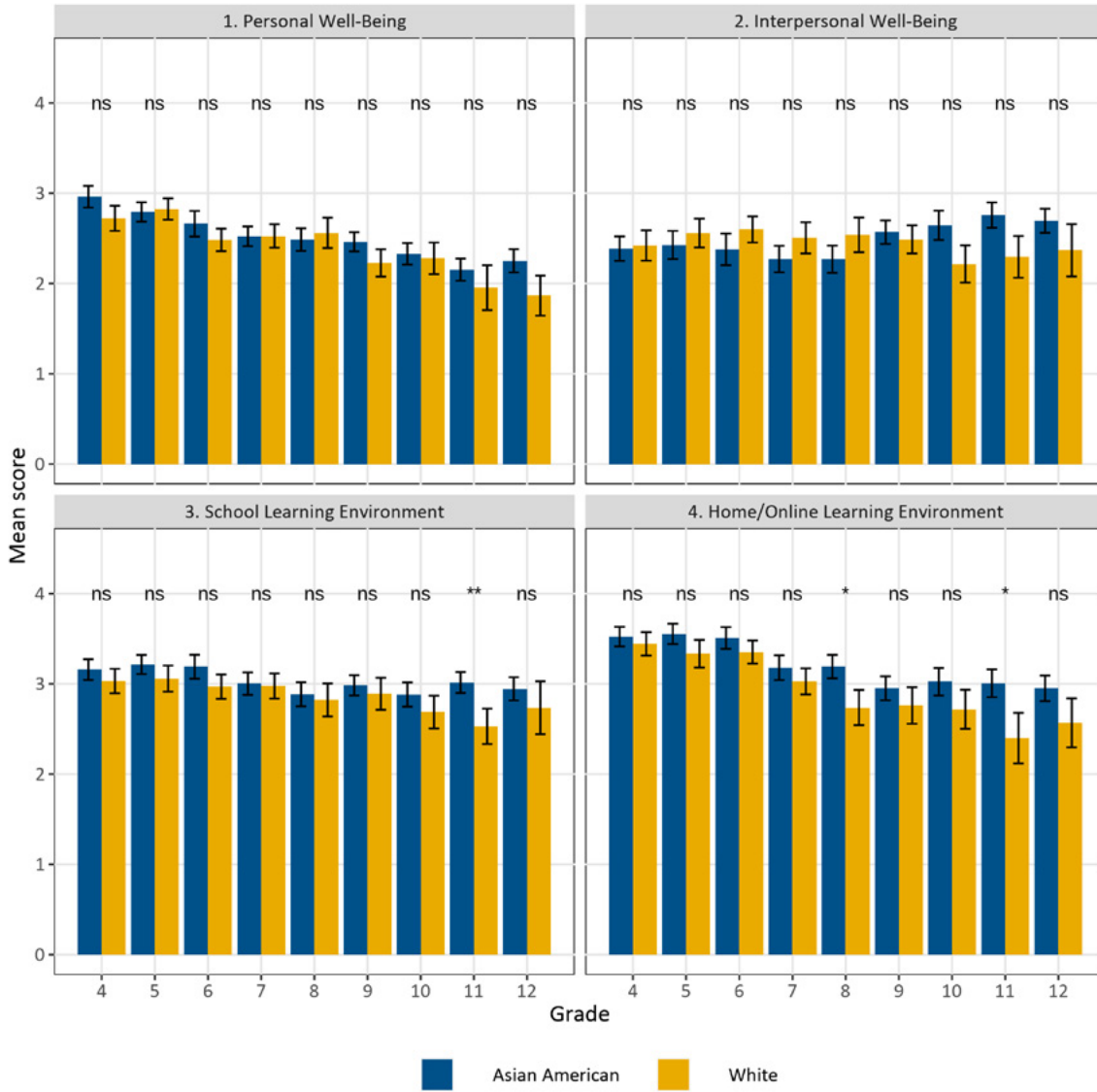
Note. ns = not significant (*p*-value ≥ 0.05); * *p*-value < 0.05; ** *p*-value < 0.01. The vertical black bars represent the 95 percent confidence interval of the difference in mean scores.
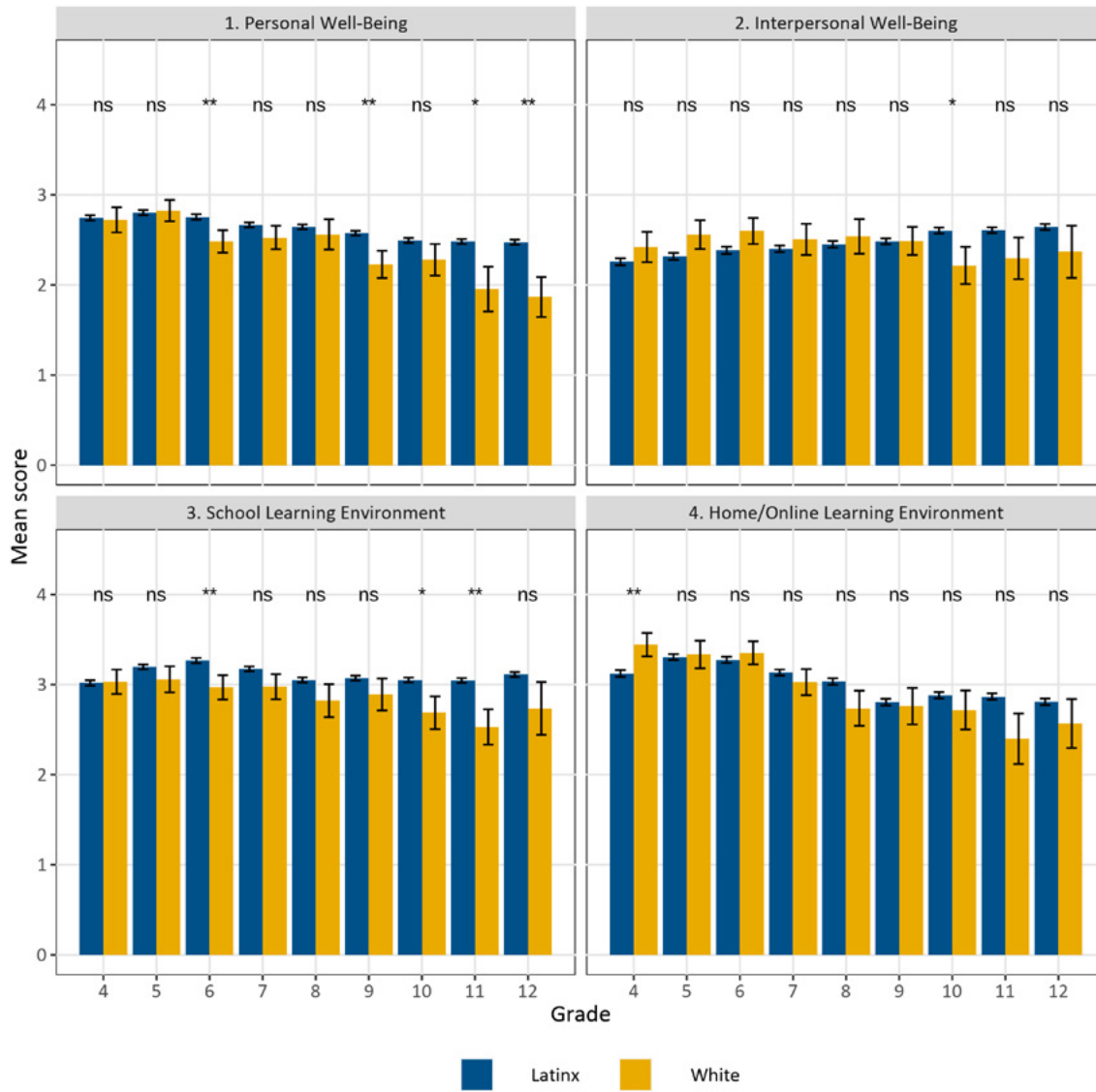
Figure B2. Mean Scores of Main Survey Topics for Black and White Students, by Grade
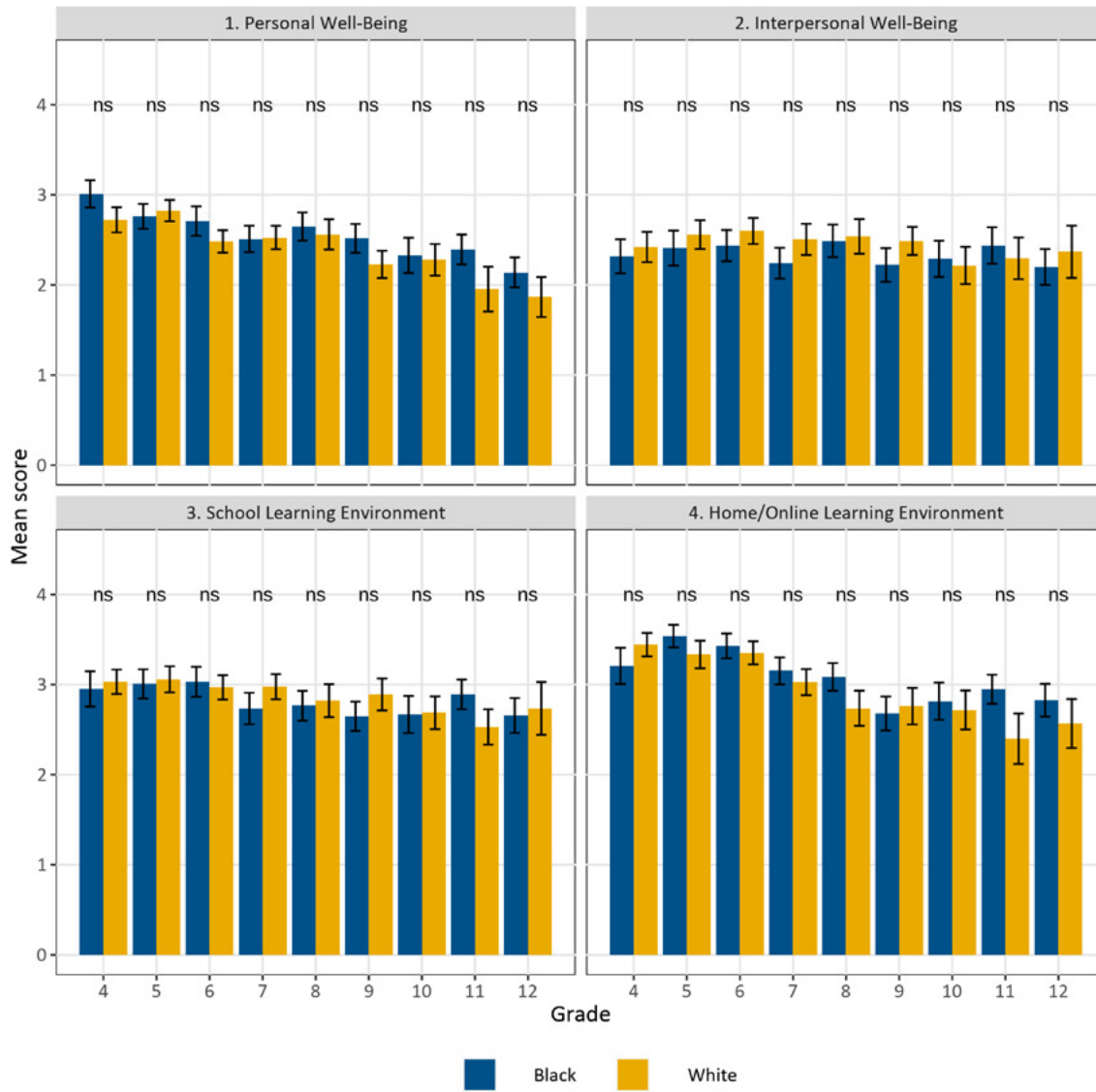
Note. ns = not significant (*p*-value ≥ 0.05). The vertical black bars represent the 95 percent confidence interval of the difference in mean scores.

**Figure B3.** Mean Scores of Main Survey Topics for Latinx and White Students, by Grade

Note. ns = not significant (*p*-value ≥ 0.05); * *p*-value < 0.05; ** *p*-value < 0.01. The vertical black bars represent the 95 percent confidence interval of the difference in mean scores.

Figure B4. Fall 2019-to-Fall 2020 Growth in MAP ELA and Math Scores Between Students in the Bottom Quartile (Q1) and Top Quartile (Q4) of Personal Well-Being, by Grade
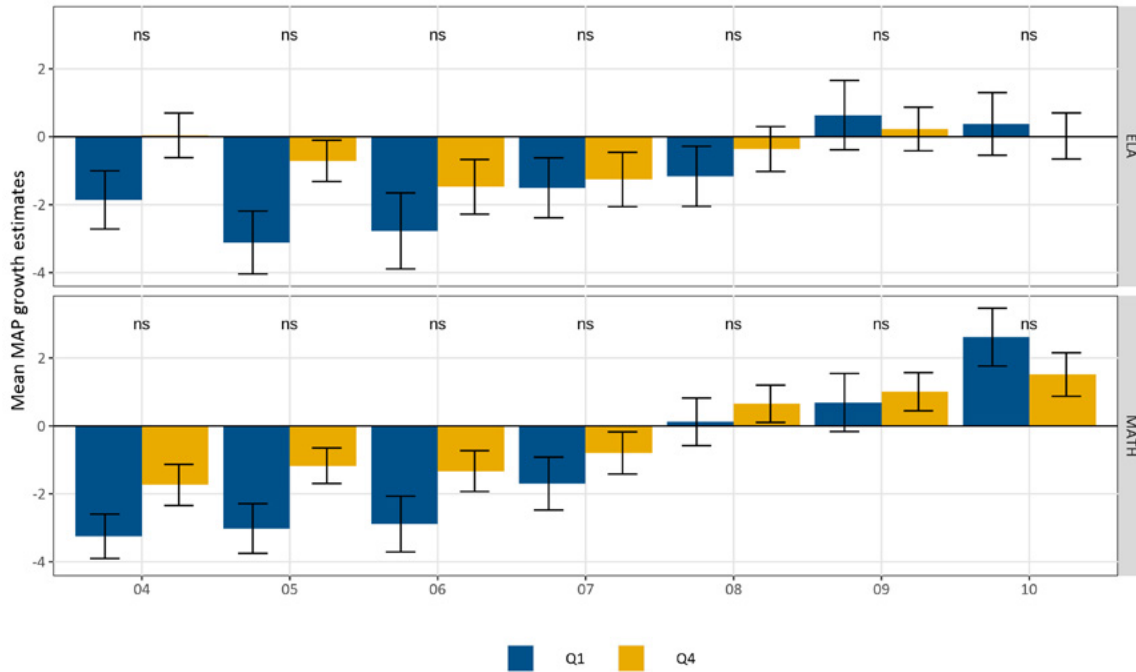
Figure B5. Fall 2019-to-Fall 2020 Growth in MAP ELA and Math Scores Between Students in the Bottom Quartile (Q1) and Top Quartile (Q4) of Interpersonal Well-Being, by Grade
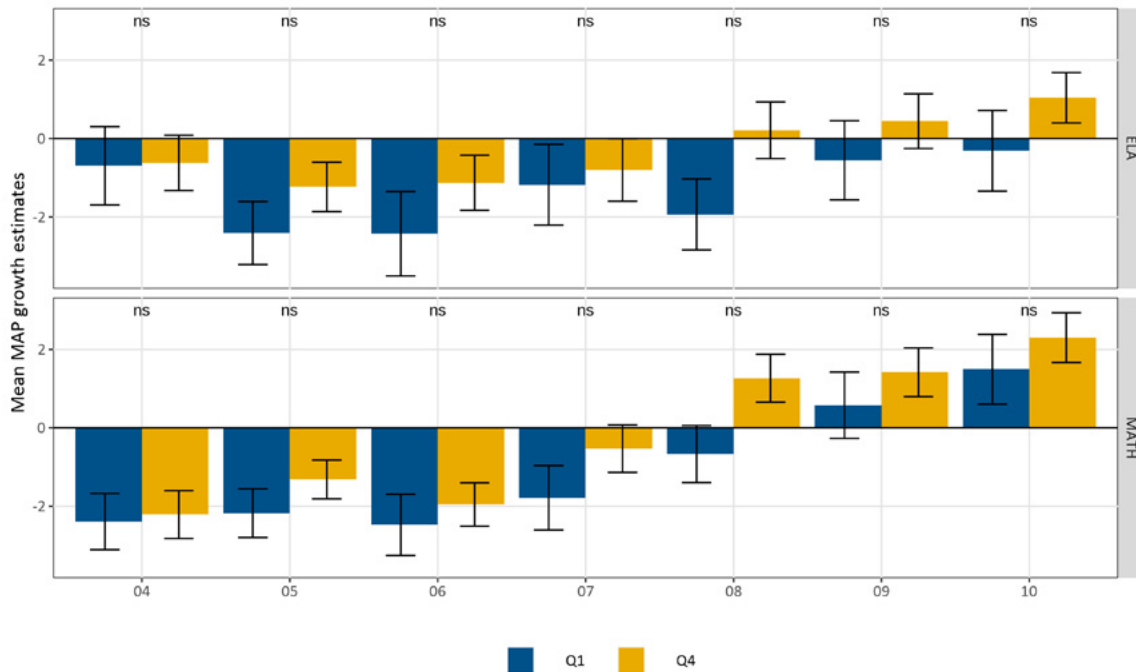
Figure B6. Fall 2019-to-Fall 2020 Growth in MAP ELA and Math Scores Between Students in the Bottom Quartile (Q1) and Top Quartile (Q4) of School Learning Environment, by Grade
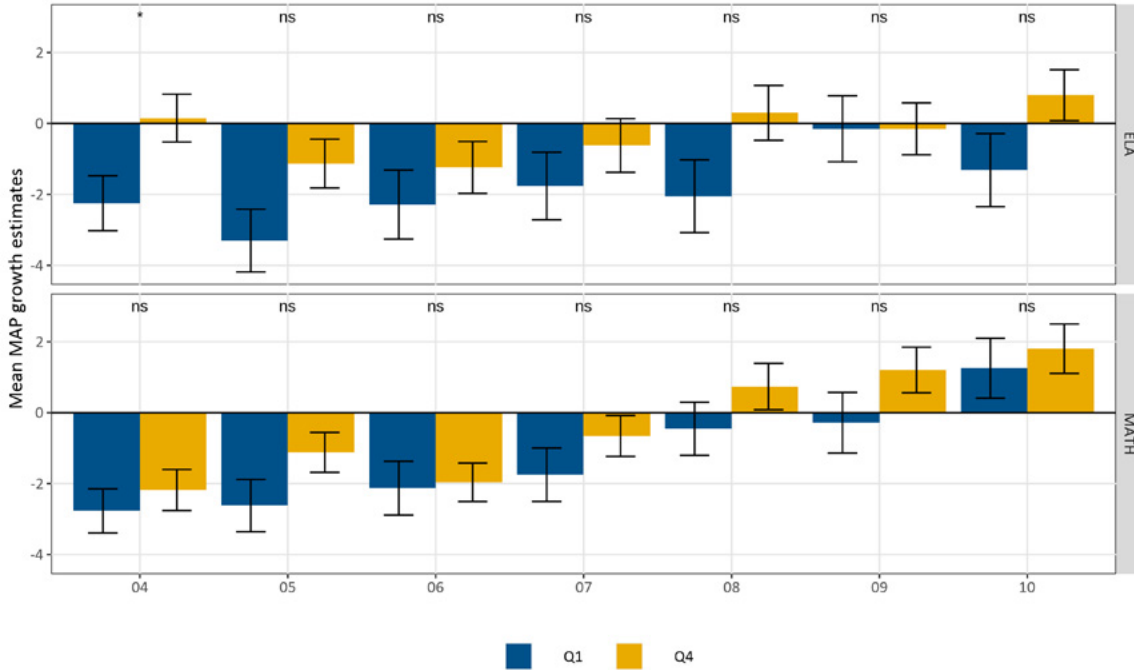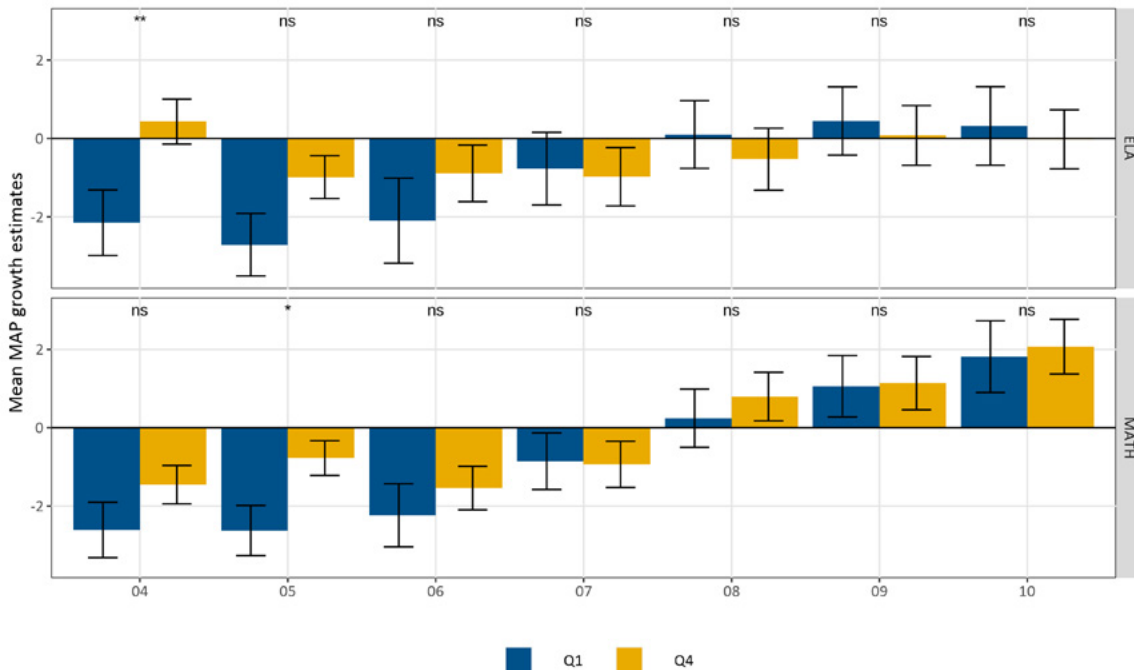

Figure B7. Fall 2019-to-Fall 2020 Growth in MAP ELA and Math Scores Between Students in the Bottom Quartile (Q1) and Top Quartile (Q4) of Home/Online Learning Environment, by Grade

Author Biographies

Caroline Wang is a research scientist at Education Analytics, a nonprofit organization based in Madison, Wisconsin, that conducts statistical research to solve complex, pressing problems facing public education in the United States. She received her PhD in educational research, measurement, and evaluation from Boston College.

Libby Pier is the director of impact at Education Analytics. She previously taught middle and high school English in Los Angeles through Teach For America. She received her PhD in learning sciences from the Department of Educational Psychology at the University of Wisconsin—Madison.

Robert H. Meyer is the president and CEO of Education Analytics. He was formerly the director of the Value-Added Research Center at the University of Wisconsin—Madison and has conducted major statistical evaluations of programs and policies, such as class-size reduction, literacy, and supplemental educational services. He received the University of Wisconsin—Madison Chancellor's Award for Excellence in Research in 2010.

Nichole Webster is a research analyst at Education Analytics. She examines the item properties and performance of social-emotional learning surveys and estimates teacher and school performance metrics in the software environment R. She received her MS in applied economics from the University of Wisconsin—Whitewater.

Policy Analysis for California Education (PACE)

Improving education policy and practice and advancing equity through evidence

PACE is an independent, non-partisan research center led by faculty directors at Stanford University, the University of Southern California, the University of California Davis, the University of California Los Angeles, and the University of California Berkeley. Founded in 1983, PACE bridges the gap between research, policy, and practice, working with scholars from California's leading universities and with state and local decision makers to achieve improvement in performance and more equitable outcomes at all levels of California's education system, from early childhood to postsecondary education and training. We do this through:

1 bringing evidence to bear on the most critical issues facing our state;

2 making research evidence accessible; and

3 leveraging partnership and collaboration to drive system improvement.

PACE
Policy Analysis for California Education
CORE-PACE RESEARCH PARTNERSHIP