SAT 2017 analysis

STATE INSIGHT AND RECOMMENDATIONS WITH CENSUS DATA
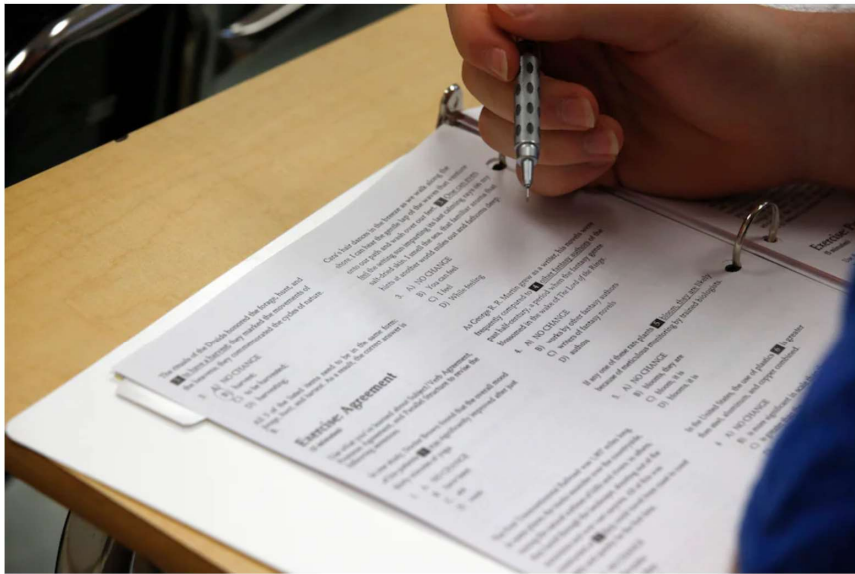
Intro

- Discuss SAT present day
- Discuss the data
- Discuss performances on SAT
  - Statistics
- Discuss variables to assist (Census data)
  - Statistics
- Future studies
- Conclusions/Recommendations

SAT News

Critics foresee Armageddon if colleges don't use SAT/ACT scores in admissions. Here's why that's wrong.

LEGALZOOM

IU no longer requiring ACT or SAT scores

by Jason Overholt, WSBT 22 Digital Content Manager | Friday, August 27th 2021

Dataset explanation

- SAT 2017 (Participation, Read/Write, Math, Total)
  - 1.7 million at least one time
  - First test 1926(Army IQ test)
  - 2005 updated to reflect value of effective writing
- Census data
  - Poverty
    - Single person under 65 with annual income of US$12,760
  - Unemployment
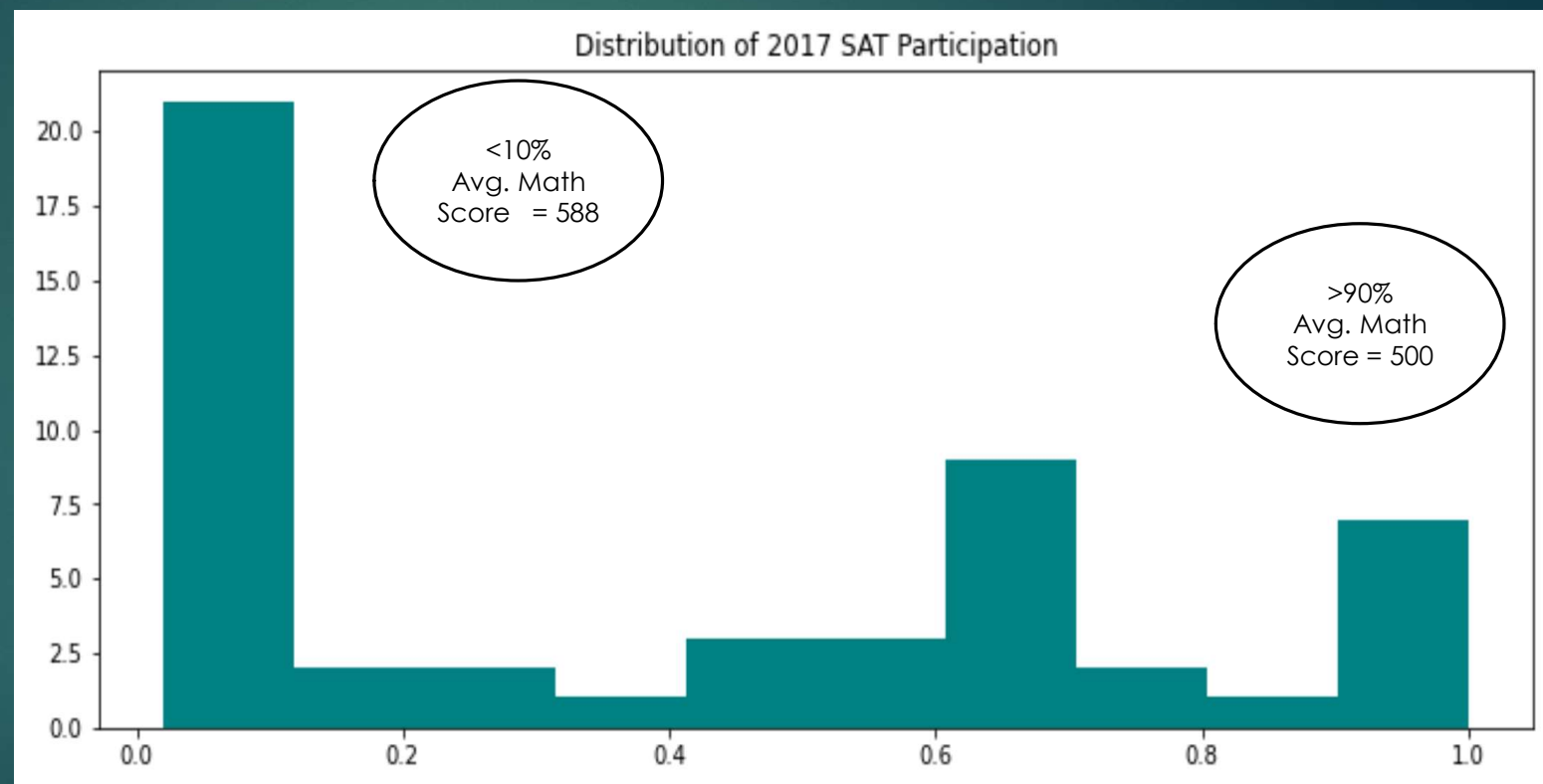 - High School Enrollment

SAT Participation distribution

Distribution of 2017 SAT Participation

<10%
Avg. Math
Score = 588

>90%
Avg. Math
Score = 500

SAT Reading distribution

Statistics:

Standard
deviation
-46.9

Mean
-569

Max
-644

-Min
-482

Distribution of SAT Read/Write 2017
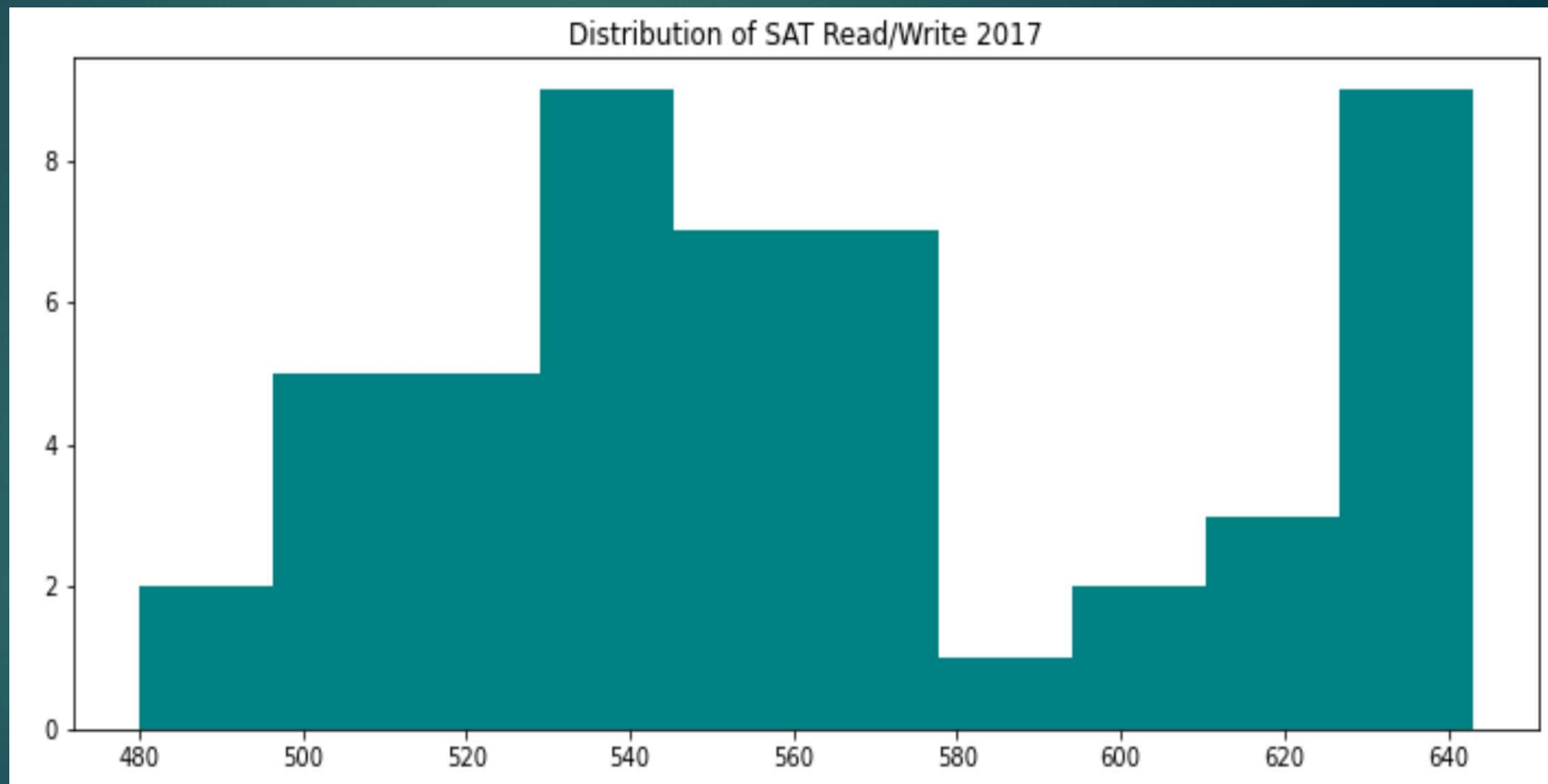
SAT Math distribution

Distribution of SAT Math 2017

Mean - 547

25th - 588
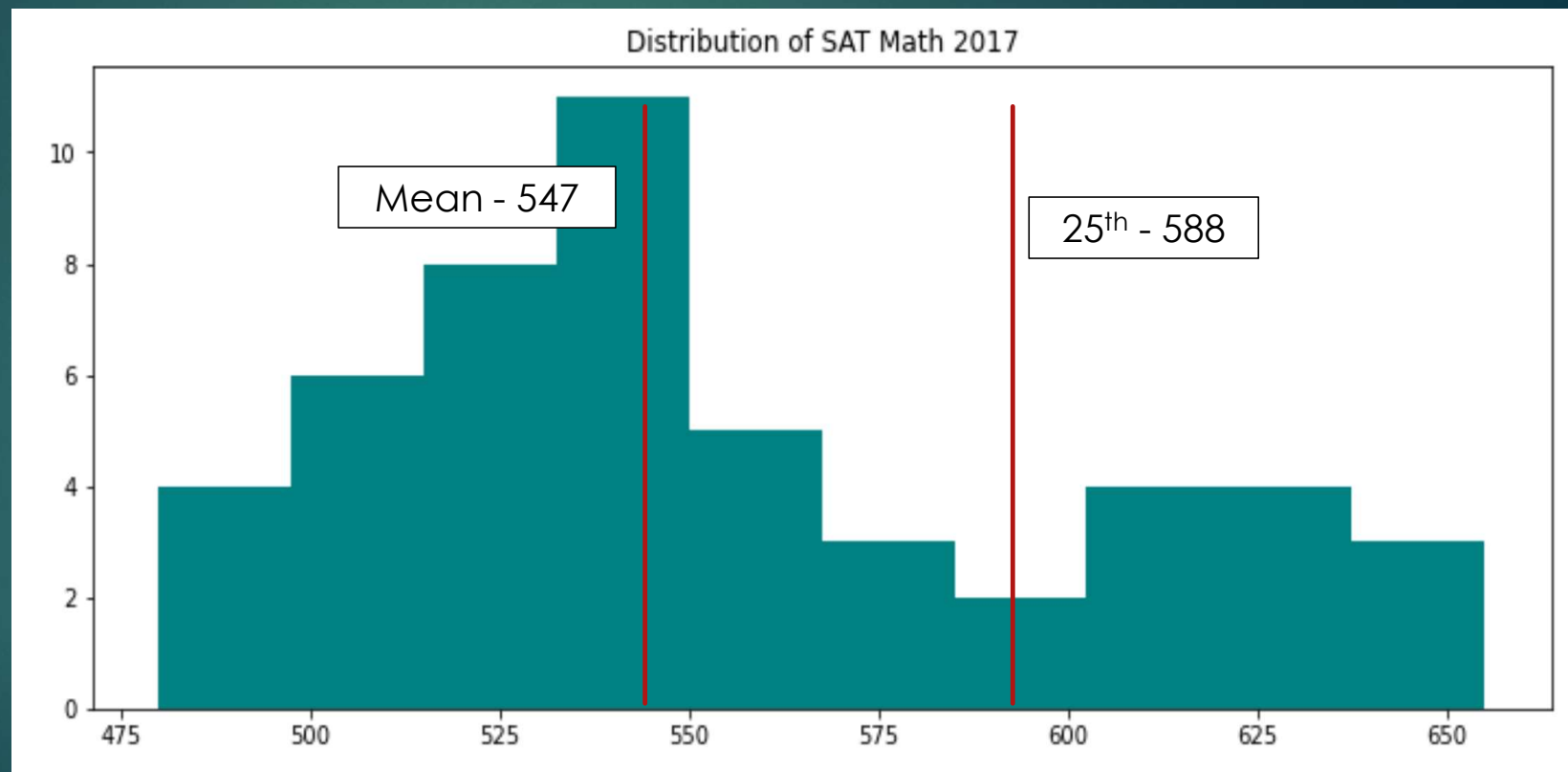
SAT Total score distribution

Statistics:

Standard
deviation
-92.5

Mean
-1126

Max
-1295

-Min
-950

Distribution of Total 2017 SAT scores
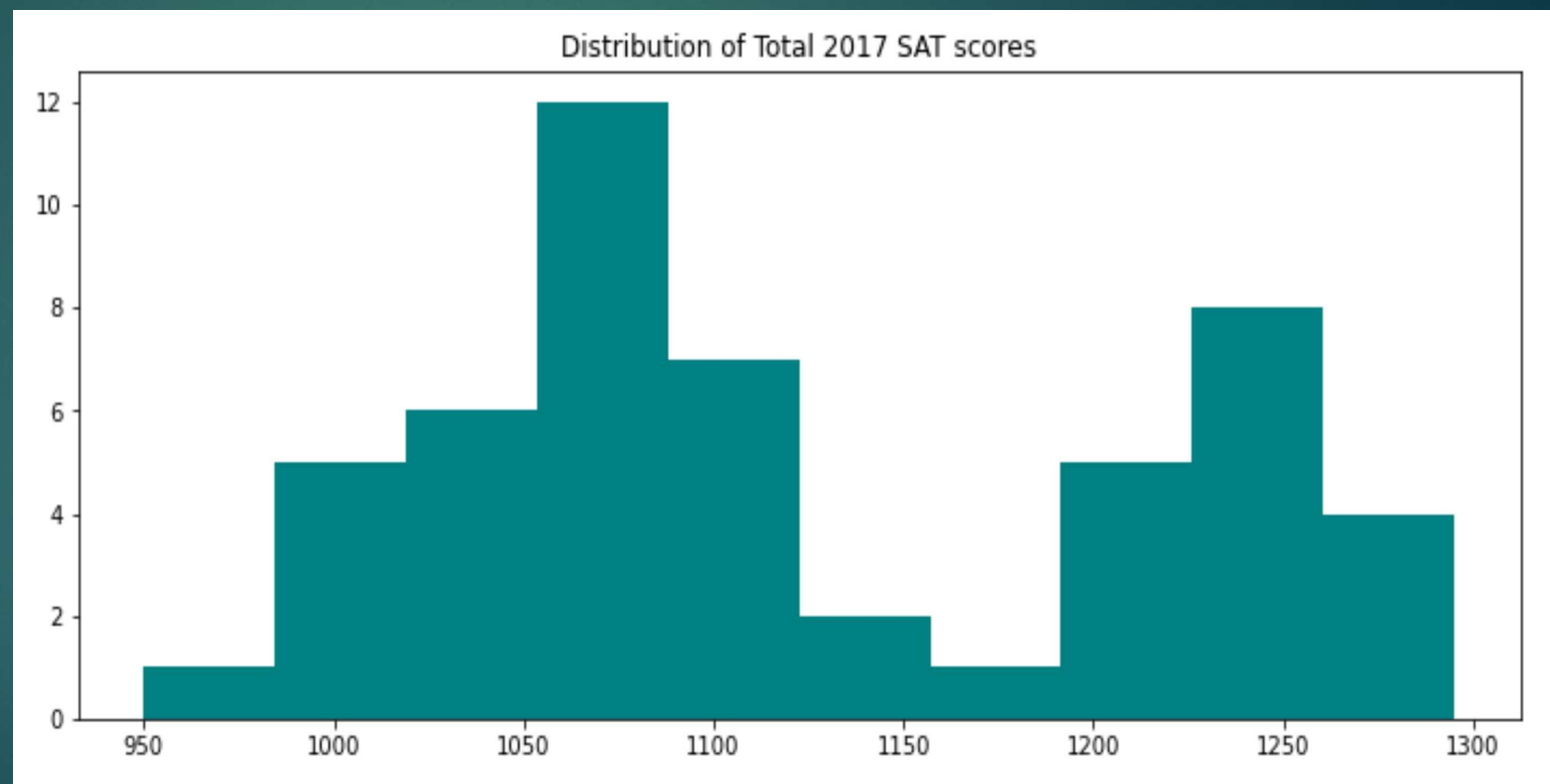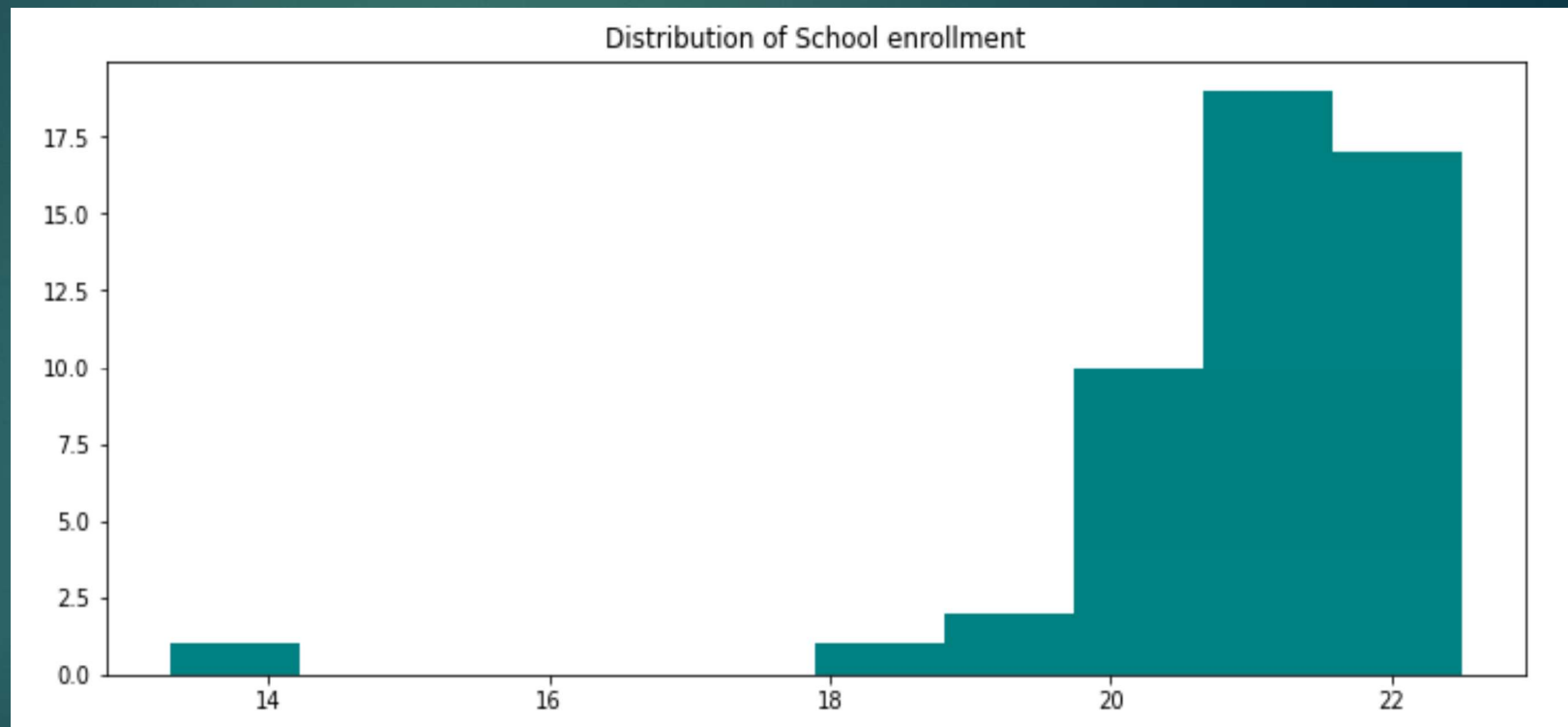
High School enrollment distribution

Statistics:

Standard
deviation
-1.37

Mean
-20.9

Max
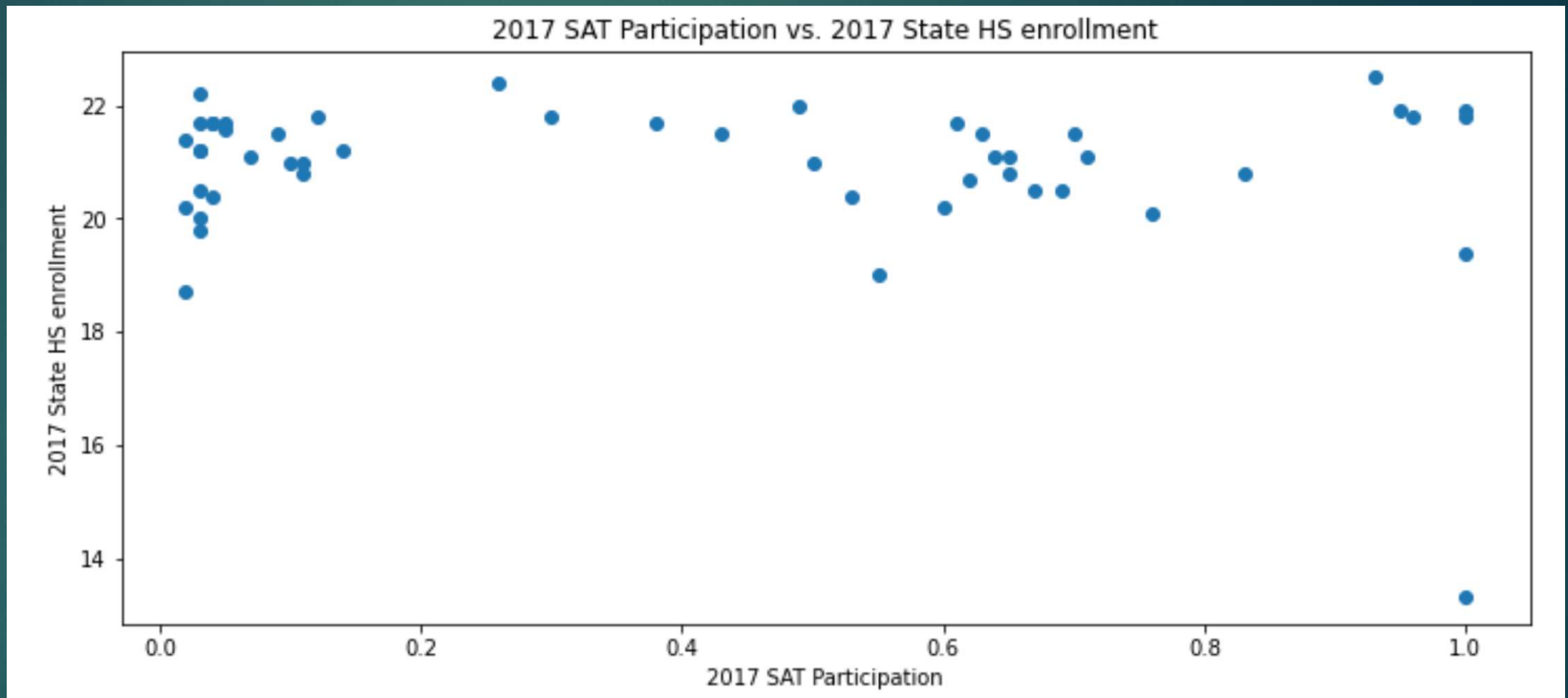-22.5

-Min
-13.3

Distribution of School enrollment

High School Enrollment correlation

Correlation:

Participation
-0.16

Read/Write
0.13

Math
0.10

Total
0.12

2017 SAT Participation vs. 2017 State HS enrollment

Poverty status distribution

Distribution of Poverty Status 2017
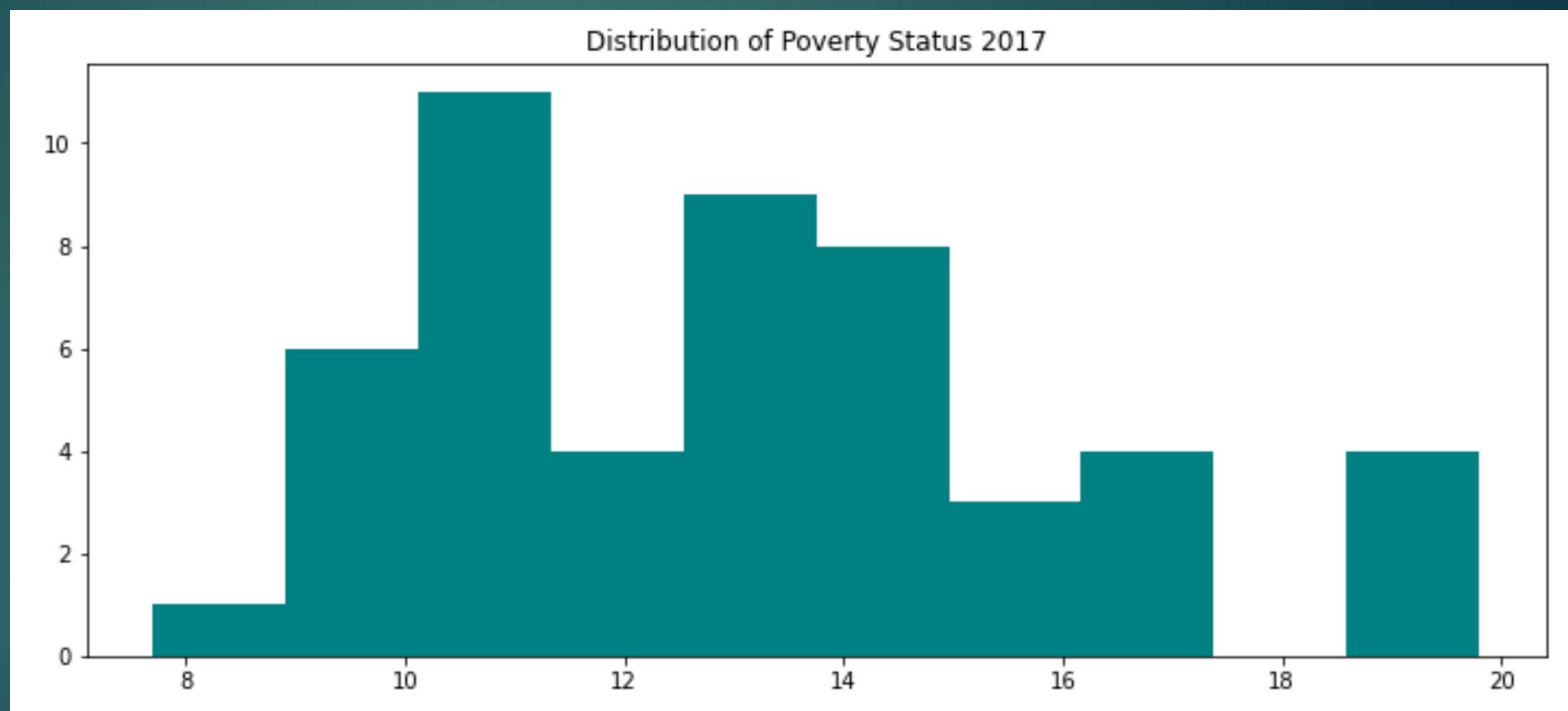
Poverty status correlation

Correlation:

Participation
   -0.27

Read/Write
   -0.032

Math
   -0.059

Total
   -0.014

2017 State Poverty status vs. 2017 SAT Participation
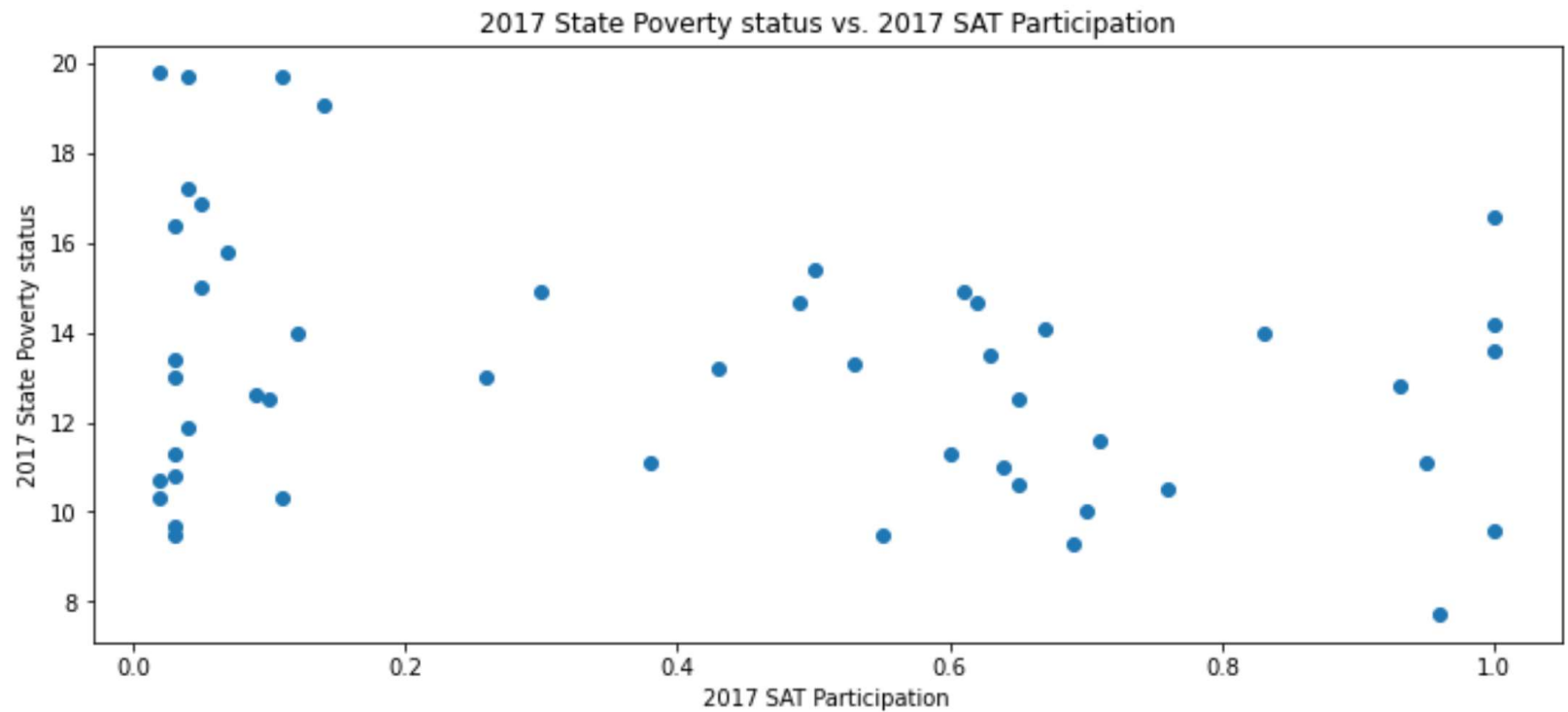
Unemployment distribution

Statistics:

Standard
deviation
-1.08

Mean
-5.1

Max
-7.6

-Min
-2.9

Distribution of Unemployment 2017
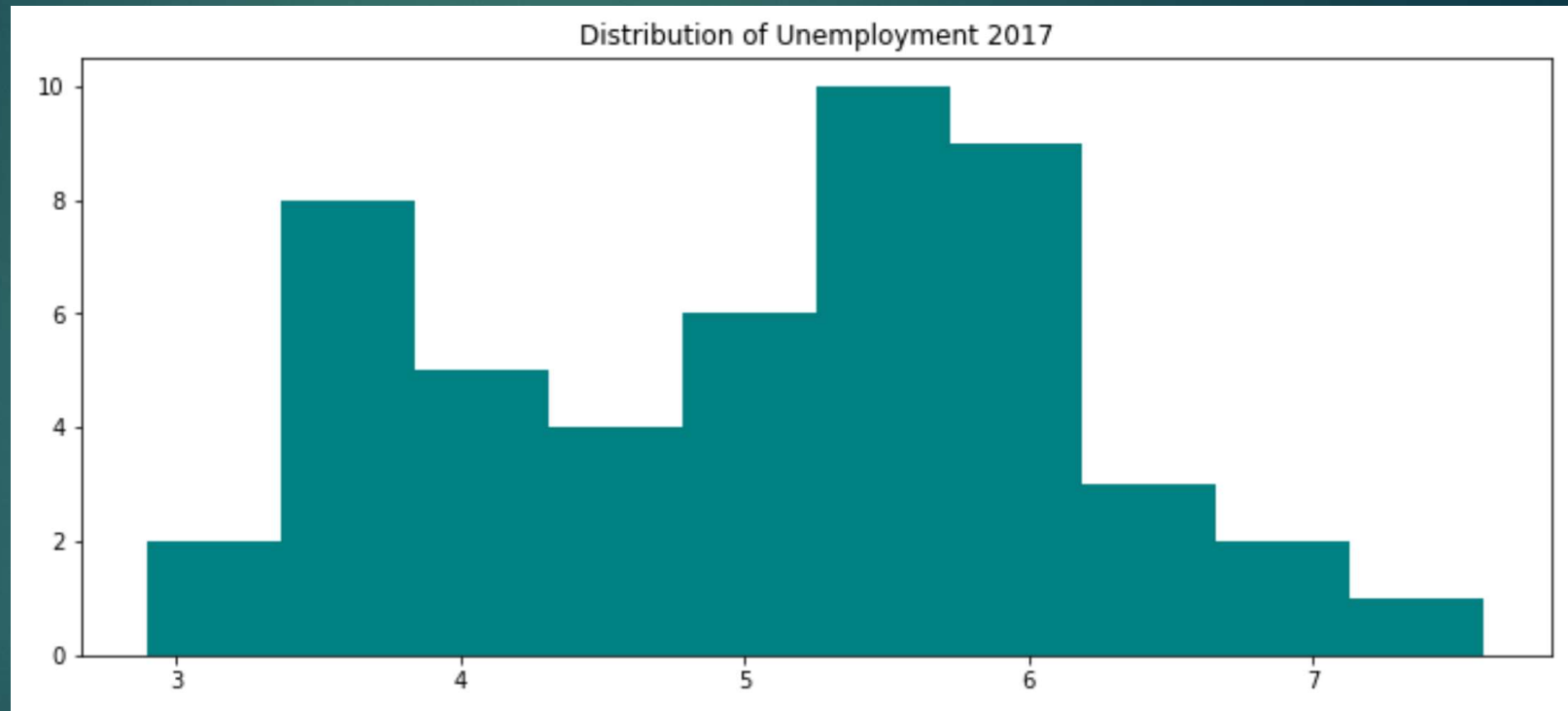
Unemployment correlation-
SAT Math

Correlation:

Participation
0.13

Read/Write
-0.39

Math
-0.46

Total
-0.43

2017 Unemployment vs. SAT 2017 Math score
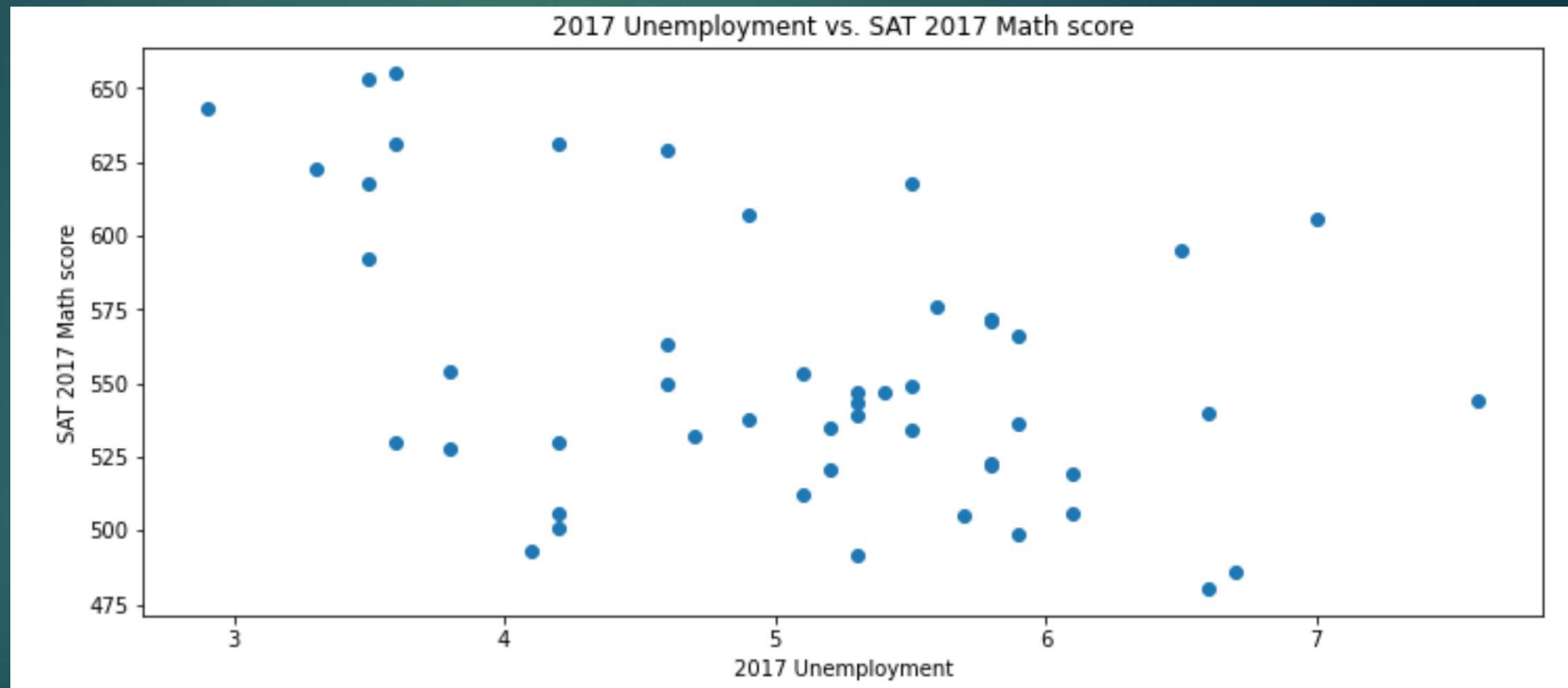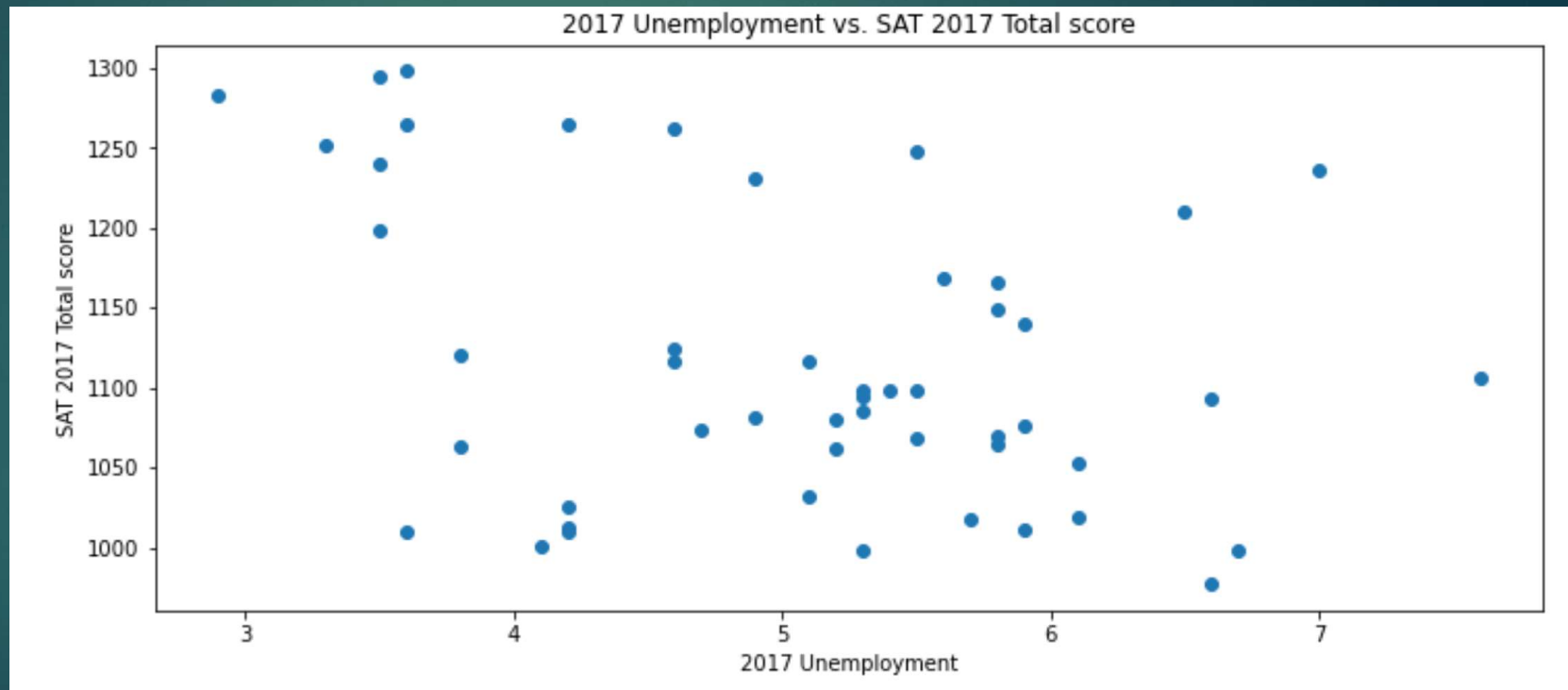
Unemployment correlation-
SAT Total Score

Correlation:

Participation
   0.13

Read/Write
   -0.39

Math
   -0.46

Total
   -0.43

2017 Unemployment vs. SAT 2017 Total score

Summary of statistics

	Math_2017	Read/Write_2017	Total_2017	Unemploy_2017
count	50.000000	50.000000	50.000000	50.000000
mean	554.860000	562.300000	1117.280000	5.068000
std	47.226769	46.931235	93.035003	1.080333
min	480.000000	480.000000	977.000000	2.900000
25%	522.250000	534.250000	1055.250000	4.200000
50%	543.500000	551.000000	1096.000000	5.250000
75%	588.000000	603.250000	1190.750000	5.800000
max	655.000000	643.000000	1298.000000	7.600000

Top correlation – (number and scatterplot with line)

Future studies

- Top 25th percentile focus analysis

- Remove outliers

- Utilize multiple years

- More in-depth study of variables related to the 3 census data points

- More variable
  - Crime rate
  - School funding
  - etc

Conclusions/Recommendations

- ▶ Recommend getting too top 25 by focusing more on the Math

- ▶ Gain insight on the top Reading/Writing performers are doing

- ▶ Job creation may be worth focusing on

- ▶ Don't just focus on participation

- ▶ A forum with the successful Total score group could improve 1000 pts