

AISD REACH Program Update: Longitudinal Student Growth

INTRODUCTION

Since the Austin Independent School District (AISD) implemented AISD REACH in 2007–2008, evaluation studies each year have examined a variety of teacher and student outcomes associated with each program element (i.e., student learning objectives [SLOs], peer observation, professional development units [PDUs], school-wide growth stipends, recruitment and retention stipends, and novice teacher mentoring). The program elements were designed to provide a system of supports and rewards that would facilitate improvements in students' achievement over time. This report describes the overall performance over time for schools, classrooms, and students at REACH schools, compared with the performance of students at similar non-REACH comparison

schools (Table 1). The sample included 13 schools that entered REACH in the first three implementation cohorts (2007–2008, 2008–2009, and 2009–2010). By the end of 2012–2013, each of the REACH schools in the sample had participated in the program for at least 4 years. This report also describes the relationships between teachers' SLO performance and SLO experience, and classroom gains on state assessments.

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Table 1. REACH Schools From the First Three Implementation Cohorts and Their Comparison Schools

2007–2008 cohort		2008–2009 cohort		2009–2010 cohort	
REACH	Comparison	REACH	Comparison	REACH	Comparison
Lanier HS	Crockett HS	Webb MS	Mendez MS	Akins HS	Crockett HS
Dobie MS	Burnet MS	Jordan ES	Widen ES	Harris ES	Ridgetop ES
Hart ES	Palm ES			Norman ES	Campbell ES
Rodriguez ES	St. Elmo ES			Pickle ES	Houston ES
Sims ES	Williams ES			Pleasant Hill ES	Oak Springs ES
Sunset Valley ES	Galindo ES				

Note. Comparison schools were chosen based on similarity to the REACH school in four areas: teacher experience; teacher retention rate; student achievement; and student need (the percentage of students with economic disadvantage, limited English proficiency, and special needs).

ES = elementary school; MS = middle school; HS = high school

KEY FINDINGS

Results for the Texas Assessment of Knowledge and Skills (TAKS) and State of Texas Assessments of Academic Readiness (STAAR) were analyzed for REACH and comparison school participants at three levels: (a) school, (b) classroom, and (c) student. Analyses included schools' passing rates over time, schools' performance gains, classrooms' performance gains, and students' performance gains over time. Sample sizes were insufficient for tests of statistical significance at the school level, but were sufficient for significance tests at the classroom and student level. Key findings for each level of analysis were as follows:

School performance

- Passing rates for six of the eight REACH schools in the first two program cohorts improved more than did those of their comparison schools on the TAKS between the year prior to program implementation and the final year of the TAKS.
- For the first three cohorts, passing rates on the 2013 STAAR were higher for REACH schools than for their comparison schools in 59% of comparisons; comparison schools had higher passing rates than did REACH schools in 39% of comparisons.
- REACH schools in the first three cohorts achieved greater gains from 2008 to 2013 than did their comparison schools for reading/English language arts (ELA), mathematics (math), and science in 46% of comparisons; comparison schools achieved greater gains than did REACH schools in 26% of comparisons. Results were particularly favorable for reading/ELA.

Classroom performance

- REACH high school classrooms had significantly greater performance gains in reading/ELA and math than did comparison classrooms. No significant differences were found for elementary or middle school classrooms.
- Classroom gains at REACH middle and high schools were related to teachers' years of SLO experience and classroom SLO performance for some subjects, even after controlling for teachers' years of teaching experience.

Student performance

- REACH elementary and middle school students improved significantly in reading over time.
- REACH middle school students improved significantly more in reading from 2009 to 2013 than did their comparison school peers.

Where differences were found, results were more favorable for REACH than for comparison schools, classrooms, and students.

SCHOOL PERFORMANCE

REACH and Comparison School Passing Rates for State Assessments Over Time

To examine whether students at REACH schools performed better than they otherwise might have, we examined TAKS and STAAR passing rates for REACH schools relative to their non-REACH comparison schools. Our ability to examine the longitudinal influence of REACH on state assessment results was limited due to the change in Texas assessments that occurred in Spring 2012, when STAAR began. However, we examined the improvement in passing rates on the TAKS for each REACH school in the first two cohorts (i.e., those with at least 3 years of program implementation), compared with that of matched similar non-REACH schools (Table 2). During the time since program implementation, REACH schools improved more than did their comparison schools in six of eight instances, improved the same amount in one of eight instances, and improved less than their comparison schools in one of eight instances.

Table 2. Percentage of Students Passing All Tests Taken on the Texas Assessment of Knowledge and Skills (TAKS), REACH and Comparison Schools for the Year Prior to Implementation Through Spring 2011 for the First Two Cohorts

Cohort	School and status	2007	2008	2009	2010	2011	Change	School with most
2007–2008	Lanier HS (REACH)	40%	41%	49%	53%	56%	+16	tie
	Crockett HS (comparison)	49%	47%	56%	64%	65%	+16	
	Dobie MS (REACH)	39%	57%	59%	57%	58%	+19	REACH
	Burnet MS (comparison)	44%	48%	47%	49%	54%	+10	
	Hart ES (REACH)	48%	49%	56%	68%	79%	+31	REACH
	Palm ES (comparison)	55%	60%	56%	71%	79%	+24	
	Rodriguez ES (REACH)	57%	57%	55%	58%	66%	+9	comparison
	St. Elmo ES (comparison)	61%	67%	79%	85%	89%	+28	
	Sunset Valley ES (REACH)	57%	63%	74%	79%	82%	+25	REACH
	Galindo ES (comparison)	62%	73%	76%	79%	76%	+14	
	Sims ES (REACH)	68%	67%	74%	84%	80%	+12	REACH
	Williams ES (comparison)	70%	67%	63%	75%	69%	-1	
2008–2009	Webb MS (REACH)		48%	52%	50%	60%	+12	REACH
	Mendez MS (comparison)		47%	42%	45%	49%	+2	
	Jordan ES (REACH)		59%	56%	69%	72%	+13	REACH
	Widen ES (comparison)		56%	54%	55%	59%	+3	

Source. AEIS reports

ES = elementary school; MS = middle school; HS = high school

REACH and Comparison School Passing Rates for State Assessments in 2013

Next, we examined the 2013 STAAR passing rates for REACH schools in the first three cohorts and their comparison schools (Table 3). REACH schools had greater passing rates than did their comparison schools in 59% (33/56) of instances, while comparison schools had greater passing rates than REACH schools in 39% (22/56) of instances. Results were consistent across subject areas (see Table 4 for a tally of results by subject area).

Table 3. Percentage of Tests Passed on the State of Texas Assessments of Academic Readiness (STAAR), REACH and Comparison Schools, Spring 2013, First Three REACH Cohorts

Cohort	School and status	All subjects	Reading	Math	Science	Social studies
2007–2008	Lanier HS (REACH)	67%	67%	80%	81%	65%
	Crockett HS (comparison)	70%	70%	77%	83%	72%
	Dobie MS (REACH)	51%	52%	58%	54%	39%
	Burnet MS (comparison)	62%	59%	71%	64%	62%
	Hart ES (REACH)	81%	80%	86%	80%	—
	Palm ES (comparison)	72%	76%	70%	63%	—
	Rodriguez ES (REACH)	62%	64%	66%	64%	—
	St. Elmo ES (comparison)	85%	87%	83%	88%	—
	Sunset Valley ES (REACH)	75%	82%	78%	75%	—
	Galindo ES (comparison)	69%	77%	73%	61%	—
	Sims ES (REACH)	70%	83%	70%	71%	—
	Williams ES (comparison)	69%	74%	70%	55%	—
2008–2009	Webb MS (REACH)	69%	65%	75%	77%	57%
	Mendez MS (comparison)	52%	57%	57%	63%	32%
	Jordan ES (REACH)	63%	65%	63%	64%	—
	Widen ES (comparison)	58%	62%	62%	57%	—
2009–2010	Akins HS (REACH)	76%	79%	86%	86%	77%
	Crockett HS (comparison)	70%	70%	77%	83%	72%
	Harris ES (REACH)	69%	67%	74%	73%	—
	Ridgetop ES (comparison)	79%	86%	75%	79%	—
	Norman ES (REACH)	63%	62%	61%	74%	—
	Campbell ES (comparison)	70%	72%	67%	68%	—
	Pickle ES (REACH)	68%	79%	70%	48%	—
	Houston ES (comparison)	60%	61%	64%	65%	—
	Pleasant Hill ES (REACH)	82%	84%	86%	70%	—
Oak Springs ES (comparison)	76%	74%	76%	95%	—	

Source. 2013 Index 1 Student Achievement Calculation Report
ES = elementary school; MS = middle school; HS = high school

Table 4. Results for Comparisons of Percentage of Tests Passed on the State of Texas Assessments of Academic Readiness (STAAR), REACH and Comparison Schools, Spring 2013, First Three REACH Cohorts

School with greatest passing rate in 2013	Number of comparisons won					Total	
	All subjects	Reading	Math	Science	Social studies		
REACH	8	8	8	7	2	33	59%
Comparison	5	5	4	6	2	22	39%
Tie	0	0	1	0	0	1	2%
Total	13	13	13	13	4	56	100%

Source. 2013 Index 1 Student Achievement Calculation Report

REACH and Comparison School Performance Gains on State Assessments Over Time

In addition to examining passing rates, we examined longitudinal data for students’ actual performance (as opposed to their passing status) over time using normal curve equivalents (NCEs) to allow for the transition from TAKS to STAAR. Educational Value Added Assessment System (EVAAS) scores indicated the relative level of longitudinal performance gains from 2008 to 2013 for students at schools in AISD compared with students in the state of Texas. EVAAS gain levels for reading, math, and science were summarized for REACH and comparison schools (Appendix A). REACH schools achieved higher performance gain levels than did their comparison schools in 46% of reading, math, and science instances, while comparison schools achieved higher gain levels than did REACH schools in 26% of reading, math, and science instances in Spring 2013 (Table 5). Results were particularly favorable for reading, in which REACH schools achieved higher gain levels than did their comparison schools in 12 of 13 instances.

Table 5. Results for Comparisons of Educational Value Added Assessment System (EVAAS) Gain Level for REACH and Comparison Schools, Spring 2013, First Three REACH Cohorts

School with greatest EVAAS gain level	Number of comparisons won			Total across subjects	
	Reading	Math	Science		
REACH	7	5	6	18	46%
Comparison	1	4	5	10	26%
Tie	5	4	2	11	28%
Total	13	13	13	39	100%

Source. 2013 EVAAS scores

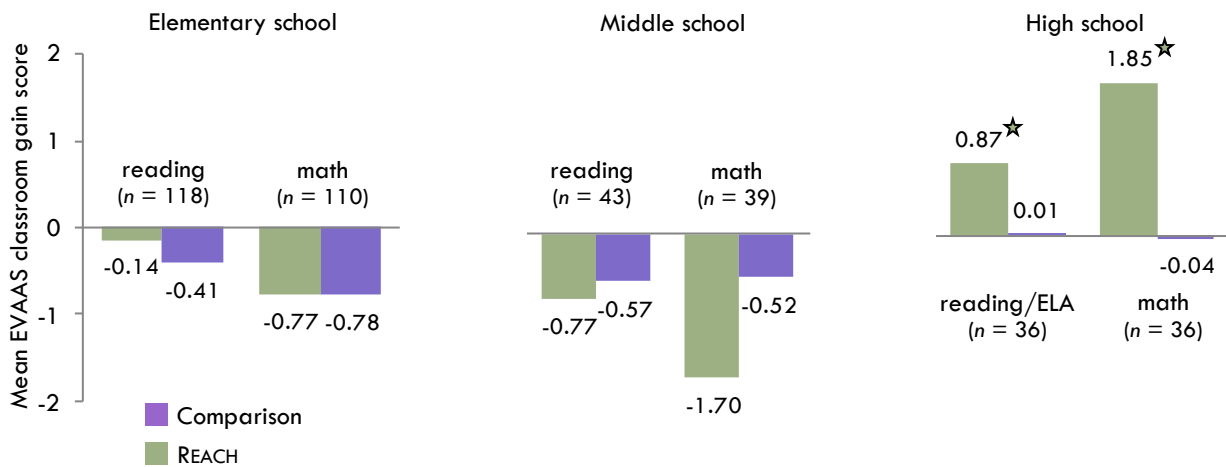
Similar analyses were conducted with REACH and comparison school classrooms to determine whether REACH school classrooms showed greater longitudinal performance gains on state assessments than did classrooms in comparison schools.

CLASSROOM PERFORMANCE

REACH and Comparison Classroom Performance Gains on State Assessments Over Time

EVAAS gains were computed for classrooms of reading and math teachers in grades 4 through 8, and for classrooms of Algebra I and English I teachers. REACH and comparison school classrooms had performance gain scores within the expected range (-1 to +1), on average. T-tests examined whether REACH classrooms from schools in the first three cohorts demonstrated greater gains than did their comparison school classrooms. Results showed REACH high school classrooms had significantly greater gains in reading/ELA and math than did comparison classrooms (Figure 1, Appendix B). No significant differences were found for elementary or middle school classroom gains.

Figure 1. Mean Educational Value Added Assessment System (EVAAS) Classroom Reading and Math Gain Scores for REACH and Comparison School Classrooms, Spring 2013, First Three Cohorts



Source. 2013 EVAAS scores

Note. Gain scores represent the number of standard errors above or below growth of students state wide. Expected growth is represented by gain scores between -1 and +1.

★ REACH mean classroom gain was significantly greater than the gain of comparison classrooms at $p < .05$.

SLOs and Classroom Performance Gains on State Assessments Over Time

In addition to examining the differences between gains of REACH and comparison classrooms, data were examined to determine whether SLOs were related to REACH teachers’ classroom gains on state assessments. Analyses described the relationship between REACH teachers’ classroom gains on state assessments (i.e., EVAAS scores) and the percentage of their students who made significant gains on SLO assessments. To remove any potential relationship between years of teaching experience and students’ gains, partial correlations were computed to control for teaching experience while examining the relationship between teachers’ EVAAS scores and the percentage of students who met their individual SLOs in the same subject. Data also were examined to determine the relationship between teachers’ EVAAS scores and years of experience with SLOs (Table 6).

Table 6. Partial Correlations Between Teachers’ Educational Value-Added Assessment System (EVAAS) Scores and the Percentage of Their Students Who Met the Individual SLO and Teachers’ Number of Years Experience with SLOs, Controlling for Years of Teaching Experience

EVAAS and SLO subject	Percentage of students who met teacher’s individual SLO			Number of years experience with SLOs		
	Elementary	Middle	High	Elementary	Middle	High
Reading/English language arts	-.02 <i>n</i> = 53	.33 <i>n</i> = 34	.18 <i>n</i> = 47	-.01 <i>n</i> = 53	.34* <i>n</i> = 34	.35* <i>n</i> = 47
Math	.08 <i>n</i> = 62	.00 <i>n</i> = 37	.25 <i>n</i> = 48	-.06 <i>n</i> = 62	-.29 <i>n</i> = 37	-.17 <i>n</i> = 48
Science	.16 <i>n</i> = 26	.82** <i>n</i> = 13	-.11 <i>n</i> = 39	.09 <i>n</i> = 26	.57* <i>n</i> = 13	-.18 <i>n</i> = 39
Social studies	n/a	-.12 <i>n</i> = 13	-.14 <i>n</i> = 35	n/a	.43 <i>n</i> = 13	-.11 <i>n</i> = 35

Source. SLO database, EVAAS results

p* < .05, *p* < .01

Teachers’ classroom EVAAS performance was related to SLO performance in one instance. Specifically, middle school science teachers with more students who met their individual SLOs demonstrated significantly greater classroom gains than did middle school science teachers with fewer students who met their SLOs. Years of SLO experience also were related to EVAAS scores at the middle and high school levels in some instances. Middle and high school reading/ELA teachers and middle school science teachers with more years of experience with SLOs had significantly greater classroom gains than did those with less SLO experience, even after controlling for years of teaching experience. At no school level were math or social studies EVAAS scores significantly related to the percentage of teachers’ students who met SLOs or to teachers’ years of experience with SLOs.

STUDENT PERFORMANCE

REACH and Comparison Students’ Performance Gains on State Assessments Over Time

To understand the influence of REACH for specific students who were served by REACH schools for an extended period of time, repeated measures multi-level models were created using reading and math state assessment data for students served at least 3 years by a REACH elementary or middle school in the first three program cohorts and for students at their comparison schools. To accommodate the transition from TAKS to STAAR, district normal curve equivalents (NCEs) were computed for each assessment taken in English.¹ The estimated longitudinal performance of students at REACH and comparison schools is shown in Figures 2 and 3.

REACH elementary (Figure 2a) and middle school (Figure 2b) students improved significantly in reading

¹The population of AISD students who took assessments in Spanish was not sufficient to compute district NCEs.

over time, and REACH middle school students improved significantly more in reading from 2009 through 2013 than did their comparison school peers. Although the data were limited to only those REACH schools with comparison schools, evidence indicated REACH middle school students experienced improvements their peers at similar non-REACH middle schools did not.

Figure 2a. Estimated Average Math and Reading Normal Curve Equivalent (NCE) Scores From 2009 Through 2013 for Students in Elementary Schools Entering REACH in Cohorts 1, 2, and 3 and Their Comparison Schools

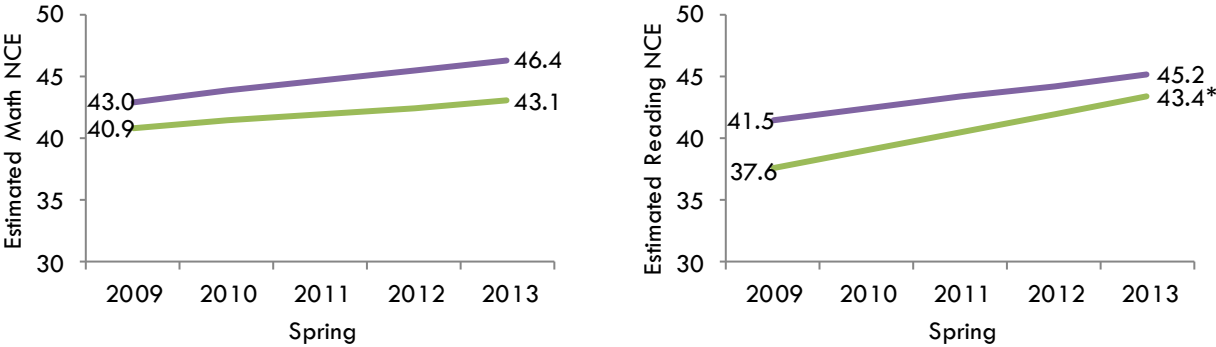
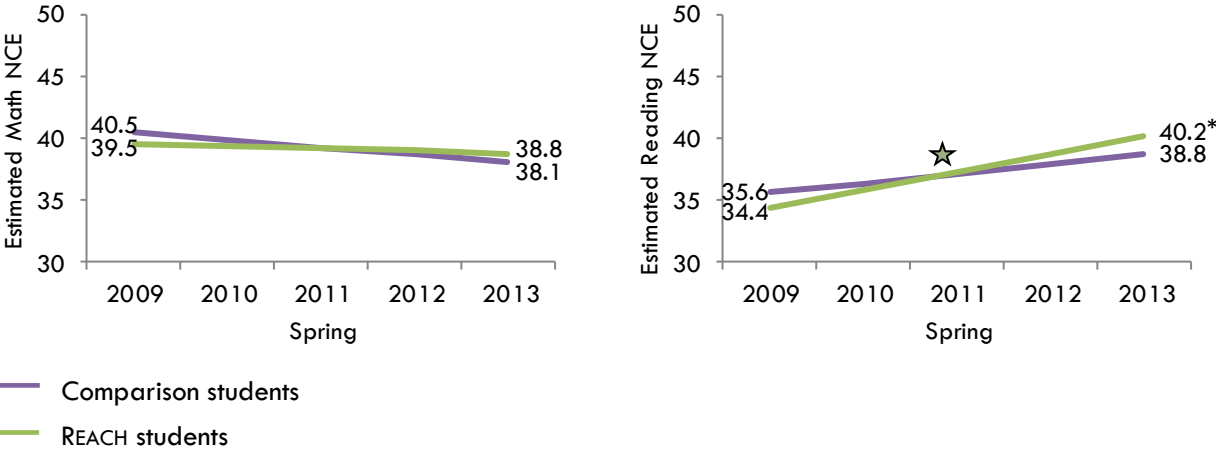


Figure 2b. Estimated Average Math and Reading Normal Curve Equivalent (NCE) Scores From 2009 Through 2013 for Students in Middle Schools Entering REACH in Cohorts 1 and 2 and Their Comparison Schools



Source. Spring 2009 through 2013 TAKS/STAAR data

Note. Elementary analyses included students with three TAKS or STAAR tests taken in a subject at REACH or comparison elementary schools. Middle school analyses included students with at least three TAKS or STAAR tests in a subject from grades 3 through 8 and an 8th-grade test taken at REACH or comparison middle schools from the first two cohorts. No middle schools entered REACH in the third program cohort (2009–2010). Additional results from multilevel models can be found in Appendix C.

★ The rate of growth for REACH students was significantly greater than that for comparison students, at $p < .05$.

* Rate of growth was significant at $p < .05$.

CONCLUSION

A variety of programs and initiatives were implemented at both REACH and comparison schools during the same time period; thus, attributing the success of REACH schools to the REACH program alone is not possible. However, REACH and comparison schools were similar with regard to key relevant characteristics (i.e., student achievement, teacher experience, teacher retention rates, and student needs) prior to program implementation, and the longitudinal analyses of school, classroom, and student performance on state assessments suggest that where differences were found, results were better for REACH than for comparison students. Thus, the REACH system of supports and rewards likely facilitated some meaningful improvements in students' achievement over time beyond what otherwise might have occurred.

The AISD REACH program elements, which have been evaluated extensively since the program began in 2007–2008, were not intended to operate in isolation. Rather, they were designed to provide a system of supports and rewards that would facilitate improvements in students' achievement over time at participating schools. Evidence presented in this report indicated REACH schools outperformed similar non-REACH schools in 55% of school-level comparisons, while non-REACH schools outperformed their REACH counterparts in 32% of comparisons. Thus, REACH schools were 1.7 times more likely to outperform their comparison schools than vice versa. Although the small number of schools was insufficient for tests of statistical significance, the fact that REACH schools outperformed their matched comparison schools more often than not in multiple subjects across multiple indicators suggests REACH schools performed better than they would have without the program.

With greater sample sizes than those available for school-level analyses, the number of REACH and comparison school classrooms was sufficient for classroom-level tests of statistical significance. REACH high school classrooms had significantly greater gains, on average, in reading/ELA and math than did comparison classrooms. Thus, evidence suggests REACH high school classrooms performed better than they would have without the program. This assertion was supported by additional evidence that high school reading/ELA teachers and middle school science and reading/ELA teachers with more SLO experience demonstrated greater classroom gains than did teachers with less SLO experience, regardless of overall teaching experience. However, no significant differences were found between REACH and comparison elementary or middle schools' average classroom gains on state assessments.

The school and classroom analyses addressed results for students served in REACH or comparison schools at various points in time (e.g., improvements in the annual school passing rates, and the passing rates and gains for students served in 2013). However, those data did not account for whether students had been served for 1 year or for many years in REACH schools. Results from additional analyses with specific elementary and middle school students who were served in REACH or comparison schools for at least 3 years indicated REACH students improved significantly in reading over time, and that REACH middle school students improved significantly more in reading from 2009 to 2013 than did their comparison school peers. Again, evidence suggests REACH students performed better in reading than they would have without the program.

APPENDIX

Appendix A. Educational Value Added Assessment System (EVAAS) Gain Level for REACH and Comparison Schools, Spring 2013, First Three REACH Cohorts

Cohort	School and status	EVAAS level 1–5			School with greatest gain		
		Reading	Math	Science	Reading	Math	Science
2007–2008	Lanier HS (REACH)	5	5	3	REACH	REACH	Comparison
	Crockett HS (comparison)	4	3	5			
	Dobie MS (REACH)	1	1	3	Tie	Comparison	Comparison
	Burnet MS (comparison)	1	4	4			
	Hart ES (REACH)	3	3	3	Tie	REACH	REACH
	Palm ES (comparison)	3	1	1			
	Rodriguez ES (REACH)	1	1	3	Comparison	Comparison	REACH
	St. Elmo ES (comparison)	2	3	2			
	Sunset Valley ES (REACH)	4	3	5	REACH	REACH	REACH
	Galindo ES (comparison)	2	2	3			
Sims ES (REACH)	3	1	2	Tie	Tie	REACH	
Williams ES (comparison)	3	1	1				
2008–2009	Webb MS (REACH)	5	1	5	REACH	Comparison	Tie
	Mendez MS (comparison)	3	3	5			
	Jordan ES (REACH)	3	2	4	Tie	Comparison	Comparison
	Widen ES (comparison)	3	3	5			
2009–2010	Akins HS (REACH)	5	5	5	REACH	REACH	Tie
	Crockett HS (comparison)	4	3	5			
	Harris ES (REACH)	5	3	4	REACH	Tie	REACH
	Ridgetop ES (comparison)	2	3	3			
	Norman ES (REACH)	3	2	3	Tie	REACH	REACH
	Campbell ES (comparison)	3	1	1			
	Pickle ES (REACH)	3	1	2	REACH	Tie	Comparison
	Houston ES (comparison)	2	1	3			
	Pleasant Hill ES (REACH)	4	3	2	REACH	Tie	Comparison
Oak Springs ES (comparison)	3	3	5				

Source. 2013 EVAAS scores
 ES = elementary school; MS = middle school; HS = high school

Appendix B. Comparison of REACH and Comparison School 2013 Classroom Educational Value Added Assessment System (EVAAS) Gain Scores by Level

Subject	School level	School type	n	Mean	SD	t	p
Reading	Elementary	REACH	65	-0.14	0.83		
		Comparison	53	-0.41	1.20		
		Total (diff)	118	0.27	1.01	1.43	.16
	Middle	REACH	21	-0.77	1.53		
		Comparison	22	-0.57	1.78		
		Total (diff)	43	-0.21	1.66	-0.41	.68
	High	REACH	27	0.87			
		Comparison	9	0.01			
		Total (diff)	36	0.86	1.06	2.11	.04
Math	Elementary	REACH	62	-0.77	1.68		
		Comparison	48	-0.78	2.20		
		Total (diff)	110	0.02	1.93	0.04	.97
	Middle	REACH	20	-1.70	1.83		
		Comparison	19	-0.52	2.92		
		Total (diff)	39	-1.18	2.42	1.52	.14
	High	REACH	26	1.85	2.68		
		Comparison	10	-0.04	1.60		
		Total (diff)	36	-1.89	2.44	2.08	.04

Source. 2013 EVAAS scores

Appendix C. Fixed Effects and Variance-Covariance Estimates for Models of the Predictors of Student Normal Curve Equivalent (NCEs) in Reading and Math

Parameter	Elementary		Middle	
	Reading	Math	Reading	Math
Fixed effects				
Intercept	37.63**	40.89**	34.42**	39.52**
Level 1 (time)	1.43**	0.54	1.44**	-0.18
Level 2 (REACH)	3.86**	2.11	1.17	0.99
Level 2 (REACH * time)	-0.51	0.31	-0.63*	-0.43
Random parameters				
Student ID	43.95**	47.50**	34.24**	30.90**

Source. 2008 through 2013 TAKS and STAAR

* p < .05; **p < .01

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