October 2022   *Anne Walton Garrison*

Key Findings

- Overall, students taught by Senior Reading Advisors averaged a 21% improvement in their performance on the Reading Horizons *Elevate* (RHE) built-in diagnostic. Average improvements by school level were 25% for middle schoolers and 15% for high schoolers.
- The RHE assessment also showed strong student growth in Lexile performance: almost a year and three-quarters of growth for both middle and high schoolers.
- On the i-Ready reading universal screener, middle schoolers' Lexile growth was far more muted than their RHE Lexile growth, showing less than a year's worth of improvement from fall to spring.
- The share of middle schoolers performing in the lowest category on i-Ready reading (3 or more grades below grade level) improved by 13 percentage points from fall to spring.
- While middle schoolers showed almost negligible progress on English/language arts (ELA) TCAP, high schoolers experienced strong growth on English TCAP. The percentage of high schoolers who met or exceeded expectations rose by more than 6 percentage points from 2020–21 to 2021–22, and the share performing in the lowest category (*below*) decreased by 30 percentage points.
- The program cost to help one student grow an extra half-year above what would be expected without the intervention is a little over $2,100, based on Lexile growth as measured by the RHE built-in assessment.
- As for TCAP ELA, it would cost roughly $8,400 for the program to help a student achieve 5 extra percentile points beyond what they would be expected to achieve in the absence of the intervention.

Program Overview

Memphis-Shelby County Schools (MSCS) instituted the position of Senior Reading Advisor (SRA) in 2018–19. It is designed to be a highly skilled, 12-month instructional position focused on addressing foundational literacy deficits in middle- and high-school students. Select middle and high schools have one SRA position each. These schools offer intensive reading classes, taught by their SRA, for students whose reading skills are significantly below grade level.

Most, if not all, of the SRAs have extensive classroom instructional experience as well as administrative and/or instructional coaching experience. Beyond teaching struggling readers, SRAs also design and facilitate school-based and District-level content-literacy professional-development sessions for teachers of other subjects in grades 3–12.

Reading Horizons *Elevate*

SRA classes employ the Reading Horizons *Elevate* (RHE) instructional model, which includes adaptive software, workbooks, and reading materials. RHE instruction is highly scripted, and

the RHE instructional model consists of the following rotation within each class period:

1. review – whole class
2. explicit teacher-directed instruction – whole class
3. guided practice (dictation)
4. independent work in stations (software, work with words, etc.)
5. lesson closeout – whole class (MSCS additional component)

The focus of Reading Horizons *Elevate* is foundational literacy, but its presentation of content is designed for older students (grades 4–12). According to several MSCS literacy leaders, foundational literacy programs are abundant, but those designed specifically for older students are scarce. Many early literacy programs present their content with cartoons and infantile voices, which can be off-putting and embarrassing for older students learning to read.

Here is a promotional synopsis of the program's instructional approach, from the Reading Horizons website:

> *By teaching the core framework of the Reading Horizons method—the 42 Sounds of the Alphabet, 5 Phonetic Skills, and 2 Decoding Skills—students are empowered with skills that allow them to prove they are reading, spelling, and pronouncing the majority of the words in the English language with accuracy. Because each skill is introduced using multi-sensory teaching techniques, students are able to make new connections in their brain that help them quickly grasp each concept—keeping them engaged and motivated throughout the process.*

The adaptive software component serves several functions within the RHE program, including diagnostic testing/placement, instructional delivery, progress monitoring of recently taught skills, and assessment of overall progress in the course.

Program Participants

Ten middle schools and seven high schools had an SRA in 2021–22. A total of 644 students were enrolled in an SRA-taught class: 364 in middle schools and 280 in high schools, with grade-level totals shown below:

2021–22 SRA Students	
Grade	***N***
6	318
7	31
8	15
9	248
10	32
Total	644

Reading Horizons *Elevate* Performance

Diagnostic Gains

The RHE software computes the percentage by which students improved their performance on diagnostic assessments over the course of the year. This metric is a percentage increase in diagnostic *scores*, not an increase in the percentage of *students* meeting a particular benchmark. The table below displays the performance of SRA-taught students on the RHE diagnostic from the beginning to the end of the 2021–22 school year.

Overall, students averaged a 21% improvement in their performance on the diagnostic. Average increases by race/ethnicity ranged from 18% (Native American, Multiracial, or White[1]) to 24% (Latinx), while average gains for special-status subgroups ranged from 21% (direct certified) to 28% (English learners). Average improvements by school level were 25% for middle schoolers and 15% for high schoolers.

Gains on Reading Horizons Diagnostic from Beginning to End of 2021–22			
Subgroup	**N**	**Mean Percentage Gain**	**Mean Lexile Gain**
Black/African American	553	20%	204L
Latinx	70	24%	161L
Native American, Multiracial, or White[1]	20	18%	422L
Direct Certified	492	21%	213L
English Learners	37	28%	164L
Students with Disabilities	17	26%	135L
Middle Schoolers	364	25%	247L
High Schoolers	280	15%	147L
Overall	644	21%	205L

Lexile Gains

The RHE software computes the Lexile gains students made over the course of the year, a summary of which is displayed in the table above, alongside the diagnostic gains just discussed.

Lexile reading scores indicate the level of text complexity that students are able to comprehend when reading. Knutson et al. (2011) conducted a study in "a large urban public school district located in the southeastern region of the United States" (p. 3) in which they computed the average Lexile gains made by 373,880 students in grades 3–10 over the

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[1] These categories were combined because of their small sizes.

course of six school years. Average yearly gains varied to a small degree by grade level, but they varied widely based on students' initial (i.e., fall) reading level, with average yearly gains decreasing as initial reading level increased.

A table of the average yearly Lexile gains reported in Knutson et al. (2011) is reprinted in Appendix A of this report, and it can serve as a helpful guide for interpreting students' change in Lexile scores from the beginning to the end of a school year. Using the table for this purpose requires two pieces of information: grade level and fall Lexile score. Of the 2021–22 SRA students, 87% of middle schoolers were in grade 6 and 89% of high schoolers were in grade 9, so grade 6 was used as the benchmark for middle school, and grade 9 was used as the benchmark for high school. The 2021–22 SRA students' fall Lexile scores were unfortunately overwritten in the RHE system with the start of the current (2022–23) school year. Thus, the current year's fall Lexile averages were used as proxies for last year's fall averages: roughly 300L and 500L for grades 6 and 9, respectively.

Using the above fall Lexile averages in conjunction with the Knutson et al. (2011) table yields the following values for *expected* Lexile growth over the course of the year (i.e., the growth we would expect in the absence of an intervention):

- Middle schoolers: 142L
- High schoolers: 87L

The Lexile growth that the SRA students actually achieved in the RHE software far outpaced these expected values. As the table above shows, the students improved by an overall average of 205L throughout the year, with middle schoolers and high schoolers averaging 247L and 147L of growth, respectively. Gains by race/ethnicity ranged from 161L (Latinx) to 422L (Native American, Multiracial, or White), and gains by special-status subgroup ranged from 135L to 213L (students with disabilities and direct-certified students, respectively).

Middle schoolers and high schoolers exceeded their expected growth by 105L and 60L, respectively. Looked at another way, the SRA middle and high schoolers both averaged roughly 1.7 times their expected growth for the year. That is, they experienced almost a year and three-quarters of growth over the course of just one year. Thus, according to the built-in assessments in the RHE software, the SRA students made great strides in their reading ability from the beginning to the end of the school year.

i-Ready Performance

Performance in Grade-Level Terms

Student performance as measured by the RHE software is informative and useful to know. However, from an evaluation standpoint, it is always desirable to have corroboration from an outside assessment (i.e., from a source that is not built into the instructional software itself) whenever possible. To that end, SRA middle schoolers' performance, in grade-level terms, on the i-Ready reading universal screener is displayed in the chart below. (High

schoolers are not assessed with i-Ready.)

Middle School i-Ready Reading Performance 2021–22
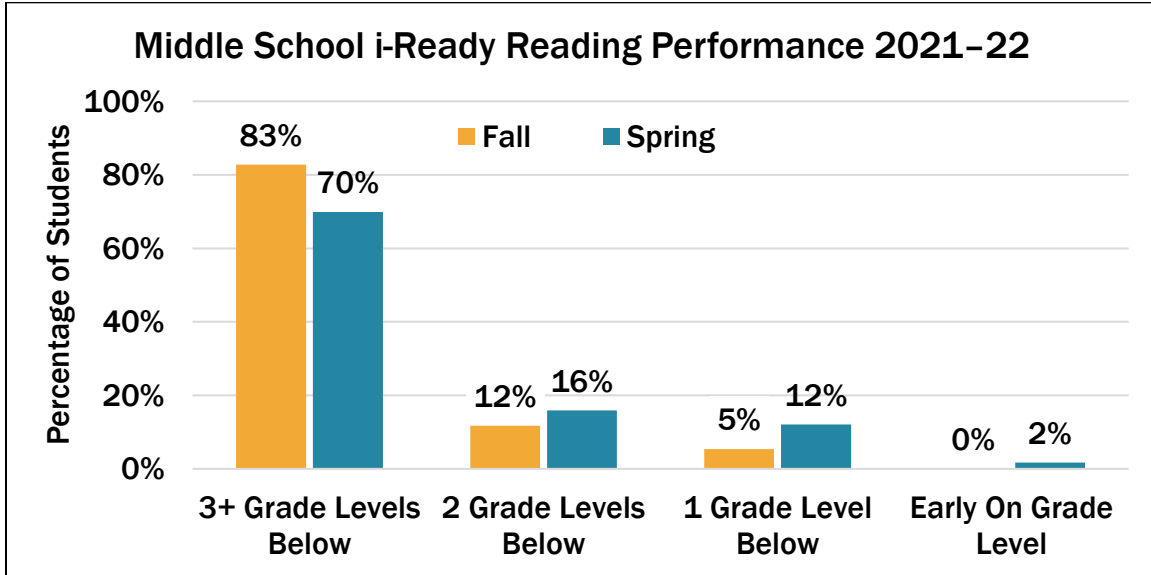
N = 239 SRA middle schoolers who took i-Ready reading test in both fall and spring of 2021–22

As the chart shows, there was a 13-point net decrease in the percentage of students performing three or more grades below grade level from early fall to late spring. This was accompanied by 4- and 7-point increases in the percentages of students performing two and one grades below grade level, respectively. And the share of students reading *on* grade level rose—from zero—by 2 percentage points.

Lexile Performance

The i-Ready reading results include Lexile scores, which makes for a useful comparison to the results of the RHE assessment. Middle schoolers averaged a gain of 54L, which stands in stark contrast to their average gain of 247L in the RHE platform. It would be fruitful to measure the correlation between RHE and i-Ready Lexile scores for both fall and spring, but as mentioned earlier, the RHE software overwrote that information with the change to a new school year. Students' Lexile *gains* were exported and saved at the end of the 2021–22 school year before that happened and thus could be used for this evaluation. But the loss of the actual starting and ending scores from which the gains were calculated is less than ideal.

One probable contributor to the difference between the RHE and i-Ready results could be that students (likely) scored higher on the fall i-Ready assessment than they did on the beginning RHE assessment. SRA middle schoolers' average fall i-Ready Lexile score was 540L. If the 2022–23 SRA middle schoolers' starting Lexile scores are a fair approximation of the (unfortunately overwritten) 2021–22 SRA middle schoolers' starting Lexile scores, then RHE and i-Ready measured fairly different initial Lexile averages: 540L and roughly 300L, respectively. This could account entirely for the difference between the two

assessments' fall-to-spring Lexile growth averages.

In sum, SRA middle schoolers showed net movement from reading way below grade level to reading at or just somewhat below grade level on the i-Ready assessment. Their average i-Ready Lexile growth was substantially less than that measured by RHE, which may be an artifact of differences in the assessments' fall reading measurements.

TCAP Performance

Meeting or Exceeding Expectations

Results from the English/language arts (ELA) portion of the state-mandated Tennessee Comprehensive Assessment Program (TCAP) are presented below (ELA tests for grades 6–8; English I and English II end-of-course tests for grades 9 and 10, respectively). TCAP assessments are designed to test grade-level standards, so they are not the best way to evaluate performance in a program designed for students who are significantly below grade level, such as the SRA program. Nevertheless, District-, school-, and teacher-level accountability are structured largely around TCAP results, and thus it may be of interest to know how SRA students fared on TCAP tests after a year of SRA instruction.

Students who Met or Exceeded Expectations on ELA TCAP						
Subgroup	N	2020–21		2021–22		Percentage-Point Gain
		#	%	#	%	
Black/African American	425	6	1%	19	4%	3.1
Latinx	56	1	2%	2	4%	1.8
Native American, Multiracial, or White	16	1	6%	2	13%	6.3
Direct Certified	372	5	1%	10	3%	1.3
English Learners	32	0	0%	0	0%	0.0
Students with Disabilities	13	1	8%	1	8%	0.0
Middle Schoolers	288	4	1%	6	2%	0.7
High Schoolers	209	4	2%	17	8%	6.2
Overall	497	8	2%	23	5%	3.0

Results displayed only for students who took sequential TCAP ELA tests in 2020–21 and 2021–22

The overall percentage of SRA-taught students who met or exceeded expectations rose by 3 percentage points. Most of those gains were among high schoolers, who saw a 6.2-point increase, as compared to a 0.7-point increase for middle schoolers. Percentage-point gains by race/ethnicity ranged from 1.8 (Latinx) to 6.3 (Native American, Multiracial, or White). The share of English learners and students with disabilities who met or exceeded

expectations remained static, while direct certified students realized a 1.3-point gain.
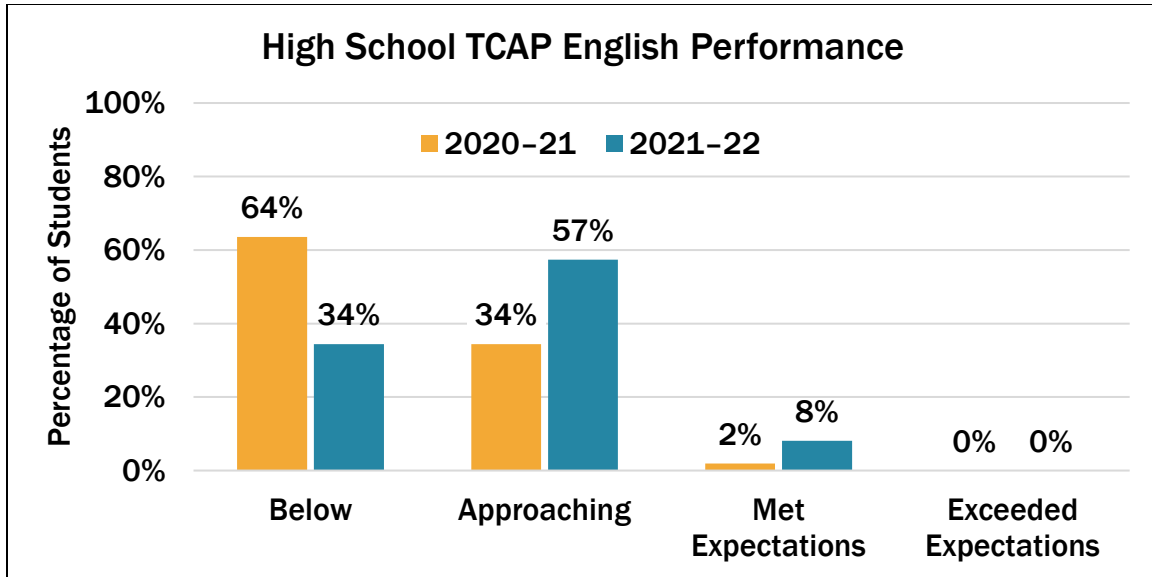
Performance Levels

The preceding table was organized around the percentage of students who met or exceeded expectations, which is one of the most high-stakes District and school accountability metrics. However, meeting or exceeding expectations on TCAP is a high bar to meet, especially for students who began the year reading significantly below grade level. Students might make great strides over the course of the year, yet still fail to meet that standard. Another way to assess TCAP movement from year to year is to examine the percentage of students in each of the four performance-level categories. That information is shown separately for middle and high schoolers in the following two charts.
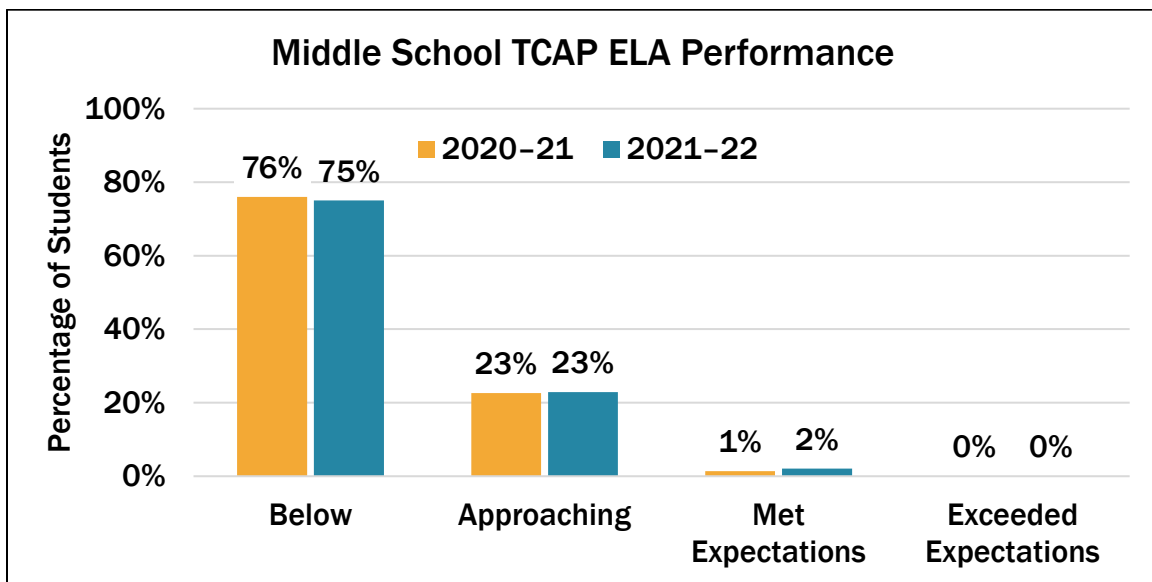
N = 288 SRA middle schoolers who took sequential TCAP ELA tests in 2020–21 and 2021–22

High School TCAP English Performance

N = 209 SRA high schoolers who took sequential TCAP English tests in 2020–21 and 2021–22

Middle schoolers saw only slight improvement in their TCAP ELA performance-level standings from 2020–21 to 2021–22: the percentage of students in the *below* category ticked down by 1 percentage point, accompanied by a 1-point increase in those who met expectations. High schoolers, on the other hand, exhibited strong improvement in their TCAP English performance-level standings, with a 30-point decrease in the percentage of students in the bottom category, a 23-point increase in the *approaching* category, and a 6-point increase in those meeting expectations. (Note: 2021–22 high-school percentages displayed above do not total to 100% because of rounding.)

Exceeding Projected Percentile

While performance-level movement is a more granular measure than the share of students meeting or exceeding expectations, it is still too blunt an instrument to show all improvement, as students who began at the bottom of a performance category could rise to the top of it without quite crossing the threshold into the next category. Therefore, it is helpful to zoom in even further and assess performance from a percentile standpoint. This can be done by comparing students' percentile rank from one year to the next. However, the SRA program is an intervention, with the goal of producing higher-than-expected gains through intensive instruction during a dedicated class period. The goal is to help students improve more than they would in a typical school year.

SAS Institute, Inc., the company behind the Tennessee Value-Added Assessment System (TVAAS), generates projected state percentiles for TCAP test-takers, using the same data from which it produces TVAAS results. Comparing students' projected percentile to their actual achieved percentile shows the extent to which students outpaced their typical growth. The SRA students' average excess percentile performance is presented below.

Extent to Which SRA Students Exceeded Their Projected State Percentile on 2021–22 ELA TCAP	
Grade Band	**Average Excess Percentile Points**
Middle Schoolers	−0.4
High Schoolers	4.8
Overall	1.8

Overall, the SRA students outpaced their average expected percentile placement by almost 2 points. However, middle schoolers did not quite meet their projections, falling short by an average of less than half a point. High schoolers fared much better, exceeding their expected percentile placement by an average of almost 5 points.

Through each lens presented here, SRA high schoolers demonstrated marked improvement in their English TCAP performance in 2021–22, whereas the middle schoolers performed roughly the same as they had the year before. This is in contrast to the results from the RHE software, where the SRA middle schoolers outperformed the high schoolers (though both grade bands showed growth).

Return on Investment

Program Costs

Having determined the SRA students' growth as measured by three different assessments (RHE, i-Ready, and TCAP), we can now calculate the program's return on investment (ROI), which combines program costs with program outcomes. The program costs for 2021–22 were as follows:

2021–22 SRA Program Costs				
Grade Band	**Cost of SRA Salaries + Benefits**	**Cost of RHE Software**	**Total Program Cost**	**Total Cost per Student**
10 Middle Schools (364 Students)	$1,040,581	$109,250	$1,149,831	$3,159
7 High Schools (280 Students)	$728,407	$76,475	$804,882	$2,875
17 Schools Total (644 Students)	$1,768,988	$185,725	$1,954,713	$3,035

ROI Based on RHE Lexile Growth

Combining the above cost information with the RHE Lexile outcomes presented earlier in

this report yields the following return on investment for the SRA program:

	2021–22 SRA Return on Investment Based on RHE Lexile Growth			
Grade Band	SRA Students' Average Lexile Gains in Excess of Typical Growth	Cost to Get an SRA Student to Improve by 1 Lexile Beyond Typical Growth	Half a Year of Typical Lexile Growth	Cost to Get an SRA Student to Improve by Half a Year Beyond Typical Growth
Middle School	105L	$30	71L	$2,136
High School	60L	$48	44L	$2,108
Overall	85L†	$36	59L†	$2,107

† Overall Lexile values were calculated using the shares of middle schoolers (56.5%) and high schoolers (43.5%) in the program: 0.565*105L + 0.435*60L = 85L; 0.565*71L + 0.435*44L = 59L

The cost to get an SRA student to improve by 1 Lexile beyond typical growth was determined as follows[2]: program cost per student divided by SRA students' average Lexile gains in excess of typical growth. The cost to get an SRA student to improve by half a year beyond typical growth was calculated as follows: cost to get an SRA student to improve by 1 Lexile beyond typical growth multiplied by the number of Lexiles equal to half a year of growth. (The latter number was derived by taking half of the typical yearly growth values reported earlier → middle school: 142L/2=71L; high school: 87L/2=44L; overall: prorated according to the formula listed in the note at the bottom of the table.)

As the table above shows, the SRA program cost to help one student grow an extra half-year above what would be expected without the intervention is a little over $2,100. In other words, it takes just over $2,100 for the SRA program to help a student realize a year and a half of growth in just one year, at least as measured by the RHE software.

These calculations cannot be replicated using the i-Ready Lexile outcomes, because the middle schoolers did not exceed their expected growth according to that assessment (and high schoolers are not tested with i-Ready).

ROI Based on Exceeding TCAP Projected Percentile

ROI varies depending on the outcomes under consideration, and the more outcomes considered, the fuller the ROI picture becomes. Readers are cautioned not to assume that one ROI figure tells the whole story. With that in mind, and because TCAP is all-important within the accountability framework, ROI for the SRA program was also computed using the

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[2] Note that Lexiles were the only numbers rounded during the calculations; all dollar figures were computed using the full, unrounded dollar amounts (even though they are displayed in rounded form in the tables). Thus, trying to replicate the computations using the rounded dollar figures displayed will yield slightly different results compared to the more precise calculations used to determine ROI.

TCAP percentile outcomes reported earlier in this report.

Recall that on the 2021–22 ELA TCAP, SRA students averaged 1.8 percentile points *in excess* of how they were projected to perform (based on their past performance). Dividing the (unrounded) program cost per student by 1.8 percentile points yields $1,686. Thus, it costs $1,686 for the SRA program to help a student outpace their expected TCAP performance by 1 percentile point. Multiplying the (unrounded) cost-per-excess-percentile by 5 indicates that it would cost $8,431 for the SRA program to help a student achieve 5 extra percentile points beyond what they would be expected to achieve in the absence of the intervention.

Conclusion

This evaluation of the SRA program yielded different takeaways, depending on the assessment under consideration. The assessment built into the RHE software indicated that the SRA students experienced very strong reading growth, and that middle schoolers outpaced high schoolers. The i-Ready reading assessment (which high schoolers do not take) showed improvement in middle schoolers' grade-level standings. It also showed some Lexile growth, but less than would be typical of students in their grade level at their Lexile starting point. In a reverse of the RHE findings, the TCAP ELA results indicated that middle schoolers saw only the meagerest improvement, while high schoolers exhibited impressive upward movement.

This study examined results across three assessments in part because multiple lenses are generally better than just one lens, and in part because none of the available assessments were ideal for evaluating the SRA program. The drawback to the RHE assessment is that it is built into the vendor-provided instructional software. Given that vendors have a vested interest in showing growth in their program, it is always desirable to use an independent (but appropriately aligned) assessment to measure student progress. The disadvantage of the i-Ready universal screener is that a large chunk of the SRA students did not take it because they were in high school. The TCAP's shortcomings stem from its objective of testing grade-level standards, making it a poor fit for evaluating a program designed for students performing significantly below grade level.

With one exception[3], this report marks the District debut of including ROI information in a program evaluation. ROI estimates are useful for deciding whether a program is worth its cost. However, it is important to remember that ROI figures are only as good as the instruments used to measure the program outcomes that go into calculating them. In this evaluation, different assessments yielded different results, leaving the question of the program's true effects, and thus its true ROI, only partially answered.

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[3] The Department of Research and Performance Management produced a one-off report that included ROI in its evaluation of Response to Instruction and Intervention (RTI[2]) in 2017–18, but it was a special case.

Reference

Knutson, K. A., Scholastic Research, & MetaMetrics. (2011). *Growth expectations: Setting achievable goals* [Professional paper]. Scholastic Inc.

Appendix A

Average Annual Growth by Smoothed Average Fall Lexile Range

Fall Lexile Zone	Grade							
	3	4	5	6	7	8	9	10
BR	329L	336L	318L	304L	336L	350L	329L	364L
100L–190L	268L	277L	268L	240L	262L	276L	258L	287L
200L–290L	216L	226L	222L	185L	199L	215L	198L	223L
300L–390L	174L	183L	185L	142L	152L	167L	150L	170L
400L–490L	143L	150L	155L	112L	117L	130L	115L	130L
500L–590L	117L	122L	128L	88L	90L	102L	87L	102L
600L–690L	96L	99L	106L	72L	72L	81L	68L	82L
700L–790L	79L	80L	87L	60L	60L	67L	55L	69L
800L–890L	65L	65L	70L	51L	52L	58L	47L	60L
900L–990L	50L	50L	54L	43L	46L	50L	41L	55L
1000L–1090L	33L	35L	38L	34L	40L	43L	36L	50L
1100L–1190L	12L	20L	21L	23L	32L	35L	30L	44L

Reprinted from Knutson et al. (2011, p. 9)

Appendix B

ESSER Key Performance Indicators

Below are the key performance indicators (KPIs) that the District listed in its application to use ESSER (Elementary and Secondary School Emergency Relief) funds for the SRA program. The status of each KPI is indicated next to it. Note that the TVAAS KPI is not assessable and is thus marked as "N/A." The results relating to the other four KPIs are presented within the main body of this report.

Key Performance Indicators	Status
Achieve at least Level 4 TVAAS on English Language Arts TCAP assessment	N/A
Increase in percentage of students achieving on-track and mastered performance on English Language Arts by 5 percentage points	🟡
Increase the percentage of students achieving on-track and mastered performance across subgroups by at least 5 percentage points	🟡
Achieve a pre-test to post-test gain of 20 percentage points on the Reading Horizons diagnostic for high school students	🟢
Gain an average of 100 Lexiles from pre-test to post-test on Reading Horizons diagnostic for high school students	🟢

Legend	
🟢	Met
🟡	Approaching/Minor Change
🔴	Not Met