

# Sylvan Individualized Tutoring and SylvanSync: Research Snapshot

Submitted to

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December 2016

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## OVERVIEW

In 2014, Sylvan finished deploying the SylvanSync-based Individualized Program to nearly 700 national and international Sylvan Learning Centers. Through September 2016, Sylvan provided SylvanSync-based individualized tutoring to more than 200,000 K–12 students, each of whom received a personal learning plan, used by Sylvan tutors to tailor reading and math instruction to students' individual needs. What makes this personalized approach possible is SylvanSync's robust, adaptive digital technology. Using initial assessment data for each student, the system gauges where students should start their instructional journey and what content tutors should use to support and challenge them along the way. A set of reading and math learning progressions, a critical underpinning of the SylvanSync approach, determines the organization of the content and conditions for mastering each skill. Building on learning progressions initially validated by Renaissance Learning through STAR test results from tens of thousands of students nationwide, Sylvan has used its own data and analyses to refine these progressions and chart the most efficient paths toward competency.

To date, research shows that SylvanSync-based Individualized tutoring programs are effective in helping students grow academically. Thousands of students have already improved their math and reading skills. This report summarizes three aspects of that research: the academic gains made by students based on the tutoring sessions they receive, a comparison of students' actual gains to their expected gains as measured by the STAR assessments, and students' related growth in what is frequently called "academic mindset." The expected vs. actual analysis uses the growth norms developed by Renaissance Learning as the "expected gains" for each student. The measure for academic mindset, which is made up of affective factors that can impact students' performance, such as self-confidence and perseverance, is the Student Outlook Survey, an instrument specifically designed to gauge changes in these factors and their links to students' academic success.

To learn more about the background research on [SylvanSync](#) and the [Student Outlook Survey](#), consult the [Sylvan Research Institute](#).

## STUDY DESIGN AND SAMPLES

This study was based on assessment data from more than 21,000 first through twelfth graders who received an initial assessment and were served by a Sylvan Center from October 1, 2015 through September 30, 2016. We looked at the scaled score growth of these students from their Initial assessment to their latest progress assessment prior to the end of September 2016. During this timeframe, students may have been tested up to six times, depending upon the date of their enrollment (i.e., later enrollees may have only been tested once prior to September 30, 2016). To put the scaled

score gains in context, there are 1,400 possible scaled score points from kindergarten through grade 12 on each of the Renaissance tests.

Table 1 shows the numbers of students included in the study and the numbers of assessments they received by grade band and subject. Overall, the sample contained more reading students ( $n=12,557$ ) than math students ( $n=8,721$ ), and this pattern generally held true across grade bands (with the exception of the 6th–8th grade, where math students slightly outnumbered reading students). Both reading and math sample sizes were smaller for the upper-grade bands than for the lower-grade bands. These trends mirror the historical enrollment patterns typically seen for Sylvan.

**Table 1. Numbers of Students and Assessments in the Study, by Grade Band and Subject**

Grade Band	Subject	Number of Students	Number of Assessments
All Grades	Reading	12,557	18,789
	Math	8,721	11,785
K–2nd	Reading	2,767	4,050
	Math	1,249	1,572
3rd–5th	Reading	6,197	9,355
	Math	3,759	5,096
6th–8th	Reading	2,559	3,835
	Math	2,769	3,854
9th–12th	Reading	1,034	1,549
	Math	944	1,263

The study examined the scaled score gains these students made on the STAR Reading or Math assessments, based on the number of tutoring sessions they attended *at the time of an assessment*—a proxy for the amount of instruction students received. Students’ individual needs and plans in part determine the number of sessions they receive, but family schedules and circumstances can also affect those numbers, as can students’ perseverance.

Table 2 shows the number of assessments included in our sample within each session band. The greatest number of assessments for reading occurred between sessions 21 and 30, with fairly large concentrations again at the 46–50 band. For math, the greatest number of assessments occurs by session 25. In general, assessments in lower session bands represent students’ first progress assessment. Assessments taken between 41 and 60 sessions generally represent students’ second progress assessment, and assessments taken after 60 sessions represent the third progress assessment and beyond.

**Table 2. Numbers of Assessments in the Analyses, by Session Band and Subject**

Number of Sessions	Assessments per Session Band, Math	Assessments per Session Band, Reading
≤15	1085	1066
16–20	1350	1652
21–25	3271	4583
26–30	1926	3137
31–35	808	1434
36–40	515	900
41–45	500	882
46–50	741	1420
51–55	467	877
56–60	200	508
61–65	127	316
66–70	197	399
71–75	222	434
76–80	101	281
81–85	60	190
86–90	47	147
91–95	39	157
96–100	44	127
>100	85	279

When students take their initial assessments and their progress assessments, they also complete the Student Outlook Survey. Their responses allowed us to look not only at academic gains but also at changes in the academic mindset that can affect academic achievement, and at any links between the two. There are two versions of the survey: one for younger students in grades 1–5, and another for those in grades 6–12. The findings shared here are based on responses to the survey from 13,346 first through fifth graders, and 7,016 sixth through twelfth graders. These were the students who had both an initial assessment and at least one progress assessment within the recommended number of sessions.

As part of ongoing research conducted to continuously improve its programs, Sylvan also looked at students' expected vs. actual growth, based on Renaissance Learning's growth norms. The total number of students in the expected vs. actual analysis is slightly lower than the students in other analyses. The expected vs. actual analysis looks specifically at the results from progress assessments that are given within the recommended sessions band. For example, the first

progress assessment should be given within 21–40 sessions, and the second within 41–60 sessions. If a progress assessment falls outside these parameters, it was not included in the analysis.

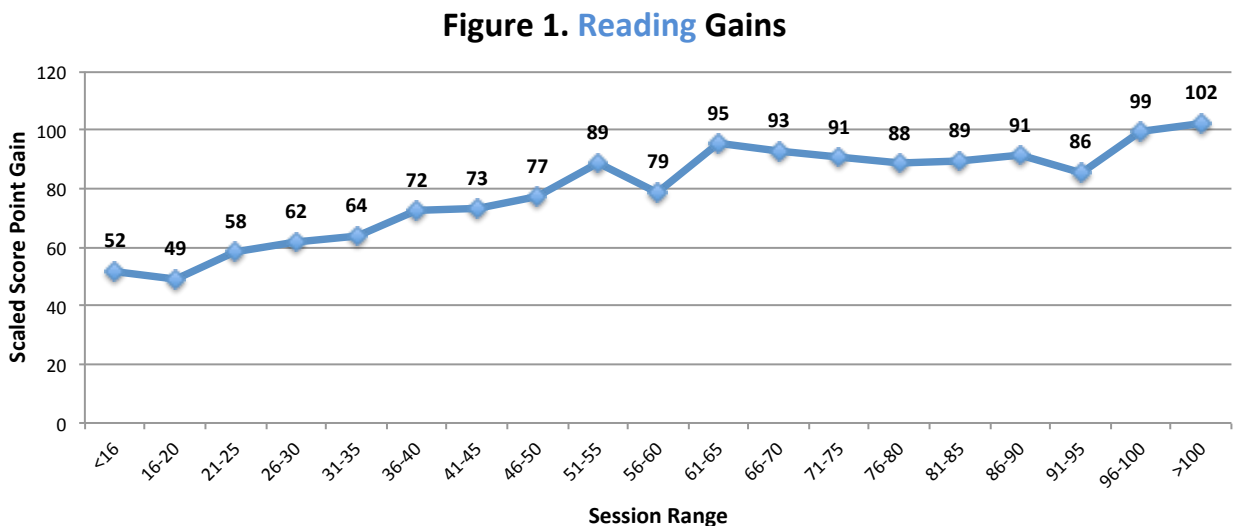
## RESULTS

### **What can the overall trends tell us about individualized tutoring?**

The upward trends for both reading and math (Figures 1 and 2) show that with Sylvan’s individualized tutoring, students’ academic performance improves. Even a few sessions can have a positive impact: at 16 sessions, students gain an overall average of 49 points in reading; then rise to a 58-point gain by session 25. In math, students make early and steady gains, for an average of 47 points by 25 sessions. Although neither the trend lines nor learning curves are constant—after initial gains progress may level off and temporarily plateau—reflecting the varied pace at which students typically acquire reading and math skills. The trends also demonstrate that the more instruction students receive, the more progress they make. It is also important to note that while there are many fewer students at the upper session bands, and hence fewer assessments, the trends still seem to continue, just at a slower pace.

### **How does the number of sessions received affect performance in reading?**

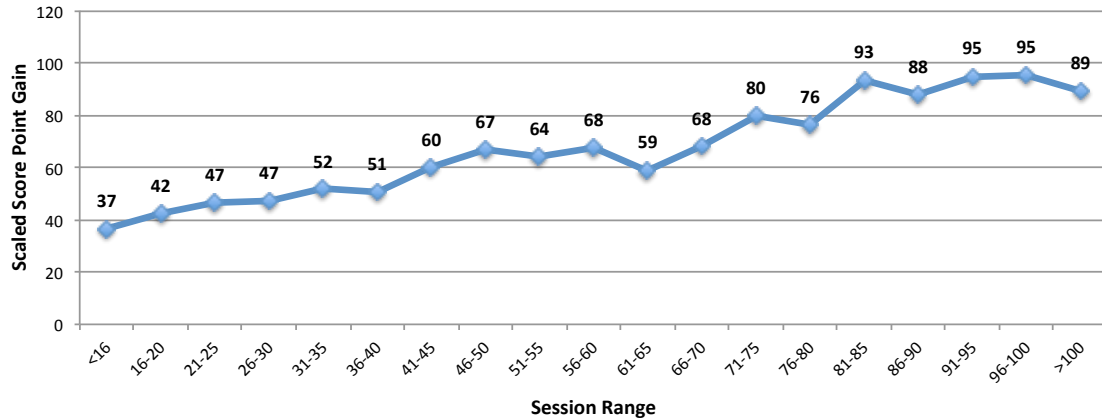
- In **reading**, students see steady growth in scaled score gains, with 89 points by session 55.
- Students see a 102-point gain by session 100.
- Gains seem to drop off after session 55, but then growth picks again between sessions 61–65. (See Figure 1.)



## How does the number of sessions received affect performance in math?

- In **math**, students' growth curve is relatively steady; with a 52-point scaled score gain by session 35, and an 93-point gain by session band 81–85.
- Performance seems to drop off between session 60 and 65, but picks up again, to an average of 93 points by session 85, then holds fairly steady through 100 sessions, where scale score gains average 89 points. (See Figure 2.)

Figure 2. **Math Gains**



## What do Student Outlook Survey responses tell us about the impact of individualized tutoring with SylvanSync?

The Student Outlook Survey, which is administered to all students with their initial assessment, and then again after approximately 24 sessions, was based on a growing body of research on the importance of academic mindset in students' learning and achievement. The research also includes studies of the role of out-of-school programs in building positive attitudes toward learning and the ways technology can motivate students and bolster the effect of these programs. Results from the survey help Sylvan determine where to provide attitudinal as well as academic support to ensure that students experience success.

Students were able to choose one of four responses to show how much they agreed with statements about learning and their performance in school. The survey was designed to gauge factors such as engagement, self-confidence, perseverance, and the value students attach to school. A score of 3 or better indicated positive attitudes "favorable" to success, which we consider a success "benchmark."

1 = strongly disagree

2 = disagree

3 = agree

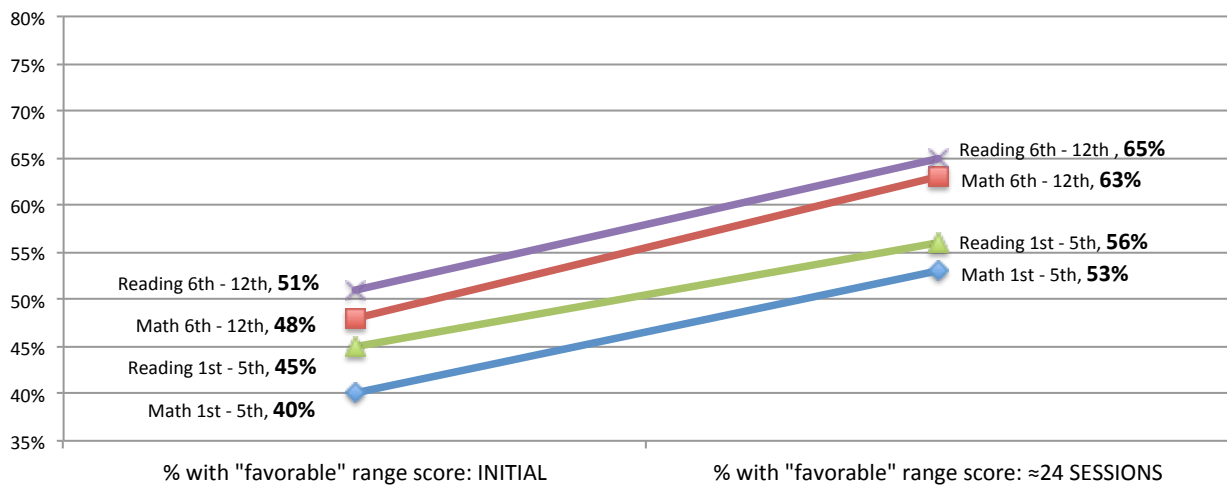
4 = strongly agree

Comparisons of students responses on surveys completed along with their initial and progress assessments showed that Sylvan had the greatest effect on students' self-confidence and perseverance, and that these two factors were

most closely related to academic growth. The discussion below describes how close to the success benchmark students came on these two factors before and after receiving Sylvan individualized tutoring.

- Responses to surveys taken before instruction indicated that many students—across grade bands and subjects—lacked **self-confidence**. In response to items such as “It is easy to get good grades in school” or “I am a good student,” 45% of the younger students (grades 1–5), and 51% of the older group (grades 6–12) met the “favorable” benchmark in **reading**. In **math**, percentages were somewhat smaller, at 40% and 48%, respectively.
- After instruction, responses indicated a boost in **self-confidence**. In **reading**, there was an increase of 11 percentage points in the number of students in the lower grade bands meeting the “favorable” benchmark, and a 14 percentage-point increase for students in the upper grade bands. In **math**, students in lower grade bands saw a 13 percentage-point increase and in the upper grades a 15 percentage-point increase. (See Figure 3.)

**Figure 3. % of Students with a Favorable Academic Self-Confidence Scale Score**

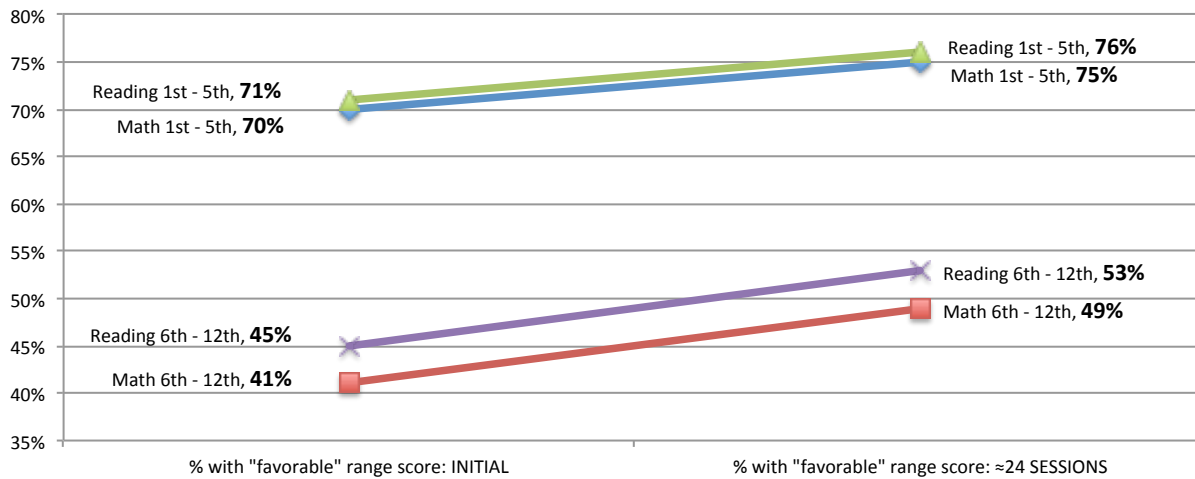


- The second largest gain was in academic **perseverance**. Initial responses to statements such as: “I keep doing schoolwork even if it is hard,” or “I keep doing schoolwork even if I don’t like it,” showed lower levels of **perseverance** among 6th–12th graders, compared to students in grades 1–5 (45% vs. 71% in **reading** and 41% vs. 70% in **math**). In **reading**, there was a 5 percentage-point gain for students in grades 1–5, and an 8-point gain for those in grades 6–12. In **math**, 1st–5th graders saw an increase of 5 percentage points, and 6th–12th graders again saw an 8 percentage-point gain, (See Figure 4.)

Our correlational analyses showed some clear connection, and statistically significant links, between students’ self-confidence and perseverance and their academic growth, especially in **reading**.



**Figure 4. % of Students with a Favorable Academic Perseverance Scale Score**



***How does students’ actual academic growth compare to expected growth?***

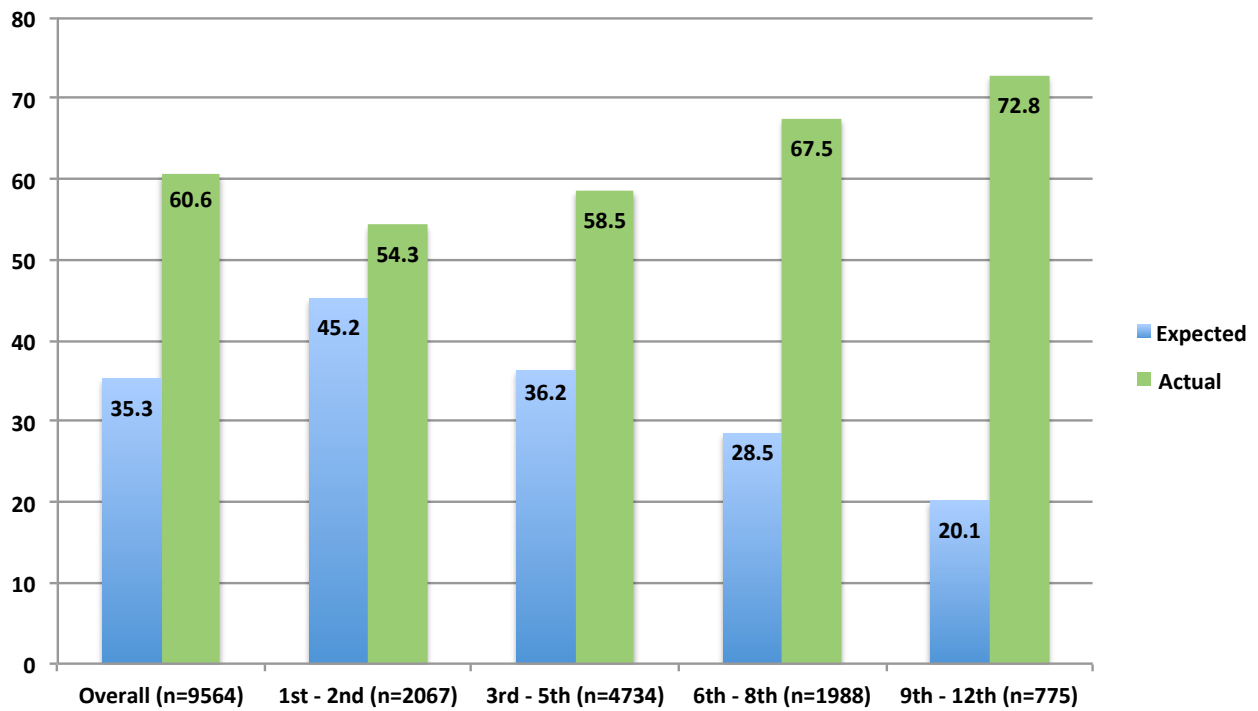
Access to Renaissance Learning’s growth norms allows Sylvan to compare the academic growth of students who have received individualized tutoring from Sylvan to the growth made by thousands of other students who are in the same grade and are at the same ability level but who have not benefitted from Sylvan’s tutoring. Using Renaissance Learning’s “moderate” weekly growth estimates as the “expected” measure, we compared Sylvan students’ actual growth for a period of time to their expected growth overall and by their grade band. Growth norms are particularly meaningful scores because they provide both absolute and relative scores for students. Growth norms start with the number of scaled score points gained from one testing interval to another on the STAR tests scale,<sup>1</sup> and then compare these gains to those of students in the same grade and performance level over similar time periods.

Analysis of actual versus expected gains revealed that Sylvan students’ *actual* growth consistently outpaced *expected* growth across grade bands in both **reading** and **math**. **Reading** scores were, overall, a little higher than **math** scores, and the differences between expected and actual growth were wider. *(Note: In looking at the math results, it is important to remember that learning to read is different from learning to do math. They are very different skills sets. In addition, the new math standards, upon which much of the Sylvan math program is based, require new instructional strategies that are still unfamiliar to many teachers, including those at Sylvan. Analysis of the SylvanSync math data over the past year has led to some significant changes in the math program and its support for tutors. These changes were released mid-year, and their impacts are not fully realized in this analysis.)*

<sup>1</sup> The moderate growth rate reflects the rate of scaled score point increases that average students (those at the 50th percentile) at each level (grade, month, and incoming ability level) were able to achieve in a typical week of school instruction.

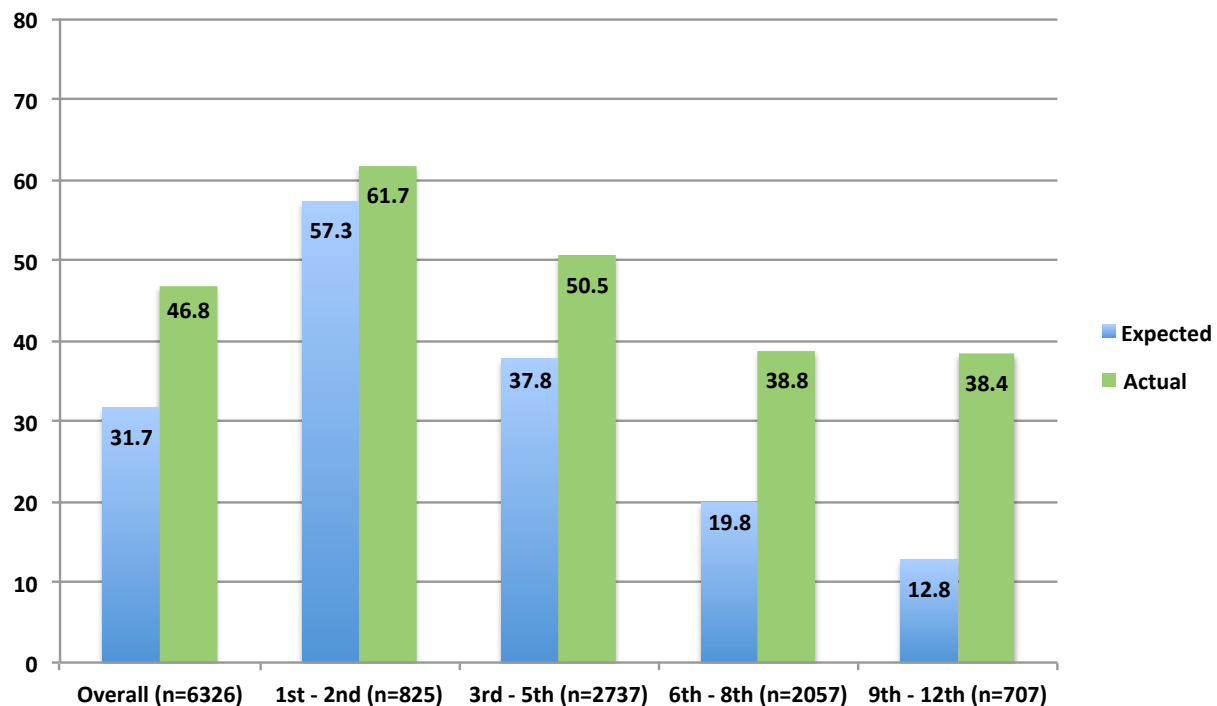
- Actual **reading** scaled score (SS) gains overall, at approximately 24 sessions, were 25 percentage points higher than **expected** gains, to 60.6 vs. 35.3 scaled score points (see Figure 5).
- In **reading**, older students posted the largest scaled score gains: the 9th–12th grade group’s actual scaled scores topped expected scores by 52.7 points, which was **more than three times the expected growth**.
- The difference in 6th–8th graders’ actual vs. expected scaled scores was 39 points, which is **more than twice the expected growth** for the period. (See Figure 5.)

**Figure 5. Reading: Expected vs Actual Scaled Score Gains at First Progress Assessment by Grade Band**



- In **math**, students, overall, exceeded expectations by 15.1 points at approximately 24 sessions.
- Students in grades 9–12 **math** saw actual growth that **tripled the expected growth**, at 38.4 vs. 12.8.
- Students in grades 6–18 **math** saw gains that were almost **two times the expected gains**, at 38.8 vs. 19.8 points. (See Figure 6.)

**Figure 6. Math: Expected vs Actual Scaled Score Gains at First Progress Assessment by Grade Band**



## Summary

The findings shared here indicate that Sylvan’s individualized programs, supported by SylvanSync technology, have a positive impact on academic achievement, and that the number of instructional sessions students participate in can have a marked effect on their pace of growth and progress. It is also clear that Sylvan’s individualized programs have a positive impact on students’ mindsets related to academic success. With its centralized data system, Sylvan can continue to systematically gather and analyze data, make informed decisions about overall learning progressions, and pose new questions currently explored by the larger education community, including:

- How do adaptive digital technologies affect achievement?
- Just how malleable are skills such as perseverance?
- How is achievement related to factors such as attitude?

SylvanSync is about more than computer-adaptive systems, test data, and learning progressions. It is also about how to best use these tools and data to address the needs of real students in real Sylvan Centers. That is why, in addition to the analysis of system-wide testing data, Sylvan has also focused its research on the students, parents, teachers, and others in the Sylvan learning community who use SylvanSync-based programs. This research, together with research on the optimal number of sessions and the relationship between attitudes and academic growth, helps Sylvan Centers create a truly individualized plan for each student.

In its commitment to ongoing research and continuous improvement, Sylvan will, in the coming year, continue its data analysis to:

- Further enhance the educational experience of students.
- Better understand student mindset and how it impacts long-term academic success.
- Improve communication with Sylvan families and the education community at large about how to enhance student academic gains with individualized tutoring programs.