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National Alliance for Partnership in Equity (NAPE) Student Outcomes: 2015–2016

Department of
Research and Evaluation
AUSTIN INDEPENDENT SCHOOL DISTRICT

Executive Summary

The purpose of this report is to describe the students and staff who were influenced by the National Alliance for Partnerships in Equity's (NAPE) Micromessaging to Reach and Teach Every Student™ training during the 2015–2016 academic year.

The impact of NAPE was assessed using State of Texas Assessments of Academic Readiness (STAAR) data. Because the intention of NAPE's training is to decrease gaps seen in the science, technology, engineering, and math (STEM) fields, only students who were enrolled in a science, math, or career and technical education (CTE) course with a teacher trained by NAPE were included in analyses. Academic performance was investigated first, followed by performance by underrepresented groups in STEM fields such as race and gender.

The results suggested some underrepresented groups were performing better in math than were their overrepresented counterparts. Additionally, analyses revealed it is important to disaggregate students by subject of the course instructed by the NAPE-trained teacher when examining the impact of NAPE. Academic performance in math tended to be better for students who were enrolled in a math course with a NAPE-trained math teacher than for students who were enrolled in a course with a NAPE-trained science or CTE teacher.

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Introduction

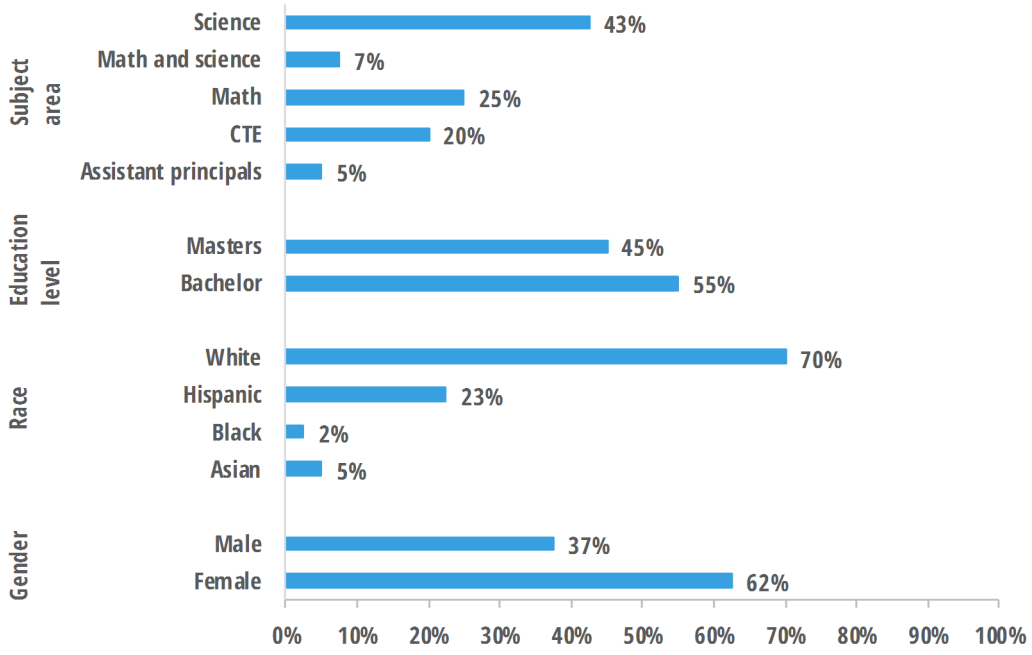
Austin Independent School District (AISD) and the American Institutes for Research (AIR) are collaborating with the National Alliance for Partnerships in Equity's (NAPE) to provide AISD staff with NAPE's professional development program, Micromessaging to Reach and Teach Every Student™. This program addresses the influence of small and often unconscious cues (e.g., tone of voice, word choice, and bodily gestures) individuals send and receive, due to implicit bias, with the intention of increasing micro-affirmation (positive micromessages) and decreasing micro-inequalities (negative micromessages) (NAPE, n.d.). Within the classroom structure, decreased micro-inequalities may encourage students to pursue nontraditional career paths. The goal of the training is to increase enrollment and achievement and to decrease the gap between historically underserved groups (e.g., females) and other groups in science, technology, engineering, and math (STEM) fields.

Beginning in the 2014–2015 school year, NAPE has provided training to more than 80 staff members at 19 AISD schools. **The current report is a preliminary analysis and provides an overview of the staff and students who were influenced by NAPE in the 2015–2016 school year. A future report will analyze differences amongst a comparison group that match students of NAPE-trained teachers to other similar students without a NAPE-trained teacher.**

Which teachers received NAPE training?

Before the training began, NAPE staff recruited principals, who then recruited staff to participate in NAPE's professional development program. A total of 40 staff completed the NAPE training in 2015–2016. The majority of NAPE-trained staff were female and White (Figure 1). The average years of AISD employment ranged from 1 year to 33 years, with an average of 8 years of experience.

Figure 1.
Many NAPE-trained teachers were female and White in the science field.



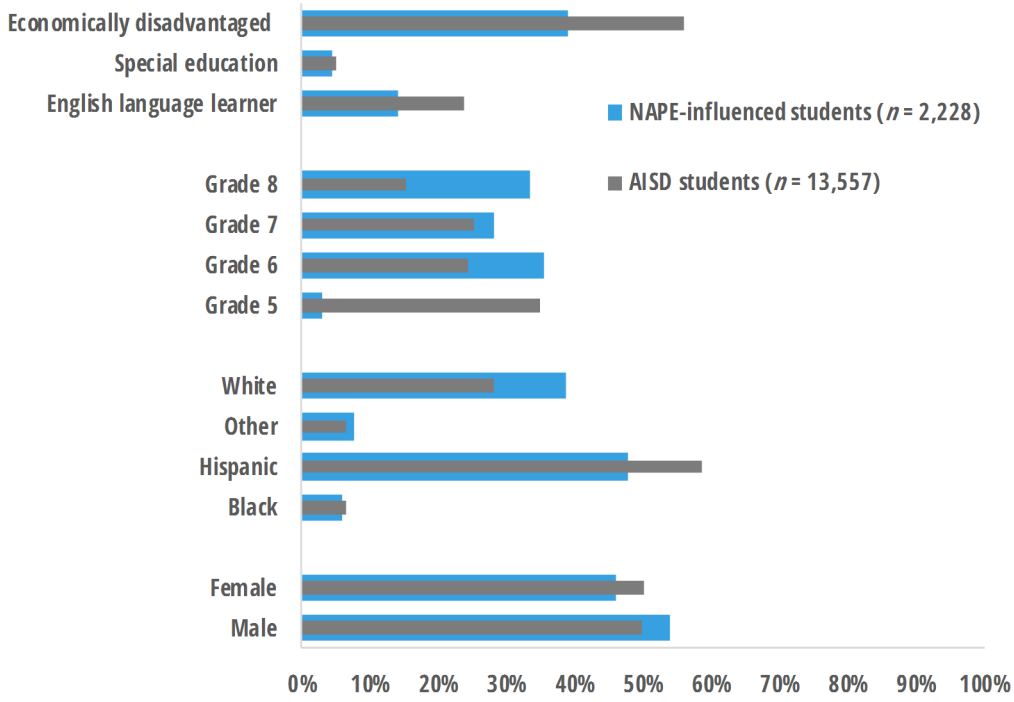
Source. AISD Staff records, 2015–2016
Note. Percentages may not total 100 due to rounding.

What characterized the students who were influenced by NAPE?

In the 2015–2016 school year, 2,228 students were identified as having taken a math, science, or career and technical education (CTE) class with a NAPE-trained teacher and also had data necessary for analyses. It should be noted that students were only included in the analyses if they had State of Texas Assessments of Academic Readiness (STAAR) math scores in 2014–2015 and 2015–2016.

Figure 2 illustrates the composition of students who were enrolled in schools that offered the NAPE training. The majority of NAPE-influenced students were Hispanic and male. Because NAPE is intended to decrease gaps between historically underserved groups and other groups in the STEM field, it should be noted that there were more males than females and a very small portion of students were Black among the students influenced by NAPE. Additionally, AISD had a greater proportion of students who were Hispanic, economically disadvantaged, and English language learners (ELLs) than were served by NAPE.

Figure 2
Most NAPE-influenced students were Hispanic or males.



Source. AISD Student records, 2015–2016
Note. AISD students include 5th- to 8th-grade students who were not enrolled in a math, science, or CTE class instructed by a NAPE-trained teacher; percentages may not total 100 due to rounding.

Academic Achievement

Of the 2,228 students included, 84% passed the math STAAR. Of the 806 students who completed a science STAAR, 77% passed. Normal curve equivalent (NCE) scores were calculated and used in the analysis (see sidebar).

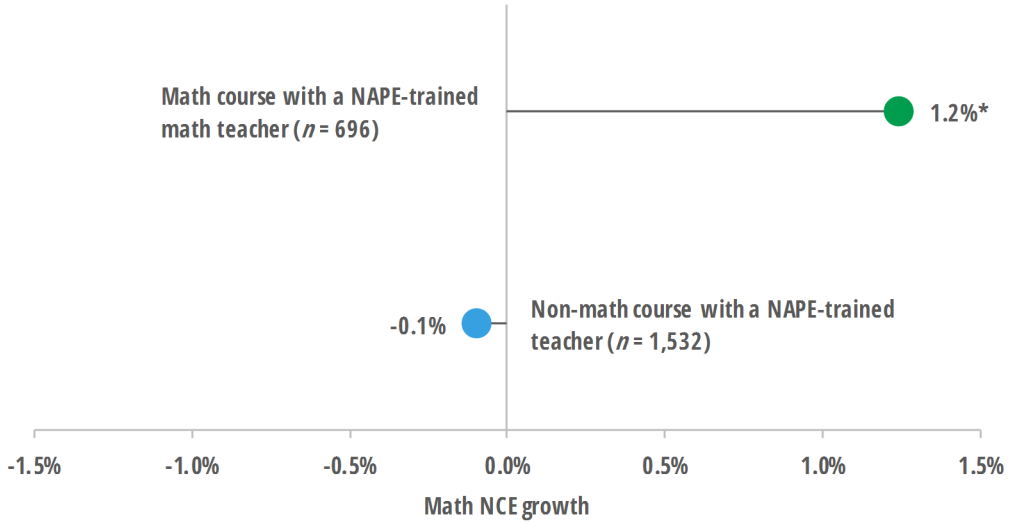
Figure 3 shows the average growth of students enrolled in a course with other NAPE-trained teacher at −0.1%, indicating students who were only enrolled in a science or CTE NAPE-trained teacher's course showed slightly less than a year of expected progress in math. However, students who were enrolled in a math course with a NAPE-trained math teacher showed more than a year of expected progress in math. An analysis of variance (ANOVA) and Tukey's range test determined math growth was significantly higher for

Normal Curve Equivalent (NCE) Scores

The NCE was generated for students' STAAR scores. Similar to percentile ranks, the numbers range from 0 to 100 on the NCE line, with a standard deviation of 21.06 (Area Education Agency 267, n.d.). The advantage of NCE scores includes allowing scores to be averaged, compared across time, and tested for significance. For the purposes of this report, average STAAR NCE scores were used to assess gains/loss in achievement for each subgroup (e.g., by school, by presence of an NAPE-trained teacher). In regard to gains/loss, a 0% gain is interpreted as students making the appropriate amount of progress during an academic year. Students who make more than a year of progress will have a positive percentage, showing a net gain in the NCE scores, while students who make less than a year of progress will have a negative percentage, showing a net loss in the NCE scores.

students who had taken a math course with a NAPE-trained math teacher than for students who had not done so. See Appendix A for average STAAR math NCE scores and number of students included in Appendix B.

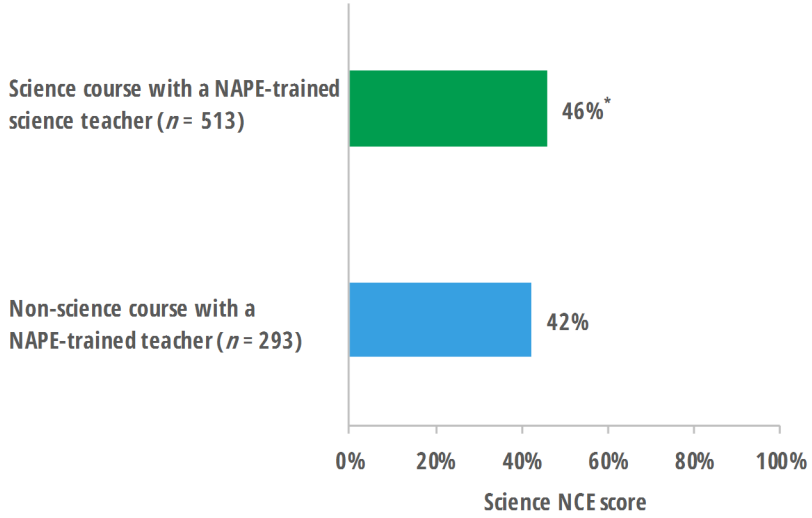
Figure 3.
Students who were enrolled in a math course with a NAPE-trained math teacher had significantly higher average math growth than did students enrolled in a non-math course with a NAPE-trained teacher.



Source. AISD STAAR records, 2014–2015 and 2015–2016
Note. Non-math course with a NAPE-trained teacher include students who were only enrolled in a science or CTE course with a NAPE-trained teacher; STAAR scores were converted to NCE scores; growth was computed by subtracting 2015–2016 from 2014–2015 NCE scores. * statistically significant at $p < 0.05$.

Because STAAR science is only administered to 5th- and 8th-grade students, annual growth for science could not be computed. Instead, Figure 4 shows the 2015–2016 average STAAR science NCE scores. Students who were enrolled in a science course with a NAPE-trained science teacher had significantly higher average STAAR NCE scores than did students who were only enrolled in a course instructed by a math or CTE NAPE-trained teacher.

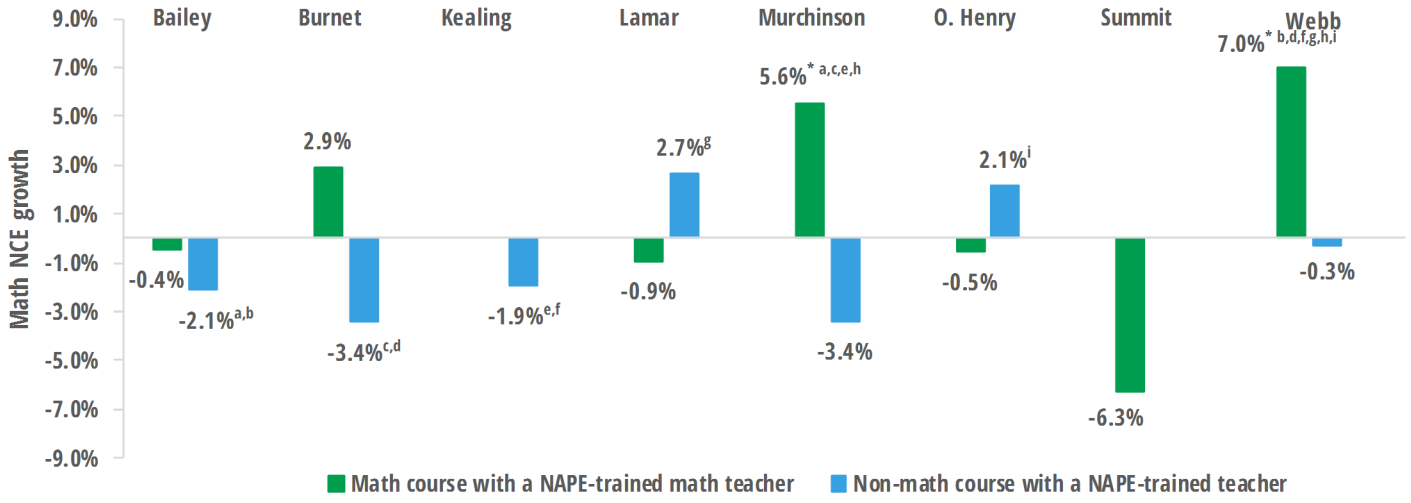
Figure 4.
Students who were enrolled in a science course with a NAPE-trained science teacher had significantly higher average science NCE scores than did students enrolled in a non-science course with a NAPE-trained teacher.



Source. AISD STAAR records, 2015–2016
Note. Non-science course with a NAPE-trained teacher include students who were only enrolled in a math or CTE course with a NAPE-trained teacher.
* statistically significant at $p < 0.05$.

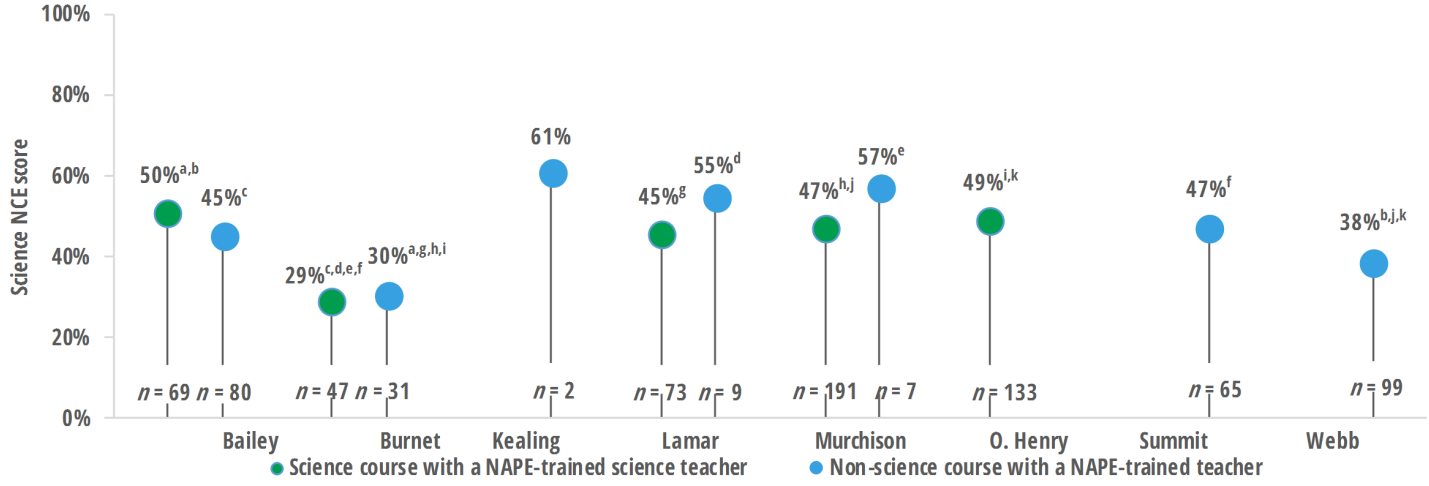
Figure 5 displays average STAAR math growth for each participating school, which varied greatly. Students who were enrolled in a math course taught by a NAPE-trained math teacher at Webb and Murchison showed significantly higher math growth than did students in the same school not enrolled in a math course taught by a NAPE-trained teacher. Additionally, students who had taken a math course taught by a NAPE-trained math teacher at Webb and Murchison showed significantly higher math growth than did the majority of students in other schools not enrolled in a math course taught by a NAPE-trained teacher. Mixed results were found for average STAAR science NCE scores, as well (Figure 6). However, students in Burnet showed significantly lower average NCE scores than did the majority of students in other schools. Appendix A includes average STAAR math NCE scores, and Appendix B includes the number of students in each group.

Figure 5.
Mixed results were seen when examining average STAAR math NCE growth for each school.



Source. AISD STAAR records, 2014–2015 and 2015–2016
Note. Non-math course with a NAPE-trained teacher include students who were only enrolled in a science or CTE course with a NAPE-trained teacher; some groups have $n = 0$; STAAR scores were converted to NCE scores; growth was computed by subtracting 2015–2016 from 2014–2015 NCE scores. * statistically different at $p < 0.05$ within schools; percentages sharing the same superscript letter were significantly different at $p < 0.05$ across schools.

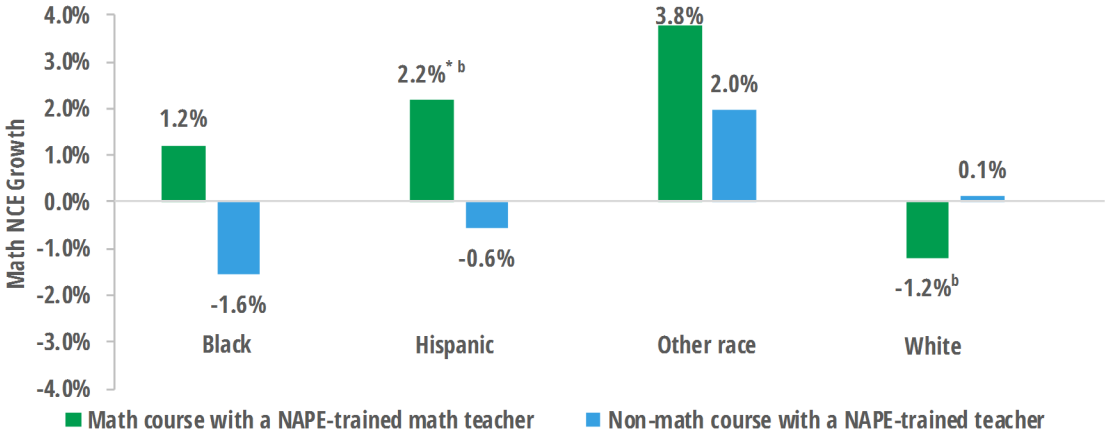
Figure 6.
Students attending Burnet had significantly lower average STAAR science NCE scores than did most students in other schools.



Source. AISD STAAR records, 2015–2016
Note. Non-science course with a NAPE-trained teacher include students who were only enrolled in a math or CTE course with a NAPE-trained teacher; some groups have $n = 0$.

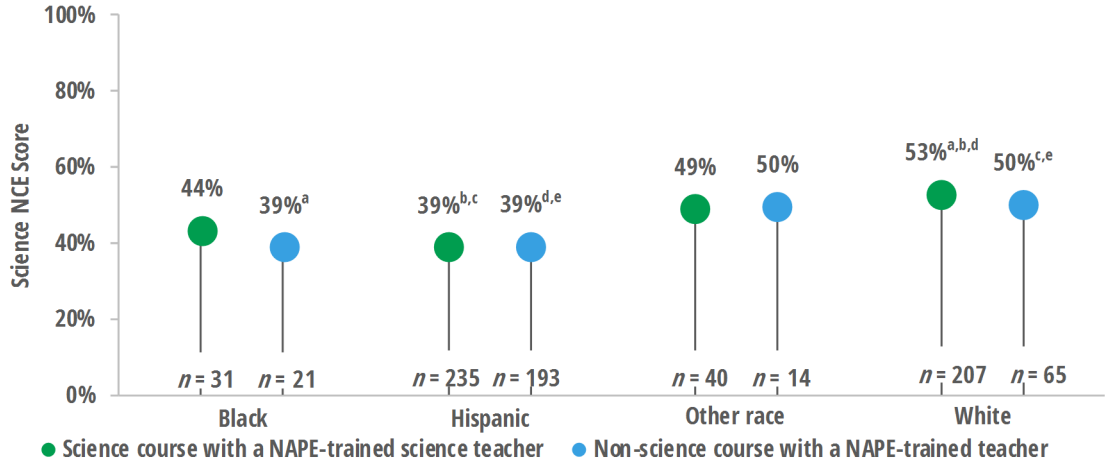
Black and Hispanic students are typically underrepresented in the STEM field, whereas White students are typically overrepresented. Significant differences in growth was seen for Hispanic students who were enrolled in a math course with a NAPE-trained math teacher, as compared with growth seen for Hispanic students not enrolled in a math class with a NAPE-trained teacher and White students enrolled in a math course with a NAPE-trained math teacher (Figure 7). While not significant, Black and Hispanic students showed greater than expected progress in math when enrolled in a math class with a NAPE-trained math teacher. However, Black and Hispanic students who were only enrolled in a science or CTE class with a NAPE-trained teacher demonstrated less than the expected progress for the academic year in math. Conversely, White students who were enrolled in a math course with a NAPE-trained math teacher showed a net loss, while White students not enrolled in a math course with a NAPE-trained teacher showed a net gain. Even with NAPE-trained teachers, the average STAAR science NCE scores for the majority of Black and Hispanic students remained significantly lower than did scores for White students (Figure 8).

Figure 7.
Underrepresented students enrolled in a math course with a NAPE-trained math teacher showed net gains in math growth.



Source. AISD STAAR records, 2014–2015 and 2015–2016
Note. Non-math course with a NAPE-trained teacher include students who were only enrolled in a science or CTE course with a NAPE-trained teacher; other race includes American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, two or more races, and Asian students; STAAR scores were converted to NCE scores; growth was computed by subtracting 2015–2016 from 2014–2015 NCE scores. * statistically different at $p < 0.05$ within race; percentages sharing the same superscript letter were significantly different at $p < 0.05$ across race.

Figure 8.
White students had the highest average STAAR science NCE scores.

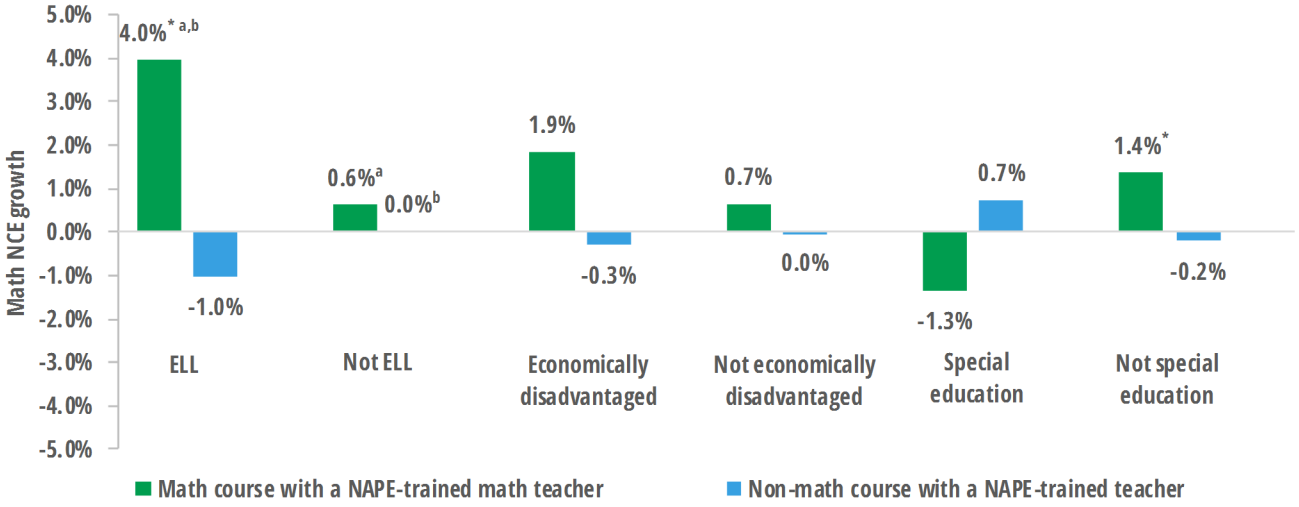


Source. AISD STAAR records, 2015–2016
Note. Non-science course with a NAPE-trained teacher include students who were only enrolled in a math or CTE course with a NAPE-trained teacher; other race includes American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, two or more races, and Asian students. * statistically different at $p < 0.05$ within race; percentages sharing the same superscript letter were significantly different at $p < 0.05$ across race.

Students categorized as ELLs who were enrolled in a math course with a NAPE-trained math teacher showed significantly higher math growth than did non-ELL students as well as ELLs not enrolled in a math course with a NAPE-trained teacher (Figure 9). Additionally, non-special education students who were enrolled in a math course with a NAPE-trained math teacher showed significantly higher math growth than did similar students not enrolled in a math course with a NAPE-trained teacher. Although not significant, aside from special education, the majority of subgroups enrolled in a math course with a NAPE-trained math teacher showed more than a year of expected progress in math. Figure 10 shows that economically disadvantaged students and ELLs showed significantly lower science achievement than did their respective counterparts, non-economically disadvantaged and non-ELLs.

Figure 9.

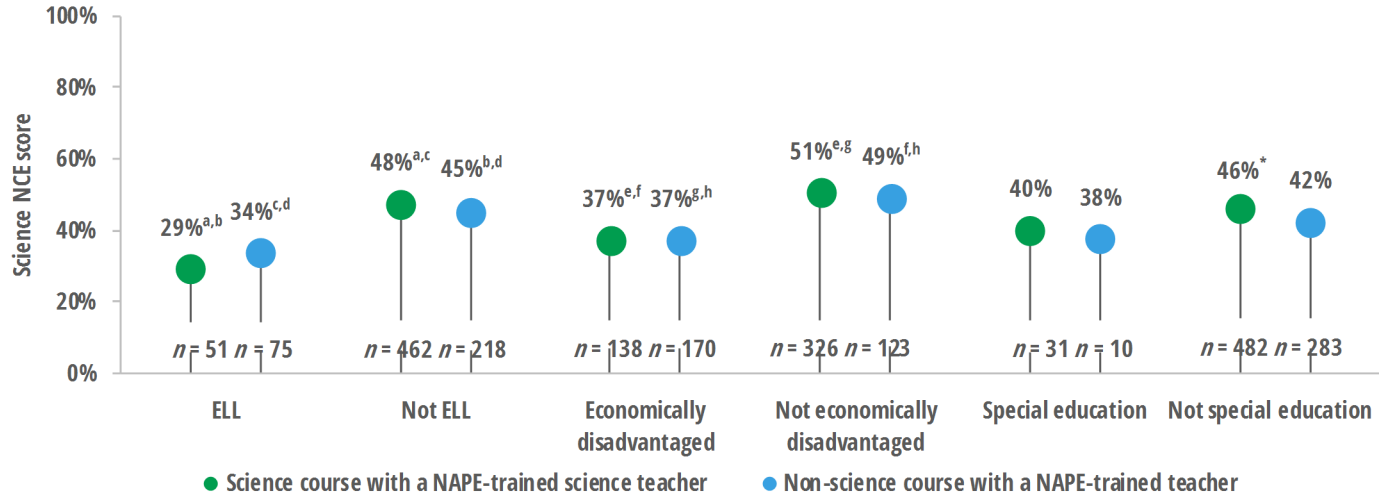
Most students enrolled in a math course with a NAPE-trained math teacher tended to show greater math gains than did students enrolled in a non-math course with a NAPE-trained teacher.



Source. AISD STAAR records, 2014–2015 and 2015–2016
Note. Non-math course with a NAPE-trained teacher include students who were only enrolled in a science or CTE course with a NAPE-trained teacher; STAAR scores were converted to NCE scores; growth was computed by subtracting 2015–2016 from 2014–2015 NCE scores. * statistically different at $p < 0.05$ within subgroup; percentages sharing the same superscript letter were significantly different at $p < 0.05$ across subgroup.

Figure 10.

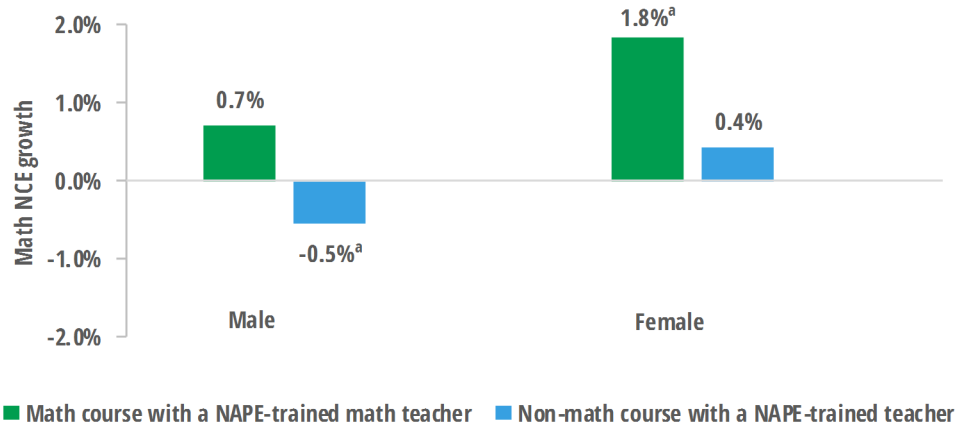
Students who were not economically disadvantaged had higher average STAAR science NCE scores than did economically disadvantaged students.



Source. AISD STAAR records, 2015–2016
Note. Non-science course with a NAPE-trained teacher include students who were only enrolled in a math or CTE course with a NAPE-trained teacher. * statistically different at $p < 0.05$ within subgroup; percentages sharing the same superscript letter were significantly different at $p < 0.05$ across subgroup.

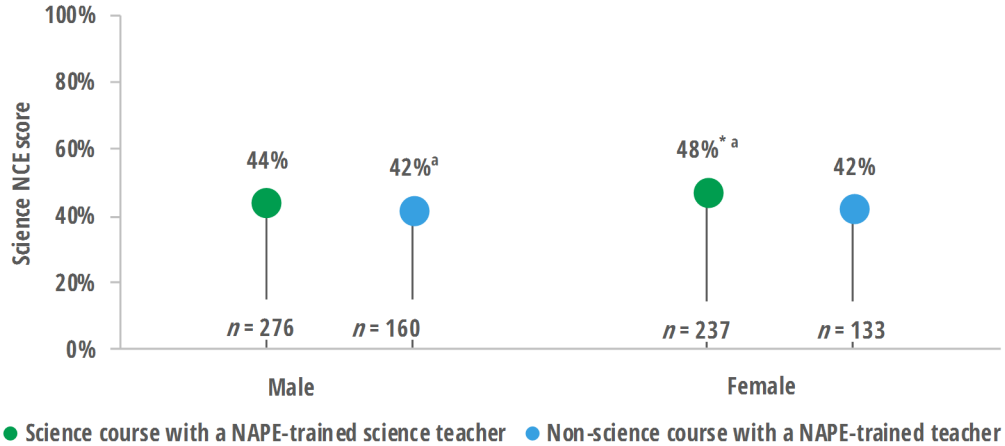
Female students, an underrepresented group in STEM, who were enrolled in a math course with a NAPE-trained math teacher showed significantly higher math growth than did male students who were not enrolled in a math course with a NAPE-trained teacher (Figure 11). However, although not statistically significant, it can be seen that females enrolled in a math course with a NAPE-trained teacher showed the highest net gain in math for the academic year, as compared with the gains made by females not enrolled in a math course with a NAPE-trained teacher and males. Female students who were enrolled in a science course with a NAPE-trained science teacher had significantly higher average science NCE scores than did male and female students only enrolled in a course with a non-science NAPE-trained teacher (Figure 12).

Figure 11.
Females enrolled in a math course with NAPE-trained math teacher showed significantly higher math gains than did males enrolled in a non-math course with a NAPE-trained teacher.



Source. AISD STAAR records, 2014–2015 and 2015–2016
Note. Non-math course with a NAPE-trained teacher include students who were only enrolled in a science or CTE course with a NAPE-trained teacher; STAAR scores were converted to NCE scores; growth was computed by subtracting 2015–2016 from 2014–2015 NCE scores. * statistically significant at $p < 0.05$ within gender; percentages sharing the same superscript letter were significantly different at $p < 0.05$ across gender.

Figure 12.
Females enrolled in a math course with NAPE-trained math teacher had significantly higher average STAAR science NCE scores than did males enrolled in a non-science course with a NAPE-trained teacher.



Source. AISD STAAR records, 2015–2016
Note. Non-science course with a NAPE-trained teacher include students who were only enrolled in a math or CTE course with a NAPE-trained teacher. * statistically different at $p < 0.05$ within gender; percentages sharing the same superscript letter were significantly different at $p < 0.05$ across

Conclusion

While significant differences in performance were found between some underrepresented and overrepresented groups in the STEM field, the current analyses only examined performance for all 2015–2016 students who were influenced by NAPE in a STEM field. The results of the current analysis provide evidence that among students influenced by NAPE, academic performance was typically better when the student was enrolled in a course of the corresponding subject with a NAPE-trained teacher (i.e., math achievement was higher when a student was enrolled in a math course with a NAPE-trained math teacher, as opposed to when a student was only enrolled in a course with a NAPE-trained science or CTE teacher). However, because other factors may be contributing to the results, caution should be taken when interpreting them.

Future Analyses

Propensity score matching will be conducted to create a comparison group that will match students of NAPE-trained teachers to other similar students without a NAPE-trained teacher. Students will be matched based on the following characteristics: prior-year STAAR performance, race, ethnicity, gender, and level of economic disadvantage. Additionally, when available, future reports will include information regarding whether or not NAPE-influenced students are more likely to enroll in advanced STEM courses or select a STEM-related high school endorsement than are non-NAPE influenced students. Finally, future analyses will also examine Student Climate Survey data and determine whether NAPE-influenced students are more likely to say they will take advanced STEM courses than are their non-NAPE influenced peers.

Appendix A

A1.
Average STAAR Math NCE Scores

Math course with a NAPE-trained math teacher (n = 696)		Non-math course with a NAPE-trained teacher (n = 1,532)	
2015	2016	2015	2016
46%	48%	56%	56%

Source. AISD STAAR records, 2014–2015 and 2015–2016
Note. Non-math course with a NAPE-trained teacher include students who were only enrolled in a science or CTE course with a NAPE-trained teacher; STAAR scores were converted to NCE scores.

A2.
Average STAAR Math NCE Scores, by School

School	Math course with a NAPE-trained math teacher (n = 696)		Non-math course with a NAPE-trained teacher (n = 1,532)	
	2015	2016	2015	2016
Kealing			76%	74%
Lamar	49%	48%	50%	53%
Burnet	36%	39%	42%	38%
O. Henry	48%	48%	56%	58%
Murchison	57%	63%	53%	49%
Webb	34%	41%	41%	41%
Bailey	53%	53%	60%	58%
Summit	52%	45%		

Source. AISD STAAR records, 2014–2015 and 2015–2016
Note. Non-math course with a NAPE-trained teacher include students who were only enrolled in a science or CTE course with a NAPE-trained teacher; STAAR scores were converted to NCE scores.

A3.
Average STAAR Math NCE Scores, by Race

Race	Math course with a NAPE-trained math teacher (n = 696)		Non-math course with a NAPE-trained teacher (n = 1,532)	
	2015	2016	2015	2016
Black	39%	40%	45%	43%
Hispanic	42%	44%	48%	47%
Other race	48%	51%	67%	69%
White	57%	56%	64%	64%

Source. AISD STAAR records, 2014–2015 and 2015–2016
Note. Non-math course with a NAPE-trained teacher include students who were only enrolled in a science or CTE course with a NAPE-trained teacher; STAAR scores were converted to NCE scores.

Appendix A

A4.

Average STAAR Math NCE scores, by Subgroup

	Math course with a NAPE-trained math teacher (n = 696)		Non-math course with a NAPE-trained teacher (n = 1,532)	
	2015	2016	2015	2016
ELL	34%	38%	37%	36%
Not ELL	49%	50%	59%	59%
Economically disadvantaged	38%	40%	44%	44%
Not economically disadvantaged	55%	55%	63%	63%
Special education	36%	35%	43%	44%
Not special education	47%	48%	57%	57%

Source. AISD STAAR records, 2014–2015 and 2015–2016
Note. Non-math course with a NAPE-trained teacher include students who were only enrolled in a science or CTE course with a NAPE-trained teacher; STAAR scores were converted to NCE scores.

A5.

Average STAAR Math NCE Scores, by Gender

Gender	Math course with a NAPE-trained math teacher (n = 696)		Non-math course with a NAPE-trained teacher (n = 1,532)	
	2015	2016	2015	2016
Male	47%	47%	56%	56%
Female	46%	48%	56%	57%

Source. AISD STAAR records, 2014–2015 and 2015–2016
Note. Non-math course with a NAPE-trained teacher include students who were only enrolled in a science or CTE course with a NAPE-trained teacher; STAAR scores were converted to NCE scores.

Appendix B

A4.
STAAR Math Student Sample

	Math course with a NAPE-trained math teacher	Non-math course with a NAPE-trained teacher
	n =	*n* =
Kealing	0	274
Lamar	67	322
Burnet	51	86
O. Henry	120	396
Murchison	44	217
Webb	156	111
Bailey	193	126
Summit	65	0
Black	48	83
Hispanic	413	650
Other Race	38	132
White	197	667
Male	368	836
Female	328	696
ELL	127	189
Not ELL	569	1343
Economically disadvantaged	338	531
Not economically disadvantaged	358	1001
Special education	36	66
Not special education	660	1466
Overall	696	1,532

Source. AISD STAAR records, 2014–2015 and 2015–2016
Note. Non-math course with a NAPE-trained teacher include students who were only enrolled in a science or CTE course with a NAPE-trained teacher; some groups have a *n* = 0.

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Area Education Agency 267. (n.d.). *What is a normal curve equivalent score?*. Retrieved from https://www.aea267.k12.ia.us/system/assets/uploads/files/1739/nce_score.pdf

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