

SAT & ACT - An Analytical Look at States to Strategically Grow SAT Participation

By Bruno Santos
Data Scientist



SAT & ACT Testing - Our Data Problem

We'll be using and analyzing data to address:

- Participation rates across states on the 2017 and 2018 SATs and ACTs
- The relationship between participation rates and overall scores
- How we can use this information to increase SAT participation rates

Our Data - A Look at What

- ACT and SAT Data by State from 2017 and 2018
- SAT Data
 - Participation Rates
 - Evidence-Based Reading and Writing, Math, and Total Scores
- ACT Data
 - Participation Rates
 - English, Reading, Math, Science, and Composite Scores

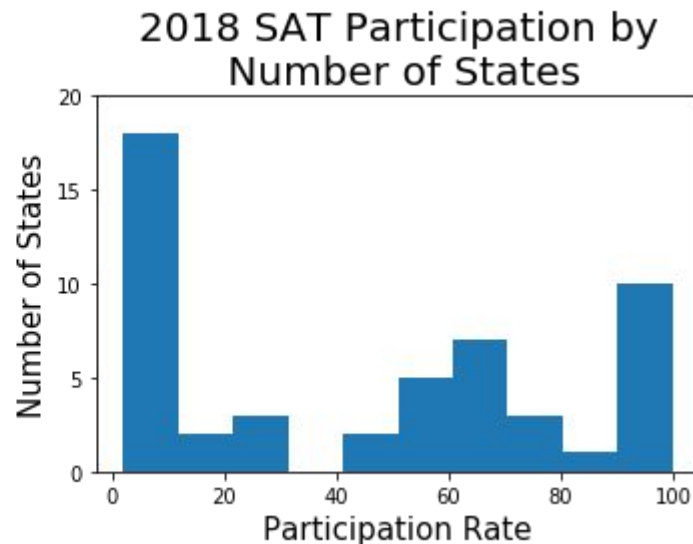
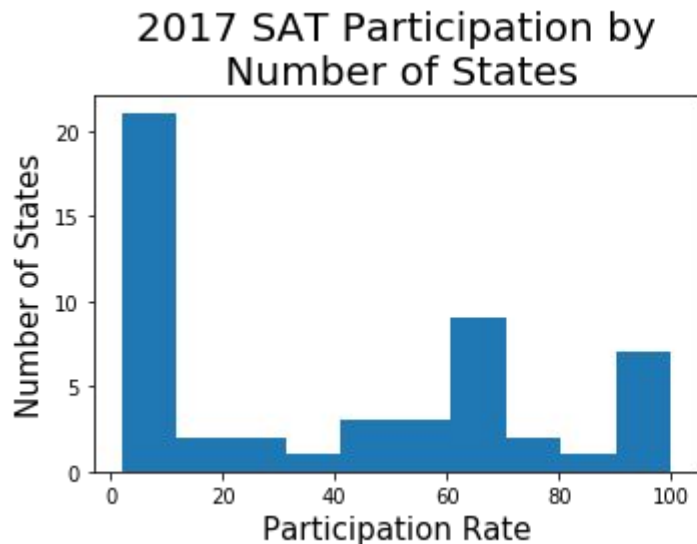
Data Cleaning Process

- Obtain and review the necessary data
- Clean and format the data
 - Ensure accurate values
 - Uniformity across our data
 - Remove unnecessary data
- Combine datasets into one clean dataset



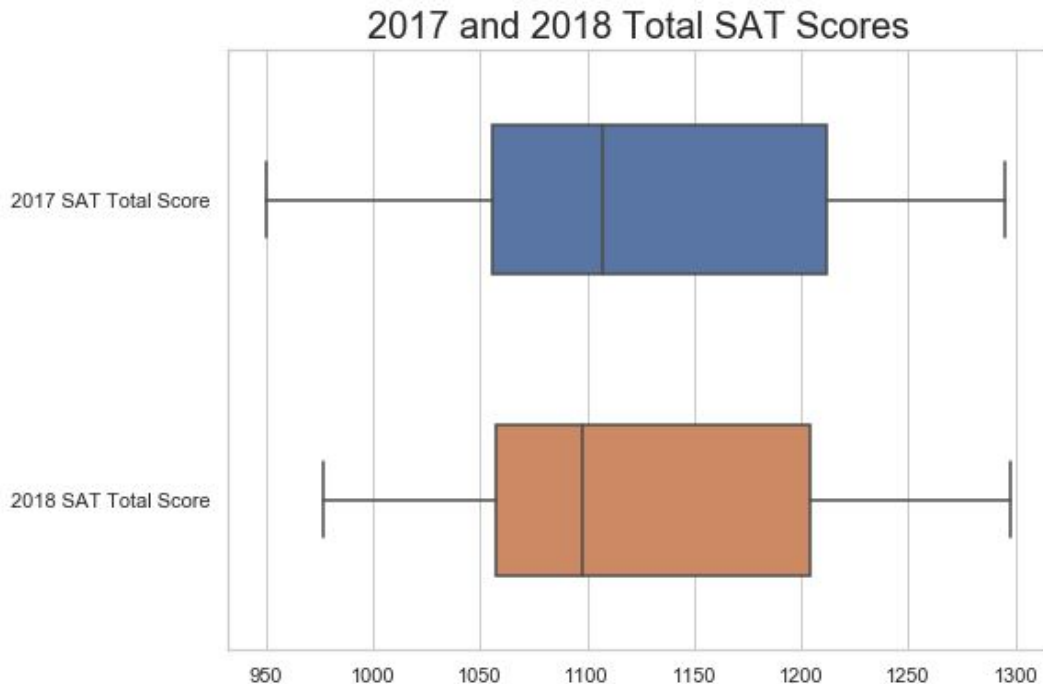
SAT Participation

- Participation rates on the SAT climbed from 2017 to 2018, however there's still a large number of states with staggeringly low SAT participation rates.



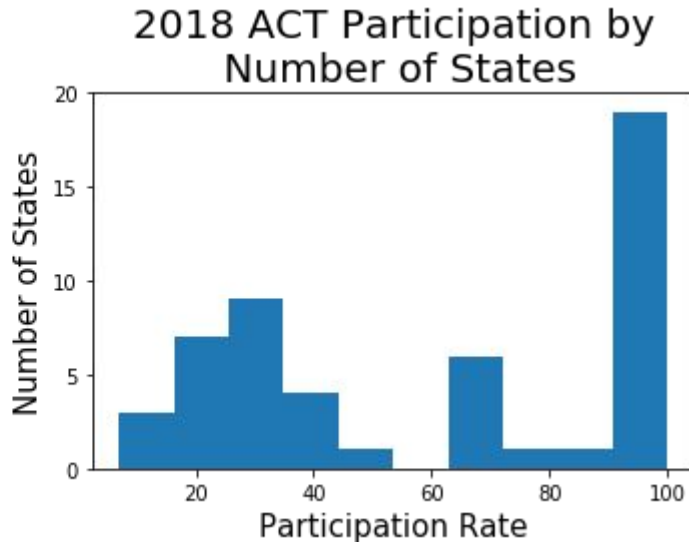
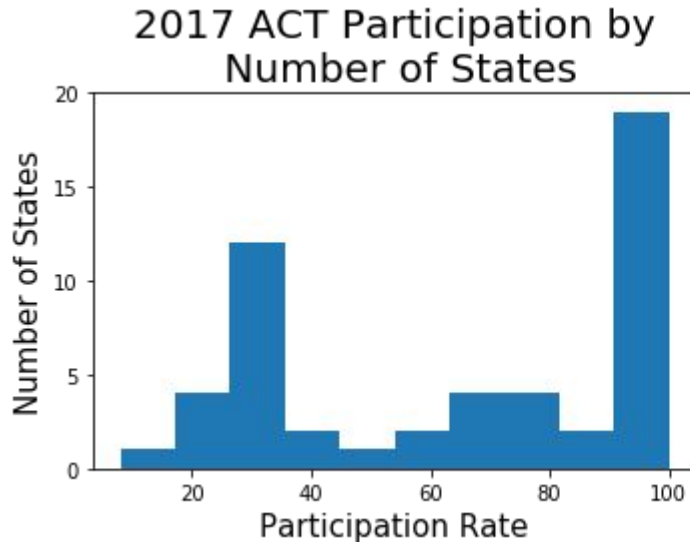
Total SAT Scores

- Increased SAT Participation impacted Total SAT Scores
- The median test score decreased in 2018.
- The “interquartile range” (25th to 75th percentile) also shrunk, suggesting a tighter spread of average total SAT scores.



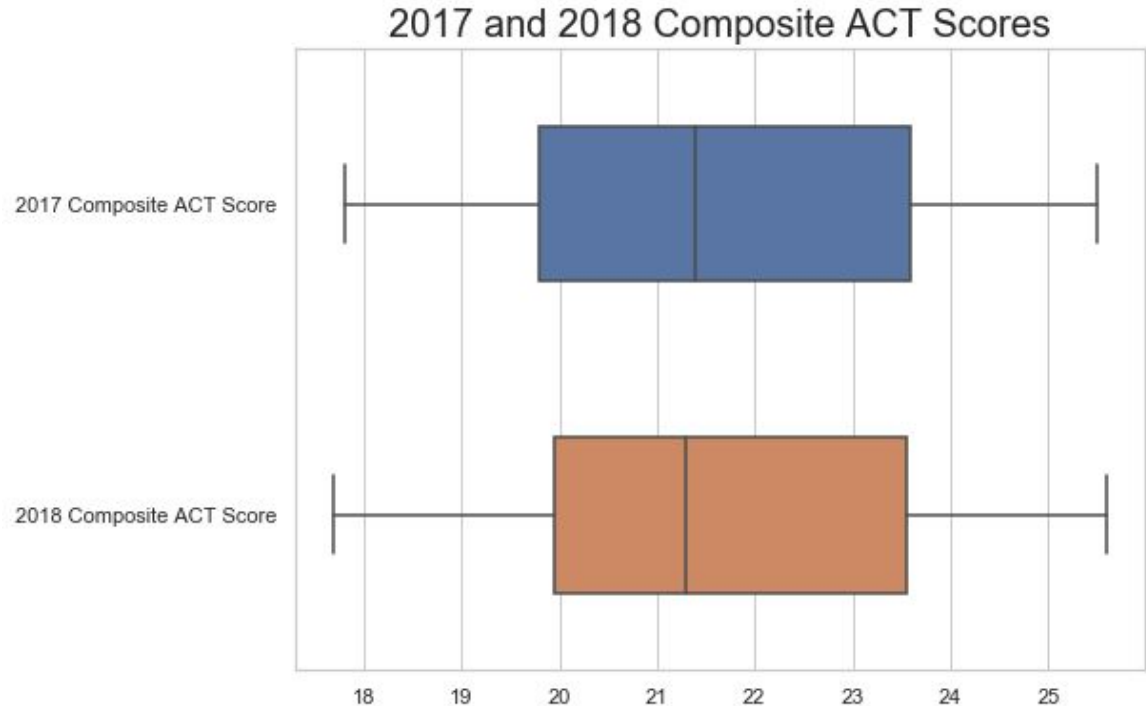
ACT Participation

- The ACT appears to be the more popular test across a majority of states, however that appears to be on the decline.



Composite ACT Score

- Median Composite ACT score dropped slightly from 2017 to 2018.
- The minimum decreased slightly while the maximum increased slightly.
- Tighter spread of interquartile Composite ACT scores



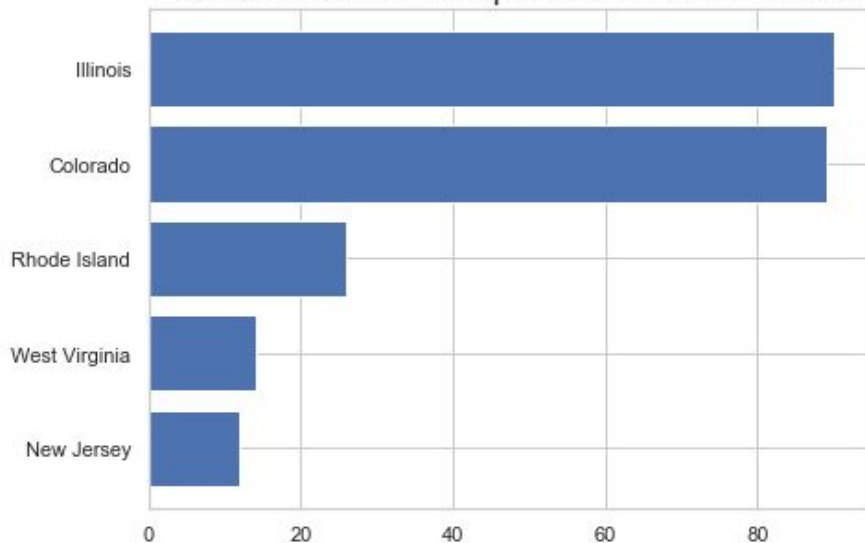


How are the Participation Rates
and Overall Scores Related?

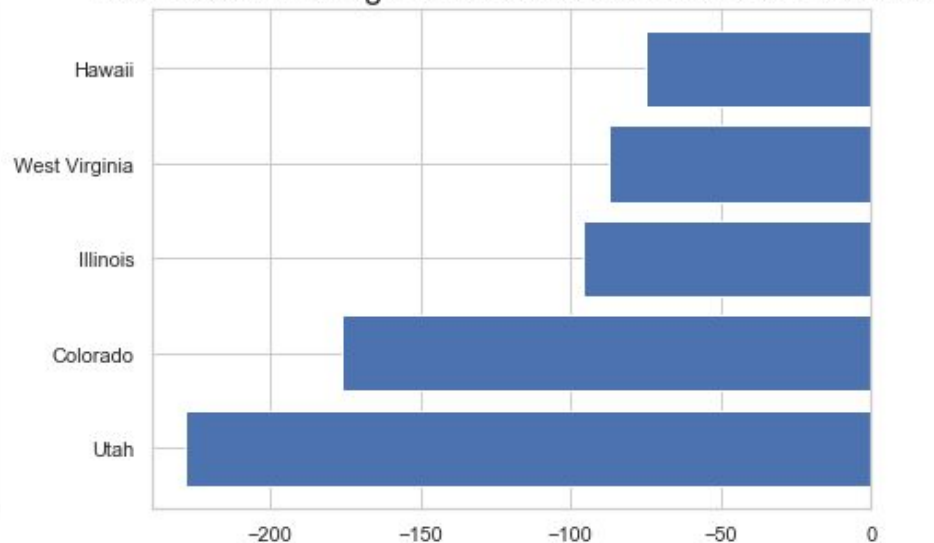


Largest Increases in SAT Participation and Largest Decreases in Average Total SAT Score

Increase in SAT Participation from 2017 to 2018

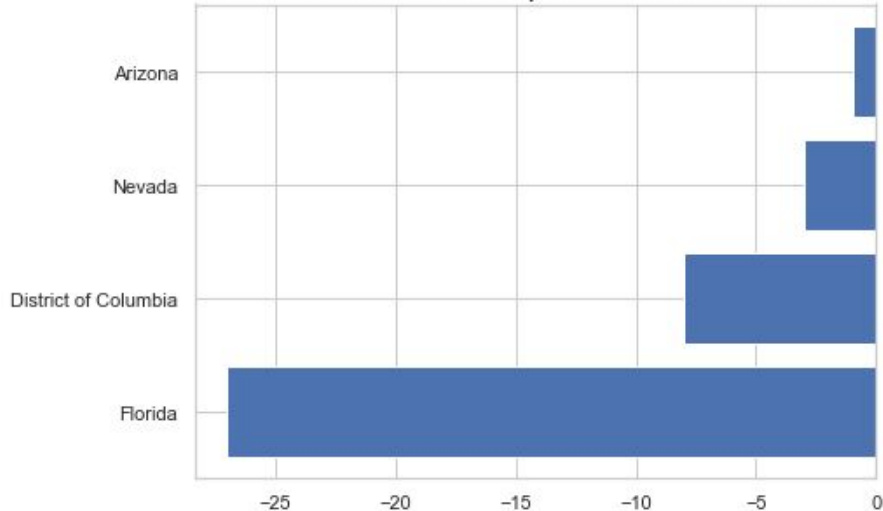


Decrease in Average Total SAT Score from 2017 to 2018

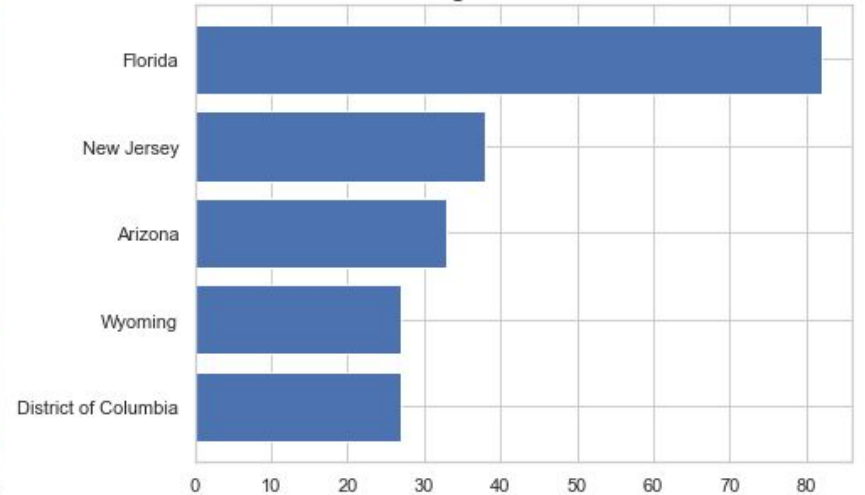


Largest Decreases in SAT Participation and Largest Increases in Total Average SAT Scores

Decrease in SAT Participation from 2017 to 2018

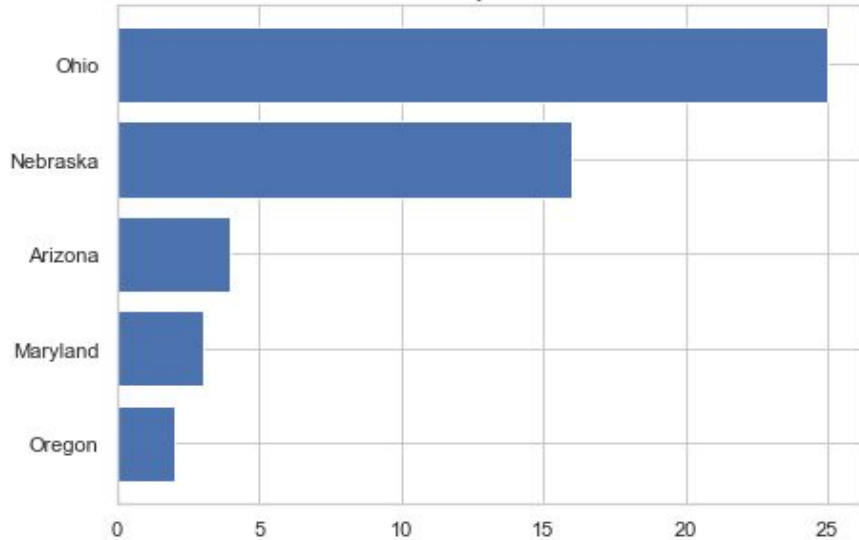


Increase in Total Average SAT Scores from 2017 to 2018

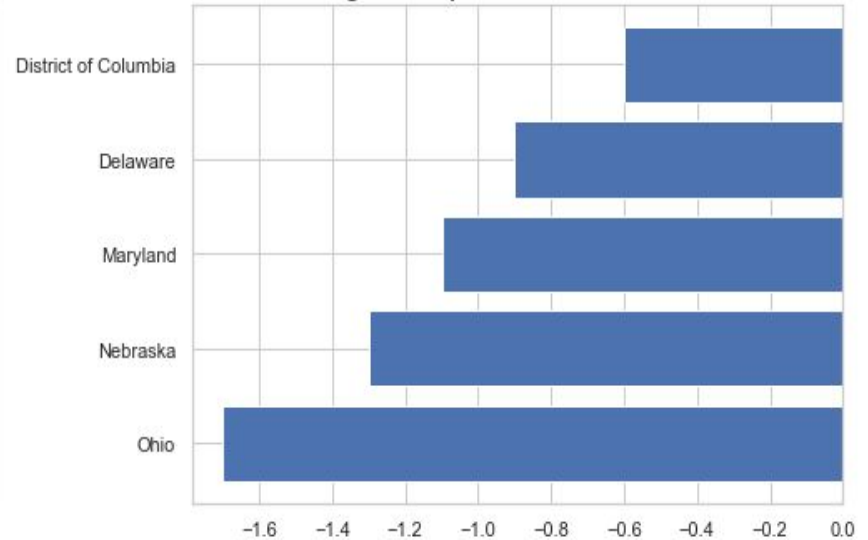


Largest Increases in ACT Participation and Largest Decreases in Avg Composite ACT Score

Increase in ACT Participation from 2017 to 2018

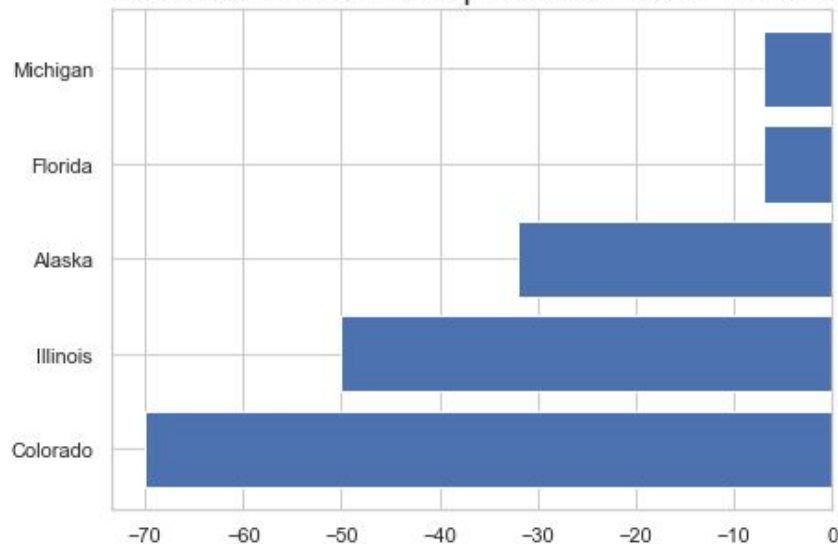


Decrease in Average Composite ACT Score from 2017 to 2018

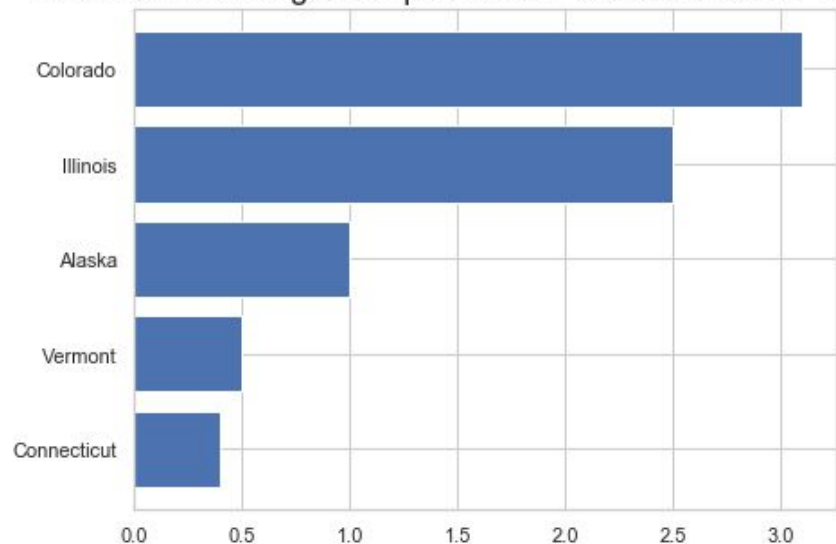


Largest Decreases in ACT Participation and Largest Decreases in Avg Composite ACT Scores

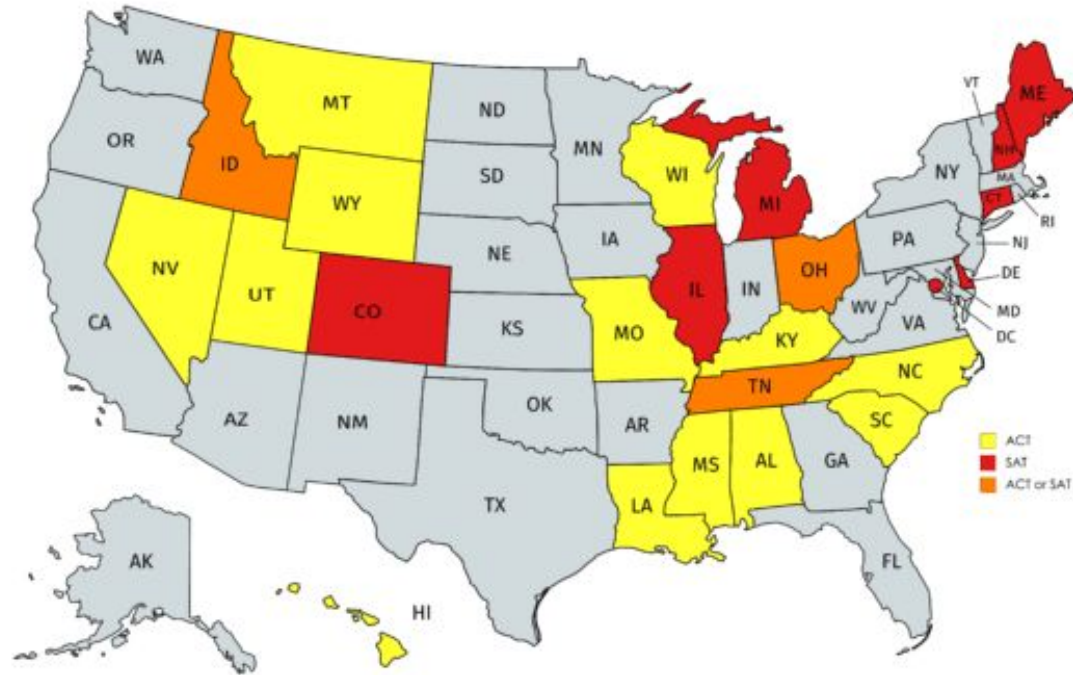
Decrease in ACT Participation from 2017 to 2018



Increase in Average Composite ACT Score from 2017 to 2018



Required Tests by State



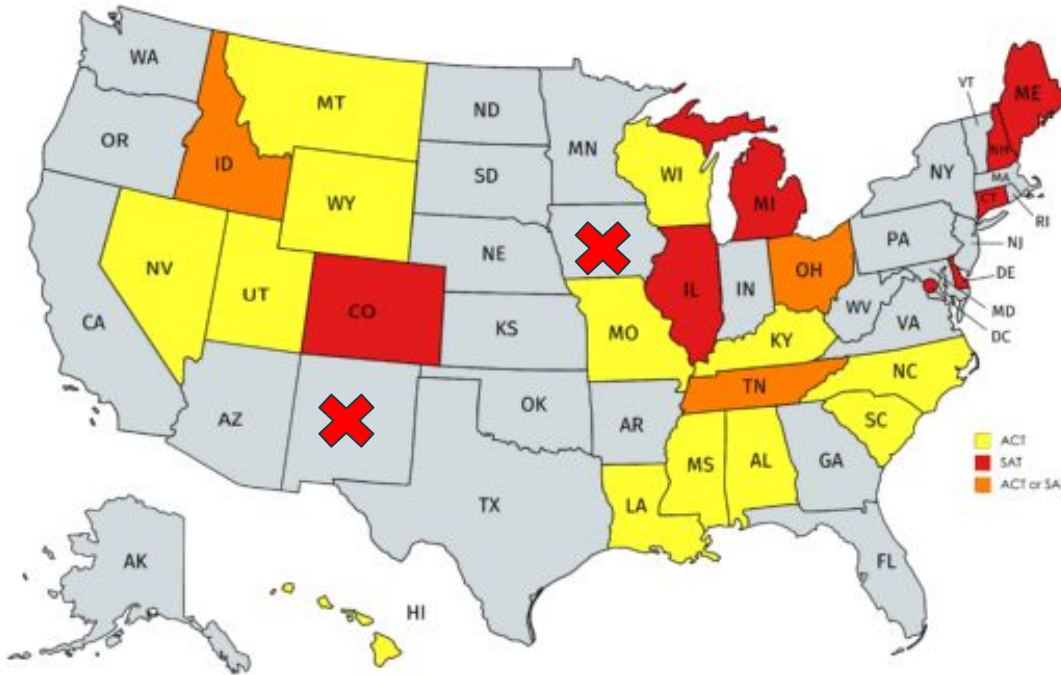


Conclusion and Recommendations

Where to Invest and Increase Participation?

- Avoid states that have mandatory ACT testing to start.
- Focus on states surrounding those that recently saw large increases in SAT testing.
 - Colorado, Illinois
- Look for states with low SAT participation, and moderate ACT participation
 - Highest growth potential
- Best options - New Mexico and Iowa
 - New Mexico saw a 5% increase in SAT Participation, while Iowa saw a 1% increase
 - New Mexico borders Colorado, while Iowa borders Illinois
 - Sub-70% ACT Participation in both New Mexico and Iowa

Who to Target



- Low SAT participation rates 2017, 2018
 - NM - 11%, 16%
 - IA - 2%, 3%
- Relatively low ACT participation rates
 - NM - 66%, 67%
 - IA - 67%, 68%
- No mandatory test

Strategies for Growth

- Get involved with municipal, county, and state governments
 - Leverage potential relationships with neighboring states
- Invest in marketing in target states
 - Market to the public, as well as to the teachers and administrators
- Showcase the benefits of the SATs



Questions?