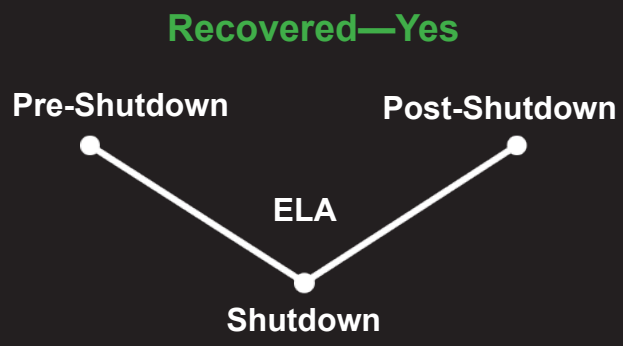
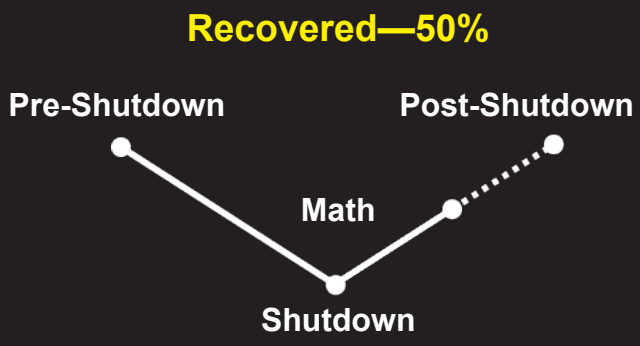
Wilson Consulting Services, LLC

An Impressive Recovery in Student Performance After COVID-19 Shutdown

South Carolina School Districts of Charleston, Georgetown, and Horry Counties—SC READY Performance





November 2, 2023

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Founder / CEO
Conway, South Carolina

ACCREDITED BUSINESS

"Without data, you are just one more person with an opinion."

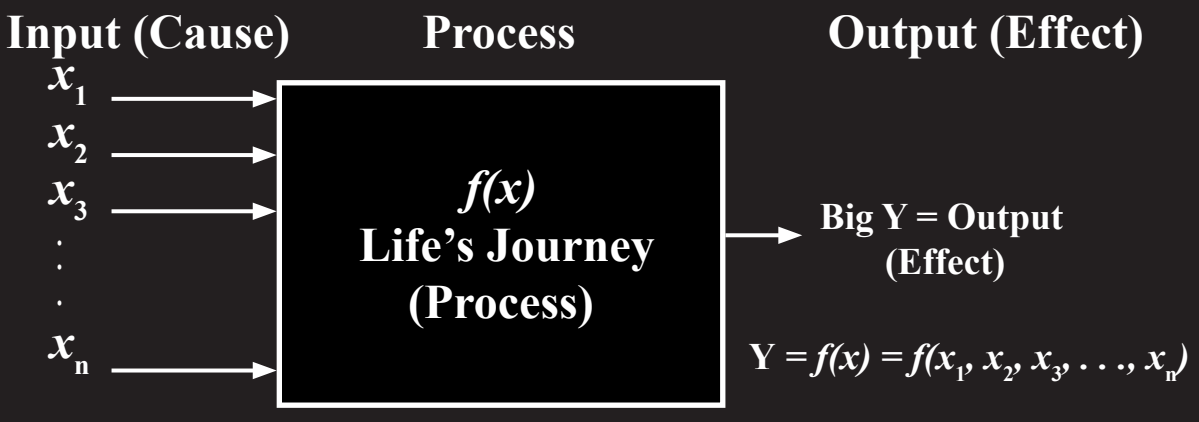
Life's Journey

Definition

Life's journey can be compressed into a barrage of cause-and-effect analyses. This means that we are forever doing things to achieve a desired outcome. A desired outcome is not guaranteed; rather, it is probabilistic with varying degrees of likelihood. Simply put, life's journey can also be defined as a collage of intersections.

Example

The little input x's (in the diagram below) represent all the things you do on a continuous basis (input) to achieve a desired outcome, including your family, education, values, religion, work, etc. The list is infinite.



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Note 1: Shutdown in this report should be construed to mean school shutdown because of COVID-19, not economy shutdown.

Note 2: A copy of this report can be viewed or downloaded from—
https://www.wilsonconsultingservices.net/wcs_sch_recovershutdown.pdf

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Executive Summary

There has been much talk about how far behind students are in learning because of the shutdown of public schools during the COVID-19 pandemic. Many estimates stated it would be years before students' performance would return to pre-shutdown levels. Some experts have even recommended summer school or longer school days or school years to get back to pre-shutdown levels. I have examined much of South Carolina College- and Career-Ready Assessments (SC READY) test data from the South Carolina Department of Education (SCDE) to test the hypothesis that the vast amount of learning that was lost would take many years to recover unless something special was done. Consequently, to test this hypothesis, I examined SCDE benchmark testing results for pre-shutdown, during shutdown, and post-shutdown.

The conclusion drawn from the analyses in this report rejects the hypothesis of a long and arduous road back to pre-shutdown performance levels in South Carolina because the state had completely recovered in English language arts (ELA) and recovered about 50% of the shutdown loss in math by the end of the 2022–2023 school year. In addition to South Carolina test results as a whole, three of the state's school districts were included: Charleston County School District (CCSD), Georgetown County School District (GCSD), and Horry County Schools (HCS).

Highlights:

- As of the end of the 2022–2023 school year, Black students showed the largest percentage of recovery from school shutdowns (ELA and math) in South Carolina as a whole, including the CCSD, GCSD, and HCS (see Table 2.2).
- As of the end of the 2022–2023 school year, the performance of Black students in Horry County recovered to 33% above pre-shutdown levels in ELA and recovered to within 22.6% of pre-shutdown performance for math. This equates to about 50% of losses recovered in math (see Figure 2.4, Tables 2.1–2.3).
- As of the end of the 2022–2023 school year, students in South Carolina had not only recovered from the shutdown in ELA, but they were also performing at 17.1% above their pre-shutdown performance level (see Figure 2.1).
- As of the end of the 2022–2023 school year, the performance of Hispanic students in South Carolina not only recovered from the rapid decrease in performance in ELA because of the shutdown, but they were performing at 18.0% above their pre-shutdown performance level (see Figure 2.1).
- As of the end of the 2022–2023 school year, South Carolina Black students not only recovered from the shutdown in ELA, they were performing at 28.2% above their pre-shutdown levels (see Figure 2.1).
- As of the end of the 2022–2023 school year, South Carolina White students not only recovered in ELA from the shutdown, they were performing at 14.5% above their pre-shutdown levels (see Figure 2.1).
- As of the end of the 2022–2023 school year, CCSD students had not only recovered from the loss in ELA and math because of school shutdowns, but they were also performing at 20.3% and 4.3% above their pre-shutdown levels, respectively. This means that the CCSD has completely recovered from the loss in student learning in ELA and math incurred due to school shutdowns from the COVID-19 pandemic. There are almost no yellow bars (see Figure 2.2).
- As of the end of the 2022–2023 school year, Black CCSD students had not only recovered from the school shutdown in ELA, but they were also performing at 37.9% above their pre-shutdown levels and within 4.2% of their pre-shutdown performance in math (see Figure 2.2).
- As of the end of the 2022–2023 school year, South Carolina students had recovered all (100%) learning loss in ELA and about one-half (50%) of their learning loss in mathematics caused by school shutdowns. Although the state did not completely recover in math from the shutdown, that they recovered 50% of the loss in a couple years is a remarkable comeback.

Chapter 1

Introduction

There has much talk about how much students are behind in learning because of the shutdown of public schools during the COVID-19 pandemic. Many estimates stated it would be years before students would return to pre-shutdown levels. Some experts even recommended that summer school or longer school days or school years might help. To that end, I have examined much data from South Carolina Department of Education (SCDE) to test the hypothesis that the vast amount of learning that was lost would take many years to recover.

This report takes a binary approach to the SC READY benchmark measurements; the student either met or did not meet the benchmark standard for readiness. The analyses do not break down various other levels, such as approaching expectations and economic factors; thus, the analyses reflect the percentage of students scoring the minimum and above or those who did not score the minimum. The analyses in this report are illustrated with tables, charts, and graphs as well as discussed in narrative form.

The report examines the benchmarks of the two historical US demographic groups and the newer Hispanic demographic. The three racial/ethnic demographics examined were White, Black (or African American), and Hispanic. These three groups comprised more than 90% of the student population. Although females, males, Asians, two or more races, Native Hawaiian or other Pacific Islanders, and American Indian or Alaskan Native measurements are included in SCDE raw data spreadsheets, only those three race/ethnicity demographics are analyzed in this report. However, the total number of students tested at the state and school district levels is included in the total and is used in the denominator to compute the percentage of the three racial/ethnic demographics.

To examine the hypotheses regarding lost learning cited in the first paragraph, my objective is to examine the SC READY benchmark results from 2017 to 2023, which spans the pre-shutdown, shutdown, and post-shutdown periods for South Carolina as a whole as well as the Charleston County School District (CCSD), the Georgetown County School District (GCSD), and Horry County Schools (HCS). The SC READY benchmark tests are foundational and consist of ELA and math. In my view, these two tests encompass the best measure of students' being ready to move to the next grade. Hence, these two tests encompass the three Rs axiom of reading, writing, and arithmetic. The SCDE administers the test in the spring annually to students in grades three through eight.

"Despite dismal predictions by many, South Carolina's ELA students (grades 3–8) as a whole have already returned to and surpassed pre-shutdown levels in 2023."

Despite dismal predictions by many, South Carolina's ELA students (grades 3–8) as a whole have already returned to and surpassed pre-shutdown levels in 2023. In addition to South Carolina's returning to or surpassing the pre-shutdown levels in ELA, the following school districts also returned to pre-shutdown levels in ELA: CCSD, GCSD, and HCS. CCSD is the only school district of the three measured in this report in which performance has returned to or surpassed the pre-shutdown levels in both ELA and

Chapter 1: Introduction, cont.

math. GCSD, HCS, and South Carolina as a whole have regained about 50 % of lost in math from the shutdown. Additionally, none of the race/ethnicity groups measured in this report have returned to or surpassed pre-shutdown levels in math; however, to emphasize—these groups have returned to or surpassed pre-shutdown ELA levels. Black students in South Carolina as a whole and in the school districts examined in this report experienced the highest percentage of returning to or surpassing pre-shutdown levels in both ELA and math. Although the state as a whole did not return to pre-shutdown levels in math, students showed significant improvement in performance in the post-shutdown period. Tables 2.1, 2.2, and 2.3 contain matrices for the changes in performance from pre-shutdown to shutdown to post-shutdown. The percentages shown in Tables 2.1, 2.2, and 2.3 are the differences between the periods, not a rate of change. The idea is to measure when performance returned to pre-shutdown levels, not the rate at which it returned or changed over time. See charts shown in Figures 2.1–2.4. Additionally, in Chapter 4, I examine the SC READY test scores for the school years ending in 2019 (pre-shutdown), 2021 (shutdown), and 2023 (post-shutdown) by comparing grade levels to each area tested—ELA and math. The behavioral patterns for 2019 and 2021 appears to exhibit a random behavior across the grades whereas the ELA and math scores exhibited a divergence pattern in 2023. To that end, the 2023 performance exhibited a phenomenon that does not appear to be random; rather, it appears that specific causations might be driving the divergence between ELA and math because ELA performance has bounced back to a level above pre-shutdown performance and math has not yet reached pre-shutdown levels, therefore creating an observable gap with no interleaving, as shown for 2019 and 2021 (see graphs in Chapter 4). Any effort to determine causation in the performance relationship between ELA and math is beyond the scope of this report; however, as a mathematics-centered career professional and a teacher of postsecondary mathematics and statistics (part time) for 26 years, I believe there are most likely a few factors suppressing math scores across the nation.

Although the math SC READY performance only recovered 50% of pre-shutdown levels, this is a promising comeback, especially because many newspapers, pundits, and even some educators claimed that an entire generation would be lost because of school shutdowns. Given that ELA and math were improving before the school shutdowns, and that ELA recovered in two years, there is a high likelihood that math, too, will fully recover in the next two years.

Description of Chapters

Chapter 2: Impact of School Shutdowns on Student Performance*

This chapter is an analysis of performance pre-shutdown, during shutdown, and post-shutdown. These analyses are shown with graphs and tables. The graphs show green and yellow bars.** The green bars represent the performance percentage above pre-shutdown levels (2023), and the yellow bars represent the performance percentage below the pre-shutdown levels (2023). The tables show chronologically the percent of difference between [1] pre-shutdown and shutdown (Table 2.1), [2] shut-down and post-shutdown (Table 2.2), and [3] pre-shutdown and post-shutdown (2023).

* To emphasize, shutdown in this report should be construed to mean school shutdown because of COVID-19, not economy shutdown.

**The green bar shows the percentage of students performing at or above pre-shutdown levels. The yellow bars show percentage within or below pre-shutdown levels. For example, if a performance decreased by 48% at shutdown but improved by 24% post-shutdown, the bounce back would be about 50% of shutdown loss.

Chapter 1: Introduction, cont.

Chapter 3: Student Performance by Year Race/Ethnicity: 2017–2023
This chapter contains an analysis of the six-year timeline of performance. The graphs provide the reader with performance year and a view of the impact the shutdown has had on performance.

Chapter 4: Performance by Grade, Pre-shutdown, Shutdown, and Post-shutdown
In this chapter, the line graphs show the behavioral pattern of student performance before, during, and after shutdown.

Chapter 5: Cumulative Performance by Race/Ethnicity: 2017–2023
In this chapter, the column graphs provide cumulative percentages of performance over a six-year time line for the entities examined in this report.

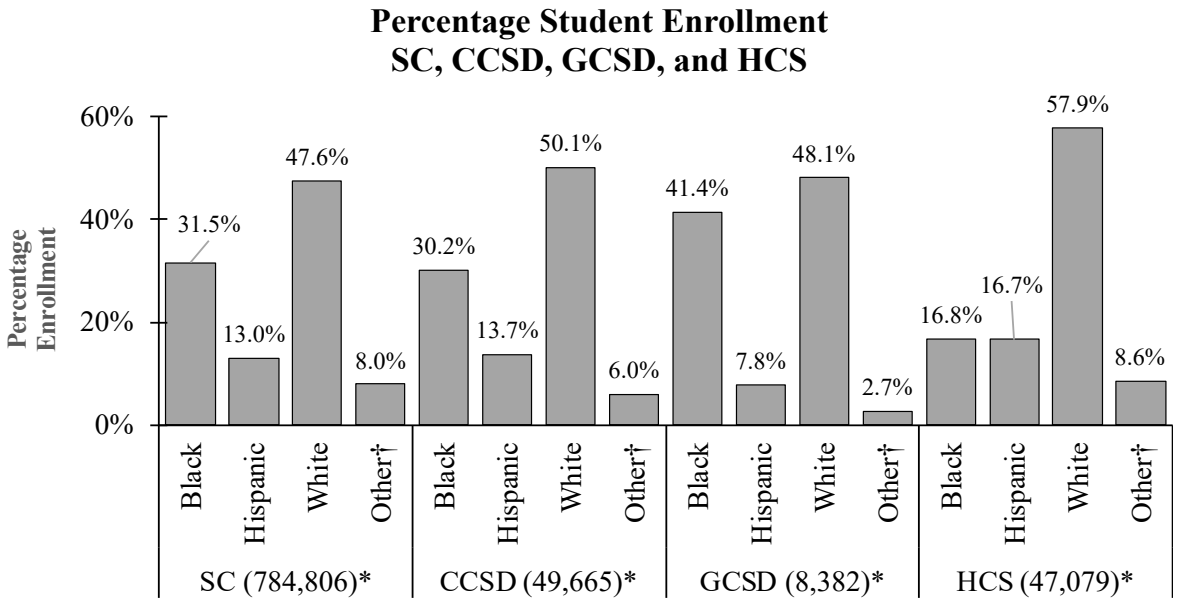

Figure 1.1 Distribution of student enrollment

Note: CCSD and HCS are among the top four largest school districts in South Carolina. Hispanic, Black, and White students comprised more than 90% of students in South Carolina.

Data source: SCDE—District headcount by gender, ethnic/race, and pupils in poverty

*The number in parenthesis with each entity is active student enrollment extraction from the 135th day, April 2023.
†Other includes: Asian, Hawaiian or Other Pacific Islander, two or more races, and American Indian.

Chapter 2

The Impact of School Shutdowns on Student Performance

The charts in Figures 2.1–2.4 illustrate the impact shutdown had on students and the miraculous recovery in ELA after school reopened. The entities examined include South Carolina as a whole and the school districts of Charleston, Georgetown, and Horry counties.

An interpretation of the table: The green column means that the performance for that particular subject measured back to and above pre-shutdown levels. The yellow column measures how far performance is from returning to pre-shutdown levels. In summary, the green bar means that the performance not only reached the pre-shutdown level but exceeded it during post-shutdown. The yellow bar means that performance has not completely returned to or surpassed the pre-shutdown level. The data in Table 2.1 depict the percentage of difference in performance between pre-shutdown and shutdown. These percentages do not measure rate of change; rather, they depict the absolute difference in performance before and during shutdown. The performance information in Table 2.2 depicts the percentage of difference between shutdown and post-shutdown. The data in Table 2.3 are a combination of Tables 2.1 and 2.2, which were used to construct Figures 2.1–2.4. Figures 2.1–2.4 depict the percentage of difference above or below pre- shutdown performance levels. For example, (1) Figure 2.1 depicts South Carolina student performance as a whole and Hispanic, Black, and White students.

The percentages above and below the zero axis were computed as percentage differences and not as rate of change or percentage points difference. All percentage values in Tables 2.1–2.3 and Figures 2.1–2.4 are to be interpreted as absolute values. The negative signs are used to indicate measures below pre-shutdown levels.

A visual scan of the charts in Figures 2.1–2.4 provides a clear view of the recovery of ELA and math from the shutdown. The green bar represents the percentage of recovery after the shutdown above pre-shutdown performance. The yellow bar represents the percentage that the recovery reached within pre-shutdown performance. There was significant improvement in math; however, the improvement was not enough to reach pre-shutdown levels. Note: Improvement in this report should not be construed to mean excellence; rather, improvement is a measure in the direction of returning to pre-shutdown levels. For example, Black students showed the greatest improvement in ELA and math, referring to improvement in the direction of pre-shutdown levels, not necessarily achieving excellence. In Figure 2.4, HCS Black students' performance is 33.0% higher than pre- shutdown levels; however, pre-shutdown performance was at 25.1%, and the 33.0% above that brought the performance to 32.8%, not necessarily to the edge of excellence.

"Improvement in this report should not be construed to mean excellence; rather, improvement is a measure in the direction of returning to pre-shutdown levels."

Chapter 2: The Impact of School Shutdowns on Student Performance, cont.

The chart in Figure in 2.2 was generated using data computed in Table 2.3. The computations in Tables 2.1 are based on percentage differences between pre-shutdown and shutdown student performance. The computations in Table 2.2 are based on percentage differences between shutdown and post-shutdown student performance. The computations in Table 2.3 are based on percentage differences between pre-shutdown and post-shutdown student performance. To emphasize, the computations in Table 2.2 show the absolute percentage differences in improvement in performance from shutdown to post-shutdown. For example if the absolute value of a data point in Table 2.2 is larger than the absolute corresponding point in Table 2.1, the performance would have returned to or surpassed the pre-shutdown level.

For example, for the ELA for South Carolina in Table 2.1 (Column 1, Row 1), the difference between pre-shutdown and shutdown is -6.5%; between shutdown and post-shutdown, it is 23.5%, as shown in Table 2.2, Column 1, Row 1. For the ELA performance score to have returned to or surpassed the pre-shutdown level, the percentage of difference would need to be greater than the absolute value of -6.5%, which it is at 23.5%. Hence, the absolute value percentage difference is 17.1%, as shown in Table 2.3 (Column 1, Row 1), along with Figure 2.1.

The state's ELA performance difference before and during the shutdown for Black students was -19.0%, (see Table 2.1, Column 5, Row 1). Although the computations in Tables 2.1, 2.2, and 2.3 were computed as absolute values, the negative signs in these tables were used to indicate the percentage difference above or below the pre-shutdown values. The percentage difference from shutdown to post-shutdown performance was 46.5% (see Table 2.2, Column 5, Row 1). This remarkable improvement in performance wiped out the -19.0% lost from the shutdown, resulting in a gain (28.2%) above the pre- shutdown performance level (see Table 2.3, Column 5, Row 1), along with Figure 2.1. For math, the shutdown difference was -48.7%, per Table 2.1. The difference in math performance between shutdown and post-shutdown was 32.3%, which was not enough to wipe out the -48.7% loss. However, it brought the performance to within -17.0% of the pre-shutdown performance (see yellow bar in Figure 2.1). The zero axis in the figures represents the pre-shutdown performance.

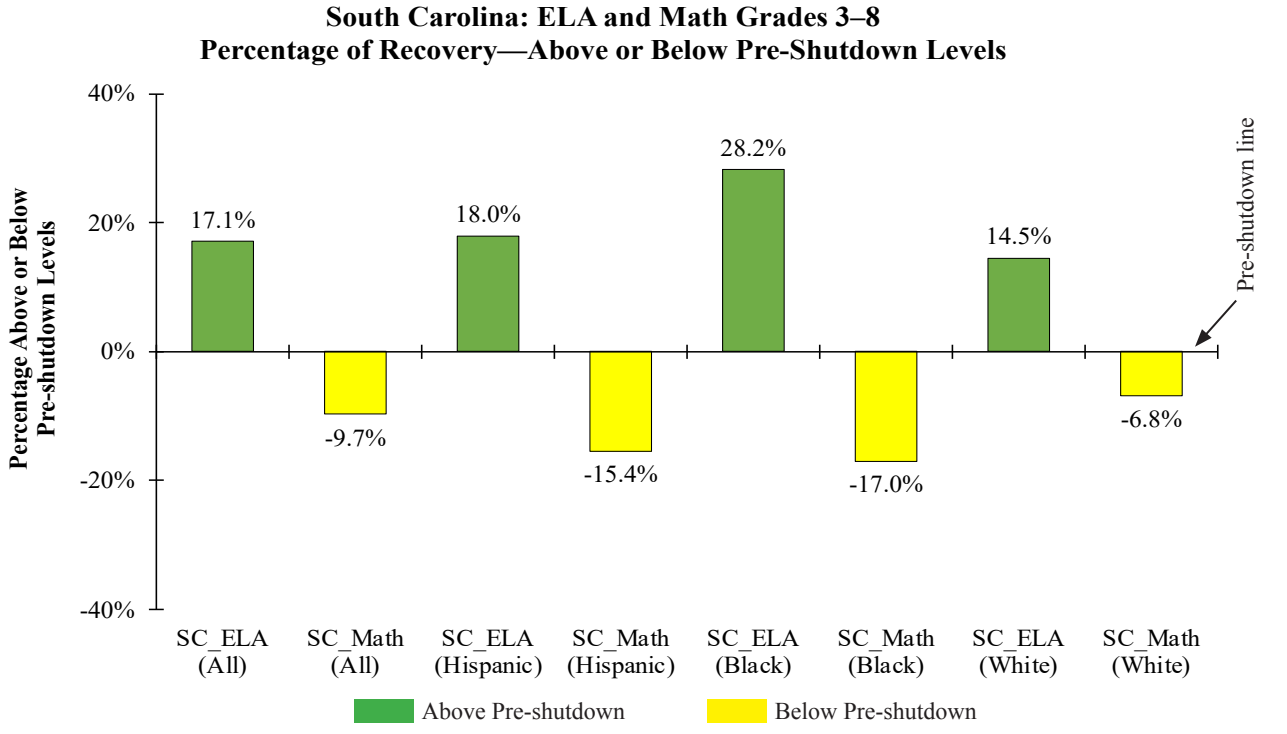

Figure 2.1 South Carolina: Grades 3–8; ELA and math percentage of recovery compared to pre-shutdown.

Chapter 2: The Impact of School Shutdowns on Student Performance, cont.

The data in Table 2.1 show the difference between performance at pre-shutdown and shutdown. The computation in Table 2.2 shows the percentage of difference in performance after shutdown. For example, if the absolute value of a data point in Table 2.2 is larger than the absolute corresponding point in Table 2.1, the performance would have returned to or be above the pre-shutdown level. For math in the Charleston County School District, shown in Table 2.1 (Column 2, Row 2), the math percentage of difference is -4.7%, which is the difference between pre-shutdown and shutdown. The corresponding point in Table 2.2 (Column 2, Row 2) is 9.0%, which is the difference between shutdown and post-shutdown. The math performance returned to or was greater than the pre-shutdown level because the absolute value of 9.0% is greater than -4.7%. Hence, the percentage difference is 4.3% above pre-shutdown performance. See Figure 2.2 (green bar) and Table 2.3 (Column 2, Row 2).

Note: The same process is replicated for ELA. See Tables 2.1, 2.2, and 2.3 (see Column 1, Row 2), and Figure 2.3 (Green bar [20.2%]).

In the graph shown in Figure 2.2, CCSD performance shows the most improvement after the shutdown, especially its complete recovery in math. For example, the district rebounded from the shutdown in ELA and math with 20.2% (green bar) and 4.3% (green bar), respectively. For ELA, the Hispanic students performed at 24.2% (green bar) higher than pre-shutdown levels, and math performance improved from the shutdown to within 1.9% (yellow bar) of the pre-shutdown level. For ELA, the Black students performed 37.9% (green bar) better than pre-shutdown levels, and in math the performance improved from the shutdown to within 4.2% (yellow bar) of pre-shutdown performance. For ELA, White students performed 10.1% (green bar) better than the pre-shutdown level, and in math their performance improved from shutdown to within 0.2% (yellow bar) of pre-shutdown performance.

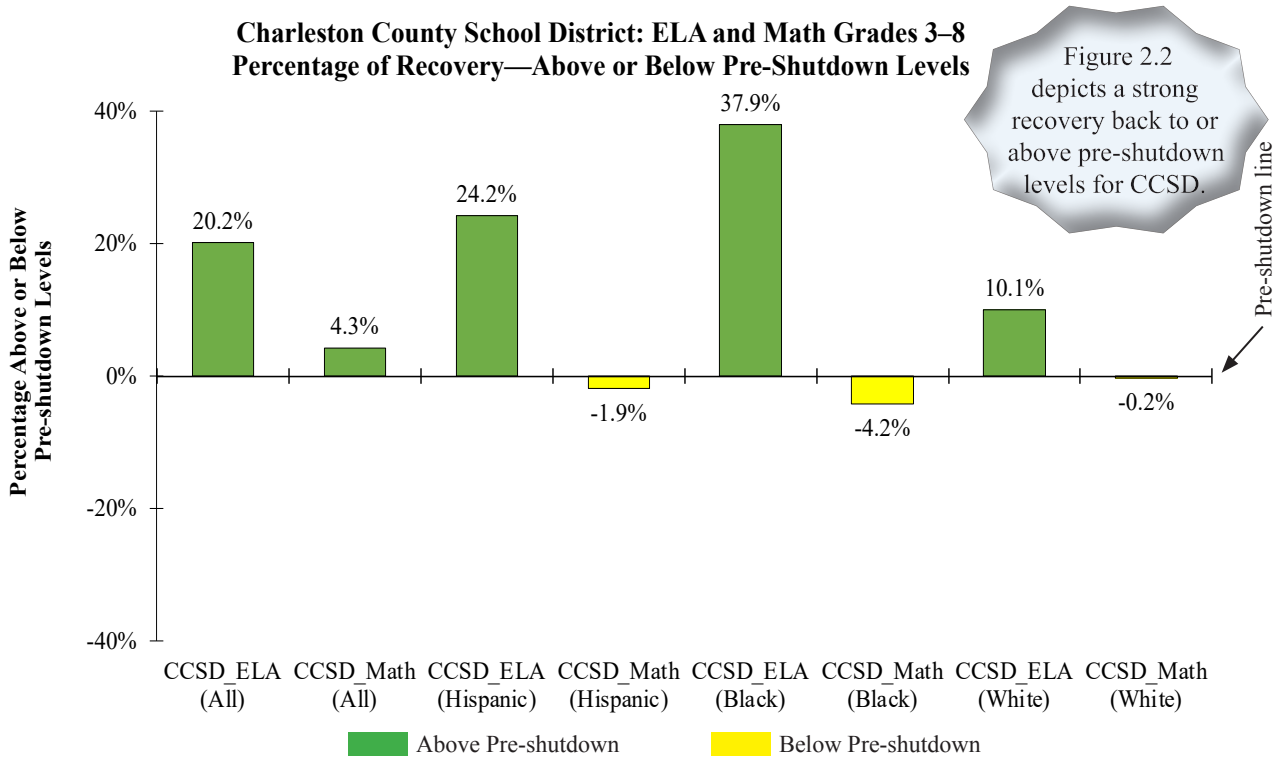

Figure 2.2 Charleston County School District: Grades 3–8; ELA and math percentage of recovery compared to pre-shutdown.

Data source: SCDE

Chapter 2: The Impact of School Shutdowns on Student Performance, cont.

The analysis shown in Table 2.1 shows the difference between performance at pre-shutdown and shutdown, which show performance decreased for ELA and math from pre-shutdown to shutdown.

The computations in Table 2.2 show the percentage of difference in performance since shutdown. For example, if the absolute value of a data point in Table 2.2 is larger than the absolute corresponding point in Table 2.1, the performance would have returned to or surpassed the pre-shutdown level.

For example, for ELA in the Georgetown County School District, as shown in Table 2.1 (Column 1, Row 3), the absolute difference between pre-shutdown and shutdown is -27.9%; between shutdown and post-shutdown it is 38.5% (see Table 2.2, Column 1, Row 3). For the ELA score to have returned to or surpassed the pre-shutdown level, the percentage would need to have been an absolute value greater than -27.9%. Hence, the percentage difference is 10.9%, as shown Table 2.3 (Column 1, Row 3) and Figure 2.3 (green bar). Note: The same process is replicated for math. See Tables 2.1, 2.2, and 2.3 (see Column 2, Row 3) and Figure 2.3 (Yellow bar [-14.5%]).

In the graph shown in Figure 2.3, GCSD performance shows that all ELA groups have returned to and surpassed pre-shutdown levels (see green bars). Although there was improvement post-shutdown, the improvements did not wipe out all of the losses in math, as indicated by the yellow bars.

The performance of GCSD as a whole improved to 10.9% above pre-shutdown levels and within 14.5% of reaching pre-shutdown performance for math. For Hispanic ELA students, the performance was 4.7% above the pre-shutdown level and came within 27.9% of the pre-shutdown level. For Black ELA students performance exceeded pre-shutdown by 15.5% (green bar), and in math, performance improved from the shutdown to within 33.5% (yellow bar) of pre-shutdown performance. White ELA students performed 10.9% (green bar) better than the pre-shutdown level, and in math their performance improved from shutdown to within 6.3% (yellow bar) of the pre-shutdown performance.

Georgetown County School District: ELA and Math Grades 3–8
Percentage of Recovery—Above or Below Pre-Shutdown Levels

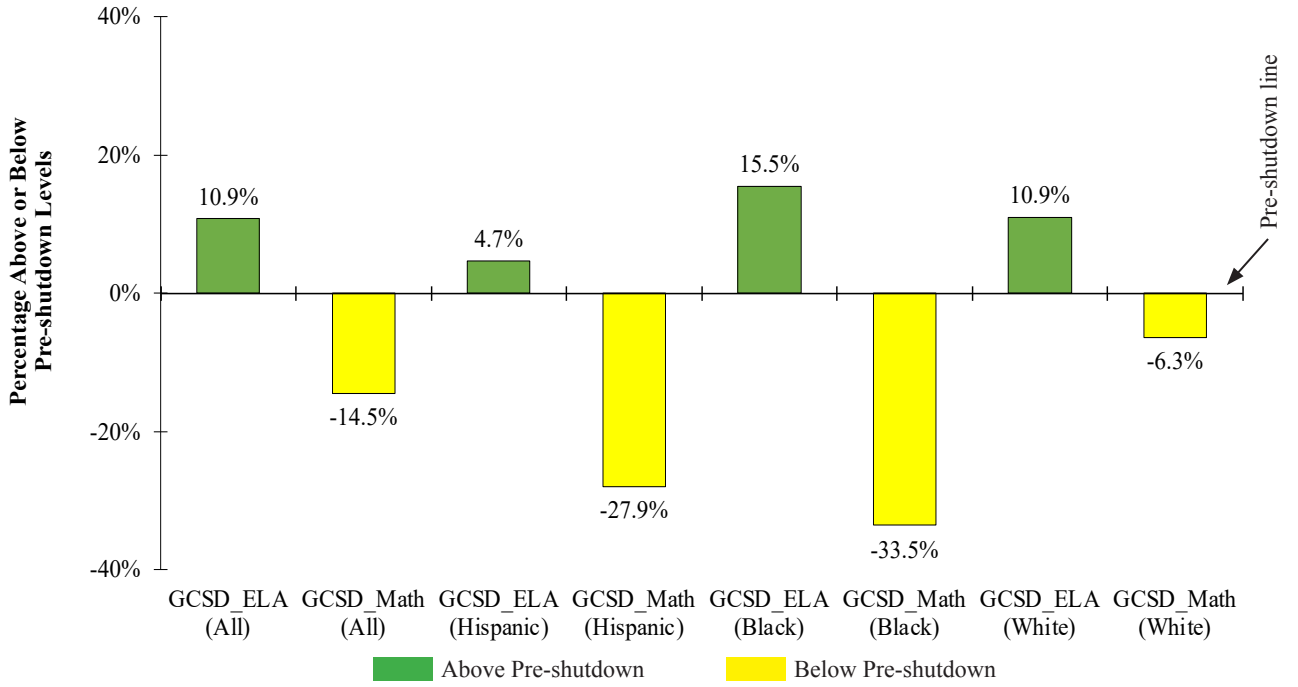

Figure 2.3 Georgetown County School District: Grades 3–8; ELA and math percentage of recovery compared to pre-shutdown.

Data source: SCDE

Chapter 2: The Impact of School Shutdowns on Student Performance, cont.

The math performance improved significantly (circa 50%) from the shutdown but has not returned to pre-shutdown levels. The analysis shown in Table 2.1 shows the difference between performance at pre-shutdown and shutdown, which show performance decreased for ELA and math from pre-shutdown to shutdown.

The computations in Table 2.2 show the percentage of difference in performance since shutdown. For example, if the absolute value of a data point in Table 2.2 is larger than the absolute corresponding value in Table 2.1, the performance would have returned to or risen above the pre-shutdown level. For ELA in Horry County Schools, Table 2.1 (Column 1, Row 4) shows the difference between pre-shutdown and shutdown to be -5.8%; between shutdown and post- shutdown it is 20.8% (see Table 2.2, Column 1, Row 4). For the ELA score to have returned to or surpassed the pre-shutdown level, the percentage would need to have an absolute value greater than (-5.8%). Hence, the percentage of difference is 15.0% as shown in Table 2.3 (Column 1, Row 4) and Figure 2.3 (green bar). Note: The same process is replicated for math. See Tables 2.1, 2.2, and 2.3 (see Column 2, Row 4).

The graph shown in Figure 2.4 indicates that in HCS all ELA groups' performance has returned to and surpassed pre-shutdown levels (see green bars). Although there was improvement in math since the shutdown, the improvements did not wipe out the loss, as indicated by the yellow bars. For HCS as a whole, performance improved to 15.0% above pre-shutdown levels and within 14.5% of reaching pre-shutdown performance for math. The performance of Hispanic ELA students is 14.7% above the pre-shutdown level, and it came within 23.5% of the pre-shutdown level. Black ELA students' performance exceeded pre-shutdown levels by 33.0% (green bar), and in math their performance improved from the shutdown level to within 22.6% (yellow bar) of pre-shutdown performance. White ELA students performed 13.3% (green bar) better than the pre-shutdown level, and in math their performance improved from shutdown to within 11.8% (yellow bar) of their pre-shutdown performance.

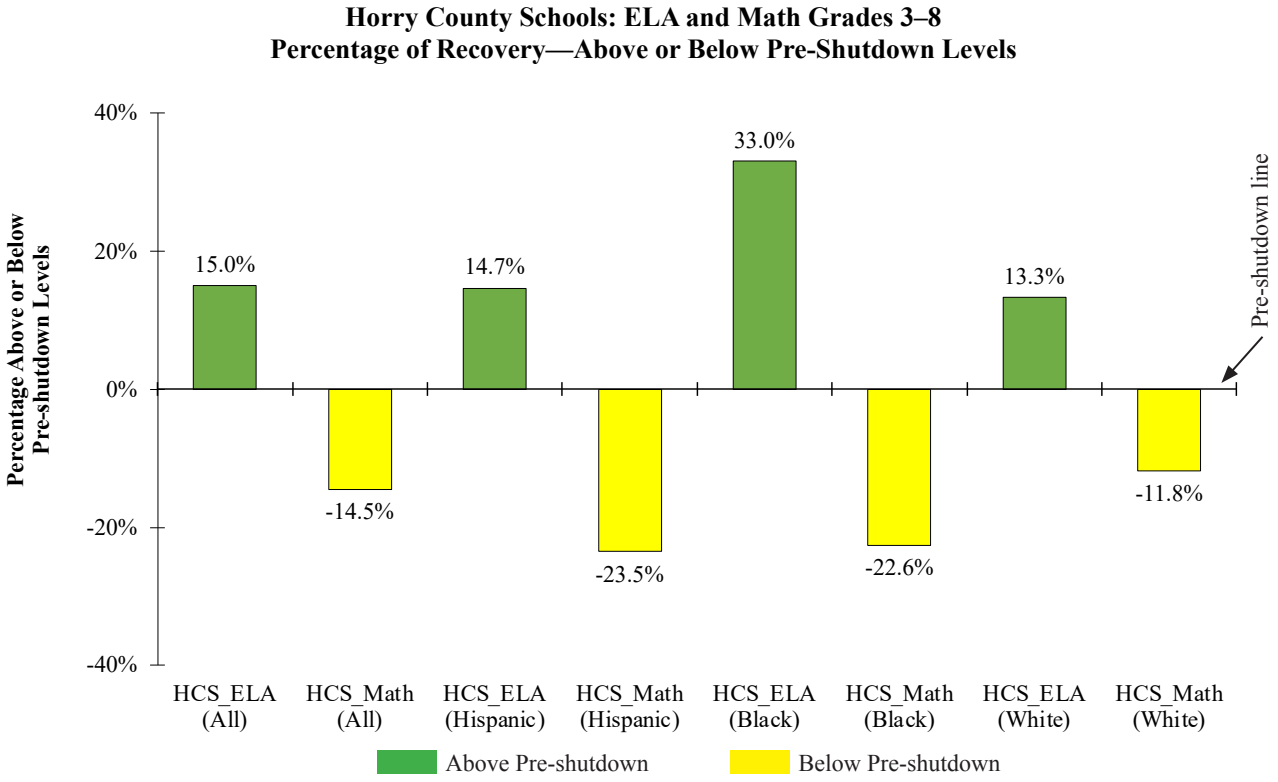

Figure 2.4 Horry County Schools: Grades 3–8; ELA and math percentage of recovery compared to pre-shutdown. Data source: SCDE

Chapter 2: The Impact of School Shutdowns on Student Performance, cont.

Table 2.1 Percentage of difference between pre-shutdown and shutdown performance, 2019 to 2021.*‡

Entities	All		Hispanic		Black		White	
	ELA	Math	ELA	Math	ELA	Math	ELA	Math
South Carolina	-6.5%	-19.3%	-11.4%	-27.7%	-19.0%	-48.7%	-3.4%	-13.0%
Charleston County School District	-1.6%	-4.7%	-14.2%	-21.7%	-15.1%	-32.4%	-1.4%	-2.0%
Georgetown County School District	-27.9%	-37.8%	-22.3%	-33.4%	-48.5%	-66.1%	-17.6%	-24.2%
Horry County Schools	-5.8%	-23.1%	-10.4%	-32.6%	-7.1%	-48.9%	-4.4%	-17.3%

Table 2.2 Percentage of difference between shutdown and post-shutdown performance, 2021 to 2023.*‡

Entities	All		Hispanic		Black		White	
	ELA	Math	ELA	Math	ELA	Math	ELA	Math
South Carolina	23.5%	9.6%	29.2%	12.4%	46.5%	32.3%	17.9%	6.2%
Charleston County School District	21.7%	9.0%	38.0%	19.8%	52.3%	28.3%	11.5%	1.8%
Georgetown County School District	38.5%	23.6%	26.9%	5.6%	62.9%	34.5%	28.4%	17.9%
Horry County Schools	20.8%	8.7%	25.0%	9.3%	39.8%	27.1%	17.6%	5.5%

Table 2.3 Percentage of difference between pre-shutdown and post-shutdown.*‡

Entities	All		Hispanic		Black		White	
	ELA	Math	ELA	Math	ELA	Math	ELA	Math
South Carolina	17.1%	-9.7%	18.0%	-15.4%	28.2%	-17.0%	14.5%	-6.8%
Charleston County School District	20.2%	4.3%	24.2%	-1.9%	37.9%	-4.2%	10.1%	-0.2%
Georgetown County School District	10.9%	-14.5%	4.7%	-27.9%	15.5%	-33.5%	10.9%	-6.3%
Horry County Schools	15.0%	-14.5%	14.7%	-23.5%	33.0%	-22.6%	13.3%	-11.8%

‡Data source: SCDE

*All percentages in this table were computed by finding the absolute percentage of difference. Hence, these percentages are not growth rates because growth rates could be misleading for the objective of this report. Example: measure your weight at "A" and later your weight at "B." Although the percentage points difference would be close to the percentage of difference, for consistency and clarity the data in Table 2.3 are the percentage of difference between pre- and post-shutdown.

Chapter 3

The Trend of Student Performance by Year and Race/Ethnicity: 2017–2023

The graphs in Figures 3.1–3.8 depict the timeline performance pattern in ELA and math from 2017 to 2023. Although the school shutdown is included in the timeline, the recovery from the shutdown was so strong that it mitigated any significant impact on the six-year average. As stated earlier, the entities examined in this report are South Carolina as a whole and the Charleston County School District, the Georgetown County School District, and Horry County Schools.

There was no ELA or math SC READY testing administered in 2020; therefore, the testing in 2021 was used as the shutdown performance, and the testing in 2019 was used as the pre-shutdown performance. The test results from 2023 were used as post-shutdown performance.

The analysis in Chapter 2 provided information on the degree of performance increase or decrease; the graphs in this chapter provide a clear view with physical lines indicating decrease from pre-shutdown to shutdown and from shutdown to post-shutdown. It is readily observable that for all entities examined in this report, the increase in ELA performance from shutdown to post-shutdown was miraculous where the levels exceeded pre-shutdown performance (2019). Although the performance pattern for math did not return to pre-shutdown levels, performance improvement was significant. To emphasize, in Chapter 2 the percentage of improvement is consistent with the observable changes shown in line graphs in Figures 3.1–3.8.

Performance for Black students showed the greatest decrease in performance from pre-shutdown to shutdown; however, Black students experienced more improvement from shutdown (2021) to post-shutdown (2023) than any of the other entities examined in this report. For example, in Figure 3.1 during shutdown, only 22% of Black students met or exceeded expectations in ELA but achieved a miraculous improvement to 35.4% in post-shutdown, which equated to an absolute difference in performance of 46.5% (see Table 2.2, Column 5, Row 1). The Black students' performance as shown in Figure 3.2 reached a low of 15.3% during shutdown and improved to 21.1% in post-shutdown. Although math performance has not yet reached pre-shutdown performance levels, this improvement equates to an absolute difference of 32.3%, which is a significant improvement in the number of students who met or exceeded expectations.

"Black students showed the greatest decrease in performance from pre-shutdown to shutdown; however, Black students experienced more improvement from shutdown (2021) to post-shutdown (2023) than any of the other entities examined in this report."

However, the Charleston County School District was the only entity examined in this report in which math performance returned to and exceeded pre-shutdown performance level. It exceeded the pre-shutdown level by 4.3% (see Figure 2.2). Note: For the figures in Chapter 2, the percentages above and below the zero axis were computed as percentage of difference, and not as a rate of change or percentage points difference.

Chapter 3: The Trend of Student Performance by Year and Race/Ethnicity: 2017–2023, cont.

South Carolina

The graphs in Figures 3.1 and 3.2 depict the performance trend of South Carolina's SC READY ELA and math performance tests. The graphs span the years from before the pandemic through 2023, which is after the pandemic. The focus here is pre- shutdown (2019), shutdown (2021*), and post-shutdown (2023). As shown in Figure 3.1, the state and districts measured here have returned to or exceeded the pre-shutdown levels (2019).

In Figure 3.2, the performance of the state and race/ethnicity groups showed improvement but not completely back to 2019 (pre-shutdown levels). See Figure 2.1.

For a better appreciation of Figures 3.1 and 3.2, view the figures along with Table 2.1, which shows the difference in performance from pre-shutdown to shutdown and Table 2.2 from shutdown to post-shutdown. See Figure 2.1 too.

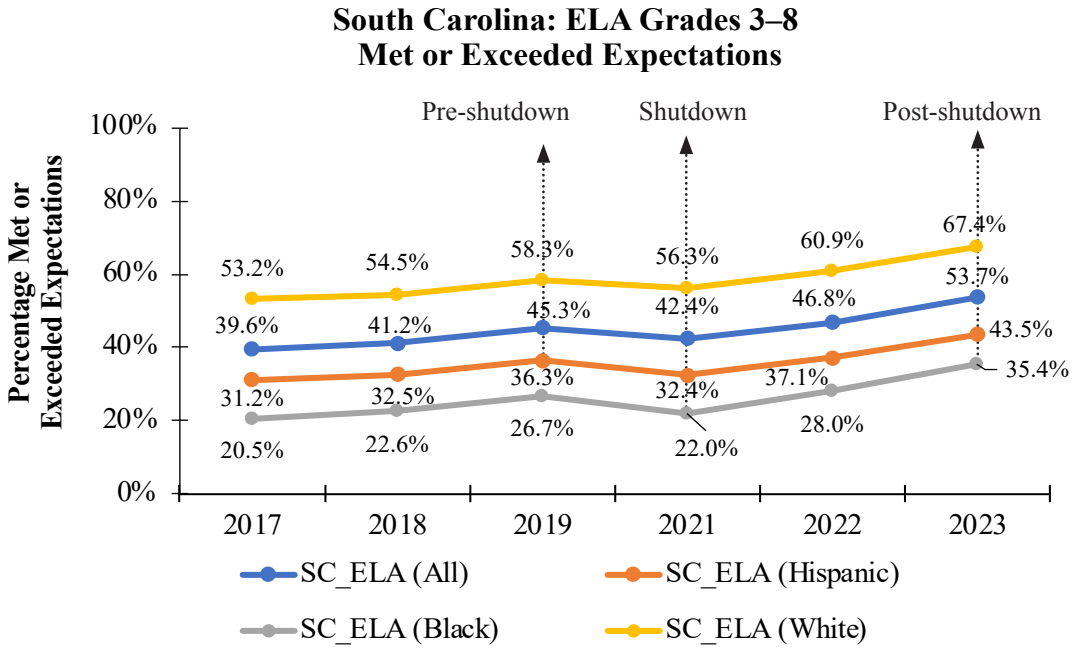

Figure 3.1 South Carolina: Grades 3–8; ELA performance by year and race/ethnicity, 2017–2023.‡

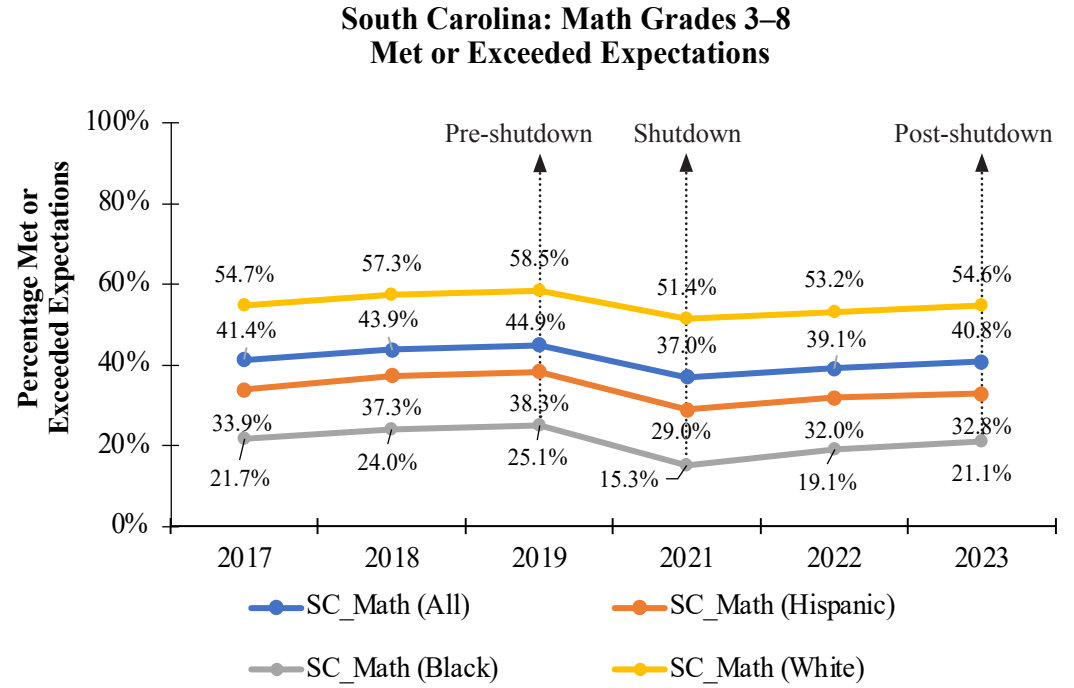

Figure 3.2 South Carolina: Grades 3–8; math performance by year and race/ethnicity, 2017–2023.‡

‡Data source: SCDE

*There were no tests data available for 2020. Therefore, 2021 scores were used for shutdown performance.

Chapter 3: The Trend of Student Performance by Year and Race/Ethnicity: 2017–2023, cont.

Charleston County School District:

The graphs in Figures 3.3 and 3.4 depict the performance trend of CCSD's SC READY ELA and math performance tests. The graphs cover from 2017 to 2023. The focus here is on pre-shutdown (2019), shutdown (2021*), and post-shutdown (2023). As shown in Figure 3.3, in 2023, the performance of the GCSD and the three groups had returned to or risen above the pre-shutdown levels of 2019 for ELA.

In Figure 3.4, the performance of the CCSD recovered in math back to the pre-shutdown level. However, the groups showed improvement but not completely back to 2019 (pre-shutdown levels).

For a better appreciation of Figures 3.3 and 3.4, view the figures along with Table 2.1, which shows the difference in performance from pre-shutdown to shutdown and Table 2.2 from shutdown to post-shutdown. See Figure 2.2 too.

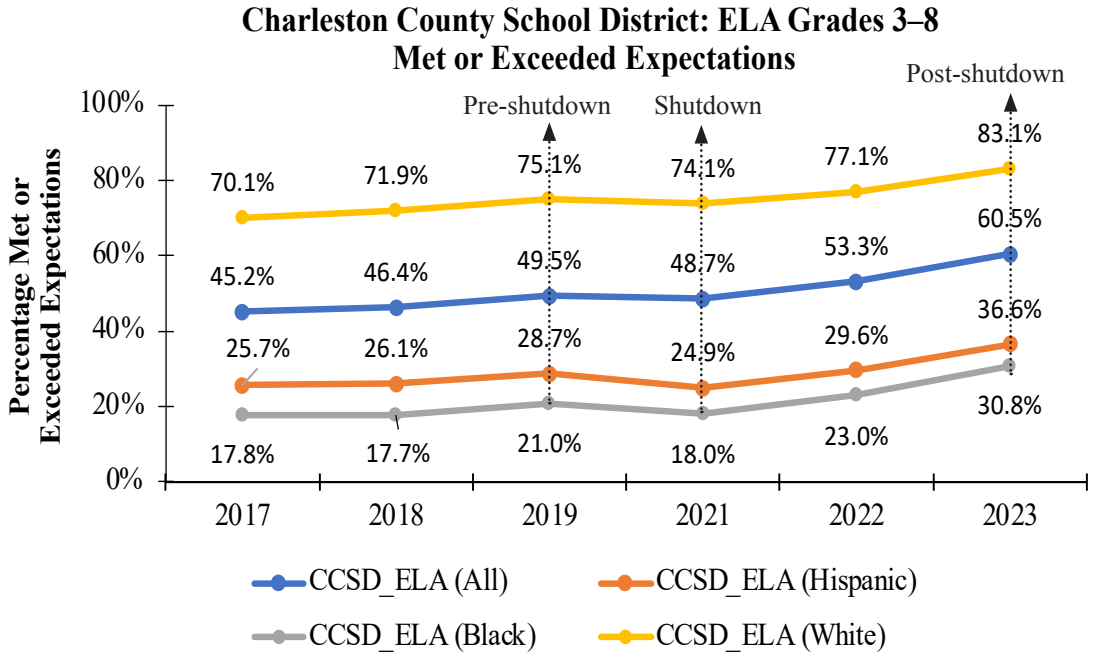

Figure 3.3 Charleston County School District: Grades 3–8; ELA performance by year and race/ethnicity, 2017–2023.‡

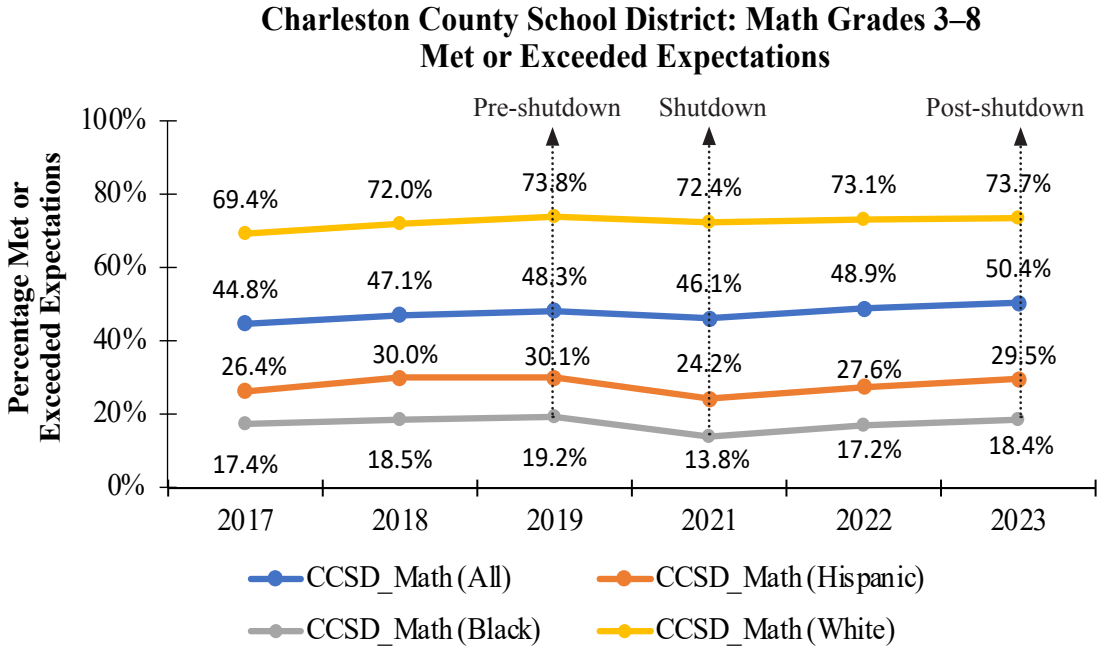

Figure 3.4 Charleston County School District: Grades 3–8; math performance by year and race/ethnicity, 2017–2023.‡

‡Data source: SCDE

*There were no tests data available for 2020. Therefore, 2021 scores were used to rate shutdown performance.

Chapter 3: The Trend of Student Performance by Year and Race/Ethnicity: 2017–2023, cont.

Georgetown County School District:

The graphs in Figures 3.5 and 3.6 depict the performance trend of GCSD's SC READY ELA and math performance tests. The graphs cover from 2017 to 2023. The focus here is on pre-shutdown (2019), shutdown (2021*), and post-shutdown (2023). As shown in Figure 3.5, in 2023, the performance of the GCSD and the three groups had returned to or risen above the pre-shutdown levels of 2019 for ELA.

In Figure 3.6, none of the GCSD performance levels for math returned to or rose above pre-shutdown levels (2019). See Figure 2.3.

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For a better appreciation of Figures 3.5 and 3.6, view the figures along with Table 2.1, which shows the difference in performance from pre-shutdown to shutdown and Table 2.2 from shutdown to post-shutdown. See Figure 2.3 too.

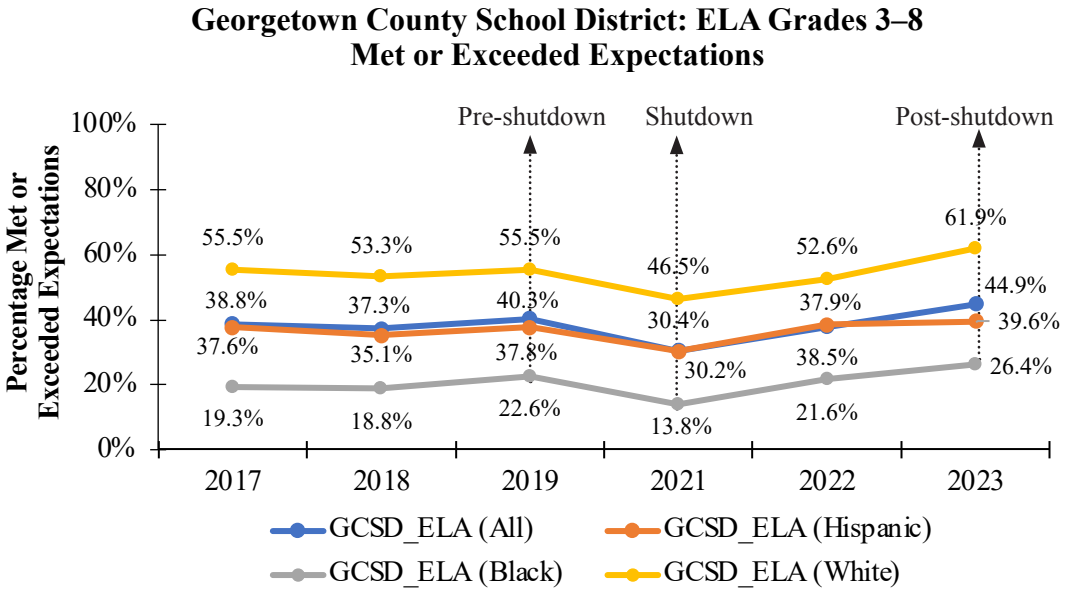

Figure 3.5 Georgetown County School District: Grades 3–8; ELA performance by year and race/ethnicity, 2017–2023.‡

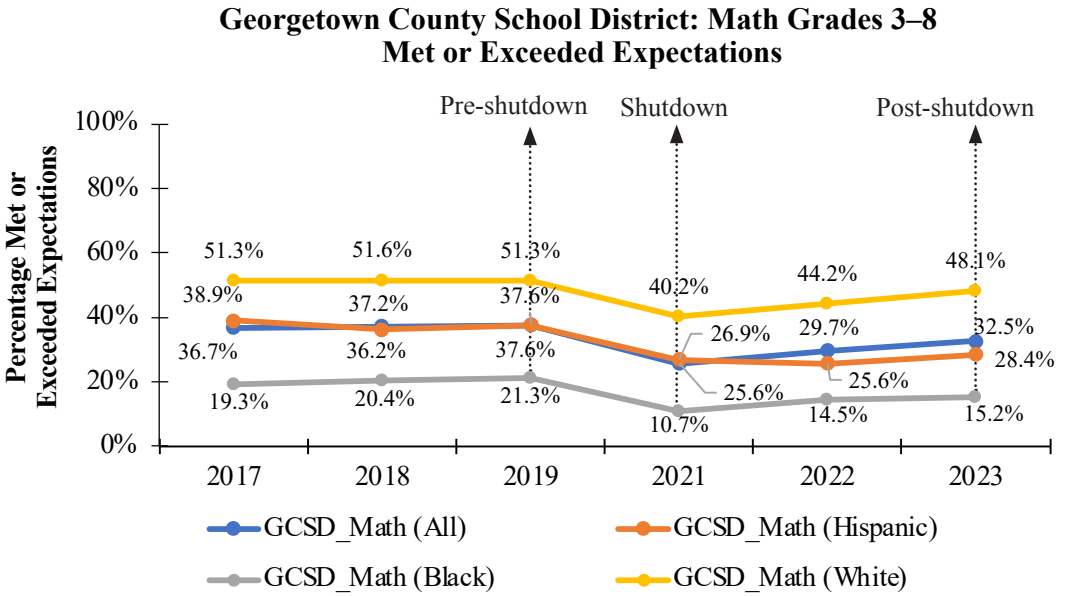

Figure 3.6 Georgetown County School District: Grades 3–8; math performance by year and race/ethnicity, 2017–2023.‡

‡Data source: SCDE

*There were no tests data available for 2020. Therefore, 2021 scores were used for the shutdown performance.

Chapter 3: The Trend of Student Performance by Year and Race/Ethnicity: 2017–2023, cont.

Horry County Schools:

The graphs in Figures 3.7 and 3.8 depict the performance trend of HCS' SC READY ELA and math performance tests. The graphs cover from 2017 to 2023. The focus here is on pre-shutdown (2019), shutdown (2021*), and post-shutdown (2023). As shown in Figure 3.7, in 2023, the performance of HCS and the three groups had returned to or risen above the pre-shutdown levels of 2019 for ELA.

In Figure 3.8, the performance of the state and race/ethnicity groups showed (Circa 50%) improvement from (2021) to (2023). Hence, not completely back to 2019 (pre-shutdown levels). See Figure 2.4.

For a better appreciation of Figures 3.7 and 3.8, view the figures along with Table 2.1, which shows the difference in performance from pre-shutdown to shutdown and Table 2.2 from shutdown to post-shutdown. See Figure 2.4 too.

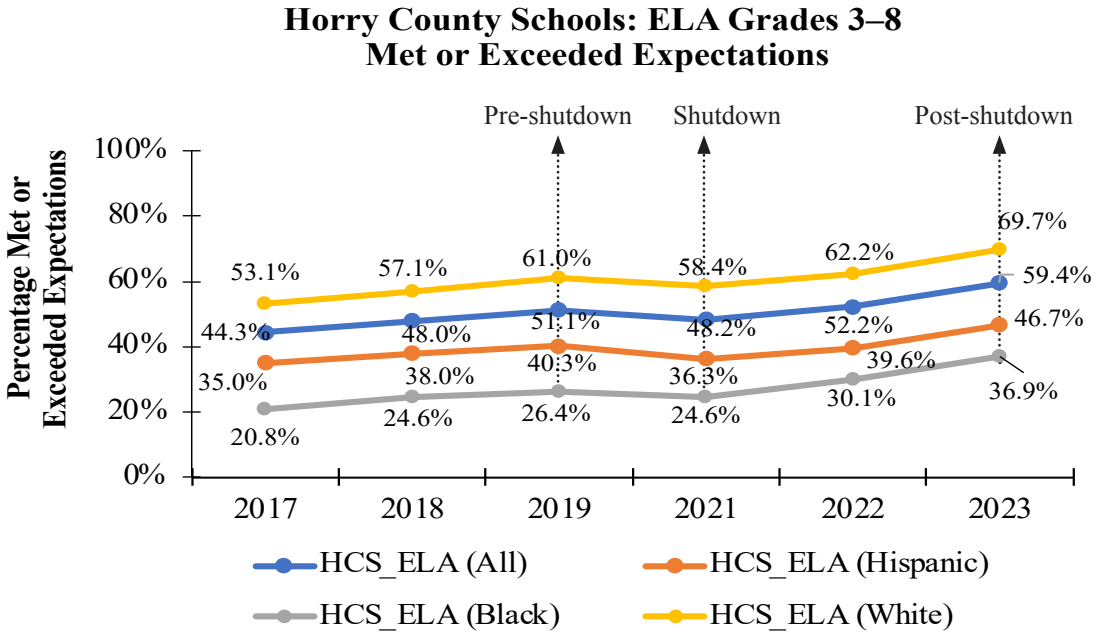

Figure 3.7 Georgetown County School District: Grades 3–8; ELA performance by year and race/ethnicity, 2017–2023.‡

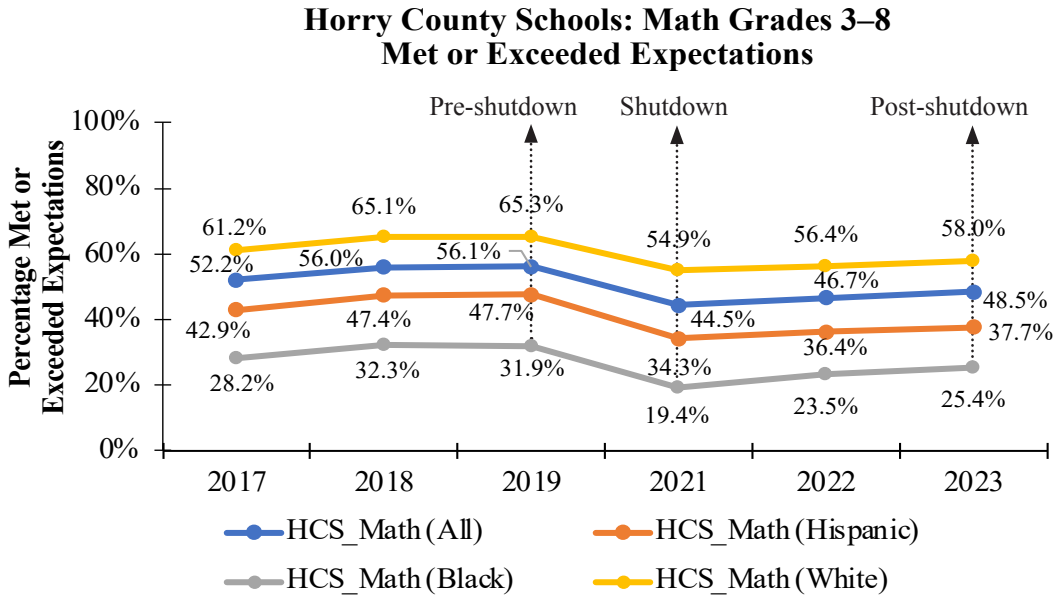

Figure 3.8 Georgetown County School District: Grades 3–8; math performance by year and race/ethnicity, 2017–2023.‡

‡Data source: SCDE

*There were no tests data available for 2020. Therefore, 2021 scores were used for shutdown performance.

Chapter 4

Performance by Grade: Pre-shutdown, Shutdown, and Post-shutdown

The graphs are arranged by pre-shutdown, shutdown, and post-shutdown performance for the years 2019, 2021, and 2023. The objective is to observe at grade level the pattern of student performance between ELA and math at pre-shutdown, shutdown, and post-shutdown. The graphs in this chapter for post- shutdown (2023) offer further evidence that ELA post-shutdown performance is significantly higher than pre-shutdown performance and the math performance on average is about 50% lower than pre-shutdown performance, creating the running gap for Grades 3–8.

"The pattern at pre-shutdown and shutdown exhibits a similar pattern of convergence between ELA and math, whereas the pattern at post-shutdown shows significant divergence."

For example, overall performance in South Carolina from pre-shutdown to shutdown decreased by 6.5% and 19.3% for ELA and math, respectively. On the rebound from shutdown to post-shutdown, the increased percentage differences were 23.5% and 9.6% for ELA and math, respectively. These percentage differences mean that ELA completely recovered beyond pre-shutdown levels by 17.1%, whereas the math recovery of 9.6%, means that it recovered about 50% of the loss from the school shutdown for COVID-19. Although math did not reach its pre-shutdown level, to recoup 50% of the loss in a couple of years is impressive. See Tables 2.1–2.3.

The graphs in Figures 4.1–4.12 are a snapshot of performance by grade at pre-shutdown (2019), shutdown (2021), and post-shutdown (2023). The pattern at pre-shutdown and shutdown exhibits a similar pattern of convergence between ELA and math, whereas the pattern at post-shutdown shows significant divergence. In my view, some of the pattern of the post-shutdown performance can be attributed to ELA having recovered from the shutdown on average above pre-shutdown levels. Conversely, math performance did not return to pre-shutdown levels. Hence, ELA performance returned to levels higher than it was before the shutdown, whereas math performance did not reach the pre-shutdown level, which created a significant running gap among all grades except third graders. To emphasize, the performance in math regained about 50% of educational losses from the shutdown, whereas ELA not only regained 100% of losses but surpassed pre-shutdown performance.

The amazing phenomenon of South Carolina and the school districts analyzed in this report is the bounce back of students from the shutdown in ELA. Although math showed significant improvement during post-shutdown, it has not yet returned to pre-shutdown levels. The importance of the math deficit is that there was significant positive movement from the shutdown performance. The running gap between ELA and math is also consistent with the three groups analyzed in this report, which are Hispanic, Black, and White. The graphs for these three race/ethnicity groups are not in this chapter because the divergence of their performance pattern is the same, with varying degrees of percentage performance.

Chapter 4: Performance by Grade: Pre-shutdown, Shutdown, and Post-shutdown, cont.

South Carolina:

The graphs in Figures 4.1, 4.2, and 4.3 depict snapshot performance by grade level of COVID-19 pre-shutdown, shutdown, and post-shutdown, respectively. In Figures 4.1 and 4.2 the difference in pattern of performance for ELA and math shows a similar pattern of interleaving. However, the pattern in Figure 4.3, post-shutdown, shows a pattern of divergence between ELA and math with the exception of third grade.

The reason for the divergence of ELA and math shown in Figure 4.3 is because the strong recovery of ELA from the shutdown to or above the pre-shutdown levels and the 50% recovery of math created a significant gap between the ELA and math with the pre-shutdown levels in the middle at the zero axis. The zero axis is the reference line for pre-shutdown levels. A quick observation of Figures 2.1–2.4 with focus on the green bars above the zero axis and yellow bars below the zero axis shows the correlation among Figures 4.3, 4.6, 4.9, and 4.12 and Figures 2.1–2.4.

Note: *Although the math SC READY performance only recovered 50% of pre-shutdown levels, this is a promising comeback, especially because many newspapers, pundits, and even some educators claimed that an entire generation would be lost because of school shutdowns. Given that ELA recovered in two years, there is a high likelihood that math, too, will fully recover in the next two years.*

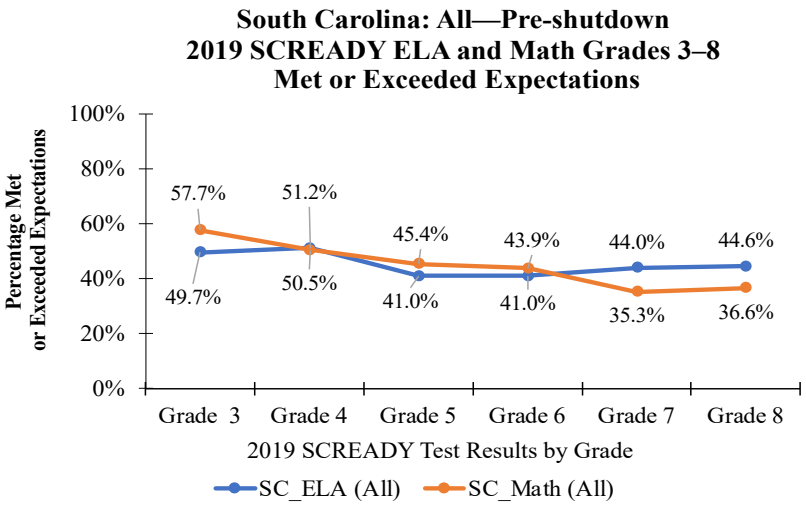

Figure 4.1 Pre-shutdown 2019—South Carolina—ELA and math.‡

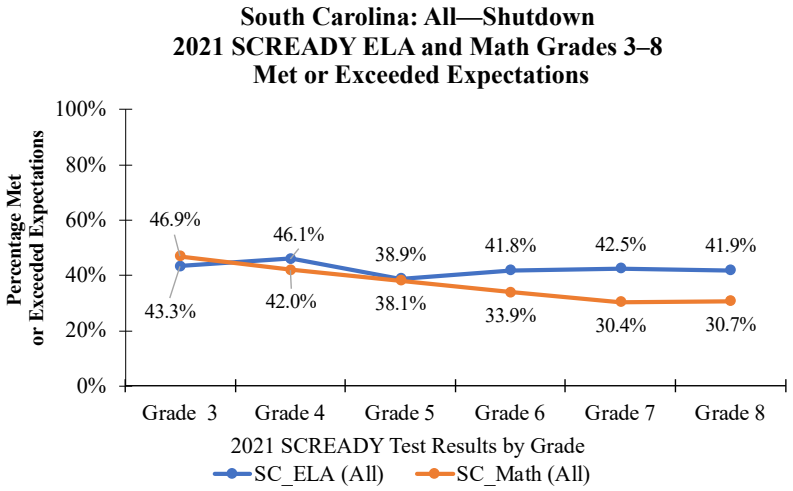

Figure 4.2 Shutdown 2021—South Carolina—ELA and math.‡

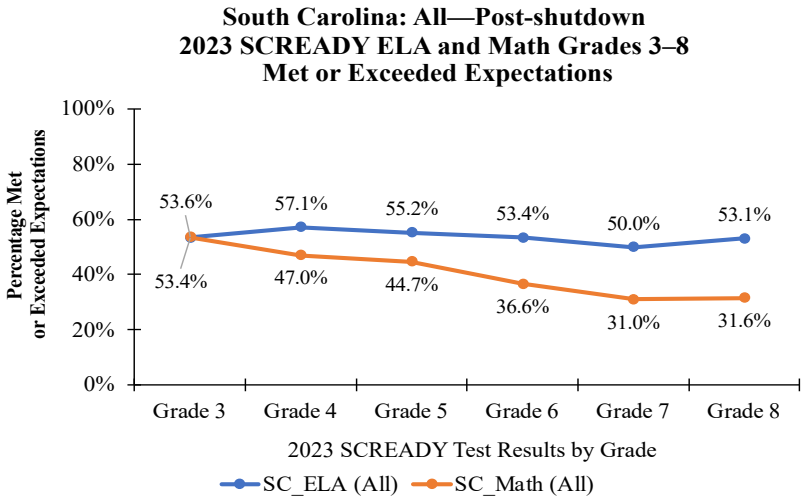

Figure 4.3 Post-shutdown 2023—South Carolina—ELA and math.‡

‡Data source: SCDE

Chapter 4: Performance by Grade: Pre-shutdown, Shutdown, and Post-shutdown, cont.

Charleston County School District:

The graphs in Figures 4.4, 4.5, and 4.6 depict snapshots of performance by grade level of COVID-19 pre-shutdown, shutdown, and post-shutdown, respectively. In Figures 4.4 and 4.5 the difference in pattern of performance between ELA and math shows a similar pattern of interleaving; however, the pattern in Figure 4.6 shows a divergence between the two with the exception of third grade. A quick observation of ELA in Figures 4.5 and 4.6 shows that ELA scores are higher post-shutdown, which suggests that ELA has returned to or risen above pre- shutdown levels.

The reason for the divergence of ELA and math shown in Figure 4.6 is that the strong recovery of ELA from the shutdown to or above pre-shutdown levels and the less than the complete recovery of math created a significant gap between ELA and math with the pre-shutdown levels in the middle at the zero axis. The zero axis is the reference line for pre- shutdown levels . A quick observation of Figures 2.1–2.4 with focus on the green bars above the zero axis and yellow bars below the zero axis shows the correlation among Figures 4.3, 4.6, 4.9, and 4.12 and

Figures 2.1–2.4.

Note: *Although the math SC READY performance only recovered 50% of pre-shutdown levels, this is a promising comeback, especially because many newspapers, pundits, and even some educators claimed that an entire generation would be lost because of school shutdowns. Given that ELA recovered in two years, there is a high likelihood that math, too, will fully recover in the next two years.*

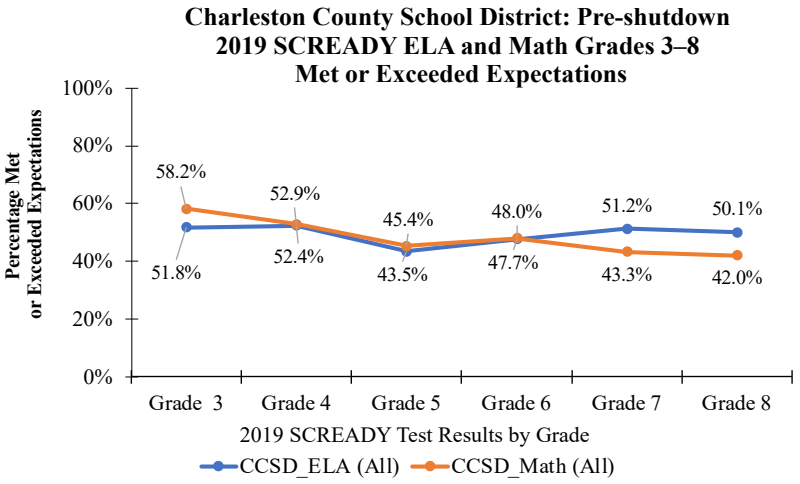

Figure 4.4 Pre-shutdown 2019—CCSD—ELA and math.‡

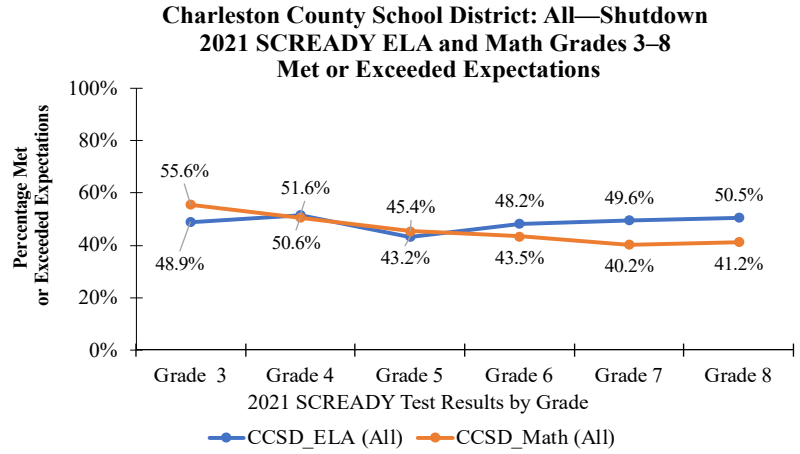

Figure 4.5 Shutdown 2021—South Carolina—ELA and math.‡

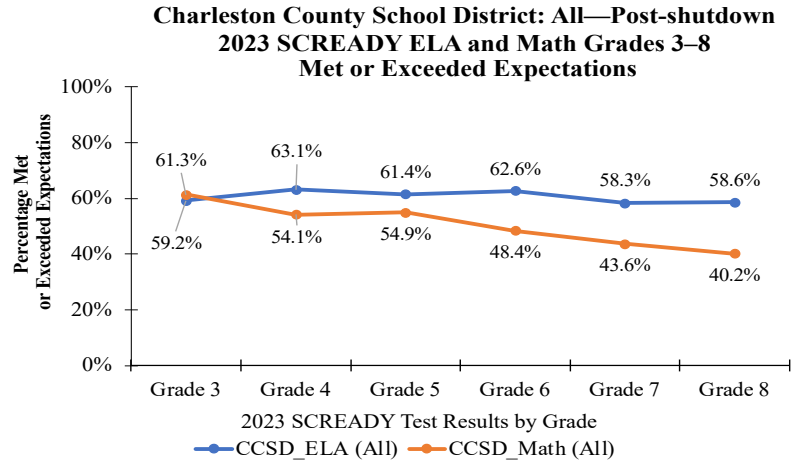

Figure 4.6 Post-shutdown 2023—South Carolina—ELA and math.‡

‡Data source: SCDE

Chapter 4: Performance by Grade: Pre-shutdown, Shutdown, and Post-shutdown, cont.

Georgetown County School District:

The graphs in Figures 4.7, 4.8, and4.9 depict snapshot performance by grade level of COVID-19 pre-shutdown, shutdown, and post-shutdown, respectively. In Figures 4.7 and 4.8, the difference in pattern of performance for ELA and math shows a similar pattern of interleaving. However, the pattern in Figure 4.9, post-shutdown, shows a divergence between ELA and math with the exception of third grade. Conversely, math improved from shutdown performance but has not returned to pre-shutdown levels.

The reason for the divergence of ELA and math shown in Figure 4.9 is that the strong recovery of ELA from the shutdown to or above the pre-shutdown levels and the less than 100% recovery of math created a significant gap between ELA and math with the pre-shutdown levels in the middle at the zero axis. The zero axis is the reference line for pre-shutdown levels. A quick observation of Figures 2.1–2.4, focusing on the green bars above the zero axis and the yellow bars below the zero axis, shows the correlation among Figures 4.3, 4.6, 4.9, and 4.12 and Figures 2.1–2.4.

Note: *Although the math SC READY performance only recovered 50% of pre-shutdown levels, this is a promising comeback, especially because many newspapers, pundits, and even some educators claimed that an entire generation would be lost because of school shutdowns. Given that ELA recovered in two years, there is a high likelihood that math, too, will fully recover in the next two years.*

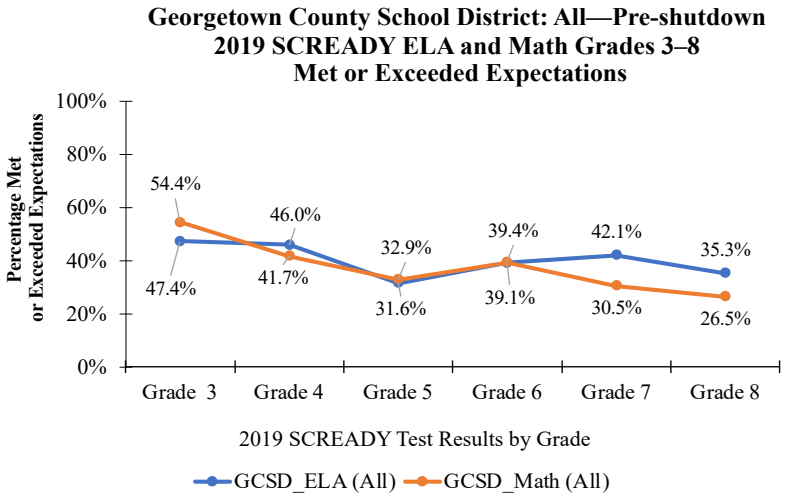

Figure 4.7 Pre-shutdown 2019—CCSD—ELA and math.‡

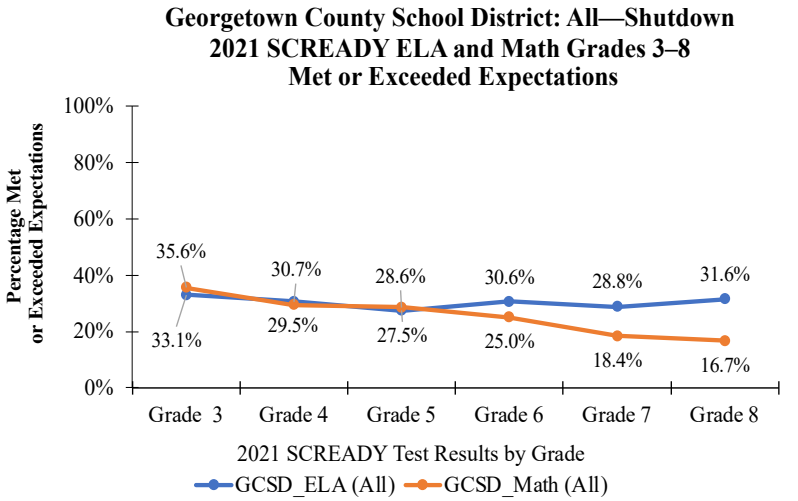

Figure 4.8 Shutdown 2021—South Carolina—ELA and math.‡

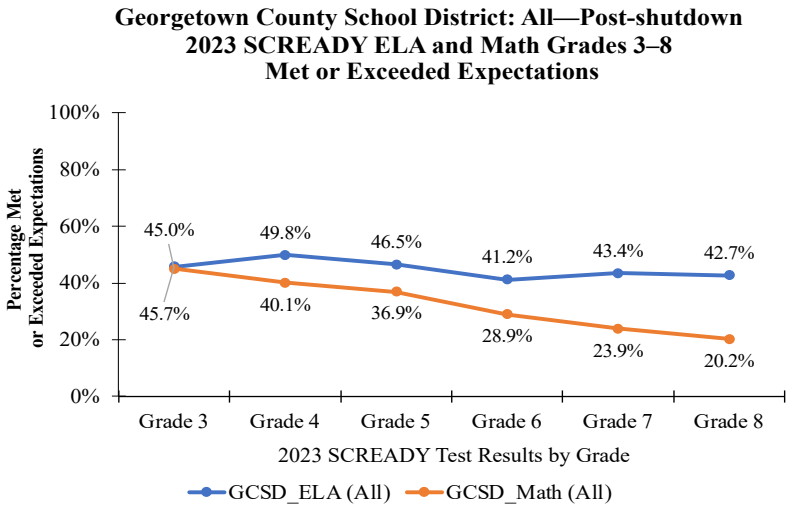

Figure 4.9 Post-shutdown 2023—South Carolina—ELA and math.‡

‡Data source: SCDE

Chapter 4: Performance by Grade: Pre-shutdown, Shutdown, and Post-shutdown, cont.

Horry County Schools:

The graphs in Figures 4.10, 4.11, and 4.12 depict snapshot performance by grade level of COVID-19 pre- shutdown, shutdown, and post-shutdown, respectively. In Figures 4.10 and 4.11, the difference in pattern of performance for ELA and math shows a similar pattern of interleaving. However, the pattern in Figure 4.12, post-shutdown, shows a divergence between ELA and math with the exception of third grade. The ELA has returned to and surpassed pre-shutdown levels. Conversely, math performance has improved from shutdown performance but has not returned to pre-shutdown levels. See Table 2.3 (Column 2, Row 4); Figure 2.4 (Yellow bar [-14.5%]).

The reason for the divergence of ELA and math shown in Figure 4.12 is that the strong recovery of ELA from the shutdown to or above the pre-shutdown levels and the less than 100% recovery of math created a significant gap between ELA and math with the pre-shutdown levels in the middle at the zero axis. The zero axis is the reference line for pre-shutdown levels . A quick observation of Figures 2.1–2.4 with focus on the green bars above the zero axis and yellow bars below the zero axis shows the correlation of Figures 4.3, 4.6, 4.9, and 4.12 and Figures 2.1–2.4.

Note: *Although the math SC READY performance only recovered 50% of pre-shutdown levels, this is a promising comeback, especially because many newspapers, pundits, and even some educators claimed that an entire generation would be lost because of school shutdowns. Given that ELA recovered in two years, there is a high likelihood that math, too, will fully recover in the next two years.*

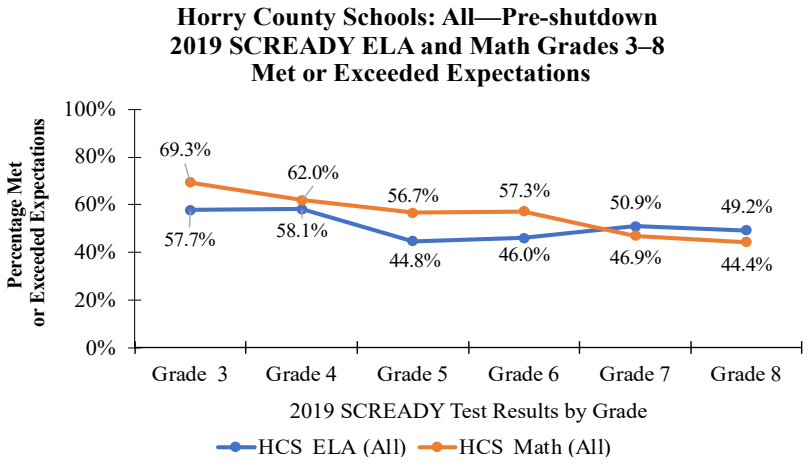

Figure 4.10 Pre-shutdown 2019—HCS—ELA and math.‡

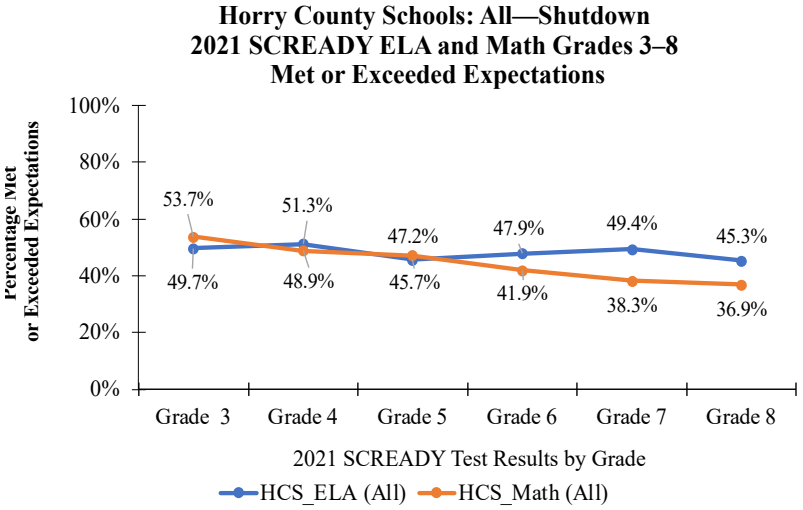

Figure 4.11 Shutdown 2021—HCS—ELA and math.‡

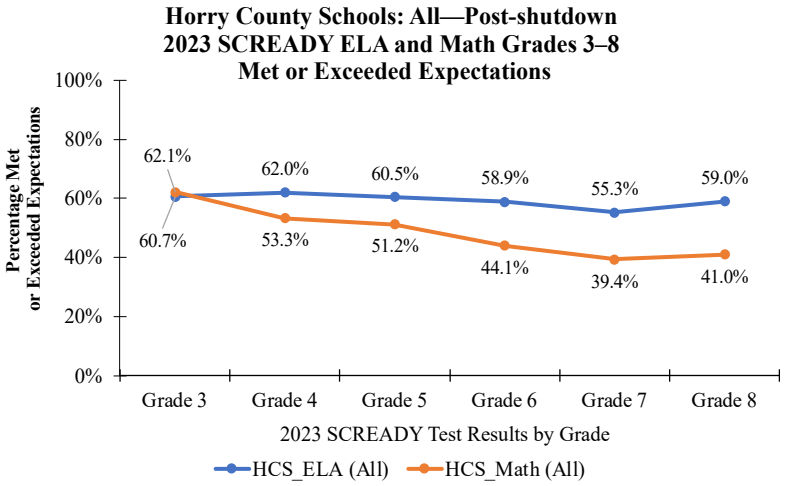

Figure 4.12 Post-shutdown 2023—HCS—ELA and math.‡

‡Data source: SCDE

Chapter 5

Cumulative Performance Distribution by Race/Ethnicity: 2017–2023

The cumulative percentages of the graphs shown in this chapter are meant to provide the reader with a view of performance measure that is more than a one-year snapshot. These kinds of chart analyses provide one number estimate of how students are performing over time using a single data point. Whereas Chapter 3 shows performance over many years by year, the graphs in this chapter are simply an accumulation of the graphs in Chapter 3. For example, the chart in Figure 5.1 is a cumulative chart of the line graphs shown in Figures 3.1 and 3.2, and so on.

The graphs shown in Figures 5.1–5.5 depict the average of SC READY test scores for grades 3–8 combined. Figure 5.1 depicts SC, CCSD, GCSD, and HCS's cumulative performance. Figure 5.2 shows the average ELA and math performance for South Carolina as a whole. Figure 5.2 shows South Carolina over six years to compare the state and three selected counties for all students. Figure 5.3 shows CCSD, Figure 5.4 shows GCSD, and Figure 5.5 shows the performance of HCS.

"The three race/ethnicity groups exhibit profound differences in performance up to 3× in some school districts such as CCSD."

The three race/ethnicity groups exhibit profound differences in performance up to 3× in some school districts such as CCSD. Although Black and Hispanic students made significant improvement after the shutdown, there is still much more needed to improve the performance of these students above the pre-shutdown levels. See Figures 5.1–5.5.

The advantage of charts in this chapter is that the reader can have a more concrete answer to how things are going with only a couple of data points. For example, Chapter 3 depicts performance by year, which is only a snapshot of performance for a given year. As seen, these graphs change from year to year. However, for this report, the year 2019 was selected as the year of the COVID-19 school pre-shutdown, the year 2021 as school shutdown, and the year 2023 as school post-shutdown. The shutdown was not excluded from the charts in this chapter.

For example, a quick glance at Figure 5.5 (HCS) will provide a single number for the performance of ELA and math students in Horry County Schools over the past six years. Additionally, a quick look at Figure 5.3 (CCSD) shows a picture of how students have been performing in CCSD over the past six years.

Chapter 5: Cumulative Performance Distribution by Race/Ethnicity: 2017–2023, cont.

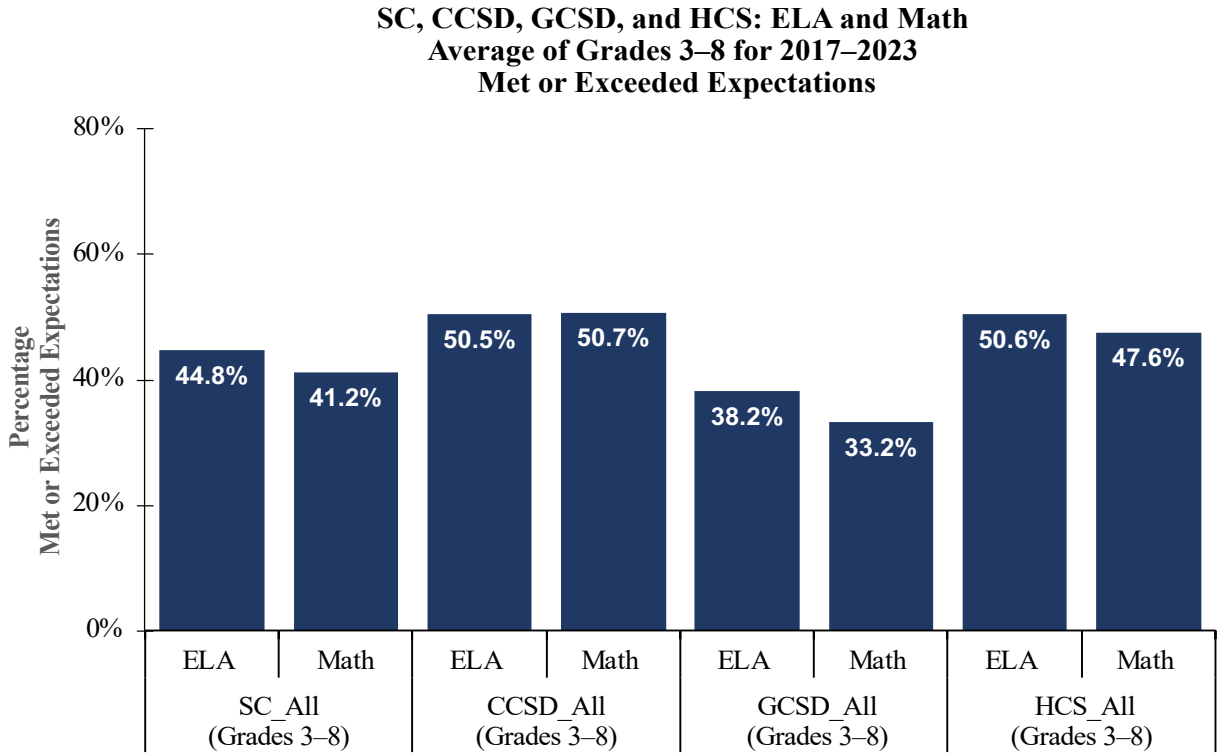

Figure 5.1 SC, CCSD, GCSD, and HCS: Grades 3–8; cumulative ELA and math performance, 2017–2023.‡

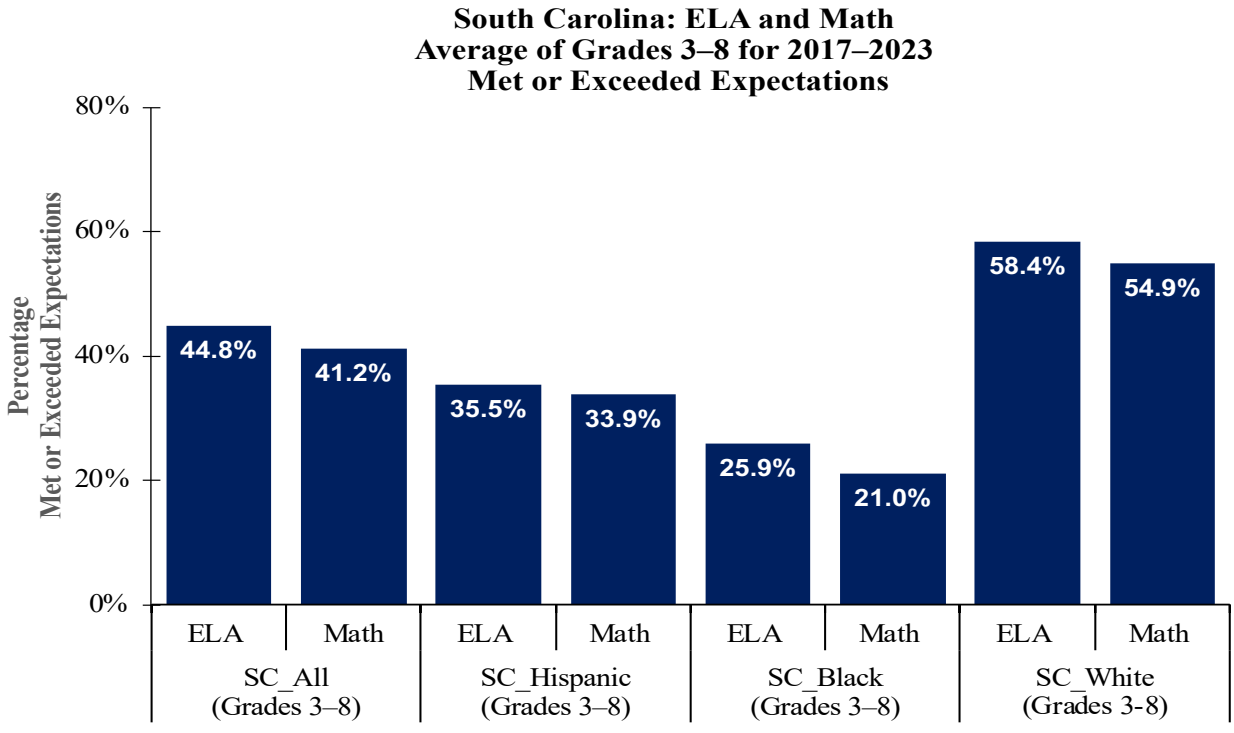

Figure 5.2 South Carolina: Grades 3–8; cumulative ELA and math performance, 2017–2023.‡

‡Data source: SCDE

Chapter 5: Cumulative Performance Distribution by Race/Ethnicity: 2017–2023, cont.

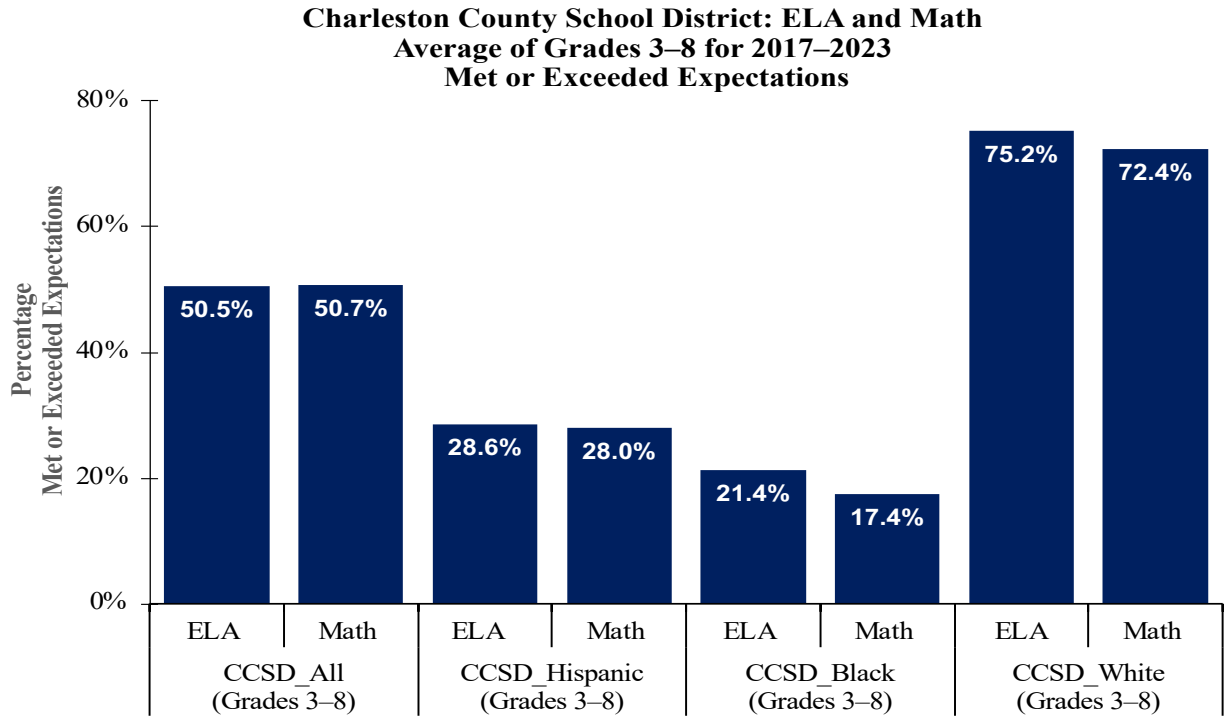

Figure 5.3 Charleston County School District: grades 3–8; cumulative ELA and math performance, 2017–2023.‡

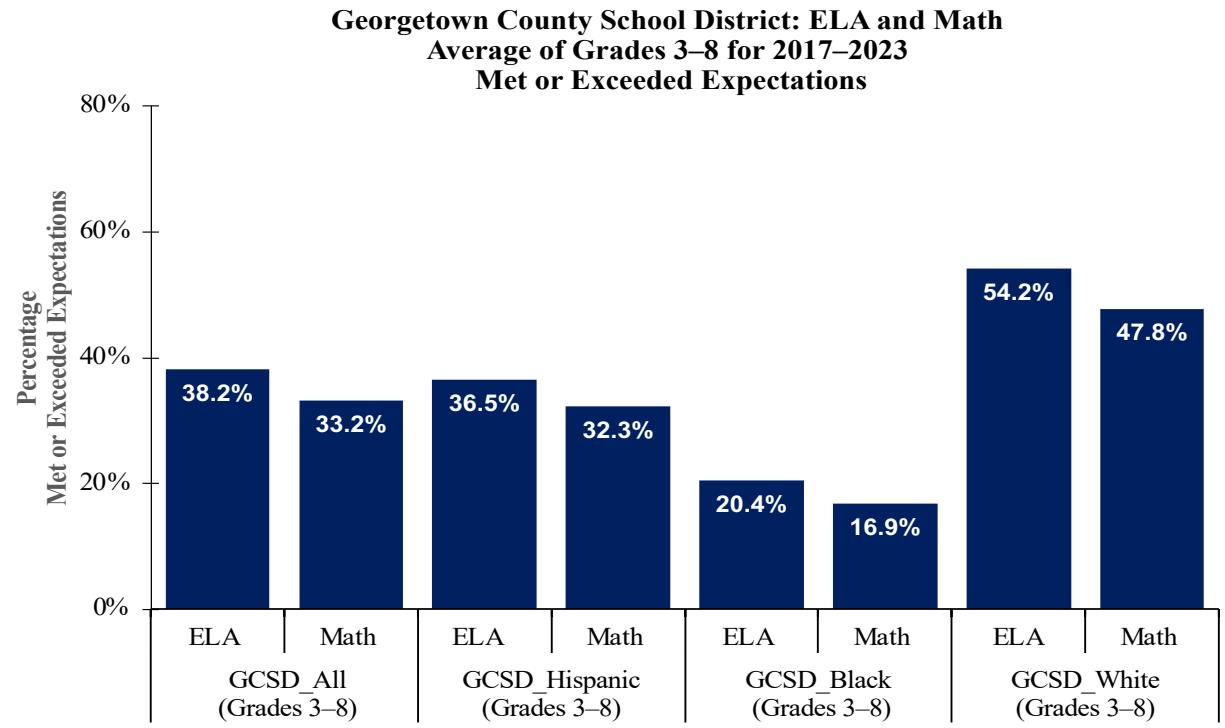

Figure 5.4 Georgetown County School District: Grades 3–8; ELA and math performance, 2017–2023.‡

‡Data source: SCDE

Chapter 5: Cumulative Performance Distribution by Race/Ethnicity: 2017–2023, cont.

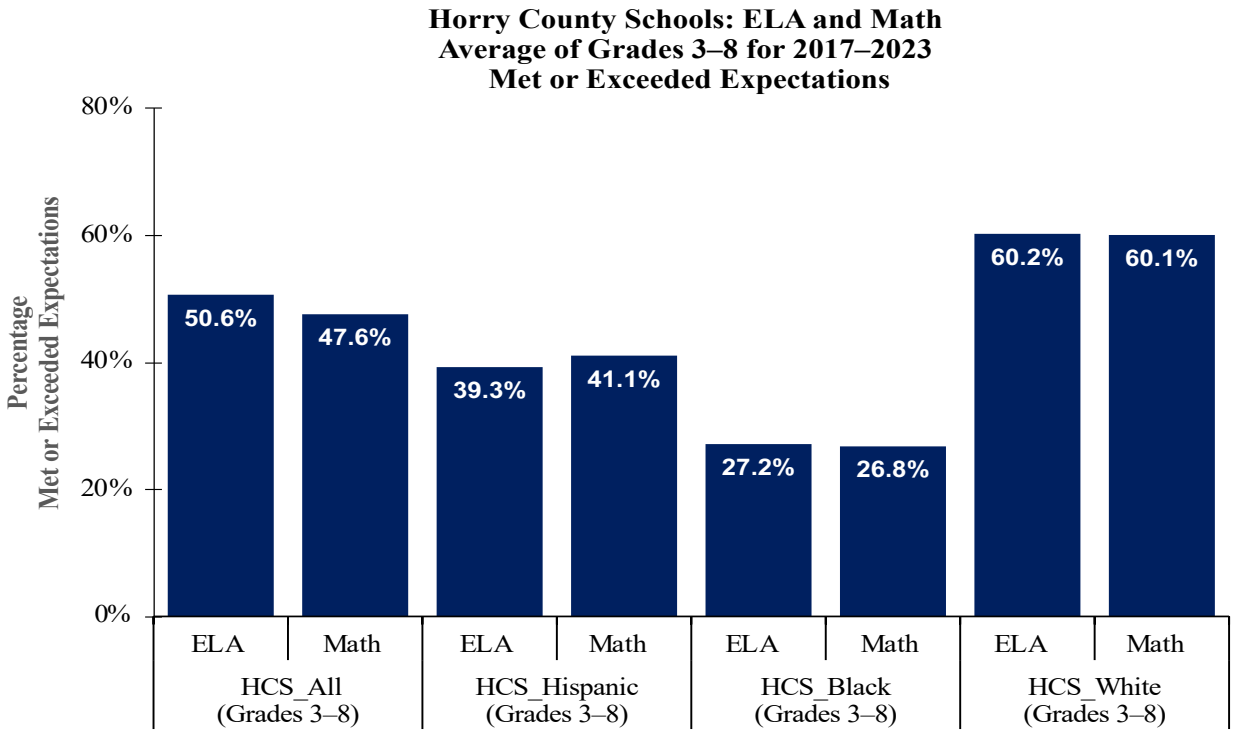

Figure 5.5 Horry County Schools: Grades 3–8; ELA and math cumulative performance, 2017–2023.

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About the Author

David C. Wilson is a retired electrical/electronics engineer and adjunct math professor. He is a consultant, statistical practitioner, family history researcher, author, and self-publisher.

Wilson's industry experience spans several decades, during which he focused primarily on product development, quality, and reliability. He has worked with multinational organizations such as General Electric, IBM, and Honeywell, where, in addition to his primary responsibilities, he remained committed to pursuing his passion for academia and family history research. He is an IBM retiree.

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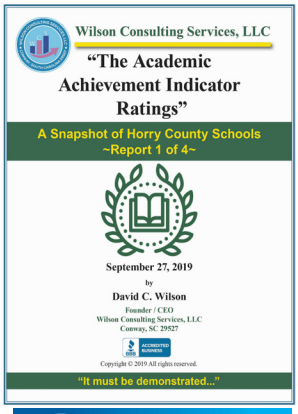
Wilson earned undergraduate and graduate degrees in engineering from the City College of New York and Manhattan College, respectively.

A five generation native of Horry County, South Carolina, he and his wife, Beverly, have two sons, six grandchildren, and one great-grandchild. They reside in Conway, South Carolina.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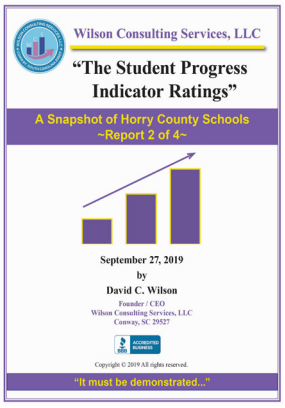
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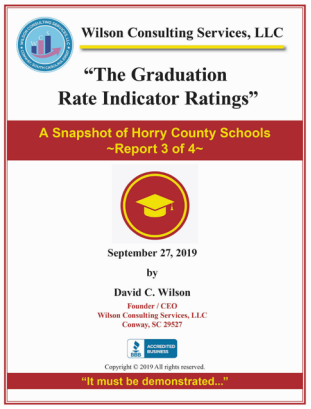
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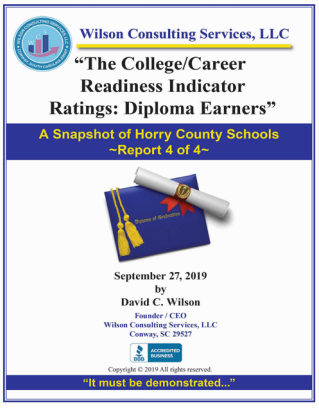
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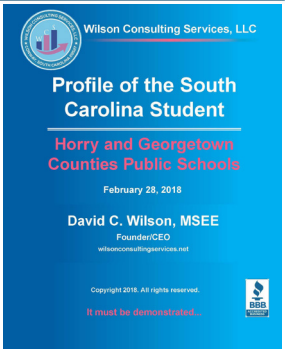
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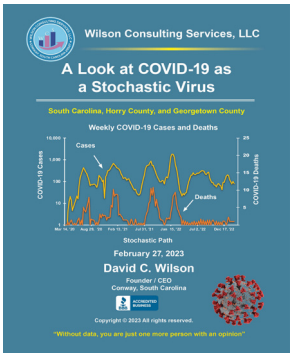
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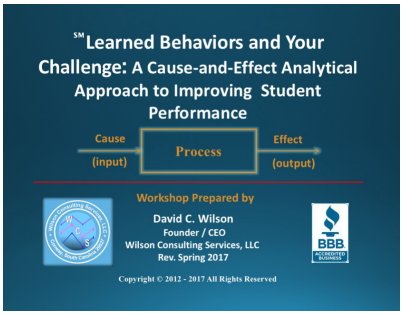
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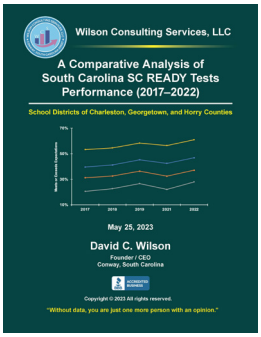
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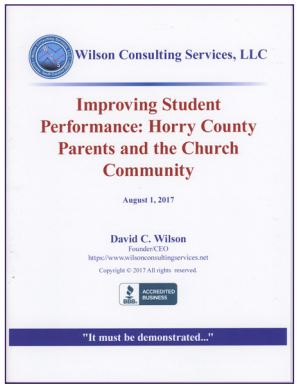
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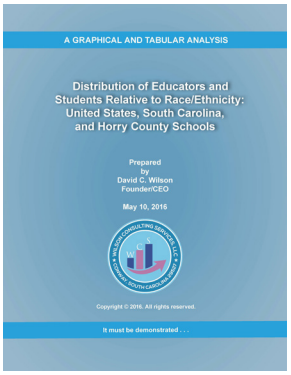
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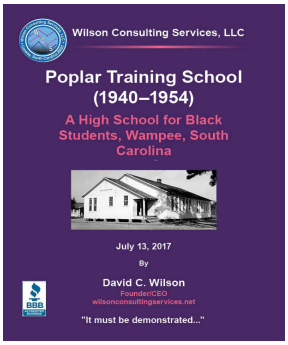
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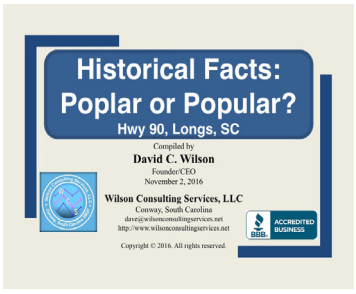
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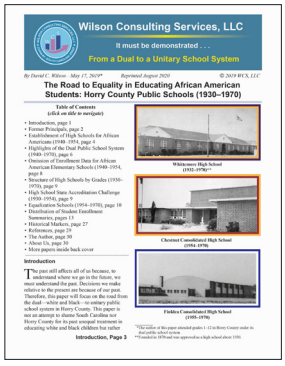
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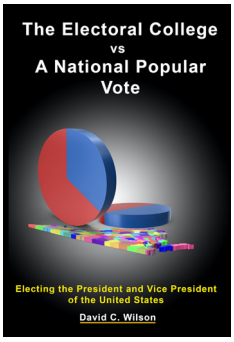
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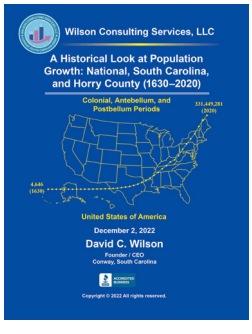
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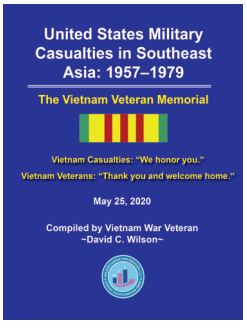
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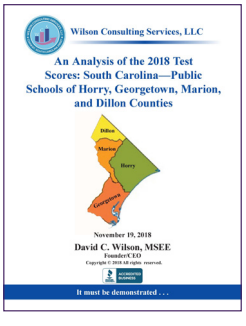
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