

PyCitySchools_Challenge4 Analysis

This report summarizes both District level – and Individual school level -- information. The output is provided using 2 different data sets:

- 1) Output using complete data from the district
- 2) Output using a subset of data whereby the 9th Grade Math and Reading scores for Thomas High School were removed from the data and all output results run again.

By comparing the output from the 2 datasets, specific questions were then answered:

- How is the district summary affected?
- How is the school summary affected?
- How does removing the ninth grader' math and reading scores affect Thomas High School's performance, relative to the other schools?
- How does removing the ninth grade scores affect the following:
 - Math and Reading Scores by Grade
 - Scores by School Per Capita Spending
 - Scores by School Size
 - Scores by School Type

Output

- District Summary – before and after data removal.
- School Summary – after data removal.
- Top 5 and Bottom 5 Performing Schools – before and after data removal .
- Math and Reading Scores by Grade – before and after data removal.
- Scores by School Per Capita Spending, School Size, and School Type – before and after data removal.

District Summary

Conclusions – How is the District Summary Affected?

- Data Removal had minimal effect at the district level. It lowered Average Math Scores by - 0.1% and lowered the % Passing in Math, Reading, and Overall Passing by -1% respectively.

District - All Data

	Total Schools	Total Students	Total Budget	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
0	15	39,170	\$24,649,428.00	79.0	81.9	75	86	80

District – Minus Thomas High Data

	Total Schools	Total Students	Total Budget	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
0	15	39,170	\$24,649,428.00	78.9	81.9	74	85	79

School Summary – overall data by school after data removal

	School Type	Total Students	Total School Budget	Per Student Budget	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
Bailey High School	District	4976	\$3,124,928.00	\$628.00	77.0	81.0	67	82	74
Cabrera High School	Charter	1858	\$1,081,356.00	\$582.00	83.1	84.0	94	97	96
Figueroa High School	District	2949	\$1,884,411.00	\$639.00	76.7	81.2	66	81	73
Ford High School	District	2739	\$1,763,916.00	\$644.00	77.1	80.7	68	79	74
Griffin High School	Charter	1468	\$917,500.00	\$625.00	83.4	83.8	93	97	95
Hernandez High School	District	4635	\$3,022,020.00	\$652.00	77.3	80.9	67	81	74
Holden High School	Charter	427	\$248,087.00	\$581.00	83.8	83.8	93	96	94
Huang High School	District	2917	\$1,910,635.00	\$655.00	76.6	81.2	66	81	74
Johnson High School	District	4761	\$3,094,650.00	\$650.00	77.1	81.0	66	81	74
Pena High School	Charter	962	\$585,858.00	\$609.00	83.8	84.0	95	96	95
Rodriguez High School	District	3999	\$2,547,363.00	\$637.00	76.8	80.7	66	80	73
Shelton High School	Charter	1761	\$1,056,600.00	\$600.00	83.4	83.7	94	96	95
Thomas High School	Charter	1635	\$1,043,130.00	\$638.00	83.4	83.9	67	70	68
Wilson High School	Charter	2283	\$1,319,574.00	\$578.00	83.3	84.0	94	97	95
Wright High School	Charter	1800	\$1,049,400.00	\$583.00	83.7	84.0	93	97	95

School Summary (con't)

Conclusions – How does removing data affect Thomas High relative to other schools?

The Top 5 Schools were affected significantly. Thomas High dropped out of the Top 5 and Wright moved into the Top 5 Ranking. The data below shows the ranking before and after data removal.

Top 5 Schools – All Data Followed By Post Removal of Data

	School Type	Total Students	Total School Budget	Per Student Budget	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
Cabrera High School	Charter	1858	\$1,081,356.00	\$582.00	83.061895	83.975780	94.133477	97.039828	95.586652
Thomas High School	Charter	1635	\$1,043,130.00	\$638.00	83.418349	83.848930	93.272171	97.308869	95.290520
Pena High School	Charter	962	\$585,858.00	\$609.00	83.839917	84.044699	94.594595	95.945946	95.270270
Griffin High School	Charter	1468	\$917,500.00	\$625.00	83.351499	83.816757	93.392371	97.138965	95.265668
Wilson High School	Charter	2283	\$1,319,574.00	\$578.00	83.274201	83.989488	93.867718	96.539641	95.203679

	School Type	Total Students	Total School Budget	Per Student Budget	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
Cabrera High School	Charter	1858	\$1,081,356.00	\$582.00	83.061895	83.975780	94.133477	97.039828	95.586652
Pena High School	Charter	962	\$585,858.00	\$609.00	83.839917	84.044699	94.594595	95.945946	95.270270
Griffin High School	Charter	1468	\$917,500.00	\$625.00	83.351499	83.816757	93.392371	97.138965	95.265668
Wilson High School	Charter	2283	\$1,319,574.00	\$578.00	83.274201	83.989488	93.867718	96.539641	95.203679
Wright High School	Charter	1800	\$1,049,400.00	\$583.00	83.682222	83.955000	93.333333	96.611111	94.972222

As noted, Thomas High moved from one of the Top 5 to one of the Bottom 5 as removing their 9th Grade data had a significant impact on % Overall Passing. With respect to Thomas' Avg Scores for Math and Reading, removing the 9th graders scores had negligible affect of <1% on the 10th, 11th, and 12th results.

Bottom 5 – All Data

	School Type	Total Students	Total School Budget	Per Student Budget	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
Rodriguez High School	District	3999	\$2,547,363.00	\$637.00	76.842711	80.744686	66.366592	80.220055	73.293323
Figueroa High School	District	2949	\$1,884,411.00	\$639.00	76.711767	81.158020	65.988471	80.739234	73.363852
Huang High School	District	2917	\$1,910,635.00	\$655.00	76.629414	81.182722	65.683922	81.316421	73.500171
Johnson High School	District	4761	\$3,094,650.00	\$650.00	77.072464	80.966394	66.057551	81.222432	73.639992
Ford High School	District	2739	\$1,763,916.00	\$644.00	77.102592	80.746258	68.309602	79.299014	73.804308

Bottom 5 – Minus Thomas High Data

	School Type	Total Students	Total School Budget	Per Student Budget	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
Thomas High School	Charter	1635	\$1,043,130.00	\$638.00	83.350937	83.896082	66.911315	69.663609	68.287462
Rodriguez High School	District	3999	\$2,547,363.00	\$637.00	76.842711	80.744686	66.366592	80.220055	73.293323
Figueroa High School	District	2949	\$1,884,411.00	\$639.00	76.711767	81.158020	65.988471	80.739234	73.363852
Huang High School	District	2917	\$1,910,635.00	\$655.00	76.629414	81.182722	65.683922	81.316421	73.500171
Johnson High School	District	4761	\$3,094,650.00	\$650.00	77.072464	80.966394	66.057551	81.222432	73.639992

Conclusions – How did data removal from Thomas High affect other school scores by grade?

Math and Reading Scores for all other schools were not affected, with NaN values replacing Thomas High 9th Grade scores.

Math and Reading – Pre and Post Removal Data

Math Scores Pre-Removal

	9th	10th	11th	12th
Bailey High School	77.1	77.0	77.5	76.5
Cabrera High School	83.1	83.2	82.8	83.3
Figueroa High School	76.4	76.5	76.9	77.2
Ford High School	77.4	77.7	76.9	76.2
Griffin High School	82.0	84.2	83.8	83.4
Hernandez High School	77.4	77.3	77.1	77.2
Holden High School	83.8	83.4	85.0	82.9
Huang High School	77.0	75.9	76.4	77.2
Johnson High School	77.2	76.7	77.5	76.9
Pena High School	83.6	83.4	84.3	84.1
Rodriguez High School	76.9	76.6	76.4	77.7
Shelton High School	83.4	82.9	83.4	83.8
Thomas High School	83.6	83.1	83.5	83.5
Wilson High School	83.1	83.7	83.2	83.0
Wright High School	83.3	84.0	83.8	83.6

Math Scores Post-Removal

	9th	10th	11th	12th
Bailey High School	77.1	77.0	77.5	76.5
Cabrera High School	83.1	83.2	82.8	83.3
Figueroa High School	76.4	76.5	76.9	77.2
Ford High School	77.4	77.7	76.9	76.2
Griffin High School	82.0	84.2	83.8	83.4
Hernandez High School	77.4	77.3	77.1	77.2
Holden High School	83.8	83.4	85.0	82.9
Huang High School	77.0	75.9	76.4	77.2
Johnson High School	77.2	76.7	77.5	76.9
Pena High School	83.6	83.4	84.3	84.1
Rodriguez High School	76.9	76.6	76.4	77.7
Shelton High School	83.4	82.9	83.4	83.8
Thomas High School	nan	83.1	83.5	83.5
Wilson High School	83.1	83.7	83.2	83.0
Wright High School	83.3	84.0	83.8	83.6

Reading Scores Pre-Removal

	9th	10th	11th	12th
Bailey High School	81.3	80.9	80.9	80.9
Cabrera High School	83.7	84.3	83.8	84.3
Figueroa High School	81.2	81.4	80.6	81.4
Ford High School	80.6	81.3	80.4	80.7
Griffin High School	83.4	83.7	84.3	84.0
Hernandez High School	80.9	80.7	81.4	80.9
Holden High School	83.7	83.3	83.8	84.7
Huang High School	81.3	81.5	81.4	80.3
Johnson High School	81.3	80.8	80.6	81.2
Pena High School	83.8	83.6	84.3	84.6
Rodriguez High School	81.0	80.6	80.9	80.4
Shelton High School	84.1	83.4	84.4	82.8
Thomas High School	83.7	84.3	83.6	83.8
Wilson High School	83.9	84.0	83.8	84.3
Wright High School	83.8	83.8	84.2	84.1

Reading Scores Post-Removal

	9th	10th	11th	12th
Bailey High School	81.3	80.9	80.9	80.9
Cabrera High School	83.7	84.3	83.8	84.3
Figueroa High School	81.2	81.4	80.6	81.4
Ford High School	80.6	81.3	80.4	80.7
Griffin High School	83.4	83.7	84.3	84.0
Hernandez High School	80.9	80.7	81.4	80.9
Holden High School	83.7	83.3	83.8	84.7
Huang High School	81.3	81.5	81.4	80.3
Johnson High School	81.3	80.8	80.6	81.2
Pena High School	83.8	83.6	84.3	84.6
Rodriguez High School	81.0	80.6	80.9	80.4
Shelton High School	84.1	83.4	84.4	82.8
Thomas High School	nan	84.3	83.6	83.8
Wilson High School	83.9	84.0	83.8	84.3
Wright High School	83.8	83.8	84.2	84.1

Conclusions – Did Results Change Per Capita Spending?

Below is the overall school summary from the “per_school_summary_df. It is sorted by the Per Student Budget column showing that the highest spending did not result in the highest scores.

	School Type	Total Students	Total School Budget	Per Student Budget	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
Huang High School	District	2917	\$1,910,635.00	\$655.00	76.6	81.2	66	81	74
Hernandez High School	District	4635	\$3,022,020.00	\$652.00	77.3	80.9	67	81	74
Johnson High School	District	4761	\$3,094,650.00	\$650.00	77.1	81.0	66	81	74
Ford High School	District	2739	\$1,763,916.00	\$644.00	77.1	80.7	68	79	74
Figueroa High School	District	2949	\$1,884,411.00	\$639.00	76.7	81.2	66	81	73
Thomas High School	Charter	1635	\$1,043,130.00	\$638.00	83.4	83.9	67	70	68
Rodriguez High School	District	3999	\$2,547,363.00	\$637.00	76.8	80.7	66	80	73
Bailey High School	District	4976	\$3,124,928.00	\$628.00	77.0	81.0	67	82	74
Griffin High School	Charter	1468	\$917,500.00	\$625.00	83.4	83.8	93	97	95
Pena High School	Charter	962	\$585,858.00	\$609.00	83.8	84.0	95	96	95
Shelton High School	Charter	1761	\$1,056,600.00	\$600.00	83.4	83.7	94	96	95
Wright High School	Charter	1800	\$1,049,400.00	\$583.00	83.7	84.0	93	97	95
Cabrera High School	Charter	1858	\$1,081,356.00	\$582.00	83.1	84.0	94	97	96
Holden High School	Charter	427	\$248,087.00	\$581.00	83.8	83.8	93	96	94
Wilson High School	Charter	2283	\$1,319,574.00	\$578.00	83.3	84.0	94	97	95

Thomas High fell into the \$630 - \$644 per capita spending and with their specific scores lowered for % Passing Math, Reading, and Overall, this specific Bin was lowered an avg of 6-7% points for these 3 metrics. The metrics for Avg Math and Reading Scores were unaffected.

Per Capita Spending – All Data

	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
Spending Ranges (Per Student)					
<\$584	83.5	83.9	93	97	95
\$585-629	81.9	83.2	87	93	90
\$630-644	78.5	81.6	73	84	79
\$645-675	77.0	81.0	66	81	74

Per Capita Spending – Minus Thomas Data

	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
Spending Ranges (Per Student)					
<\$584	83.5	83.9	93	97	95
\$585-629	81.9	83.2	87	93	90
\$630-644	78.5	81.6	67	77	72
\$645-675	77.0	81.0	66	81	74

Conclusions – Did results change based on school size?

Thomas High fell into the Medium BIN and the affect was similar to the Per Capita Spending results.

School Size – All Data

	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
School Size					
Small (<1000)	83.8	83.9	94	96	95
Medium (1000-2000)	83.4	83.9	94	97	95
Large (2000-5000)	77.7	81.3	70	83	76

School Size – Minus Thomas Data

	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
School Size					
Small (<1000)	83.8	83.9	94	96	95
Medium (1000-2000)	83.4	83.9	88	91	90
Large (2000-5000)	77.7	81.3	70	83	76

Conclusions- Did results change based on school type.

As a chartered school, removal of the Thomas High data affected the % Passing numbers for Charter Schools only. Charter school % Overall Passing dropped from 95% to 92%.

School Type – All Data

	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
School Type					
Charter	83.5	83.9	94	97	95
District	77.0	81.0	67	81	74

School Type – Minus Thomas Data

	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
School Type					
Charter	83.5	83.9	90	93	92
District	77.0	81.0	67	81	74