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SAS® Educational Value-Added Assessment System (EVAAS®) Scores for Austin Independent School District, 2015

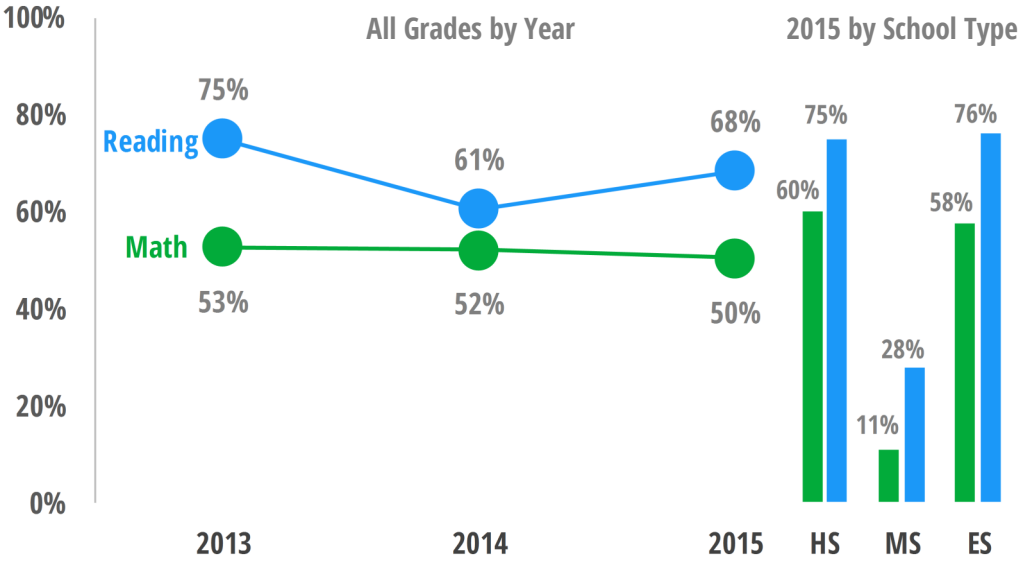
Department of
Research and Evaluation
AUSTIN INDEPENDENT SCHOOL DISTRICT

Executive Summary

Austin Independent School District (AISD) has partnered with SAS® Educational Value-Added Assessment System (EVAAS®) to provide an objective measure of relative year-to-year growth, or value-added, for students in AISD schools. The growth measure is used to categorize schools into one of five growth levels, where level 3 is meeting the growth standard and level 5 is significant evidence the growth standard was exceeded. Teachers participating in the Professional Pathways for Teachers (PPfT) receive points toward their PPfT appraisal for the level of school-wide value-added in reading/English language arts (ELA) and mathematics (math).

The current report provides an overview of the process used to derive a school's growth level and summarizes 2015 math and reading/ELA growth levels for all AISD elementary, middle and high schools. Additionally, longitudinal data are provided for each school level. Figure 1 shows the percentages of AISD schools that met or exceeded the growth standard in math or reading/ELA (i.e., growth levels 3 through 5) from 2013 to 2015, along with the percentage of AISD elementary, middle, and high schools that met or exceeded the growth standard in 2015.

Figure 1.
SAS® EVAAS® performance varied less over time for math than for reading, but schools were more likely to have performed at or above the growth standard in reading.



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Using EVAAS in Austin Independent School District (AISD)

Austin Independent School District (AISD) has partnered with SAS® EVAAS® to provide an objective measure of the academic progress for students in AISD schools. The measure of year-to-year growth, or value-added, is the EVAAS index score. EVAAS index scores are used to categorize schools into one of five growth levels, where level 3 is meeting the growth standard and level 5 is significant evidence the growth standard was exceeded. Teachers participating in the Professional Pathways for Teachers (PPfT) receive points toward their PPfT appraisal for the level of school-wide value-added in reading/English language arts and mathematics (math).

Computing EVAAS Scores for AISD

EVAAS index scores are computed from students' scores on the State of Texas Assessments of Academic Readiness (STAAR). Index scores represent the amount of growth students in AISD schools achieved relative to the growth standard. For STAAR Math and Reading in grades 4 through 8, the growth standard represents the amount of progress students needed to make to maintain their achievement relative to their peers in the same grade and subject statewide. For other assessments, the growth standard represents the amount of progress students needed to make to keep pace with their academically similar peers in a reference group of districts. School EVAAS index scores are categorized into levels of growth (Table 1); the school growth levels are the primary indicators of student academic progress used in AISD.

Table 1

School EVAAS index scores are converted into growth levels, which correspond to points teachers earn for the Professional Pathways for Teachers (PPfT) appraisal.

EVAAS index score range	Growth level	Definition	PPfT appraisal points
Below -2.00	Level 1	Significant evidence growth was below growth standard	1
-2.00 to -1.01	Level 2	Moderate evidence growth was below growth standard	2
-1.00 to 0.99	Level 3	Met growth standard	3
1.00 to 1.99	Level 4	Moderate evidence growth exceeded growth standard	4
2.00 or above	Level 5	Significant evidence growth exceeded growth standard	4

Source. Professional Pathways for Teachers (PPfT) Support Guide; EVAAS reporting tool

To generate index scores, EVAAS uses all student scores across years, grades, and subjects to calculate the average achievement level of students served by the school at the end of each year. By using all STAAR scores across years, grades, and subjects, the impact of measurement error associated with any individual test score is minimized and all students are included, even those with incomplete testing histories.

A gain model is used for math and reading in grades 4 through 8. To generate the growth measure for the gain model, the students' average achievement in the most recent year is compared to the students' average achievement the previous year. The growth measures are reported in normal curve equivalents (NCEs). NCEs are similar to percentiles in that they represent where a score falls in a distribution.

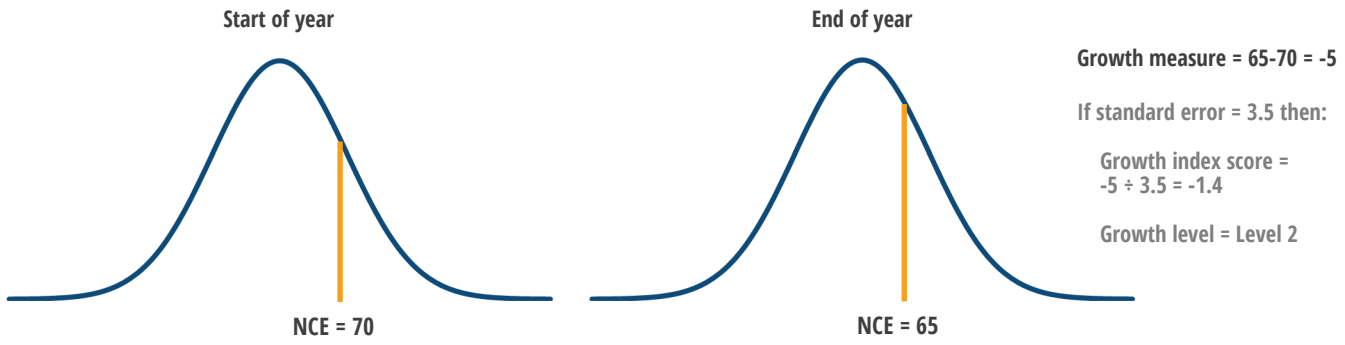
In EVAAS, the NCEs reported for STAAR math and reading indicate where each score falls in the distribution of all students in the state in that grade and subject. The expectation is that regardless of their entering achievement level, AISD students should not lose ground academically, relative to their Texas peers in the same grade and subject. The conversion to NCEs ensures that all assessment scores are on a common scale across years, grades, and subjects. The NCEs shown in reports range from 1 to 99, and as with percentiles, the center of the distribution, or Texas average, is 50.

If a high-achieving group of students starts the year at the 70th NCE and ends the year at the 70th NCE, they met the growth standard, because they maintained their achievement level. Likewise, a low-achieving group of students that started the year at the 30th NCE and ended the year at the 30th NCE also met the standard. In both examples, the growth measure (end of year minus start of year) is 0.0. Sometimes the growth measure is positive or negative (Figure 2).

Figure 2

EVAAS compares a group's NCE at the start of the year with its NCE at the end of the year to obtain the growth measure.

The growth measure is divided by its standard error to obtain the growth index score, which corresponds to a growth level.



The standard error is used in conjunction with the growth measure to calculate the growth index. Specifically, the growth index is the growth measure divided by its standard error. The resulting growth index score represents the number of standard errors above or below the reference group average (i.e., Texas or peers in Texas districts). This calculation yields a robust measure of growth for the group of students that reflects both the growth and the strength of the evidence. The standard error is specific to each growth measure because it expresses the certainty around that one estimate. The size of the standard error will vary depending on the quantity and quality of the data that were used to generate the growth measure. A number of factors affect the size of the standard error, including:

- the number of students included in the analyses;
- the number of assessment scores each student has, across grades and subjects;
- and which specific scores are missing from the students' testing histories.

While the NCE gain model is used for STAAR math and reading, a predictive model is used for subjects in which students are not tested in consecutive grades and for tests such as end-of-course (EOC) assessments that students might take in different grades.

The predictive model is used for STAAR Science, Social Studies, Writing, and EOC exams in all subjects. In this model, a predicted score is generated for each student. The predicted score is simply what we would have expected the student to score on the selected assessment if the student had made average, or typical, progress. The model includes the scores of all students in participating Texas districts, along with their testing histories across years, grades, and subjects. It examines each individual student's assessment history, across grades and subjects, and determines how students with similar assessment histories actually performed, on average, on the specific assessment. This average performance is a reasonable expectation for the student because it is based on the actual performance of other students who are academically similar.

To ensure precision in the predicted scores, a student must have at least three prior assessment scores for a predicted score to be generated. This does not mean three years of scores or three scores in the same subject, but simply three prior scores across grades and subjects.

Once a predicted score has been generated for each student in a group (e.g., a school), the predicted scores are averaged. Because this average predicted score is based on the students' prior test scores, it represents the average entering achievement level in this subject for the group of students. Next, students' actual performance on the assessment is compared with their average predicted score. If a group of students scores what they were predicted to score, on average, we can say that the group made average, or typical, progress. In other words, their progress was similar to the progress of students at the same achievement level across the reference group of participating Texas districts. This is the definition of meeting the growth standard in the predictive model.

If a group of students scores significantly higher than predicted, we can conclude that the group made more progress than their academically similar peers across the reference group of participating Texas districts. If a group scores significantly lower than predicted, the group did not grow as much as their academically similar peers. The growth measure is expressed in scale score points and indicates how much higher or lower the group scored, on average, compared to what they were expected to score given their individual testing histories. For example, a growth measure of 9.3 indicates that, on average, this group of students scored 9.3 points higher than expected.

As with the NCE gain model, the standard error is used in conjunction with the growth measure to calculate the growth index. All index values are on the same scale and can be compared fairly across years, grades, and subjects throughout the district.

For more information about EVAAS methodology, see http://www.sas.com/en_us/industry/k-12-education/evaas.html.

Predictive Model Example

Zachary, High-Achieving Student

Zachary has scored well for the past few years, especially in math. In the most recent year, he completed Algebra I and took the EOC assessment for that course. Across the reference group of participating Texas districts, students with a testing history similar to Zachary's scored at the 83rd percentile on the Algebra I assessment.

Given their similar testing histories, it would be reasonable to say that Zachary should have kept pace with his peers who are academically similar. A score at the 83rd percentile would be a reasonable expectation for him.

Adam, Low-Achieving Student

Adam has struggled in math. His prior scores are fairly low. He completed Algebra I and took the assessment for that course in the most recent school year. Across the reference group of participating Texas districts, students with a testing history similar to Adam's scored at the 26th percentile on the Algebra I assessment.

Given their similar testing histories, it would be reasonable to say that Adam should have kept pace with his peers who are academically similar. A score at the 26th percentile would be a reasonable expectation for him.

Zachary and Adam's School EVAAS score

Zachary and Adam are part of a school. Their predicted scores are included with the other students' predicted scores that are averaged for the school. Then students' actual scores are averaged and compared with the average predicted score, comprising the growth measure. The growth measure is divided by the standard error to calculate the school's growth index.

EVAAS Growth Level Scores for AISD Schools in 2015

The 2015 growth level scores for math and reading/ELA for each AISD school are presented by school level in Tables 2 through 4. Results are sorted alphabetically within growth level. The lowest growth category (i.e., level 1) is presented first.

Table 2

In 2015, 58% of AISD elementary schools met or exceeded the growth standard in math, and 76% met or exceeded the growth standard in reading.

School	Math level
Baranoff	1
Becker	1
Blanton	1
Brooke	1
Cook	1
Galindo	1
Govalle	1
Harris	1
Houston	1
Jordan	1
Joslin	1
Kocurek	1
McBee	1
Metz	1
Pecan Springs	1
Pickle	1
Reilly	1
Rodriguez	1
Travis Heights	1
Widen	1
Wooten	1
Zavala	1
Barrington	2
Blackshear	2
Brown	2
Campbell	2
Hart	2
Oak Springs	2
Overton	2
Palm	2
Patton	2
Perez	2
Ridgetop	2
Sunset Valley	2
Andrews	3
Barton Hills	3
Brentwood	3
Casis	3
Cowan	3
Cunningham	3
Dawson	3
Kiker	3
Langford	3
Maplewood	3
Mathews	3
Ortega	3
Pease	3
Pleasant Hill	3
Sims	3
St. Elmo	3
Walnut Creek	3
Williams	3
Winn	3
Allison	4
Casey	4
Graham	4
Highland Park	4
Lee	4
Linder	4
Odom	4
Pillow	4
Wooldridge	4
Baldwin	5
Blazier	5
Boone	5
Bryker Woods	5
Clayton	5
Davis	5
Doss	5
G. Thompson	5
Gullett	5
Hill	5
Menchaca	5
Mills	5
Norman	5
Oak Hill	5
Padron	5
Sanchez	5
Summitt	5
Zilker	5

School	Reading level
Galindo	1
Jordan	1
Langford	1
Pickle	1
Barrington	2
Becker	2
Brentwood	2
Brooke	2
Bryker Woods	2
Clayton	2
Cunningham	2
Hart	2
Linder	2
Metz	2
Oak Springs	2
Pecan Springs	2
Perez	2
Pleasant Hill	2
Winn	2
Allison	3
Andrews	3
Baldwin	3
Baranoff	3
Barton Hills	3
Blackshear	3
Blanton	3
Casey	3
Casis	3
Cook	3
Cowan	3
Dawson	3
Doss	3
Govalle	3
Graham	3
Gullett	3
Harris	3
Highland Park	3
Hill	3
Houston	3
Joslin	3
Kocurek	3
Lee	3
Maplewood	3
McBee	3
Menchaca	3
Mills	3
Norman	3
Ortega	3
Padron	3
Palm	3
Pease	3
Pillow	3
Reilly	3
Ridgetop	3
Sanchez	3
Sims	3
St. Elmo	3
Sunset Valley	3
Travis Heights	3
Walnut Creek	3
Widen	3
Williams	3
Wooldridge	3
Wooten	3
Zavala	3
Brown	4
Davis	4
Kiker	4
Mathews	4
Oak Hill	4
Odom	4
Overton	4
Rodriguez	4
Zilker	4
Blazier	5
Boone	5
Campbell	5
G. Thompson	5
Patton	5
Summitt	5

Source. EVAAS reporting tool
Note. Level 1 = significant evidence of growth below standard, Level 2 = moderate evidence of growth below standard, Level 3 = growth met standard, Level 4 = moderate evidence growth exceeded standard, Level 5= significant evidence growth exceeded standard

Table 3

In 2015, 11% of AISD middle schools met or exceeded the growth standard in math, and 28% met or exceeded the growth standard in reading.

School	Math level
Bedichek	1
Burnet	1
Covington	1
Dobie	1
Fulmore	1
Garcia YMLA	1
Kealing	1
Lamar	1
Martin	1
Mendez	1
Murchison	1
O. Henry	1
Sadler Means YWLA	1
Small	1
Webb	1
Paredes	2
Bailey	4
Gorzycki	5

School	Reading level
Burnet	1
Dobie	1
Gorzycki	1
Kealing	1
Lamar	1
Martin	1
Mendez	1
O. Henry	1
Paredes	1
Small	1
Bedichek	2
Fulmore	2
Webb	2
Covington	3
Garcia YMLA	3
Murchison	3
Sadler Means YWLA	3
Bailey	4

Source. EVAAS reporting tool
Note. Level 1 = significant evidence of growth below standard, Level 2 = moderate evidence of growth below standard, Level 3 = growth met standard, Level 4 = moderate evidence growth exceeded standard, Level 5= significant evidence growth exceeded standard

Table 4

In 2015, 60% of AISD high schools met or exceeded the growth standard in math, and 75% met or exceeded the growth standard in reading.

School	Math level
Austin	1
Crockett	1
LBJ	1
Reagan	1
Richards SYWL	1
Travis	2
Akins	3
GPA at Lanier	3
GPA at Travis	3
Bowie	4
Anderson	5
Eastside Memorial	5
Lanier	5
LASA	5
McCallum	5

Note. Garza Independence did not meet the reporting requirement for Math (i.e., Algebra I End of Course).

School	Reading level
Crockett	1
Reagan	1
McCallum	2
Richards SYWL	2
Anderson	3
Eastside Memorial	3
Garza Independence	3
GPA at Lanier	3
GPA at Travis	3
Lanier	3
Akins	4
Austin	5
Bowie	5
LASA	5
LBJ	5
Travis	5

Data considerations

For a school to demonstrate sufficient evidence the growth standard was exceeded (i.e., growth level 4 or 5), the growth measure must be one standard error or greater above the Texas or Texas peer district average. The standard error is influenced by several factors:

- The number of students included in the analyses
- The number of assessment scores each student has, across grades and subjects
- Which specific scores are missing from the students' testing histories

School level growth estimates include more students than do teacher estimates, and are therefore more likely to result in smaller standard errors than would be found with teacher estimates.

Additionally, because middle and high school teachers typically teach more students than do elementary teachers, standard errors are likely to be smaller for secondary teachers than for elementary teachers.

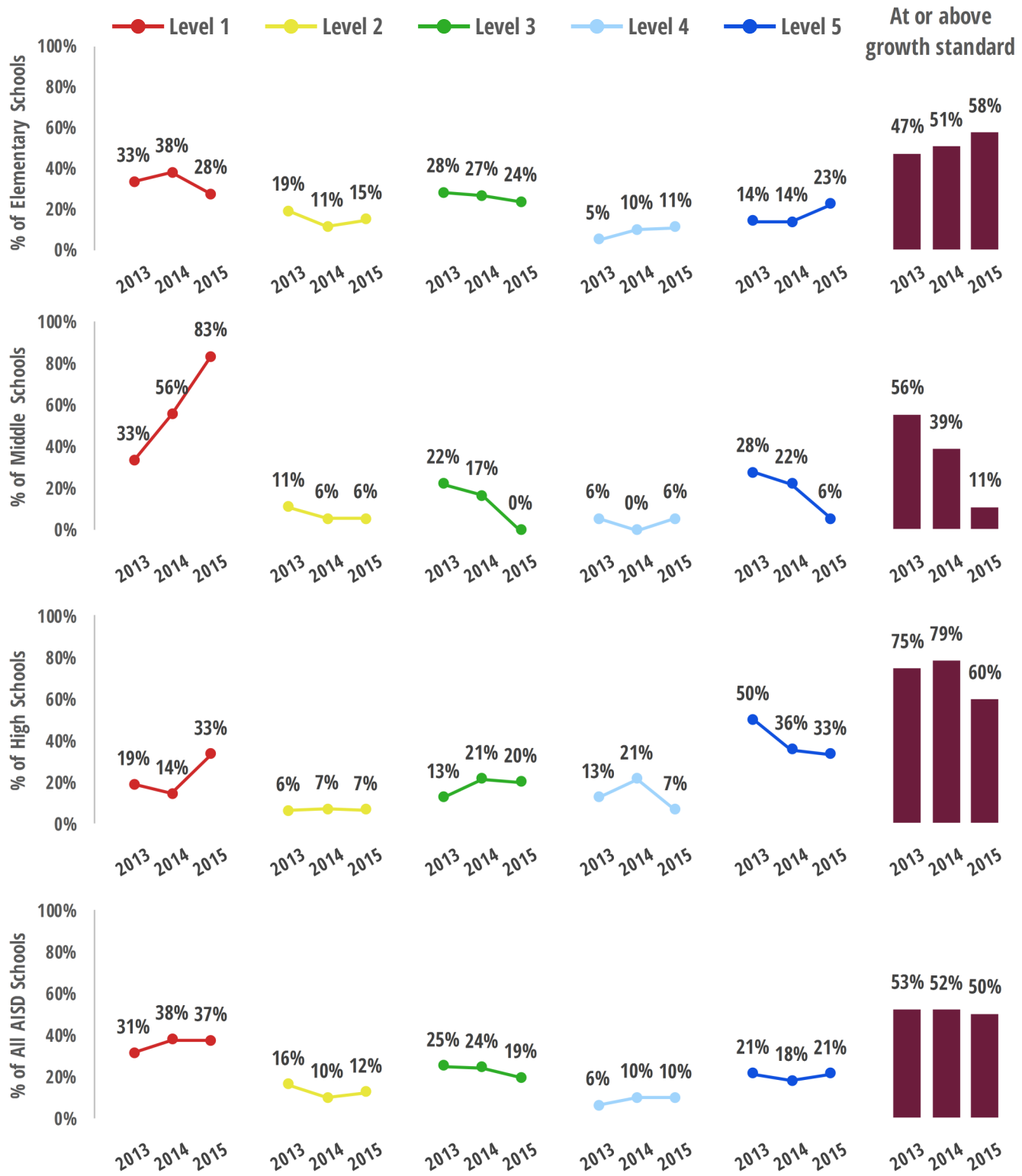
EVAAS Scores in AISD Over Time

Longitudinal data are presented in Figures 3 (math) and 4 (reading/ELA) for each school level and for all schools combined. Overall, a similar percentage of AISD schools exceeded the growth standard in math each year. However, trends varied by school level.

Figure 3

Approximately half of all AISD schools met or exceeded the math growth standard in 2013, 2014, and 2015.

Math growth was stable over time across all schools, but trends varied by school level. Middle schools showed a downward trend.



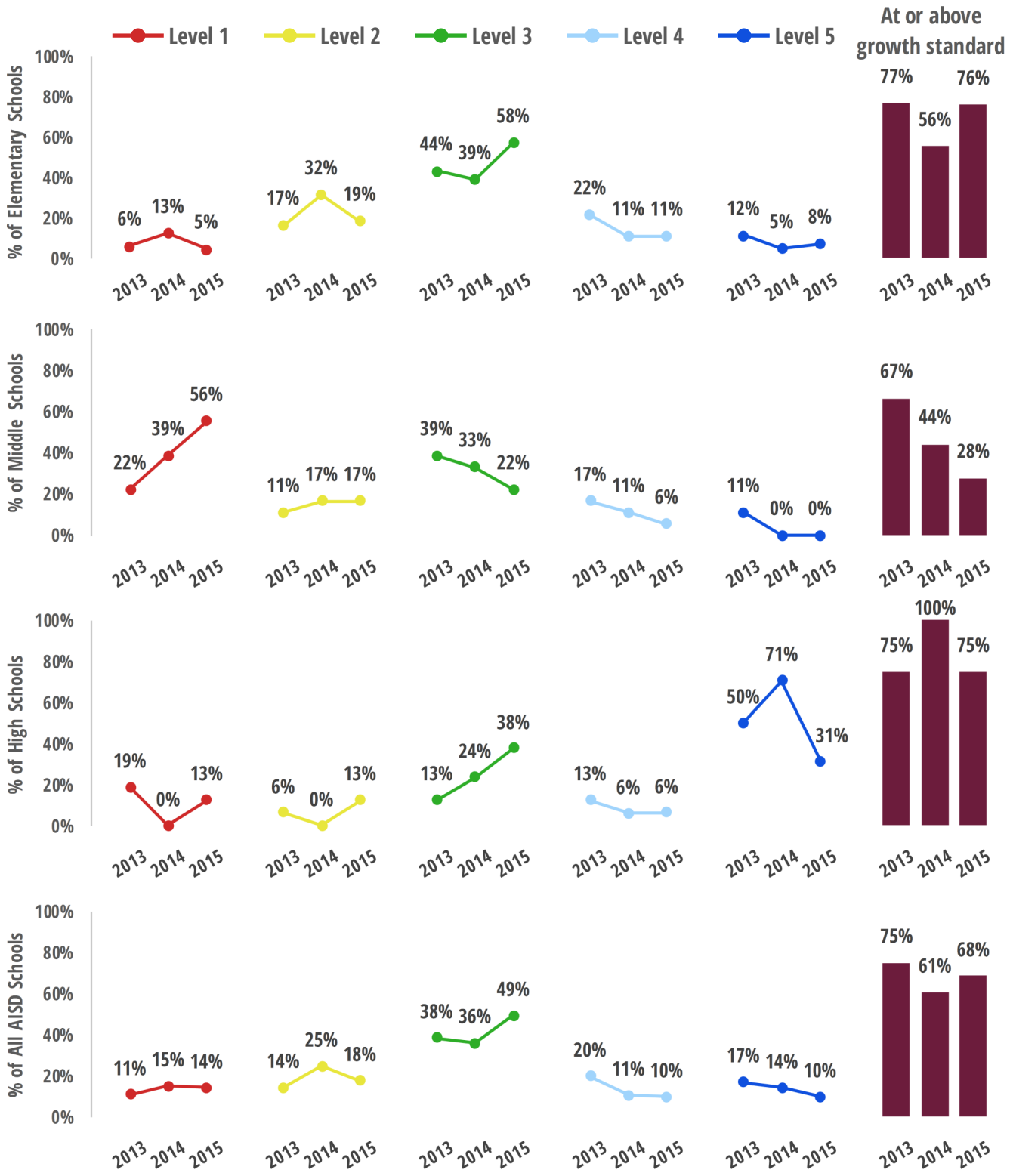
Source. Austin Independent School District longitudinal records of EVAAS growth levels

Overall, more schools met or exceeded the growth standard in reading/ELA than in math each year. However, reading/ELA growth was less consistent over time than was math growth. Trends also varied by school level.

Figure 4

Between 61% and 75% of all AISD schools met or exceeded the growth standard in reading each year.

Reading/ELA growth varied considerably across time and grade levels. Middle schools showed a downward trend.



Source. Austin Independent School District longitudinal records of EVAAS growth levels

The Student Growth Ladder of Abstraction

...illustrates how AISD steps from the abstract concept of student growth down to the application of teacher appraisal points.

Level of Abstraction

student growth concept	Longitudinal change in a student's knowledge and skills over time.
year-to-year student growth	The change in a student's knowledge and skills between two sequential grade levels.
operationalizing year-to-year student growth	SAS EVAAS measures year-to-year academic progress, defined as the amount of growth students needed to make to keep up with academically similar peers (i.e., the amount of growth achieved relative to the growth standard).
measuring student growth	EVAAS index scores are computed from students' scores on the State of Texas Assessments of Academic Readiness (STAAR) and represent the amount of growth students in AISD schools achieved relative to the growth standard.
evaluating measured student growth	EVAAS index scores are evaluated according to a range system, where: • Below -2.00 is considered significant evidence growth was below growth standard • -2.00 to -1.01 is considered moderate evidence growth was below growth standard • -1.00 to 0.99 is considered meeting the growth standard • 1.00 to 1.99 is considered moderate evidence growth exceeded growth standard • 2.00 or above is considered significant evidence growth exceeded growth standard
categorizing measured student growth into ordinal levels	EVAAS index scores are categorized into levels of growth; the school growth levels are the primary indicators of student academic progress used in AISD. There are five levels of growth based on the evidence of academic progress: • Below -2.00 is categorized as level 1 • -2.00 to -1.01 is categorized as level 2 • -1.00 to 0.99 is categorized as level 3 • 1.00 to 1.99 is categorized as level 4 • 2.00 or above is categorized as level 5
assigning appraisal points using growth levels	PPfT appraisal points are assigned to teachers based on their school's growth level, or school-wide value-added. Teachers at schools with evidence of exceeding the growth standard receive more points than do other teachers. • Growth level 1 earns a teacher 1 PPfT appraisal point • Growth level 2 earns a teacher 2 PPfT appraisal points • Growth level 3 earns a teacher 3 PPfT appraisal points • Growth level 4 or 5 earns a teacher 4 PPfT appraisal points

Conclusion

In 2015, growth levels varied by subject and by school grade level. At the elementary level, 58% of schools met or exceeded the growth standard in math, and 76% met or exceeded the growth standard in reading. Data were similar at the high school level, where 60% of schools met or exceeded the growth standard in math, and 75% met or exceeded the growth standard in reading/ELA. However, middle schools did not perform as well relative to their growth standard. At the middle school level, 11% of schools met or exceeded the growth standard in math, and 28% met or exceeded the growth standard in reading. Middle schools also showed a declining three-year trend in the percentage of schools that met or exceeded the growth standard for both math and reading.

The scoring of school-wide value-added represents ten percent of the overall PPfT appraisal score. While the information on student growth impacts the campus as a whole, its impact on the individual teacher appraisal score is minimal, ranging from 10 to 40 points toward the overall possible score of 400.

Austin Independent School District

Author
Lisa Schmitt, Ph.D.
Shaun Hutchins, Ph.D.

Department of Research and Evaluation

1111 West 6th Street, Suite D-350 | Austin, TX 78703-5338
512.414.1724 | fax: 512.414.1707
www.austinisd.org/dre | Twitter: @AISD_DRE

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