



# SAT and ACT Statistical Analysis

Gifford Tompkins  
20 September 2019

**Question:** What states should the college board focus their efforts on to increase student participation in the SAT test?

**Method:** We are going to look at why states like Colorado and Illinois shifted so dramatically from the ACT to the SAT.

The goal of this project is to answer:

- What factors made those two states successful SAT adoption states?
- Which states may result in official state adoption of the SAT and near 100% participation in future years?

	Illinois	Colorado
SAT_2017_participation	9.0	11.000000
SAT_2018_participation	99.0	100.000000
sat_growth	1000.0	809.090909

# What is Causing this growth?

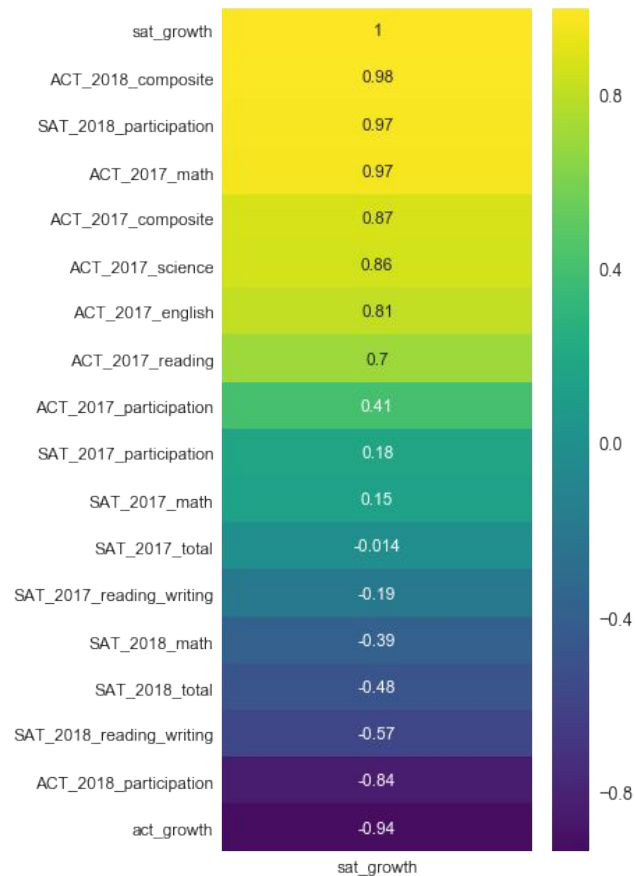
Looking at states with greater than 50% SAT participation growth:

- Illinois
- Colorado
- West Virginia
- Arkansas

Strongest Correlations:

- Many are superfluous.

Column Correlations for ACT and SAT Data for States with > 50% SAT Growth

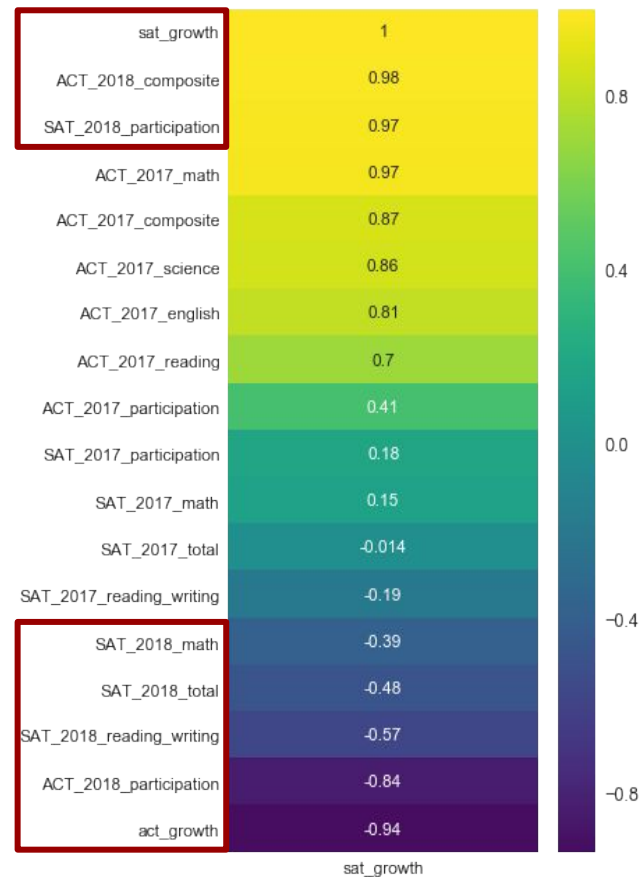


# What is causing this growth?

## Superfluous Correlations:

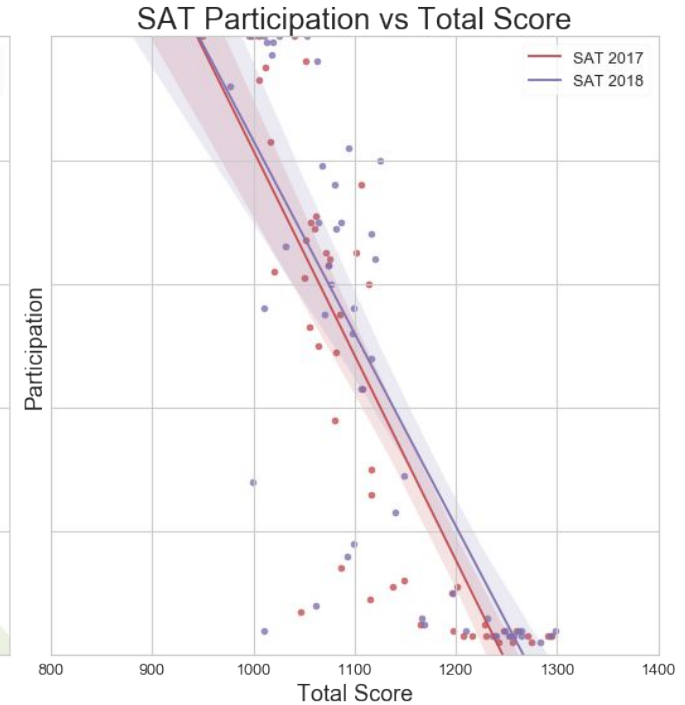
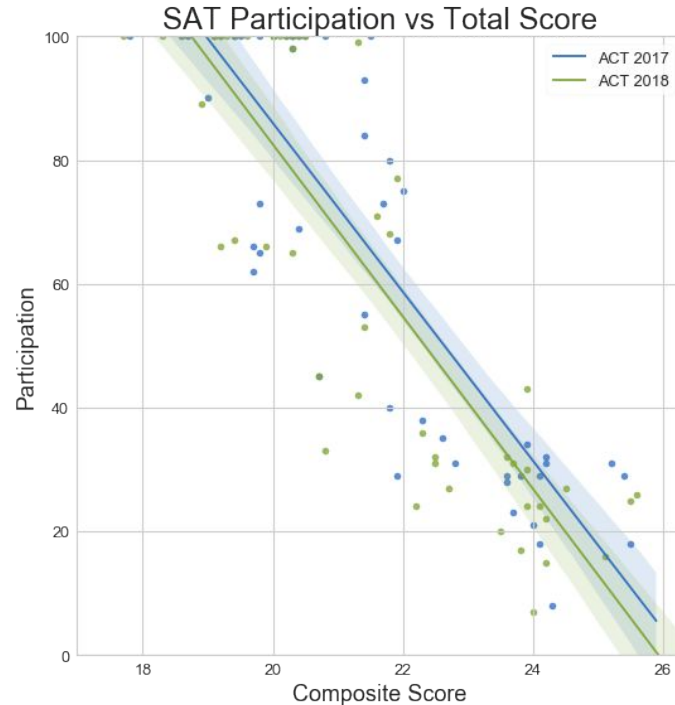
- SAT 2018 Scores and Participation
- ACT 2018 Scores and Participation

Column Correlations for ACT and SAT Data for States with > 50% SAT Growth



# Scores and Participation are Negatively Correlated

- As participation increases, scores tend to decrease.
- Only motivated students take these tests when not required.
- Motivated students score higher.
- Thus, test scores and participation on 2018 tests does not offer us a solution.

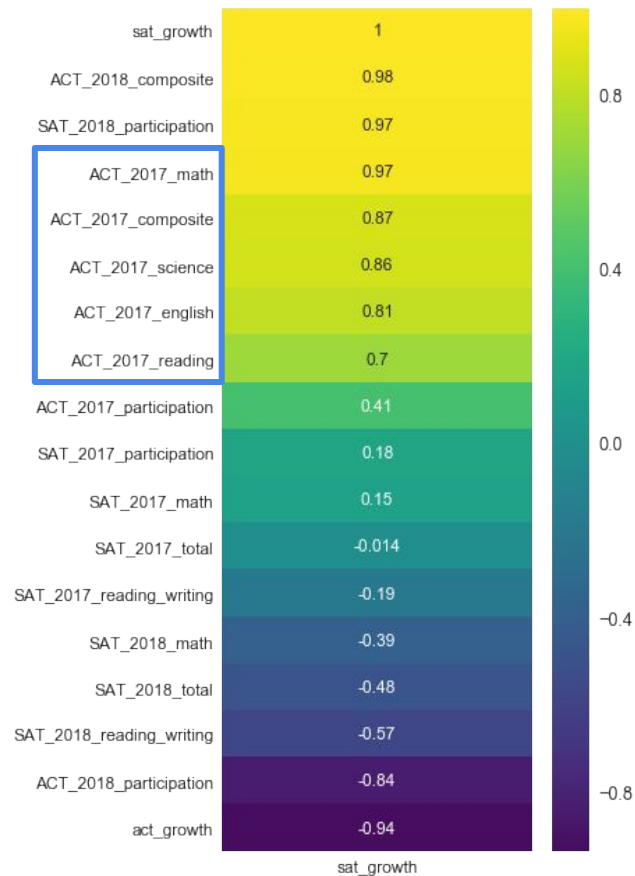


# What is causing this growth?

## Solution:

- the ACT 2017 test scores.

Column Correlations for ACT and SAT Data for States with > 50% SAT Growth



# Conclusions and Further Steps

- These states have the highest ACT 2018 composite scores and the lowest SAT 2018 participation scores.
- For Colorado and Illinois, the SAT became adopted by the state.
- Parents and educators were unsatisfied with the results they were seeing.

	ACT_2018_participation	ACT_2018_composite	SAT_2018_participation
South Dakota	77.0	21.9	3.0
Iowa	68.0	21.8	3.0
Kansas	71.0	21.6	4.0
Minnesota	99.0	21.3	4.0
Oregon	42.0	21.3	48.0
Alaska	33.0	20.8	43.0
Wisconsin	100.0	20.5	3.0

**Conclusion:** The best strategy for SAT adoption is to find states that are frustrated by the ACT and looking for a change. That seems to happen more in states with higher ACT scores and lower SAT participation.