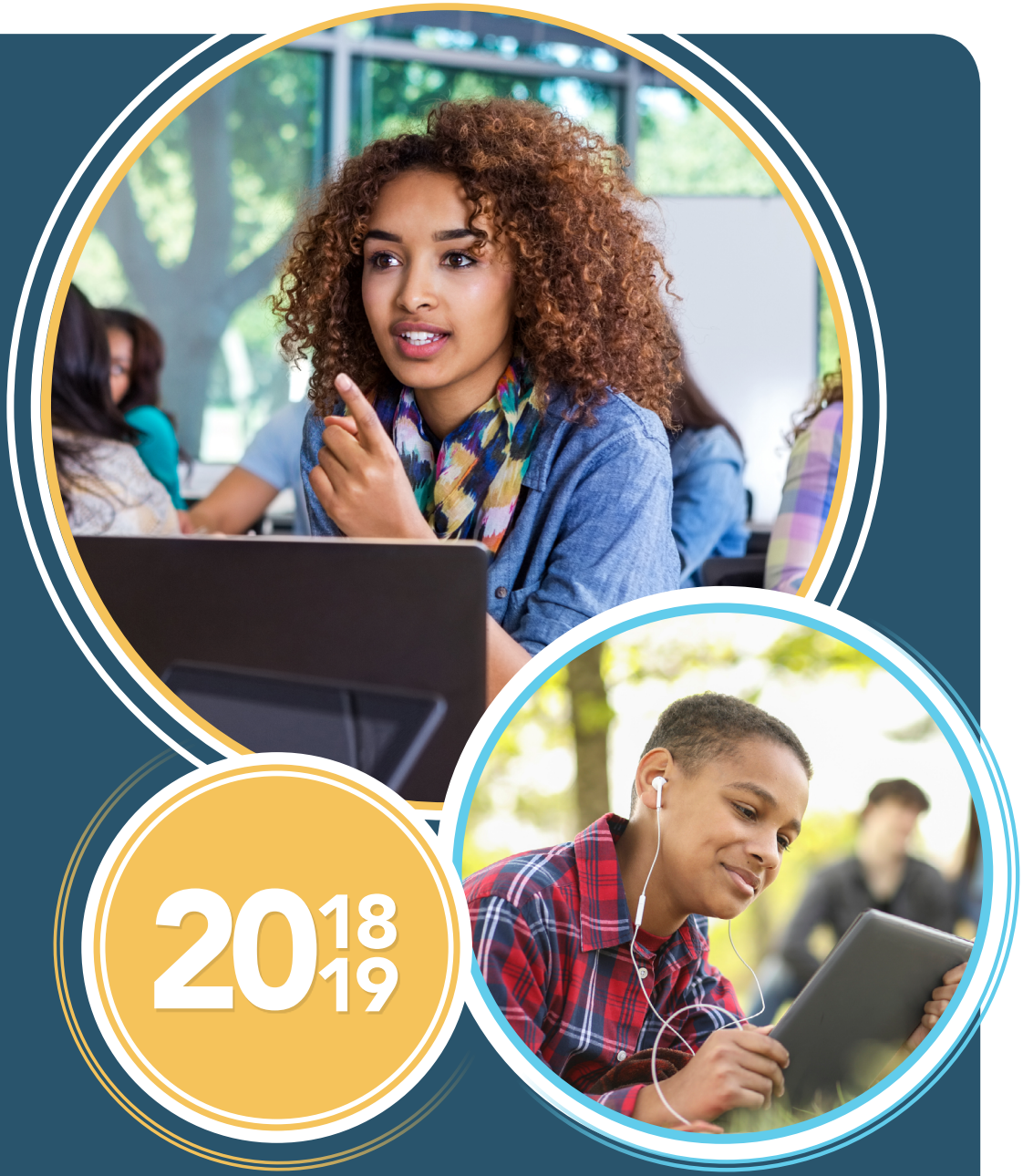
MetaMetrics® | SPN Successful Practices Network

NATIONAL LEXILE® STUDY

AN ANALYSIS OF **ACHIEVE3000**



NOVEMBER 2019

FOREWARD

As President of the Successful Practices Network (SPN), a not-for-profit 501(c)(3) education design studio of experienced and trusted practitioners and researchers who are focused on improving learner outcomes, I'm excited to share some thoughts about and findings from this year's National Lexile Study. I know many of you reading this are wondering why someone would be "excited" about a report filled with data from over a million students, who were engaged in a literacy program over the last year. The simple answer is because literacy is clearly the key to unlocking the future of learning. Do you remember when you first learned to read? I do! It was in my first-grade classroom with Mrs. Rogers on the first day of school. She had each of us write the same three sentences. My sentences were, "My name is Raymond. I go to school. I can read!" When I got home that day, I showed my mom the paper and I read it to her, well maybe I memorized it, but I recall it to this very day. It also formed a connection for me between writing and reading that was critical to my future. The research about the connection between reading and writing is powerful; we know students become better writers the more they practice reading and vice versa.

This year's report helps to inform us about several promising practices that link learner acceleration, learner engagement, and fidelity of implementation to successful and powerful results. Many of the results are powered by the synergy between the Achieve3000 platform, the Lexile growth and progress data, and the guidance of amazing educators. The future of learning is clearly enhanced through the human-machine collaboration seen in many of the districts that shared their results in this report.

- At every grade level the Achieve3000 learners received a higher level of growth than expected. This means that the learning was accelerated. Such acceleration is needed for students to achieve their desired college and career readiness levels.
- Fidelity of implementation in the classroom leads to 3.5 times the expected growth for the learner. Experiencing this level of success enhances the learner's engagement and builds a more positive mindset about their ability.
- English Language Learners with high quality implementation realized 3 times their expected growth.
- The connection between reading and writing really matters. Learners who engaged in 40 or more *Reading Connections*, which are thought/writing exercises embedded in reading selections, gained significantly more on average than the overall sample. In addition, learners who completed 40 or more *Thought Questions*, which are writing exercises they complete after reading selections, also gained significantly over the average sample size. The findings reviewed here are a result of a fully engaged educator who understands the powerful connection between reading and writing, and a platform that fully adapts and supports the educator and learner needs.

In closing, the data reported on here from over a million students tells a powerful story about how we can accelerate learning for all our students. Educators want each student they teach to achieve and feel a sense of engagement in, and control over their learning. This desire is not out of reach in our systems today, but we must make literacy the foundational skill set on which we build all future learning. That's why this report and its finding are worthy of a deep read.

Ray McNulty

NATIONAL LEXILE STUDY

In the summer of 2019, MetaMetrics conducted an independent analysis of usage and performance data from the 2018-2019 school year. They employed multiple methods, including machine learning modeling. This is a summary of their analysis. Achieve3000's PRO solutions examined in this study use a patented methodology that enables the same grade appropriate lessons to be delivered to an entire class while simultaneously tailoring vocabulary and length to each student's Lexile reading level. These solutions have been proven to accelerate reading comprehension, fluency, writing proficiency, and vocabulary development.

One of the Largest Reading Studies Ever!

1,179,898 STUDENTS

1,273 DISTRICTS

5,898 SCHOOLS

50 STATES

(plus Washington, D.C. & 4 U.S. Territories)

84,416,506 TOTAL LOGINS

62,910,493 ACTIVITIES

63% OF STUDENTS LOG IN **AFTER SCHOOL**

EXECUTIVE SUMMARY

KEY FINDINGS

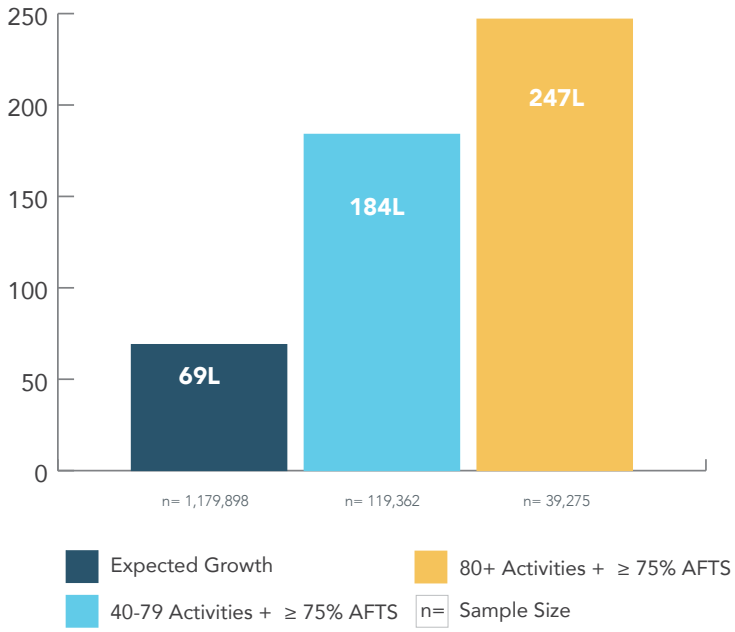
- **HIGHER THAN EXPECTED GROWTH**
  At every grade level, Achieve3000 students obtained higher than expected Lexile growth. On average, students gained 89L, which was 20L higher than their expected growth of 69L. (See page 13.)

- **INCREASE IN COLLEGE & CAREER READINESS (CCR)**
  The percentage of students who were On Track (Meets or Exceeds) increased from 19% to 30% over the course of the school year. Overall, 28% of students improved a performance level.

- **FIDELITY OF USE**
  Students using the program with the Highest Quantity, High Quality demonstrated over 3.5X their expected Lexile growth, while students using the program with High Quantity, High Quality demonstrated 2.5X their expected Lexile growth. (See chart immediately to the right.)

- **GAINS FOR ENGLISH LEARNERS**
  English learners using Achieve3000 with the Highest Quantity, High Quality realized nearly 3X their expected growth, with an average gain of 18L. (See page 17.)

LEXILE GROWTH FOR ALL STUDENTS



STUDENTS SEE MORE THAN 3.5X THEIR EXPECTED LEXILE GROWTH WHEN COMPLETING TWO OR MORE LESSONS WITH THE AVERAGE FIRST-TRY SCORE (AFTS) OF ≥ = 75% EACH WEEK.

STUDENTS SEE MORE THAN 2.5X THEIR EXPECTED LEXILE GROWTH WHEN COMPLETING >1 AND <2 LESSONS WITH AN AFTS OF >= 75% EACH WEEK.

Note: Average actual Lexile growth for both groups combined for 158,637 with 40+ activities and 75% AFTS) was 199L, greater than the expected growth of 69L, and that difference was statistically significant, $t = 772.40$, $p < 0.0001$.

TABLE OF CONTENTS

METHODOLOGY

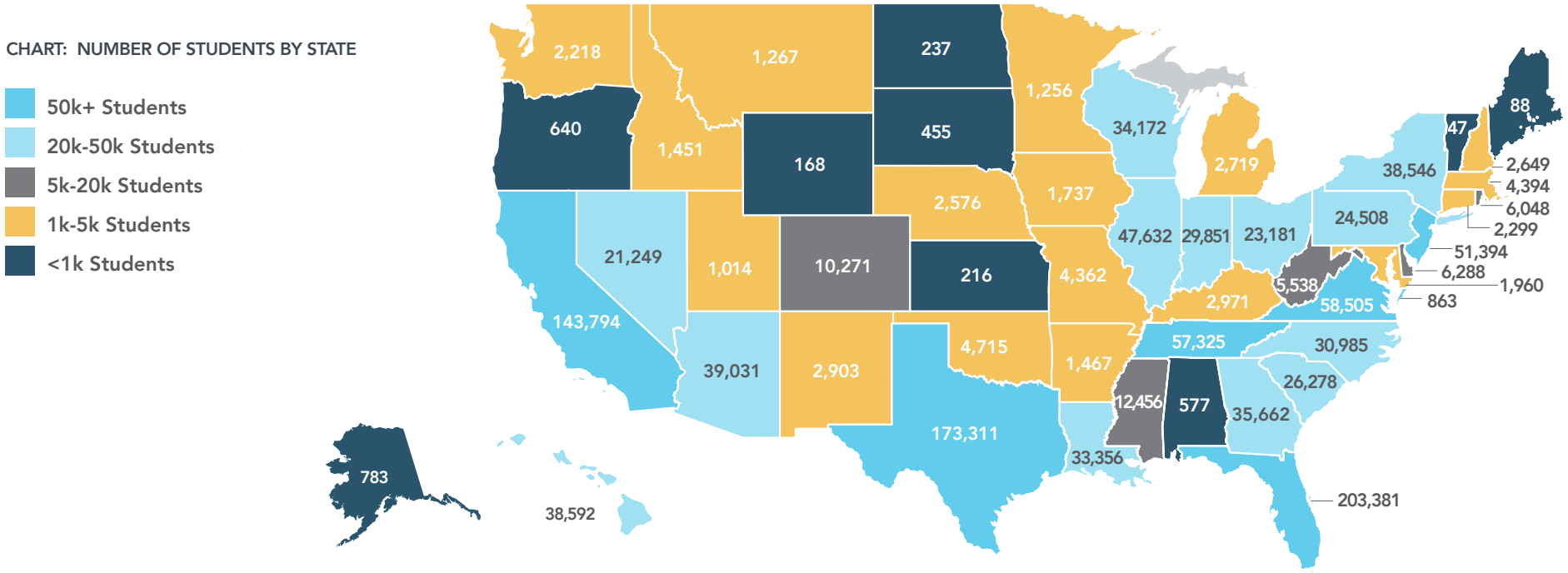
SAMPLE

The sample in this report includes 1,179,898 Achieve3000 students who were enrolled in grades 2 through 12 during the 2018-2019 school year. The data in this report includes English-only program usage and performance data. The final sample includes students from all 50 states, Washington D.C., and four US Territories.

Students were included in the final sample if they met the following criteria:

- Had a Pre-test LevelSet Lexile measure (from beginning of school year)
- Had an End-of-year Lexile measure (from either a Post-Test LevelSet or automatic monthly adjustment by the Achieve3000 system)
- Had at least 150 days between the Pre-test LevelSet Lexile measure and the end-of-year Lexile measure
- Completed one or more multiple-choice activities
- Were associated to only one school
- Did not receive any manual adjustments
- Did not use the Achieve3000 Intensive (summer program)
- Did not have more than 500 logins

CHART: NUMBER OF STUDENTS BY STATE



ANALYSIS

MetaMetrics first completed a descriptive analysis of the student sample and then ran two tailed t-tests to determine the statistical significance of the differences in mean Lexile measures between administration of the fall LevelSet pre-test and their final Lexile measure in the spring, or between actual and expected Lexile growth. Statistical significance is defined as a p-value of less than .05, indicating a 95% level of confidence for the results found. MetaMetrics performed sub analyses of the data for various student profiles and status types, including grade and Lexile level, special learning needs, and native language. Many of the lessons in Achieve3000's PRO solutions include the 5-Step Literacy Routine. Students must finish an embedded assessment (Step 3) to complete the lesson. Throughout this study, we will examine both students' performance on (quality) as well as the number of (quantity) lessons/activities completed. In addition, the analysis examines the impact of students' engagement with different aspects of the PRO learning solutions on literacy growth.

THE RELEVANCE OF QUANTITY AND QUALITY WHEN ASSESSING IMPACT

This study focuses its examination of students' Lexile growth on implementation models with a minimum level of quantity and quality of use. Each of Achieve3000's lessons include an embedded assessment within Step 3 of the 5-Step Literacy Routine. Achieve3000 defines quantity and quality of use according to the number of activities they complete over the course of the school year and the average first-try score (AFTS) students receive on their assessments. This study focuses on the results gained from the first two implementation categories which include the high-quality measure of a 75% AFTS. Because the texts are leveled to their individual reading level, 75% is a reasonable expectation for student performance.

IMPLEMENTATION CATEGORY KEY

HIGHEST QUANTITY, HIGH QUALITY
AFTS greater than or equal to 75% and on track to complete 80 lessons in a year (2+ lessons/week)

HIGH QUANTITY, HIGH QUALITY
AFTS greater than or equal to 75% and on track to complete 40-79 lessons in a year (1+ lessons/week)

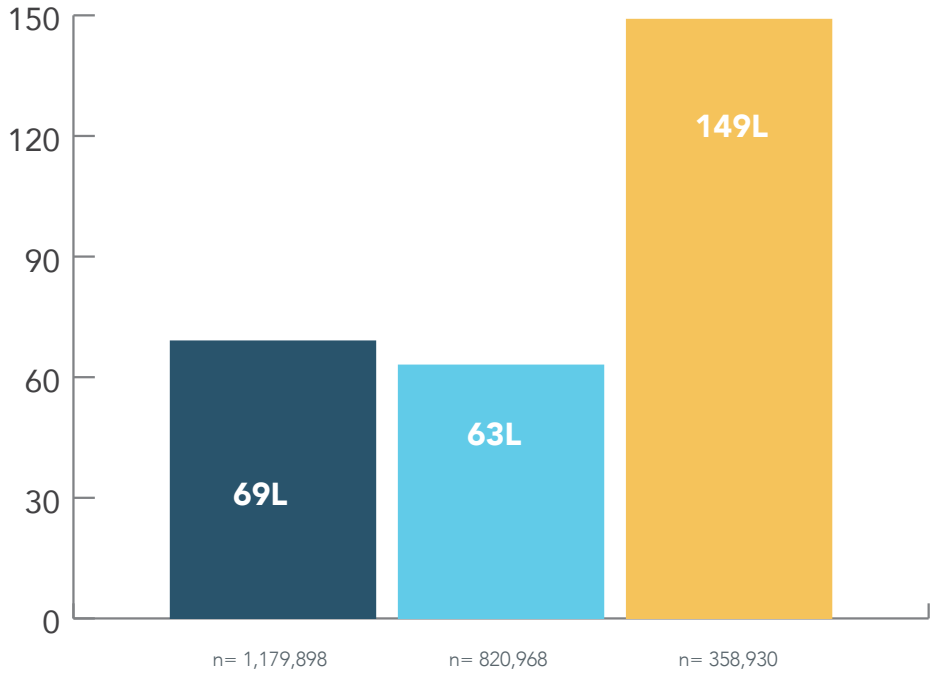
EXPECTED GROWTH

*** Not included in this study**

HIGHEST QUANTITY, LOWER QUALITY
AFTS less than 75% and on track to complete 80 lessons in a year (2+ lessons/week)

HIGH QUANTITY, LOWER QUALITY
AFTS less than 75% and on track to complete 40-79 lessons in a year (1+ lessons/week)

IMPACT OF AVERAGE FIRST TRY SCORE ON LEXILE GROWTH



KEY FINDINGS:
OVER 2X THE EXPECTED GROWTH FOR STUDENTS WITH AN AFTS OF 75%+ EXCEEDED EXPECTED GROWTH BY 80 POINTS

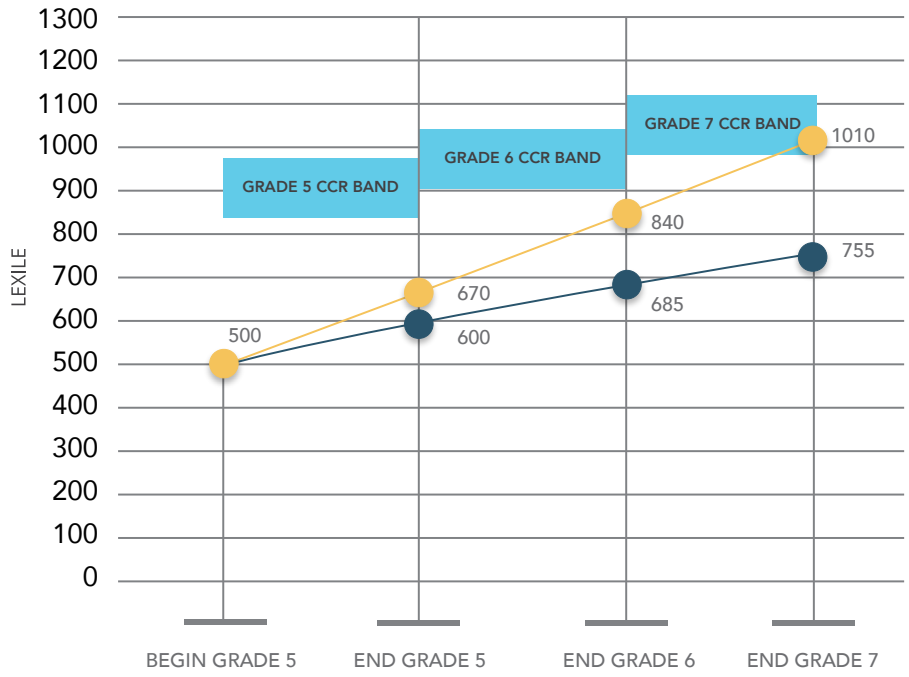
40-79 Activities ≥ 75% AFTS
80+ Activities ≥ 75% AFTS
n= Sample Size
Expected Growth

A NOTE ABOUT ACCELERATED GROWTH

Several reports inside the Teacher Edition of Achieve3000's PRO reference students' actual and expected Lexile growth. Expected growth is based on MetaMetrics's proprietary formula (MetaMetrics, 2004), which considers the student's initial Lexile measure and the length of time from the student's beginning-of-year measure to the end-of-year measure. Actual growth is calculated by subtracting the student's beginning-of-year Lexile measure from her current or end-of-year Lexile measure. Accelerated growth is any growth above a student's expected growth. Achieve3000 is especially committed to making accelerated literacy growth possible for more students, especially below grade-level readers. When we consider shifts in Lexile growth, it is important to remember that students who are performing below grade-level often need to double or triple their expected growth over the course of two to three years in order to achieve college and career readiness by high school graduation. (See chart below.)

This chart shows the expected and accelerated growth trajectories for a fifth grader who is reading two years below grade level. He would need to attain an accelerated rate of growth—1.7 times the expected rate of growth—to achieve college and career readiness by the end of seventh grade. The gap between expected and accelerated growth grows wider each year the student does not get on track for college and career readiness.

GROWTH TRAJECTORIES FOR A GRADE 5 STUDENT READING 2 YEARS BELOW GRADE LEVEL



THIS STUDENT NEEDS TO ATTAIN 1.7 TIMES THEIR EXPECTED GROWTH TO GET ON TRACK FOR COLLEGE AND CAREER READINESS.

Accelerated Growth (+170L per year)

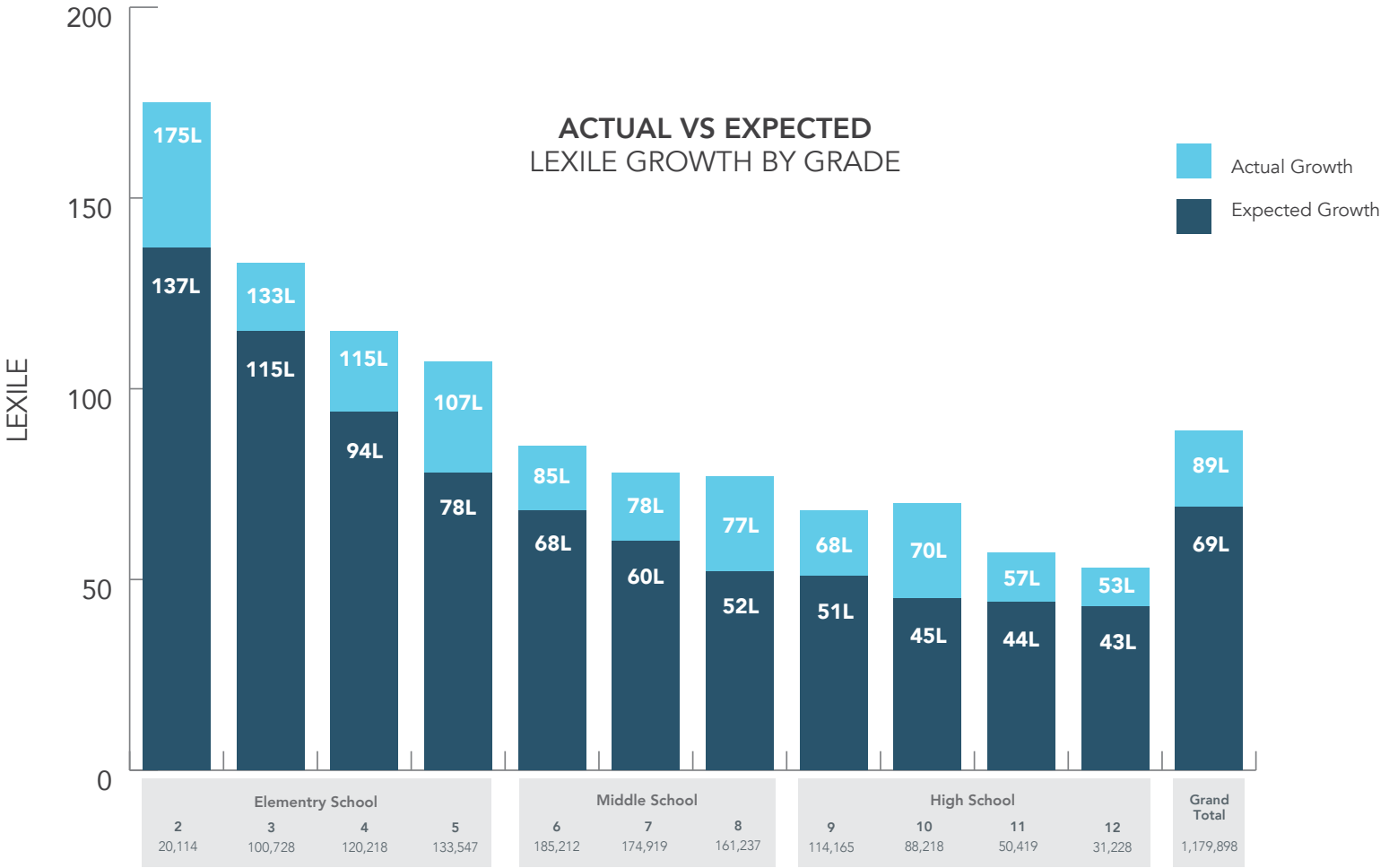
Expected Growth

CCR Target Range

ACCELERATED GROWTH FOR EVERY STUDENT

GRADE LEVEL RESULTS

Achieve3000's PRO increases student performance across all grade levels. On average, PRO users across all grade levels made gains in Lexile reading performance over and above the growth expected.



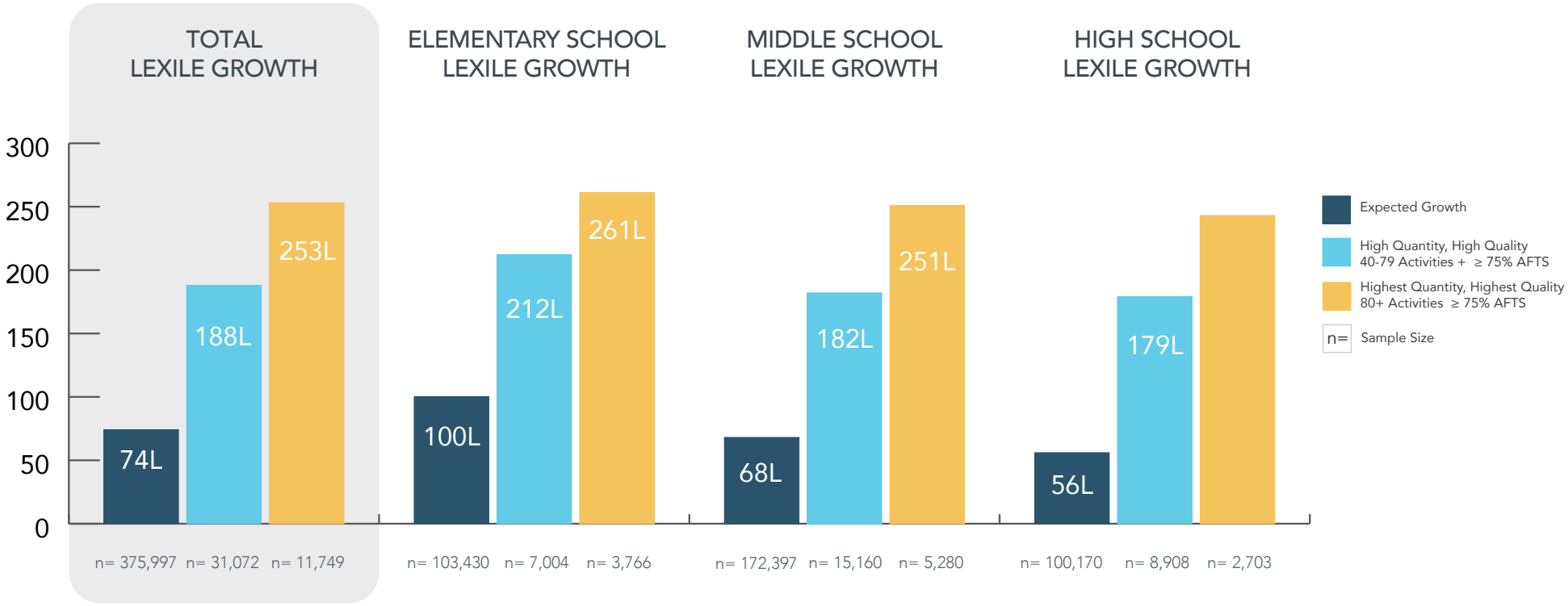
Note: The average actual lexile growth for achieve3000 users at all grades combined was 89l, greater than the expected growth of 69l, and that difference was statistically significant, t = 854.07, P < 0.001

RESULTS FOR STUDENTS USING THE **INTERVENTION SCAFFOLD**

LEXILE GROWTH FOR STUDENTS WITH HIGH QUANTITY AND QUALITY OF PRACTICE

With its foundational belief in providing equity for all students, Achieve3000 provides three types of embedded scaffolding: intervention, language, and enrichment. When the intervention scaffold is turned on, students will see sentence frames, paragraph frames, audio supports, digital highlighting, and numbered steps in the 5-Step Literacy Routine.

RESULTS FOR STUDENTS USING THE **INTERVENTION SCAFFOLD**



3X Students exceeded the expected growth of the sample by 179 points.

2.5X Students exceeded the expected growth of the sample by 114 points.

2.5X Elementary Students exceeded the expected growth of the sample by 161 points.

2X Elementary Students exceeded the expected growth of the sample by 112 points.

3.5X Middle School Students exceeded the expected growth of the sample by 183 points.

2.5X Middle School Students exceeded the expected growth of the sample by 114 points.

4X High School Students exceeded the expected growth of the sample by 187 points.

3X High School Students exceeded the expected growth of the sample by 123 points.

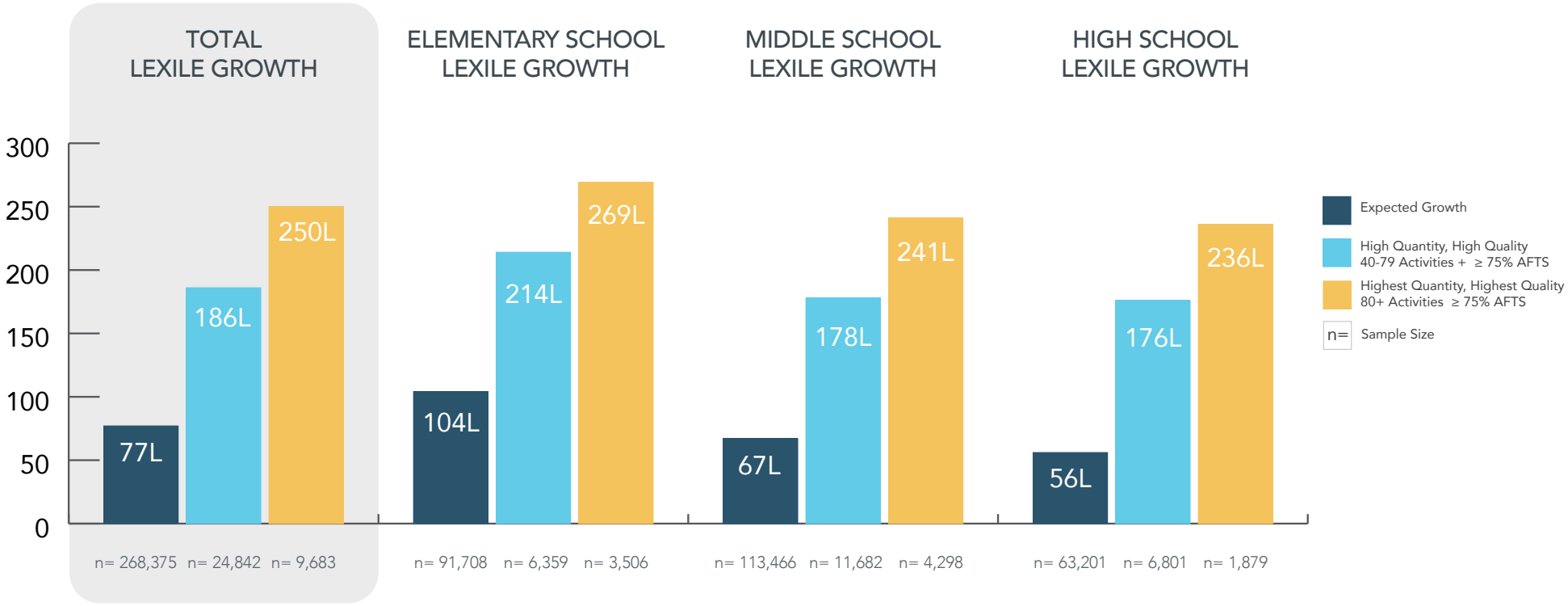
Note: Among students using the intervention scaffold, the average actual Lexile growth for Highest Quantity and High Quality groups combined (N = 42,821 with 40+ activities and 75% AFTS) was 205L, greater than the expected growth of 50L, and that difference was statistically significant, $t = 405.66$, $p < 0.0001$.

RESULTS FOR ENGLISH LEARNERS USING THE **LANGUAGE SCAFFOLD**

LEXILE GROWTH FOR STUDENTS WITH HIGH QUANTITY AND QUALITY OF PRACTICE

When the language scaffold is turned on, students have access to a dual language dictionary, visual vocabulary, sentence frames, paragraph frames, audio supports, digital highlighting, and the numbered steps in the 5-Step Literacy Routine.

RESULTS FOR ENGLISH LEARNERS USING THE **LANGUAGE SCAFFOLD**



2.5X Students exceeded the expected growth of the sample by 109 points.

3X Students exceeded the expected growth of the sample by 173 points.

2X Elementary Students exceeded the expected growth of the sample by 110 points.

2.5X Elementary Students exceeded the expected growth of the sample by 165 points.

2.5X Middle School Students exceeded the expected growth of the sample by 111 points.

3.5X Middle School Students exceeded the expected growth of the sample by 174 points.

3X High School Students exceeded the expected growth of the sample by 120 points.

4X High School Students exceeded the expected growth of the sample by 180 points.

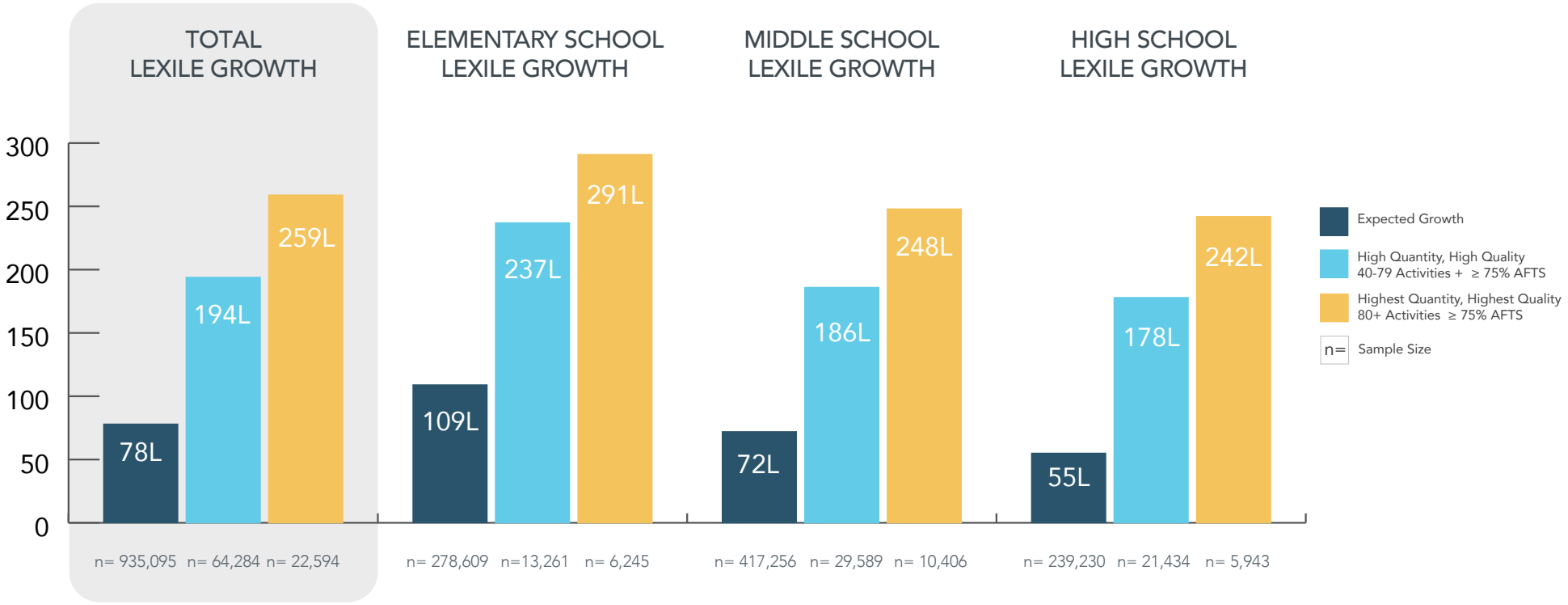
Note: Among students using the language scaffold, the average actual Lexile growth for Highest Quantity and High Quality groups combined (N = 34,525 with 40+ activities and 75% AFTS) was 204L, greater than the expected growth of 50L, and that difference was statistically significant, $t = 348.92$, $p < 0.0001$.

RESULTS FOR **ADVANCED READERS USING THE ENRICHMENT SCAFFOLD**

LEXILE GROWTH FOR STUDENTS WITH HIGH QUANTITY AND QUALITY OF PRACTICE

Students for whom the enrichment scaffold is activated start LevelSet one grade above their school grade, get less time to complete embedded assessments, and see extension pop-ups and related links.

RESULTS FOR **ADVANCED READERS USING ENRICHMENT SCAFFOLD**



2.5X Students exceeded the expected growth of the sample by 116 points.

3X Students exceeded the expected growth of the sample by 181 points.

2.5X Elementary Students exceeded the expected growth of the sample by 182 points.

2X Elementary Students exceeded the expected growth of the sample by 128 points.

2.5X Middle School Students exceeded the expected growth of the sample by 114 points.

3.5X Middle School Students exceeded the expected growth of the sample by 176 points.

3X High School Students exceeded the expected growth of the sample by 123 points.

4.5X High School Students exceeded the expected growth of the sample by 187 points.

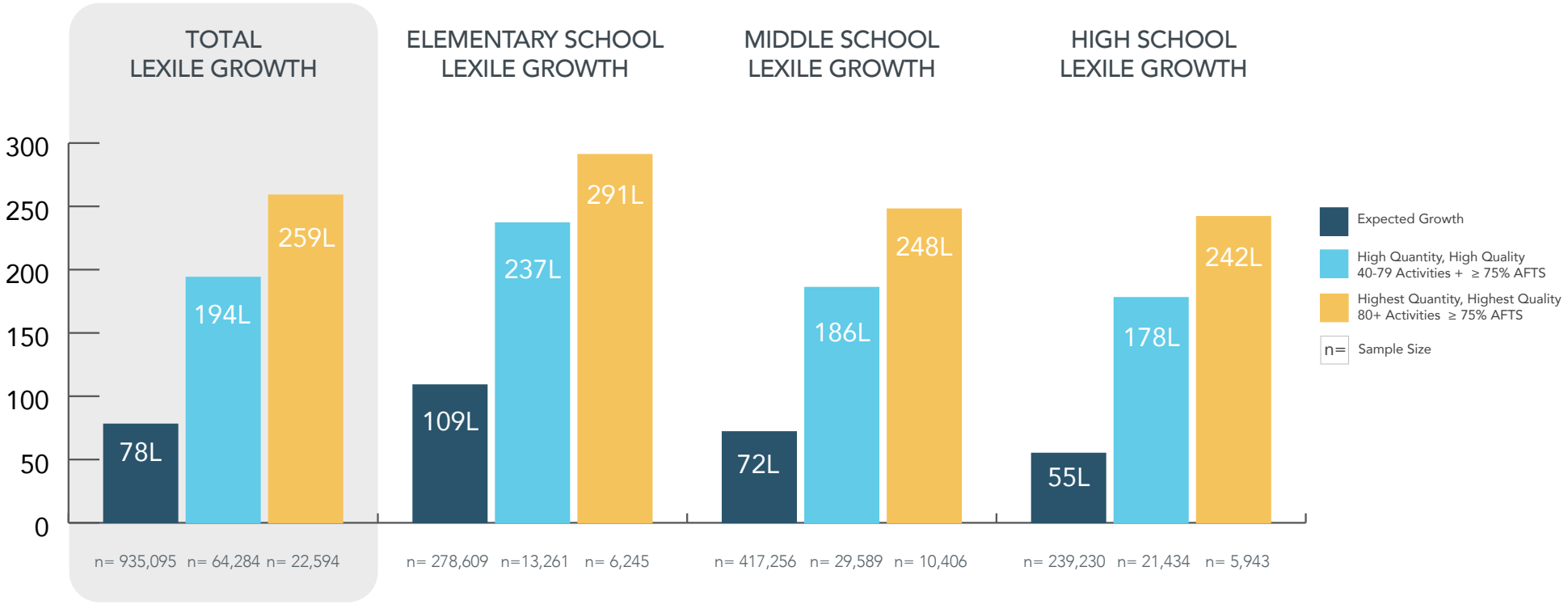
Note: Among students using the Enrichment Scaffold, average actual Lexile growth for Highest Quantity and High Quality groups combined (N = 9,755 with 40+ activities and 75% AFTS) was 187L, greater than the expected growth of 31L, and that difference was statistically significant, t = 184.70, p , 0.0001.

RESULTS FOR **STRUGGLING READERS**

LEXILE GROWTH FOR STUDENTS WITH HIGH QUANTITY AND HIGH QUALITY OF PRACTICE

Students were designated as struggling based on the fall percentile corresponding to their pre-test LevelSet Lexile measures. For the purposes of this analysis, struggling students were defined as performing at or below the 35th percentile. Overall, 79% of the analytic sample fell under the 35th percentile.

RESULTS FOR **STRUGGLING READERS**



2.5X Students exceeded the expected growth of the sample by 116 points.

3X Students exceeded the expected growth of the sample by 181 points.

2.5X Elementary Students exceeded the expected growth of the sample by 182 points.

2X Elementary Students exceeded the expected growth of the sample by 128 points.

2.5X Middle School Students exceeded the expected growth of the sample by 114 points.

3.5X Middle School Students exceeded the expected growth of the sample by 176 points.

3X High School Students exceeded the expected growth of the sample by 123 points.

4.5X High School Students exceeded the expected growth of the sample by 187 points.

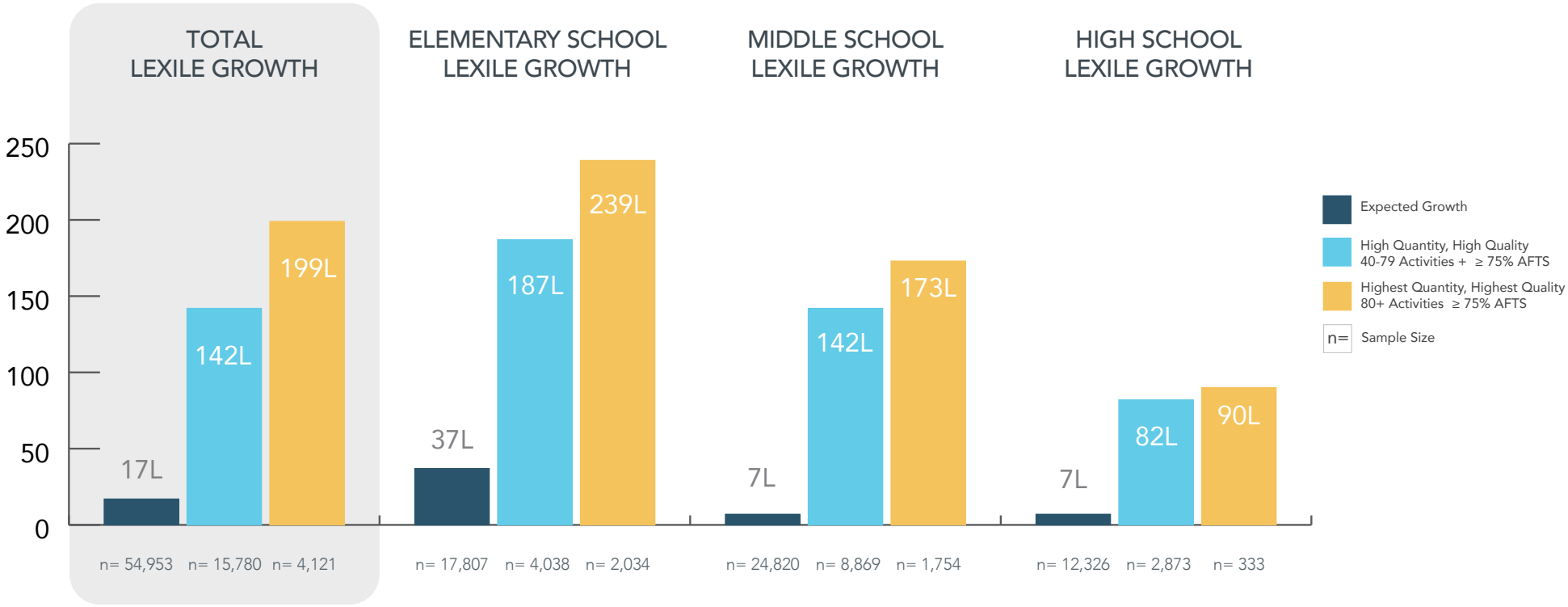
Note: Among struggling readers, the average actual Lexile growth for Highest Quantity and High Quality groups combined (N = 86,878 with 40+ activities and 75% AFTS) was 211L, greater than the expected growth of 60L, and that difference was statistically significant, $t = 577.42$, $p < 0.0001$.

RESULTS FOR **ADVANCED READERS**

LEXILE GROWTH FOR STUDENTS WITH HIGH QUANTITY AND HIGH QUALITY OF PRACTICE

Students were designated as advanced based on the fall percentile corresponding to their pre-test LevelSet Lexile measures. For the purposes of this analysis, advanced students were defined as performing at the 75th percentile or above. Overall, 5% of the analytic sample was performing at or above the 75th percentile. The remaining 16% of students in this sample were performing between the 36th and 74th percentiles at the time of the pre-test LevelSet.

RESULTS FOR **ADVANCED READERS**



12X Students exceeded the expected growth of the sample by 182 points.

8X Students exceeded the expected growth of the sample by 125 points.

6.5X Elementary Students exceeded the expected growth of the sample by 202 points.

5X Elementary Students exceeded the expected growth of the sample by 150 points.

25X Middle School Students exceeded the expected growth of the sample by 166 points.

20X Middle School Students exceeded the expected growth of the sample by 135 points.

13X High School Students exceeded the expected growth of the sample by 82 points.

12X High School Students exceeded the expected growth of the sample by 75 points.

Note: Among advanced readers, the average actual Lexile growth for Highest Quantity and High Quality groups combined (N = 19,901 with 40+ activities and 75% AFTS) was 154L, greater than the expected growth of 13L, and that difference was statistically significant, $t = 232.68$, $p < 0.0001$.

RESULTS FOR **STUDENTS RECEIVING SPECIAL EDUCATION SERVICES**

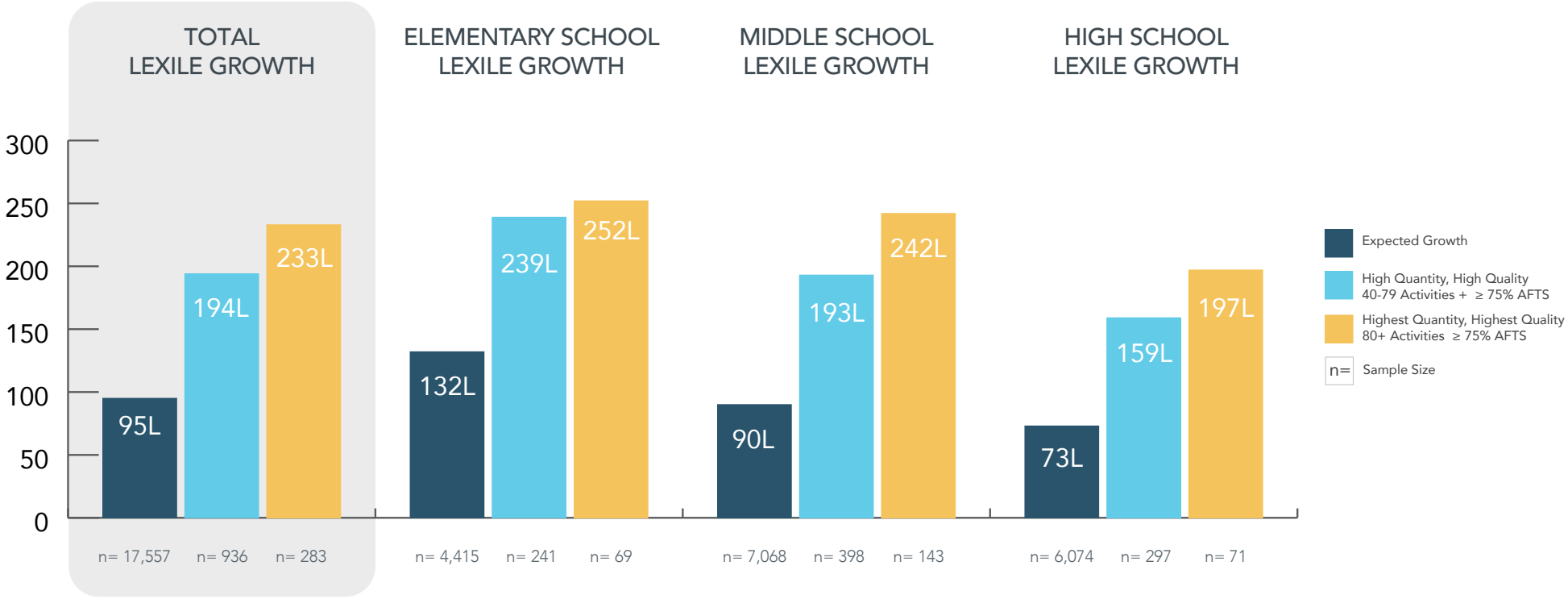
LEXILE GROWTH FOR STUDENTS WITH HIGH QUANTITY AND HIGH QUALITY OF PRACTICE

Students were identified as in need of special education services (SPED) based on information that was available in the Achieve3000 system. As such, results should be interpreted with caution, as these reporting groups may be under representative and, therefore, not highly generalizable.

17% INCREASED

one or more proficiency levels closer toward being on track for college and career readiness

RESULTS FOR **STUDENTS RECEIVING SPECIAL EDUCATION SERVICES**



2X Students exceeded the expected growth of the sample by 99 points.

2.5X Students exceeded the expected growth of the sample by 138 points.

2X Elementary Students exceeded the expected growth of the sample by 107 points.

2X Elementary Students exceeded the expected growth of the sample by 155 points.

2X Middle School Students exceeded the expected growth of the sample by 103 points.

2.5X Middle School Students exceeded the expected growth of the sample by 152 points.

2X High School Students exceeded the expected growth of the sample by 86 points.

2.5X High School Students exceeded the expected growth of the sample by 124 points.

COLLEGE AND CAREER READINESS

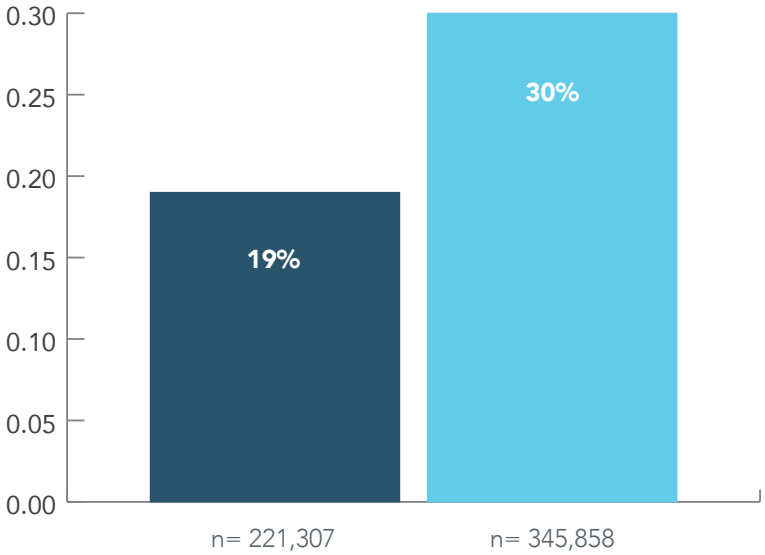
HOW ACHIEVE3000 MEASURES COLLEGE AND CAREER READINESS

It's useful to think of college and career readiness as a journey. Since expectations have shifted toward a more rigorous outcome, it is critical to understand that, below-grade-level readers will take two or three years to reach college and career readiness reading levels. Because we know a student's expected growth, and we know the approximate Lexile measure students need to attain to be competitive in the workforce and successful in college, we can make a prediction aboutwhether or not a student is or isn't "on track" to reach 1300L by the end of their high school year, depending on their grade level and current Lexile measure.
Students who are in the two Not on Track categories shown in the table below are not meeting the college and career readiness targets for their grade while students in the two On Track categories are meeting grade-level targets and can be expected to read at or above 1300L by the time they graduate as long as they continue to achieve expected or greater growth every year.

COLLEGE AND CAREER READINESS PROFICIENCY RANGES				
	Not on Track		On Track	
GRADE	FALLS FAR BELOW	APPROACHES	MEETS	EXCEEDS
1	BR115 and Below	BR110 to 185L	190L—530L	535L and Above
2	150L and Below	155L—415L	420L—650L	655L and Above
3	265L and Below	270L—515L	520L—820L	825L and Above
4	385L and Below	390L—735L	740L—940L	945L and Above
5	500L and Below	505L—825L	830L—1010L	1015L and Above
6	555L and Below	560L—920L	925L—1070L	1075L and Above
7	625L and Below	630L—965L	970L—1120L	1125L and Above
8	660L and Below	665L—1005L	1010L—1185L	1190L and Above
9	775L and Below	780L—1045L	1050L—1260L	1265L and Above
10	830L and Below	835L—1075L	1080L—1335L	1340L and Above
11/12	950L and Below	955L—1180L	1185L—1385L	1390L and Above

SOURCE: METAMETRICS

GROWTH IN COLLEGE AND CAREER READINESS



METAMETRICS FOUND THAT THE PERCENT OF STUDENTS WHO WERE ON TRACK FOR COLLEGE AND CAREER READINESS INCREASED BY 56%.

Overall, the percentage of students who were *On Track* increased from fall to spring from 19 to 30 percent, while the percentage of students who were *Not on Track* decreased from 81 to 70 percent.

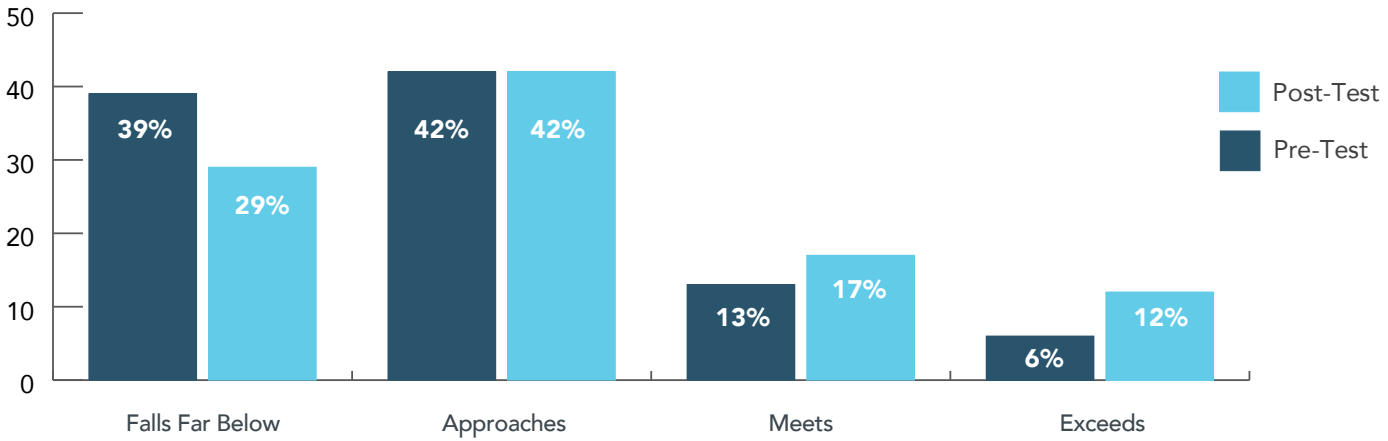
There was a 56 percent increase in the percentage of students who were *On Track* by spring, with 124,551 more students reaching these benchmarks by the end of the year.

On track at beginning of year

On track at end of year

* Note: Students' initial CCR based on pre-test LevelSet. Students' ending CCR based on post-test LevelSet or auto-adjustment.

MOVEMENT IN COLLEGE AND CAREER READINESS

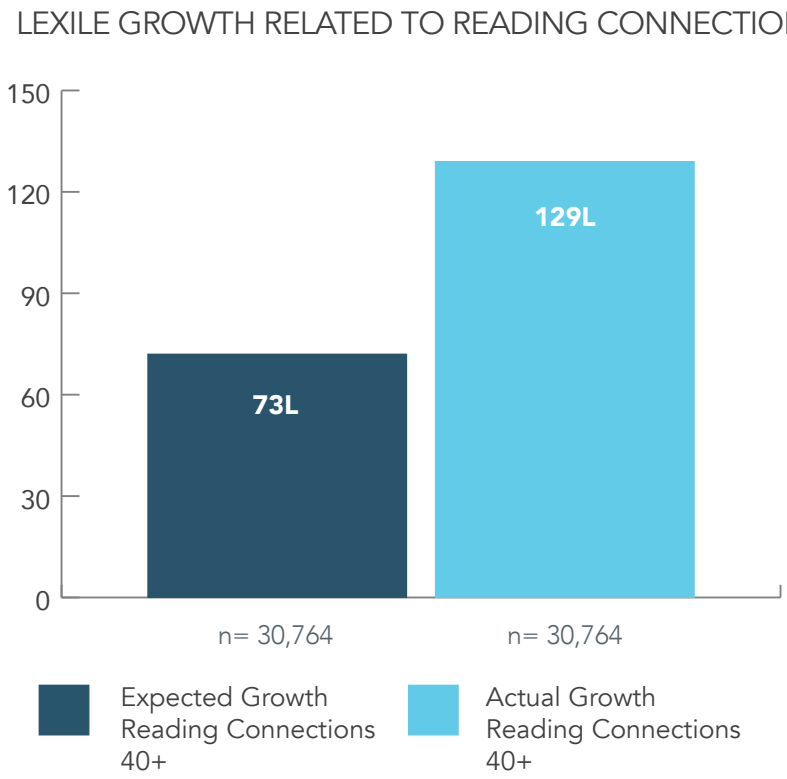


Note: The percentage of students who were On Track at the end of the year was greater than the percentage who were On Track at the beginning of the year, and this difference is statistically significant, $t = 541.23$, $p < 0.0001$.

INSTRUCTIONAL PRACTICES MATTER

LEXILE GROWTH RELATED TO READING CONNECTIONS AND THOUGHT QUESTIONS

Reading Connections help develop students' close-reading skills, comprehension, and citation of evidence from the text by enabling students to make digital annotations as they read. A student selects the text they'd like to highlight as they read. When they finish the article, all of the highlighted text is copied into a new window so that it is easily accessible when they move onto the writing exercise.



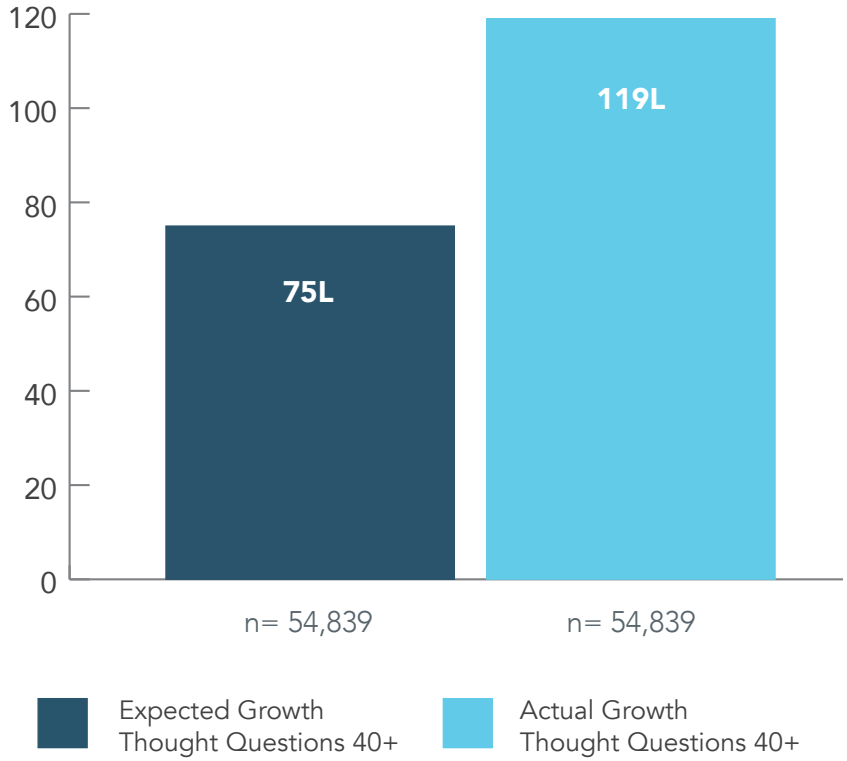
NEARLY 2X THE EXPECTED READING GROWTH

Students who completed 40 or more reading connections during the course of the year exceeded the expected lexile growth of the sample by 56 points, on average.

Note: Students who completed at least 40 Reading Connections had an average actual Lexile growth (129L) that was greater than their expected growth (73L), and this difference is statistically significant, $t = 190.55$, $p < 0.0001$.

The *Thought Question* is the fifth step in the *5-Step Literacy Routine* and purposefully engages students in a formal writing process that allows them to cite evidence from the text when expressing their own thoughts and opinions in writing assignments. Emphasis is placed on persuasive or argumentative writing with prompts that encourage the use of academic vocabulary to reinforce and assess students' learning in the content-area courses.

LEXILE GROWTH RELATED TO THOUGHT



MORE THAN 1.5X THE EXPECTED READING GROWTH

Students who completed 40 or more thought questions during the course of the year exceeded their expected lexile growth by 44 Points, on average.

Note: Students who completed at least 40 Thought Questions had an average actual Lexile growth (119L) that was greater than their expected growth (75L), and this difference is statistically significant, $t = 216.21$, $p < 0.0001$.

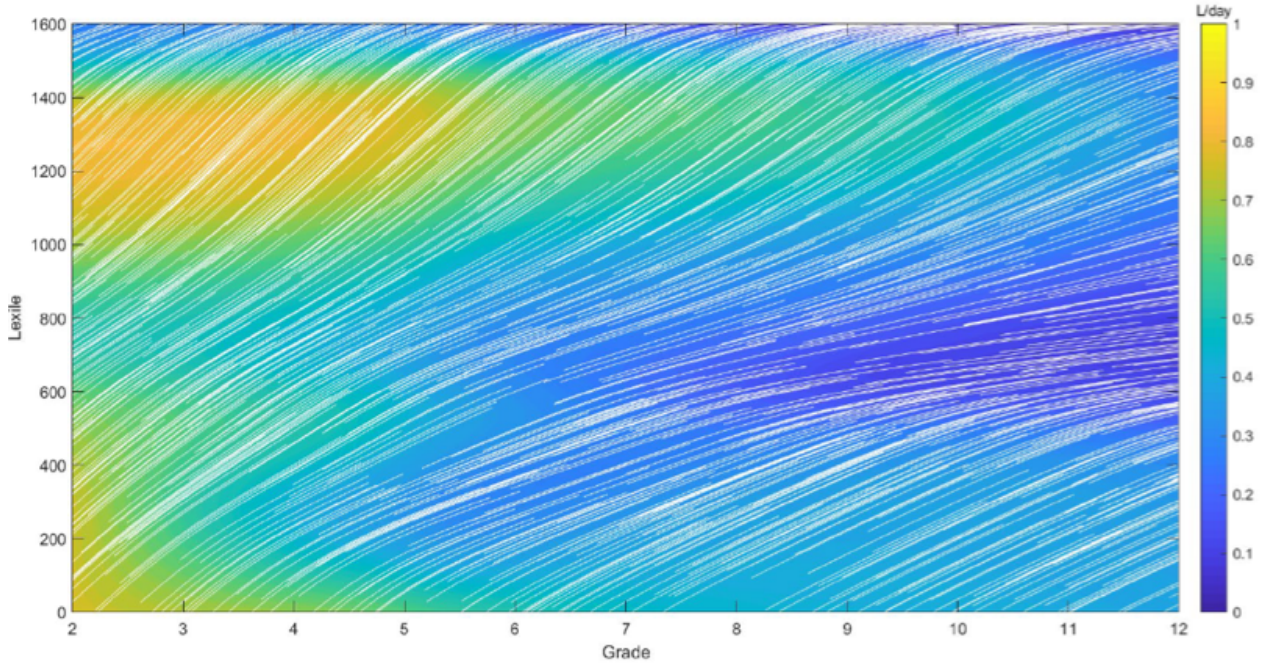
HIGHER ENGAGEMENT YIELDS HIGHER PREDICTED LITERACY GROWTH

Given the large number of students and usage behaviors captured in the analytical data file, MetaMetrics decided to use machine learning techniques to develop models of Lexile growth. The goal of the analysis was to explore the predictive power of Achieve3000 usage and how usage behavior can be used to define engagement in a way that is tied to growth. Anybody who has spent time in a classroom knows that one of the primary struggles faced by educators is keeping their students engaged in tasks that are conducive to learning. The following analyses seek to measure students' degree of engagement with their reading and writing practices while using Achieve3000's PRO literacy solutions and demonstrate the positive relationship between engagement and literacy growth.

In their initial model, MetaMetrics considered only two factors: Lexile level and grade. As can be seen for portions of the visualization below, this simple model shows a divergence of trajectories in the predicted reading growth rate according to a student's grade level and Lexile measure. For example, a third-grade student with a reading measure of 600L is expected to gain approximately .5L each day. Following the white lines within the heat map shows this student is likely to stay

THE MATTHEW EFFECT, WHICH ASSERTS THAT THE "RICH GET RICHER, AND THE POOR GET POORER" IS OBSERVED FOR SIGNIFICANT PORTIONS OF THIS DATA.

PREDICTED READING GROWTH RATES BASED ON A STATUS-ONLY MODE



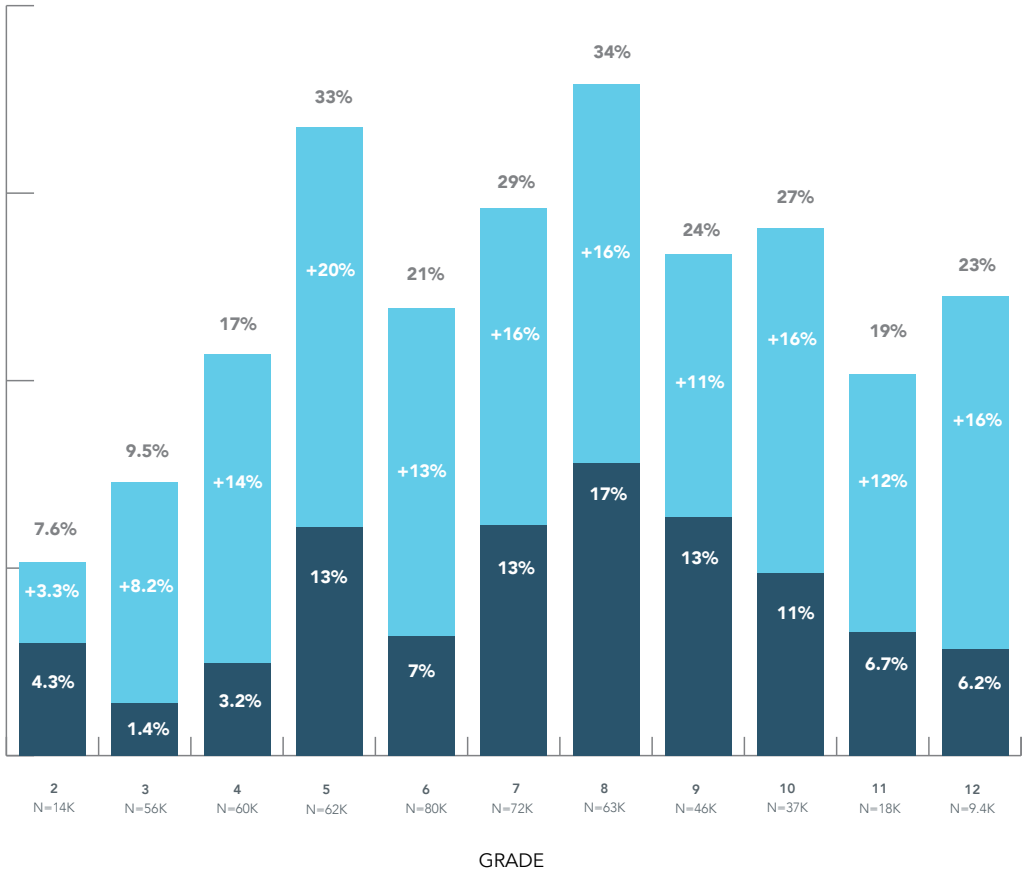
on-track for college and career readiness, attaining a 1600L by the time he graduates high school. Conversely, a student in third grade with a reading measure of 200L is not predicted to exceed a reading measure of 800L by high school graduation. This is commonly known as the Matthew effect which asserts that the "rich get richer and the poor get poorer". The Matthew effect has been written about in academic literature with regards to education and reading in particular (Stanovich, 2009). The Achieve3000 dataset provides an example of this particular phenomenon—wherever the heatmap gets "hotter" going up the y-axis (Lexile), the Matthew effect is observed. Although not ubiquitous, the Matthew effect is observed for significant portions of the data.

HOW DO WE MEASURE THE IMPACT OF ENGAGEMENT ON READING GROWTH?

In a second model, MetaMetrics included 12 more dimensions reflecting student usage of various features of the Achieve3000 platform, such as the number of *Lessons, Activities, Reading Connections, Thought Questions* students completed each day as well as the percent of time students spent using enrichment, intervention, and language scaffolds.

These additional data points dramatically increased the predictive power of the model. In fact, when comparing the percent of reading growth variation that can be attributed to status only (grade and Lexile level) and that which can be attributed to a students' level of engagement with Achieve3000's literacy solutions, it can be concluded that 28% of the variation in reading growth rates can be explained by status and usage behavior with Achieve3000's products, and that adding usage behavior within Achieve3000's products increases the amount of explainable variation by 75%.

PREDICTED READING GROWTH RATE FOR STUDENTS WITH AN ENGAGEMENT SCORES OF 75

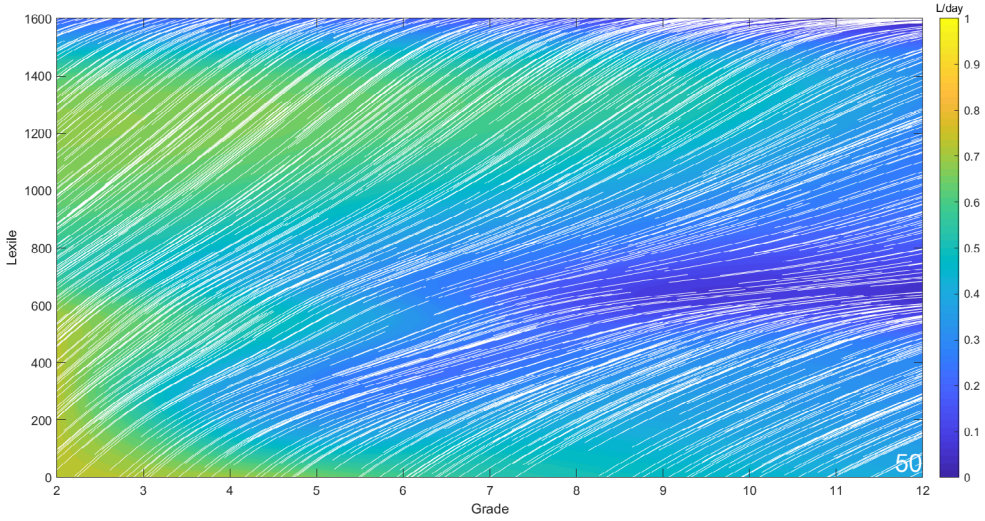


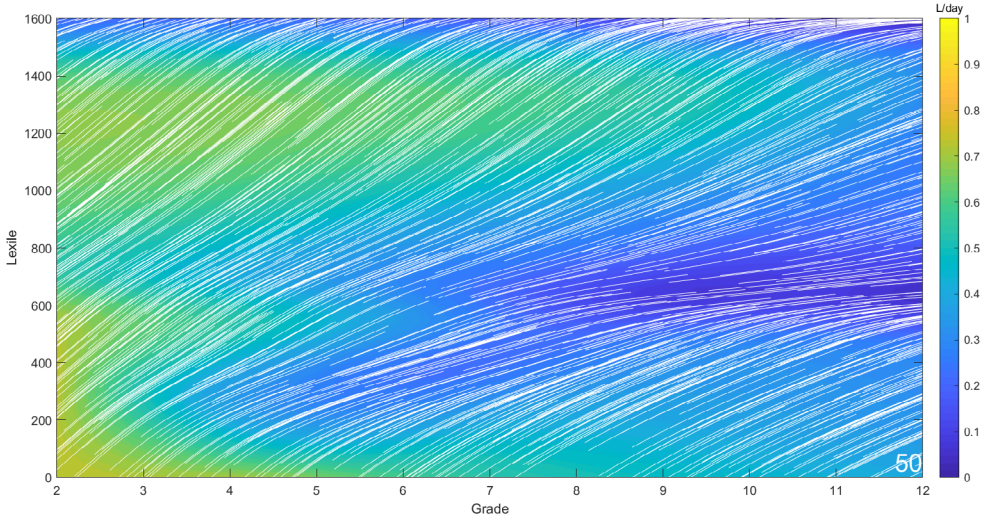
USAGE BEHAVIOR WITHIN ACHIEVE3000'S LITERACY SOLUTIONS INCREASES THE AMOUNT OF EXPLAINABLE VARIATION IN READING GROWTH BY 75%.

The two models described above allowed MetaMetrics to represent students' engagement with Achieve3000's PRO literacy solutions by normalizing the variance in predicted growth due to usage behaviors relative to predicted growth according to status only on a scale of 0 to 100. MetaMetrics called this a student's Engagement Score. For example, a student with an engagement score of 25 places their additional predicted reading growth due to their usage profile at the 25th percentile among students with a similar grade and Lexile.

The two plots below demonstrates the predicted reading growth rates for students with relatively high engagement scores of 50 and 75. When compared to the status only model, we observe rather high predicted growth rates, with some hypothetical students predicted to grow at rates above 0.8L per day. Engagement scores of 90 can sometimes yield predicted reading growth rates over 1L per day!

Based on these analyses, MetaMetrics concluded that greater usage, which is used to define engagement, is strongly associated with and predictive of greater reading growth within Achieve3000's PRO literacy solutions.





METAMETRICS CONCLUDED THAT GREATER ENGAGEMENT IS STRONGLY ASSOCIATED WITH AND PREDICTIVE OF GREATER READING GROWTH.

BACKGROUND INFORMATION

THE LEXILE FRAMEWORK AND THE POWER OF LEVELSET

Developed by MetaMetrics®, the Lexile Framework for Reading is the result of more than 20 years of research and is the most widely adopted reading measure in use today. The Lexile Framework is a scientific approach to reading and text measurement. A key advantage of the Lexile Framework is that it measures both text complexity and reader ability using the same scale. This means that the ability to comprehend and the material being comprehended are evaluated using the same criteria.

LevelSet measures reading comprehension of nonfiction text in English and Spanish. Developed by Achieve3000 in conjunction with MetaMetrics, the LevelSet assessment identifies each student's Lexile measure and is a reliable means of matching student reading levels to informational text. The LevelSet assessment is administered twice a year—a pre-test at the beginning of the school year and a post-test at the end of the school year—to measure student progress and provide a benchmark measurement of student growth.

Based on performance on a pre-test LevelSet, a student is placed into their "just-right" reading level in the Achieve3000 system. Achieve3000 uses a Bayesian scoring algorithm, also developed by MetaMetrics, to provide continually updated measures that reflect the students' progress in reading development. As students read and respond to nonfiction text during the lessons, the Bayesian approach refines each student's Lexile measure. By using multiple measures over time, the Bayesian scoring improves the accuracy of measurement as students learn. With this approach, Achieve3000's proprietary engine is able to improve its ability to match students with appropriate texts and to forecast student readiness for college and career benchmarks.

CONCLUSION

The findings in this report suggest that Achieve3000 is an effective solution for many kinds of student learners, across all grades and various learner profiles, including advanced readers, English learners and students with reading difficulties. At every grade level, Achieve3000 students achieved higher than expected Lexile growth.

- On average, students gained an average of 89L compared to their expected Lexile growth of 69L.
- Students who used Achieve3000 with the highest quantity and high quality demonstrated an average Lexile gain of 247L which was more than three times their expected Lexile growth of 69L.
- Students who used the language support scaffolds showed Lexile gains of 250L, which was more than three times their expected Lexile growth of 77L.
- Students who used the intervention support scaffolds saw Lexile gains of 253L, which was more than three times their expected Lexile growth of 74L.
- Higher levels of engagement with Achieve3000's literacy solutions yields higher predicted literacy growth.

With more than one million students included in the analytic sample, Achieve3000 is proud of these outstanding results.

REFERENCES

MetaMetrics, Inc. (2004). Unpublished growth data.
Stanovich, K. E. (2009). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. Journal of Education, 189 (1-2), 23-55.

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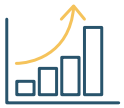
ABOUT ACHIEVE3000

Achieve3000® believes literacy is the key to unlocking students' success. Since 2001, we have partnered with schools and districts to accelerate literacy growth for all students in grades 2–12 with our PRO Solutions. Our solutions help all preschool through adult learners reach their full potential and succeed in a rapidly changing global economy with increasing information demands.

Today, we serve three million academically diverse students, offering tools and resources for literacy instruction powered by:

EQUITY

Our precisely differentiated content and scaffolds give ALL students access to the same standards-aligned information and ideas so EVERY reader, struggling or advanced, can progress toward college and career success.



ACCELERATION

Our methodology for "just-right, just-on-time" content-matching enables students to move their Lexile measures up, level by level. Students who use Achieve3000 with recommended frequency and quality can attain up to 3X their expected Lexile gains over the course of a single school year.

DEPTH

We support practices to deepen literacy instruction, both by providing frameworks for teacher-facilitated learning and by pushing students to synthesize and extend their learning through critical thinking and reflection.

FLEXIBILITY

We have 18 years of experience partnering with every kind of district, school, and classroom to provide solutions and services that easily integrate within your educational ecosystem.

PROVEN RESULTS

Independent studies and ongoing analyses demonstrate our core platform's strong positive effects on student outcomes.

MetaMetrics® | SPN Successful Practices Network