



DSI Project 1

An analysis of SAT and ACT (2017/18) Participation and Scores

Presentation summary

1. Problem statement
2. Data collection and assumptions
3. Exploratory Data Analysis (EDA)
4. Key trends and findings
5. Conclusions & Recommendations

Problem Statement

As a new format for the SAT was released in March 2016, which state should College Board invest its money in to improve SAT participation rate?

Data collection and assumptions

➤ List of data sets used:

- SAT 2017 and 2018
 - Source: <https://blog.collegevine.com/here-are-the-average-sat-scores-by-state/>
- ACT 2017 and 2018
 - Source: <https://blog.prepscholar.com/act-scores-by-state-averages-highs-and-lows>

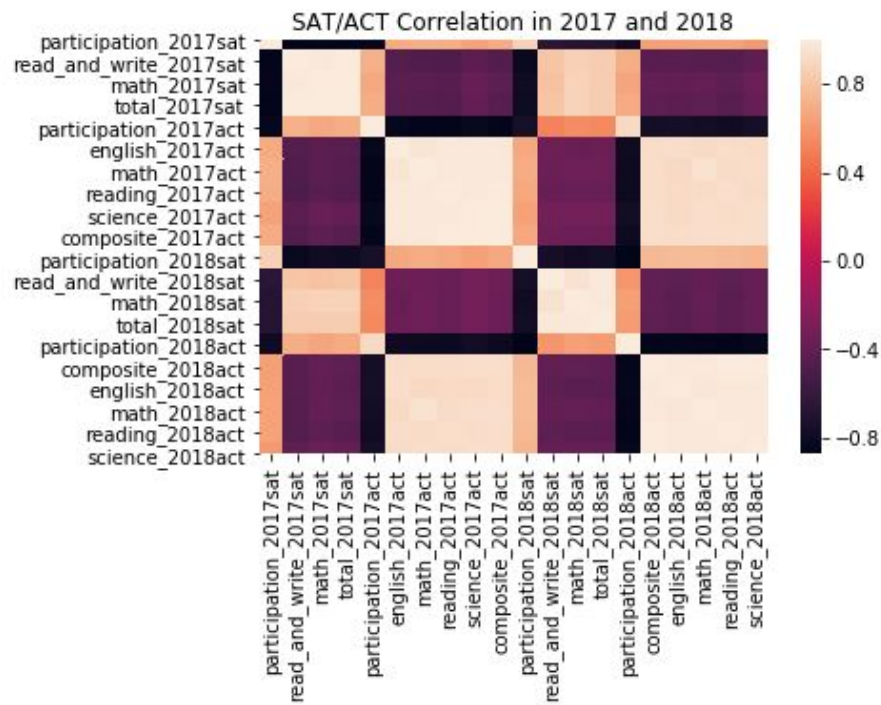
➤ Assumption(s) made:

- Population is consistent across all the states
- Population is constraint to each state
- SAT and ACT have similar assessment criteria

➤ Limitation(s)

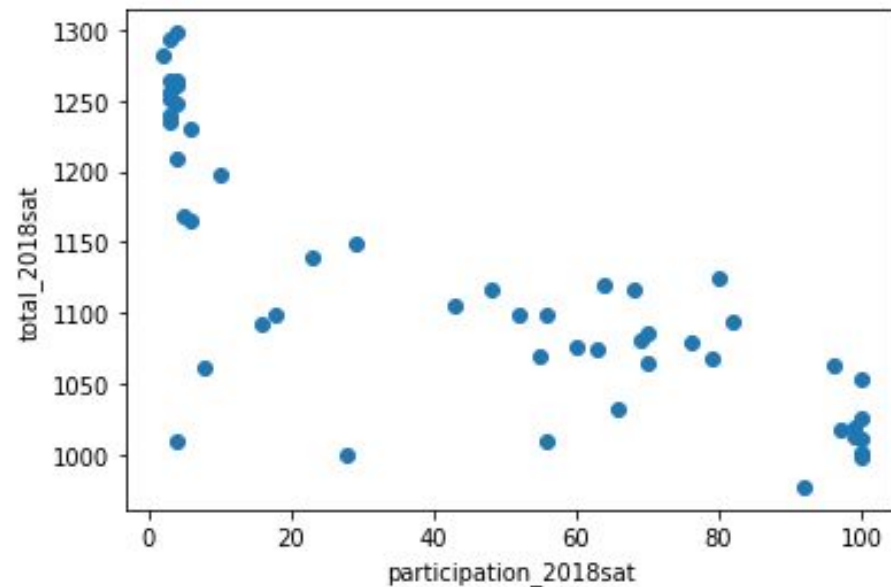
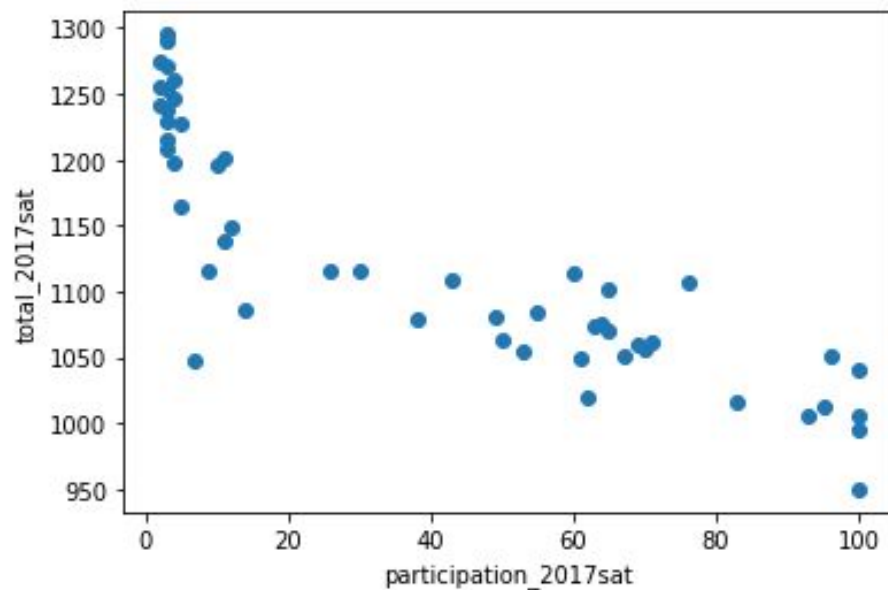
- 2017 and 2018 data used only

On-hand Data



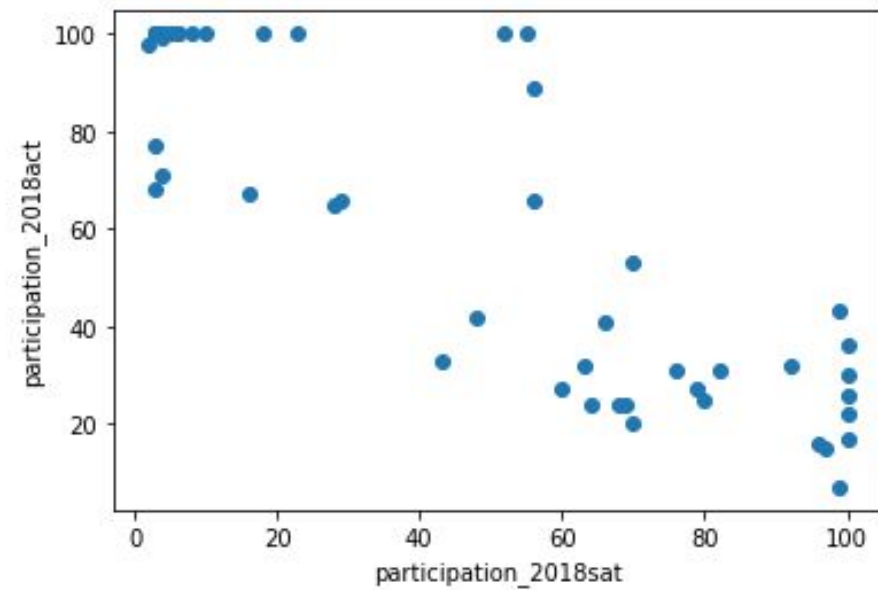
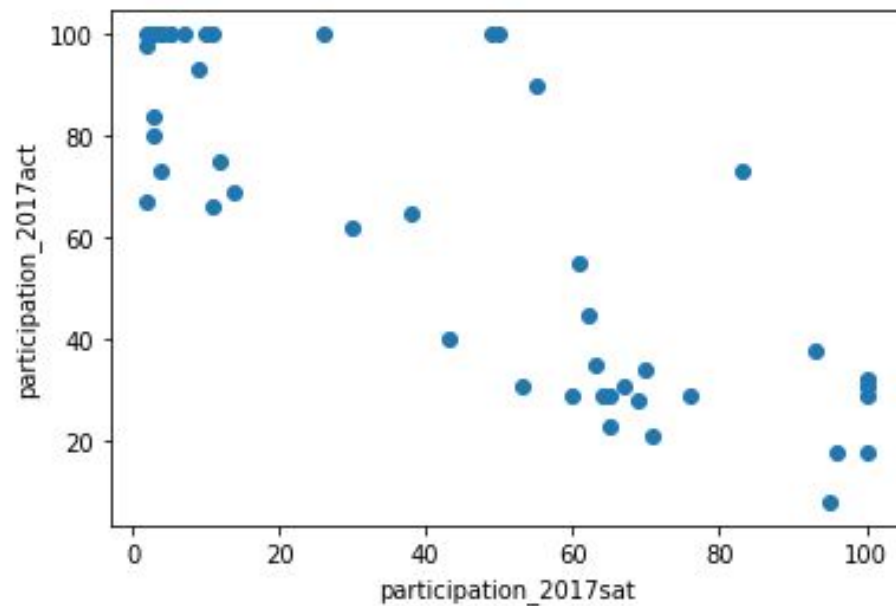
	english_2017act	math_2017act	reading_2017act	science_2017act
english_2017act	1.000000	0.967803	0.985999	0.980042
math_2017act	0.967803	1.000000	0.979630	0.986929
reading_2017act	0.985999	0.979630	1.000000	0.988034
science_2017act	0.980042	0.986929	0.988034	1.000000
composite_2017act	0.990856	0.990451	0.995069	0.995129
composite_2018act	0.932535	0.933247	0.929711	0.934586
english_2018act	0.937173	0.910684	0.916256	0.915850
math_2018act	0.918868	0.948795	0.923622	0.936559
reading_2018act	0.930897	0.924997	0.937214	0.930810
science_2018act	0.922873	0.930087	0.926420	0.939334

Correlation - SAT Total/Participation%



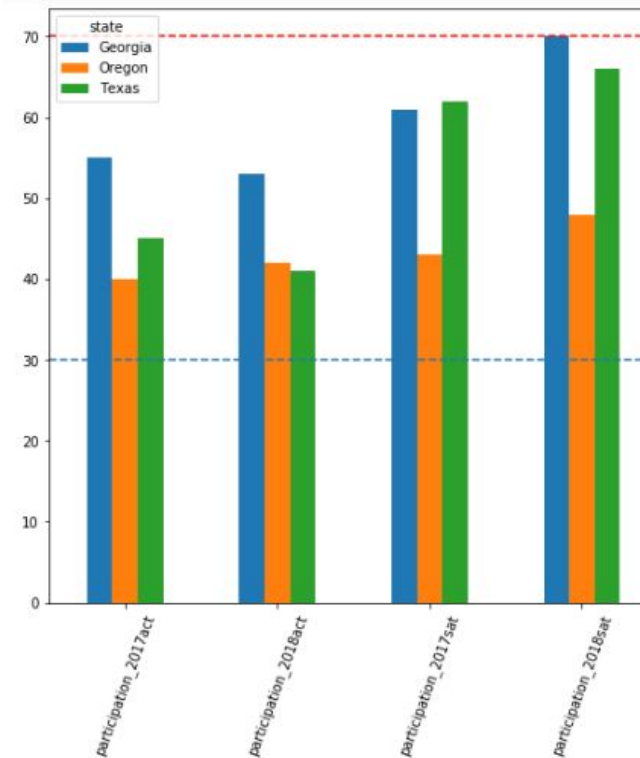
Schmeiser attributed the score drop to the increased numbers of students taking the exam and the growing diversity of test takers. *(Note: This paragraph has been changed from a previous version to correct information attributed to Schmeiser.)*

Correlation - SAT/ACT Participation%



Exploratory Data Analysis (EDA)

- Existing Data:
 - SAT & ACT participation rate
 - Range: > 35%; < 70%



Key findings - State Selection

Score - Total SAT 2018 - sort by highest to lowest

1. Oregon
2. Alaska
3. Georgia

Score - Total SAT 2017 - sort by highest to lowest

1. Oregon
2. Alaska
3. Georgia

Score - Total ACT 2018 - sort by highest to lowest

1. Georgia
2. Oregon
3. Alaska

Score - Total ACT 2017 - sort by highest to lowest

1. Oregon
2. Georgia
3. Alaska

Key findings - State Selection

1. Score
2. Funding
3. Population

	State	amountPerPupil	Pop
45	Alaska	17838	734002
22	Oregon	11264	4301089
17	Georgia	10205	10736059

Alaska : Median age of 34.9,
youngest of top 3 countries

<SAT Eng & Read Scores>



State: Colorado
Sat18 Reading And Writing: 519.0

<SAT Eng & Read Scores>



State: Alaska
Sat17 Reading And Writing: 547.0

<SAT Eng & Read Scores>



State: Georgia
Sat18 Reading And Writing: 542.0

<SAT Eng & Read Scores>



State: Hawaii
Sat18 Reading And Writing: 480.0

Correlation between good English scores and SAT exam participation?

First Language Learned

	Test Takers		Total	Mean Score		
	Number	Percent		ERW	Math	Both
English Only	1,359,663	64%	1083	548	535	50%
English and Another Language	414,790	19%	1056	526	530	44%
Another Language	246,921	12%	1069	521	547	46%
No Response	115,165	5%	930	463	467	22%

Recommendations

1. **Both Colorado and Illinois had government legislation in place which drove up the SAT participation rates**
 - a. Direct efforts towards campaigns to convince educators to adopt SAT
 - b. Drive across the point that college board is taking the digital approach , providing free learning materials with easy accessibility (Khan Academy)
2. **Making use of high turnover rate among teachers in Alaska**
 - a. Relatively high percentage of rural schools compared to its neighbouring states
 - b. Harsh weather conditions and isolation result in high turnover rate of teachers
 - c. Easy accessibility of test material through Khan Academy



Recommendations

3. **Collaborating with CollegeBoard's other major tests like Advanced Placement(AP).**
 - a. Allows student to clear college credits in advance
 - b. Providing high schools with rebates for taking both tests
 - c. Making SAT a subset of AP
 - i. (E.g. Preparing for AP math essentially prepares you for SAT Math)
 - d. A one stop solution for college admissions and advanced college credits
4. **Be an advocate of creativity and a learning culture**
 - a. Hold frequent competitions and forums to encourage experiential learning and exchange of ideas
 - b. Points from these other activities organised by College Board can be included to the SAT score indirectly
 - i. Similar to Environmental Context Dashboard

Conclusion

1. Legislation is key but not ideal
2. Adopt Recommendations which gear towards developing a learning culture → Mutual Affinity help drive up the Participation rates.
3. Ideal to do further research based on other factors like ethnicity and socio-economic data and also on a granular level
4. Wider dataset of across a decade may help in providing a more well supported argument or proposal.

References

1. A Perennial Challenge in Rural Alaska: Getting and Keeping Teachers - Education Week
2. Education Hurdles - Alaska Business Magazine
3. Public education in Alaska - Ballotpedia
4. <https://www.akbizmag.com/industry/education/education-hurdles/>
5. <https://collegereadiness.collegeboard.org/sat>

