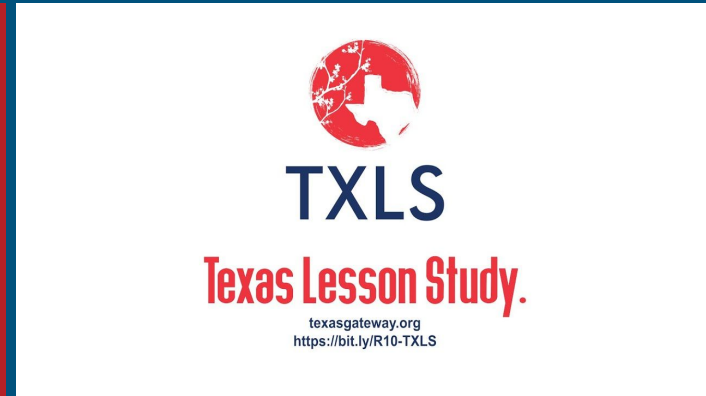# Improving District STAAR Results

Provided for Bay City ISD by Jonathan Armstrong
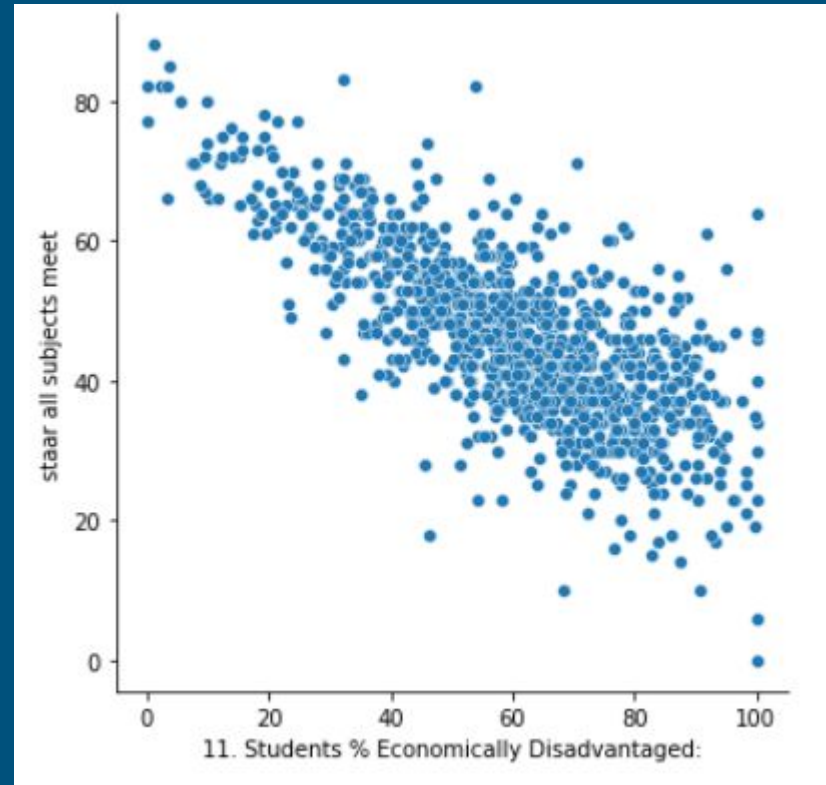
My Goal: Improve student outcomes without burdening districts with changing intervention or development strategies

Wealthy communities all have high academic achievement, but economically challenged communities have choice.

The solution is educator retention

Lowering teacher turnover, among other factors, has the potential to raise the number of students meeting the STAAR by 10%

Data Sources and cleaning

DPFPAVOCP	DPFPAGIFP	DPFPAATHP	DPFPAHSAP	DPFPREKP	DPFPAOTHP
2.8	0.1	3.6	0.6	0.3	20.8
7.8	0.1	3.4	1	0	25.7
6.9	0.1	7.3	1	1.1	28.2
4	0.3	0	1.2	0.5	35.1
3.9	0.2	3.4	0.7	2.1	28.3

```
District Name                                           BAY CITY ISD
District Number                                              158901
County Number and Name                               158 MATAGORDA
Education Service Center Region                           REGION 03
 1. District Accountability Rating    Not Rated: Declared State of Disaster
 2. Total Number of Schools                                       5
     ------------- STUDENTS -------------
 3. Total Students                                            3,687
 4. % African American                                        15.6
 5. % Hispanic                                                65.1
 6. % White                                                   16.4
 7. % American Indian                                          0.0
 8. % Asian                                                    0.9
 9. % Pacific Islander                                         0.1
10. % Two or More Races                                        2.0
11. % Economically Disadvantaged                              75.3
12. % English Learners (EL)                                   15.4
```

Dropping incomplete Data

|	index	count	%
0	18. Annual Dropout Rate Gr. 9-12 (2017-18):	3	0.281162
1	22. Annual Graduate Count (2017-18):	7	0.656045
2	23. Annual RHSP/DAP/FHSP-E/FHSP-DLA Graduate C...	7	0.656045
3	staar write approach	24	2.249297
4	staar write meet	24	2.249297
5	staar write master	24	2.249297
6	econ disad approach	3	0.281162
7	econ disad meet	3	0.281162
8	econ disad master	3	0.281162
9	40. SAT - Average Score (2017-2018):	71	6.654171
10	41. ACT - Average Score (2017-2018):	33	3.092784
11	42. Total Staff FTE:	1	0.093721
12	43. Total Teacher FTE:	1	0.093721
13	44. Staff % Central Administration:	1	0.093721
14	45. Staff % Campus Administration:	1	0.093721
15	46. Staff % Professional Support:	1	0.093721
16	47. Staff % Teachers:	1	0.093721
17	48. Staff % Educational Aides:	1	0.093721
18	49. Staff % Auxiliary:	1	0.093721

Erroneous Values

54. Staff % Minority:
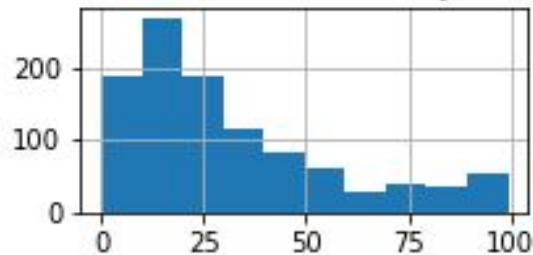
55. Number of Students Per Total Staff
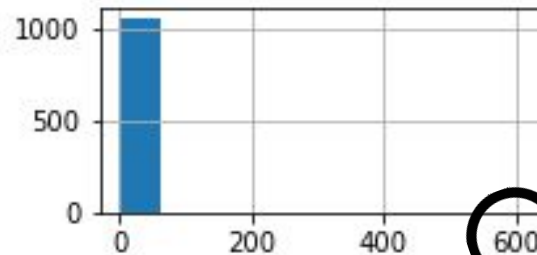
56. Number of Students Per Teacher:
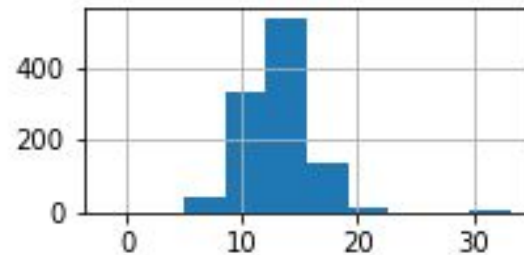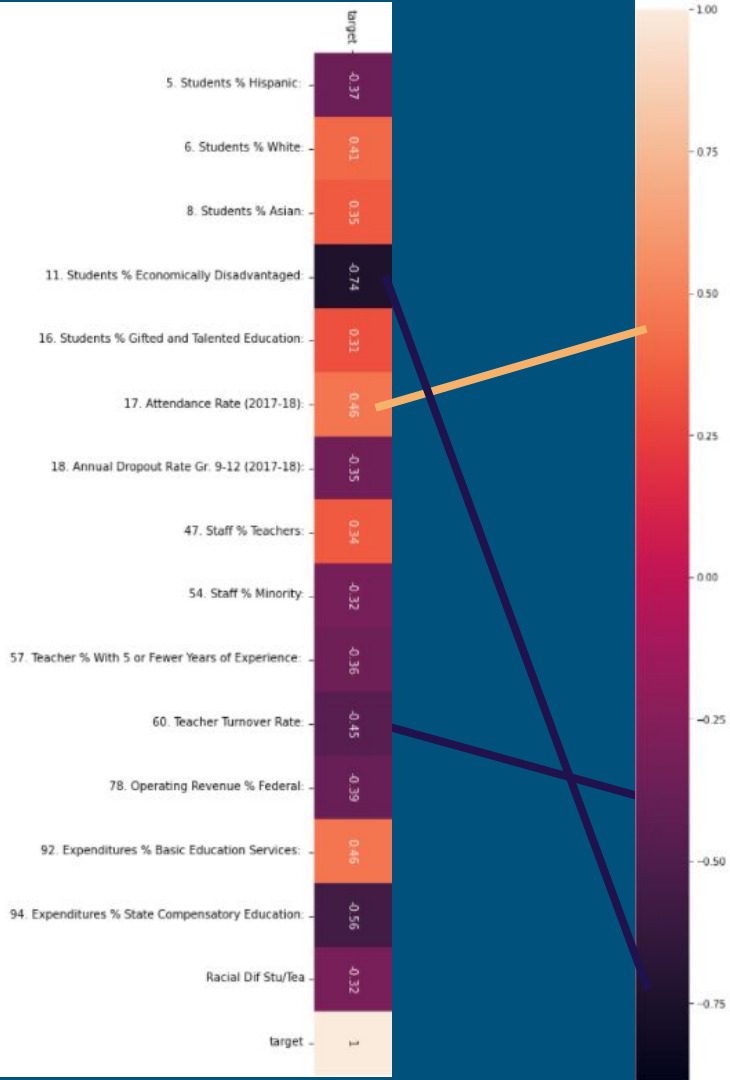
In the data collected from TEA there were a few standout features

Small Changes, Big Results
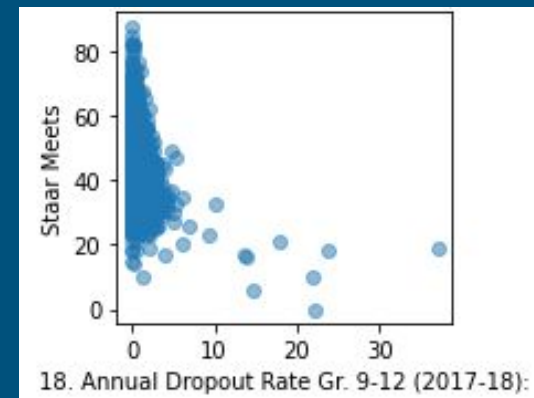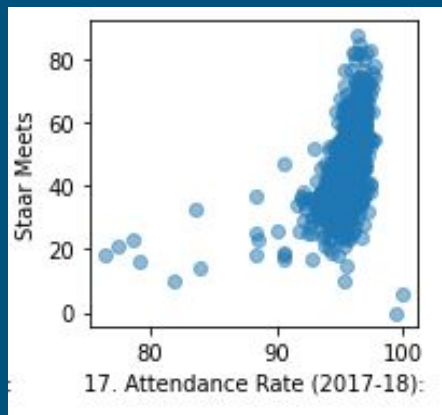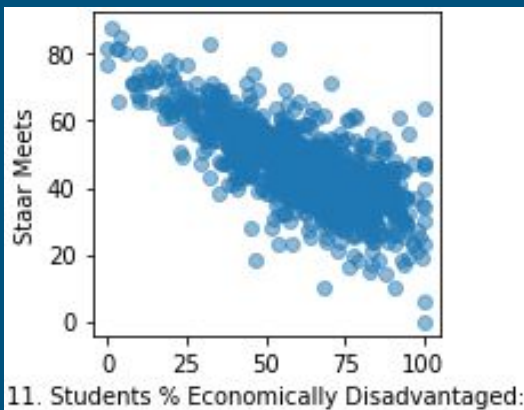
	Attendance Rate	Drop-out Rate	Staff % teachers	Teachers with <5 years exp	Teacher turnover rate	Predicted STAAR meets
Optimum Changes	100% (+5%)	0% (-1.5%)	50% (+6.4%)	10% (-21.8%)	5% (-22.9%)	53.6%(+20.6%)
Moderate Changes	97% (+2%)	1% (-0.5%)	46% (+3.4%)	25%(-6.8%)	17%(-10.9%)	43%(+10%)

11. Students % Economically Disadvantaged:

17. Attendance Rate (2017-18):

18. Annual Dropout Rate Gr. 9-12 (2017-18):

See for yourself:
jonathan.alan.armstrong@gmail.com

Further work

-Determine important factors for teacher retention

-Use machine learning to predict longevity of potential new-hires