Achieve3000®

Smarty Ants®

Achieve3000 Literacy™

IMPACT REPORT

Boosting NWEA MAP and FSA ELA scores with Smarty Ants and Achieve3000 Literacy

Introduction

During the fall of the 2017-2018 school year, Bay District Schools, which is located in Panama City, FL and serves the students of Bay County, launched its use of Achieve3000's literacy solutions with all of its elementary school students as well as for students in sixth through tenth grades who need intervention based on the district's Response to Intervention (RTI) model. Since Bay District Schools uses NWEA MAP as a diagnostic and benchmarking test, the district leadership thought Achieve3000 was a great fit because of the platform's ability to provide small-group lesson plans targeting the skills each student needs to work on most, according to MAP performance data that can be imported into Achieve3000's systems. Known for its strong district leadership, Bay District Schools advocated for providing on-site professional development to every single one of their 3,000+ teachers in one day!

In 2017-2018, there were 28,076 ethnically diverse students enrolled in preschool through 12th grade with 86 percent of students identified as white, 15 percent as black, eight percent as Hispanic, seven percent of students identified as one or more races, two percent as Asian, and about half of a percent as American Indian or Pacific Islander. Across the district, 18 percent of students had disabilities, three percent were English language learners, and 53 percent qualified for free and reduced lunch.[1]
(https://edstats.fldoe.org).

Following the 2017-2018 school year, Achieve3000 conducted an analysis of Bay District Schools students' performance on the NWEA MAP (Grades K-2) and the Florida State Assessment for English language arts (FSA ELA) (Grades 4-10) tests in relation to students' usage of Smarty Ants and Achieve3000 Literacy during the 2017-2018 school year.

The solutions examined in this document — Smarty Ants (grades K-2) and Achieve3000 Literacy (grades 2-12) — are powered by a patented methodology that delivers grade-appropriate lessons to the entire class and simultaneously tailors them according to each student's Lexile® reading level. Achieve3000's solutions have been proven to accelerate reading comprehension, fluency, writing proficiency, and vocabulary development.

Methodology

This report relies on internal Smarty Ants and Achieve3000 Literacy usage and Lexile data as well as NWEA MAP data for grades K-2 and FSA ELA data for grades 4-10 from Fall 2017 and Spring 2018. To examine the impact of Achieve3000 usage on Lexile growth, two sample groups of 4,162 students in kindergarten through second grade and 4,061 students in fourth through tenth grades who met the following inclusion criteria were identified:

- Had valid pre-test and end-of-year Lexile scores during the 2017-2018 school year
- Had at least 60 days between the date of their most recent Lexile assessment and their pre-test
- Completed at least 10 multiple-choice activity sets following a lesson in Smarty Ants or Achieve3000 Literacy

Measures

LevelSet

Developed by Achieve3000 in partnership with MetaMetrics®, the LevelSet™ assessment identifies each student's Lexile reading measure and is a reliable means of matching student reading levels to informational text. The LevelSet assessment can be administered up to three times per year—a pre-test at the beginning of the school year, an interim test in the middle of the school year, and a post-test at the end of the school year—to measure student progress and provide a summative measurement of student growth in English or Spanish. Achieve3000 and MetaMetrics developed 4 grade-specific achievement level descriptors for college and career readiness: falls far below, approaches, meets, and exceeds. Achieve3000 considers students performing in the higher two achievement levels (meets and exceeds) to be "on track" for college and career readiness, whereas students performing in the lower two achievement levels (falls far below and approaches) are considered to be "not-on-track."

Achieve3000 uses a Bayesian scoring algorithm, also developed by MetaMetrics, to provide continually updated measures that reflect the students' progress in reading development. As the student reads and responds to nonfiction text during their reading lessons, the Bayesian approach continually refines each student's Lexile measure. By using multiple measures over time, the Bayesian scoring algorithm 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.

NWEA MAP

Students enrolled in kindergarten through second grade participate in the NWEA MAP Growth, which measures student achievement in reading, language usage, math, and science. Students take the test three times per year: fall, winter, and spring. NWEA MAP Growth provides RIT scores, based on a stable scale that measures performance regardless of age, grades, or grade level. Students also receive a projected growth value which represents how much a student is expected to grow in RIT from one administration of the test (e.g. fall) to another (e.g. spring). These projections are based on norms given each student's starting score, grade level, and when each test is administered.

FSA ELA

Students enrolled in 4th through 10th grades participate in the FSA (Florida State Assessment) which measures student achievement in English language arts and math. Students take the test once, at the end of the school year. Raw scores on the FSA are converted to scale scores using an Item Response Theory (IRT) model, which considers statistical characteristics (i.e. whether an item is easier to guess) of an item and whether the student answered the item correctly. These scores are also associated with performance levels (1 = Inadequate, 2= Below Satisfactory, 3 = Satisfactory, 4= Proficient, and 5= Mastery), that represent different ranges of scores for each grade level. Level 1 is further broken down into three sublevels and Level 2 is broken down into two sublevels. Learning gains on the FSA are defined as an increase in performance level, an increase in performance sublevel with Levels 1 and 2, maintenance of levels 3 or 4 with a scale score growth, or maintenance of level 5.

Results for Grades K-2

Smarty Ants Usage

Over the course of the 2017-2018 school year, participating students in kindergarten through second grade logged in an average of 121 times and completed 22 lessons. Kindergarten students completed more lessons than the other grades (23 lessons). Overall, students made 50 percent progress toward their end-of-year goal, with kindergarteners making the most progress (59%). See Table 1 for detailed usage data.

Table 1: Program Usage Summary Overall and by Grade, 2017-2018 School Year

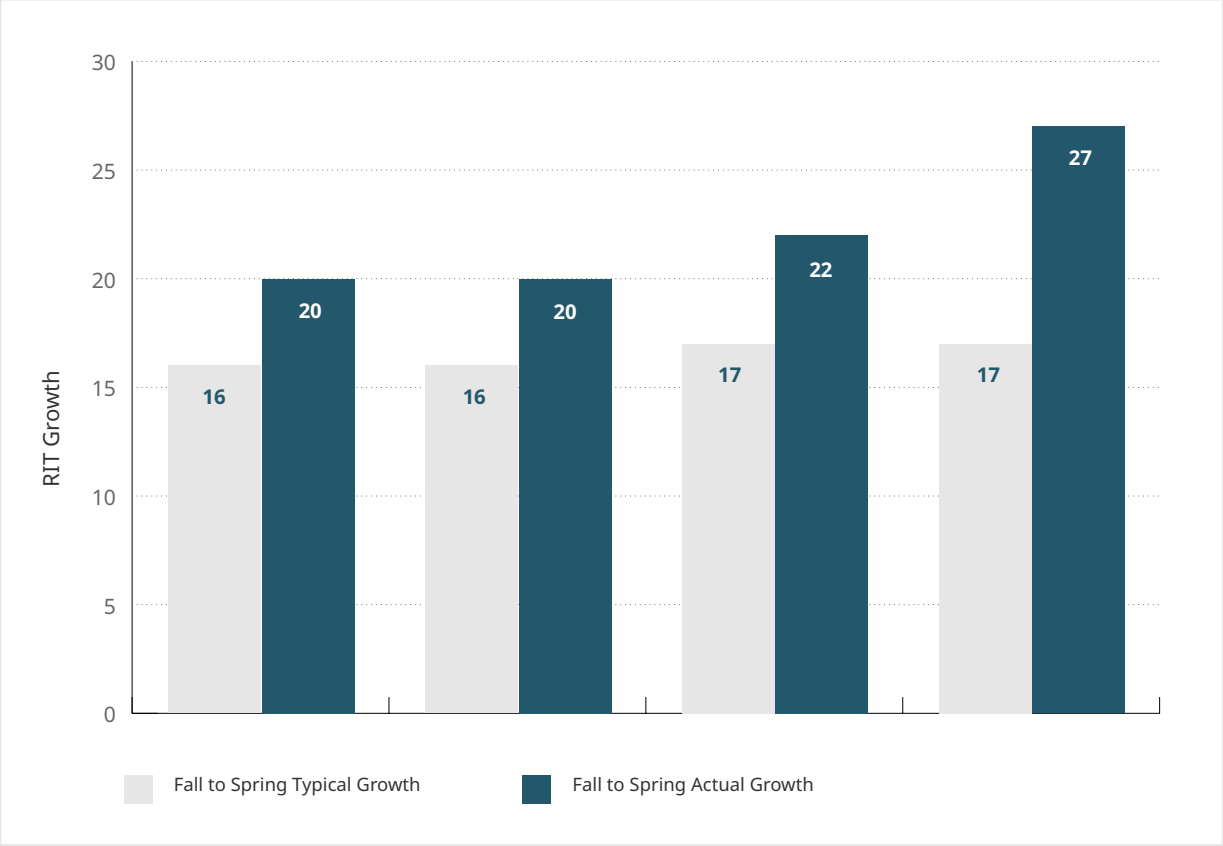
Grade	Students	Log-ins (Avg.)	Initial Lesson (Median)	Initial level (Median)	Current Lesson (Median)	Current Level (Median)	Lessons Completed (Avg.)	Levels Completed (Avg.)
Kindergarten	1,361	123	3	3	27	5	23	2
1	1,494	121	21	5	45	8	21	3
2	1,307	117	43	8	70	12	22	3
All Grades	4,162	121	21	5	45	8	22	3

** Lessons completed does not include skipped lessons*

Impact of Smarty Ants on NWEA MAP for Primary Grades (MPS) Performance

On average, Smarty Ants students demonstrated RIT growth of 20 points, compared to a typical RIT growth as reported by NWEA of 16 points, on average. Kindergarteners showed the most growth (23 points), compared to typical growth for their grade level of 17 points. Students who completed more lessons in Smarty Ants had greater RIT growth. Notably, students who completed 60 Smarty Ants lessons or more saw RIT growth of 27 points compared to typical growth of 17 points (see Graph 1). A strong and positive relationship was found between both the Initial Lesson in Smarty Ants and fall RIT score ($r = 0.8$, $p < 0.0001$) as well as between the Current Lesson in Smarty Ants and Spring RIT score ($r = 0.7$, $p < 0.0001$).

Graph 1: RIT Growth on NWEA MAP, by Usage



Results for Grades 4-10

Program Usage

Over the course of the 2017-2018 school year, participating students in 4th-8th grades logged in an average of 100 times, completed 47 lessons (i.e. multiple-choice activity sets), and demonstrated an average first-try score of 65 percent on embedded assessments. Students in Grade 4 completed more lessons than the other grades (50), and tenth graders had the highest average first-try score (AFTS) of 71 percent. See Table 2 for detailed usage data.

Table 2: Program Usage Summary Overall and by Grade, 2017-2018 School Year

Grade	Students	Log-ins (Avg.)	Program Hours (Avg.)	Activities (Avg.)	AFTS	% with 40+ Activities ≥ 75% AFTS
4	1,142	92	22	50	60%	4%
5	906	90	24	46	65%	10%
6	623	122	35	47	67%	9%
7	480	120	21	45	68%	13%
8	474	102	32	40	66%	8%
9	185	93	29	49	66%	14%
10	251	8	27	44	71%	20%
All Grades	4,061	100	28	47	65%	9%

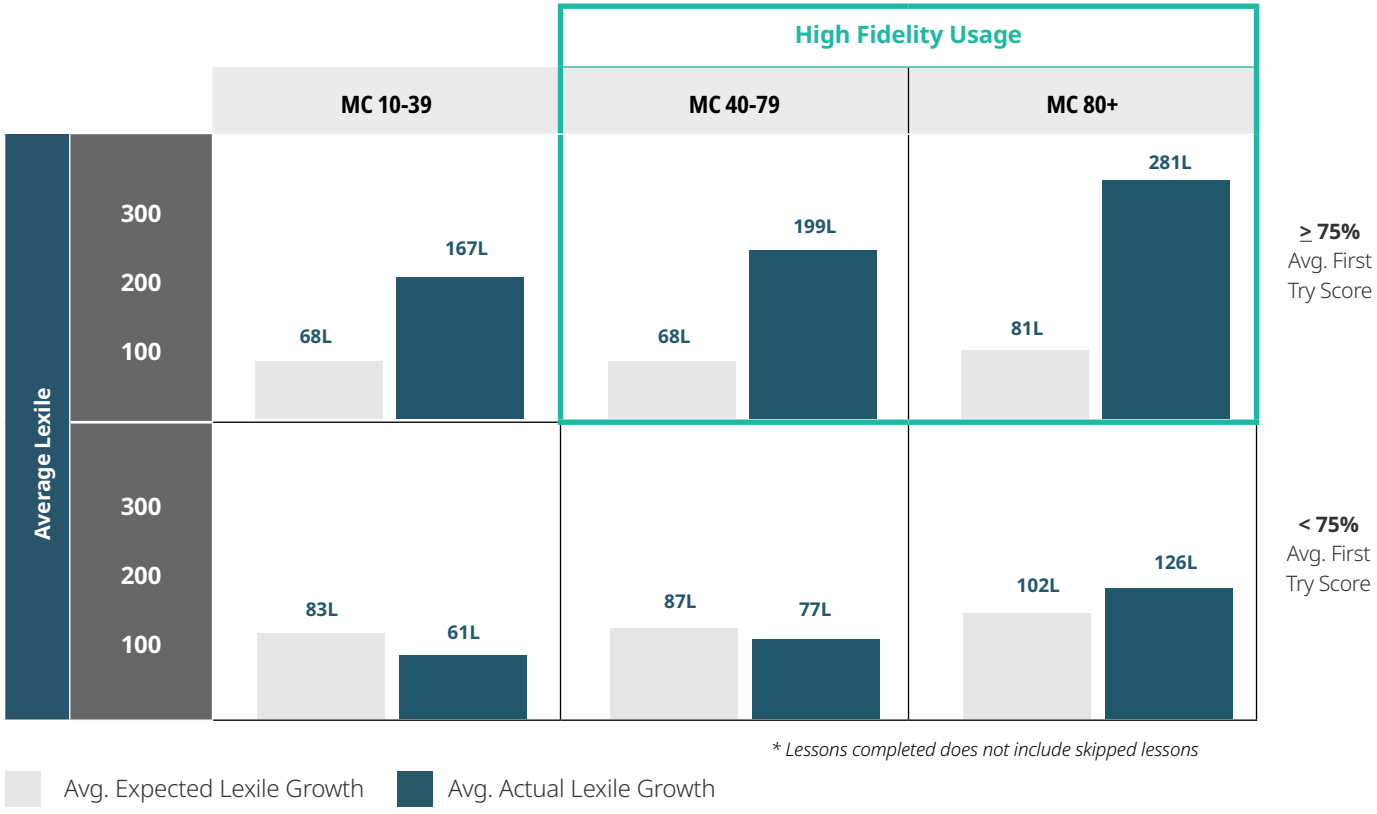
** Lessons completed does not include skipped lessons*

Results for Grades 4-10 (cont.)

LevelSet Performance

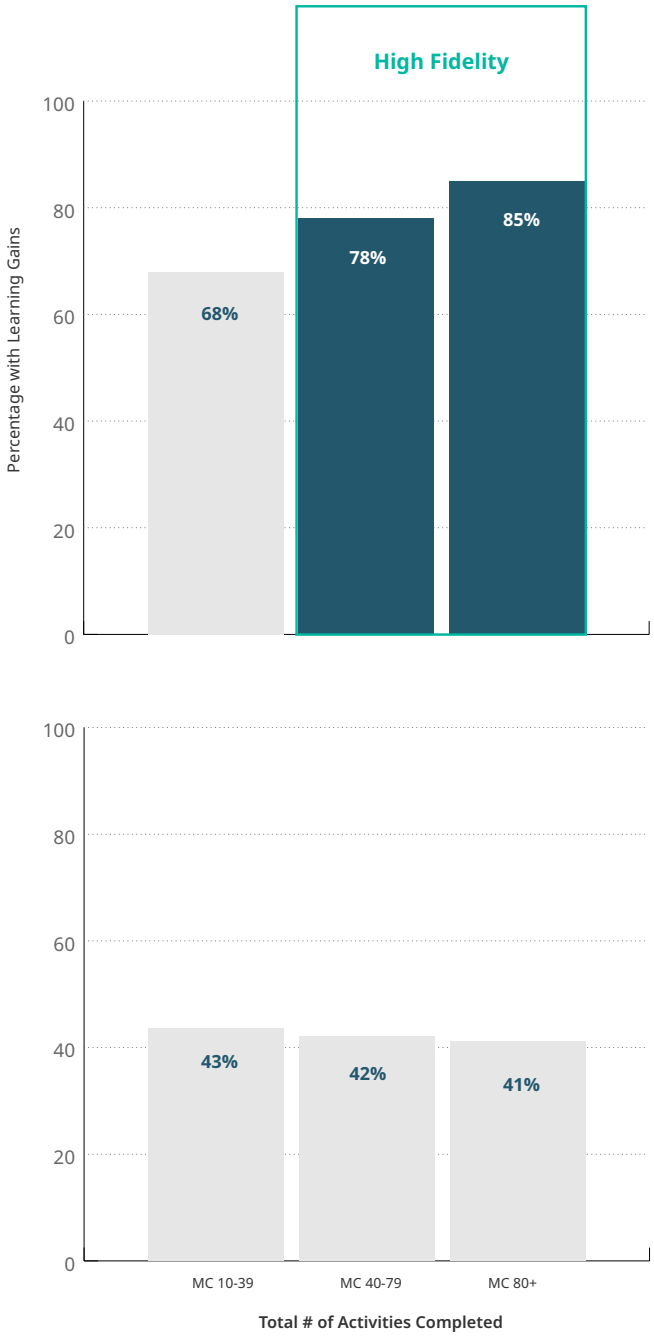
Overall, students demonstrated an average Lexile growth of 98L, which exceeded their average expected growth of 83L. Students with greater quantity and quality of practice saw greater Lexile gains. Specifically, students who completed 80 or more lessons and had an average first-try score of at least 75 percent on the embedded assessment achieved gains of 281L on average, which was three and half times their expected growth of 81L (see Graph 2). In addition, the percentage of Bay District Schools students in this sample who were on track for college and career readiness increased from seven percent to twelve percent over the course of the 2017-2018 school year.

Graph 2: Fall 2017-Spring 2018 Actual vs. Expected Lexile Growth for Students Using Achieve3000 with Different Quantity and Quality of Practice



Results for Grades 4-10 (cont.)

Graph 3: Bay District Schools Elementary Achieve3000 Students, % Scoring in Level 3 or Above on FSA ELA, by Quantity and Quality of Use.



FSA ELA Performance

On average, students saw a scale score increase of 8 points from 2017 to 2018. Students who completed 80 or more lessons and maintained an average first-try score of 75 percent or above on the embedded assessments gained an average of 16 points (elementary school) and 14 points (middle and high school). Overall, 45 percent of students who used Smarty Ants or Achieve3000 Literacy showed learning gains on NWEA MAP and FSA for English language arts from 2017 to 2018. Eighty-five percent of students in elementary school and 57 percent of students in middle and high school who completed 80 lessons and maintained an average first-try score of 75 percent or above on the embedded assessments made learning gains. See Graph 3 for the elementary student results. The correlation between students' spring Lexile measure and 2018 FSA scale score was strong and positive ($r = .76$, $p < .0001$). See Graph 3 for the elementary student results. The correlation between students' spring Lexile measure and 2018 FSA scale score was strong and positive ($r = .76$, $p < .0001$).

85%
OF ELEMENTARY STUDENTS

who completed 80+ multiple-choice activities with a ≥75% AFTS made learning gains on the FSA.

Students in Usage Groups

	MC 10-39	MC 40-79	MC 80+	TOTAL
≥75%	184 (9%)	89 (4%)	53 (3%)	780 (16%)
<75%	954 (47%)	489 (24%)	279 (14%)	1,722 (84%)
TOTAL	1,138 (56%)	578 (28%)	332 (16%)	2,048 (100%)

Conclusion

The vision of Bay District Schools is to "develop all students to their highest potential to produce successful, innovative citizens and leaders for tomorrow's world." We commend Bay District Schools for including a strong focus on literacy throughout their schools and curriculum as a central part of their strategic approach to achieving their mission. Their students' improvement on the LevelSet, NWEA Map, and FSA ELA assessments after using Achieve3000's literacy solutions during the 2017-2018 school year validates the efficacy of the solutions themselves, as well as the dedication and expertise of their educators and leaders.

Smarty Ants®

To learn more about Smarty Ants and Achieve3000 Literacy,
please contact **1-800-838-8771** or visit **achieve3000.com**

About Achieve3000

Achieve3000 delivers a comprehensive suite of digital solutions that significantly accelerate and deepen learning in literacy, math, science, social studies, and ELA. Using personalized and differentiated solutions, Achieve3000 enables educators to help all students achieve accelerated growth. For more than five million students in grades PreK-12, Achieve3000 improves high-stakes test performance and drives college and career readiness.

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