

# What Factors Affect Math Scores

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Data 101  
Assignment 7  
<https://www.kaggle.com/spscientist/students-performance-in-exams>

## Overview

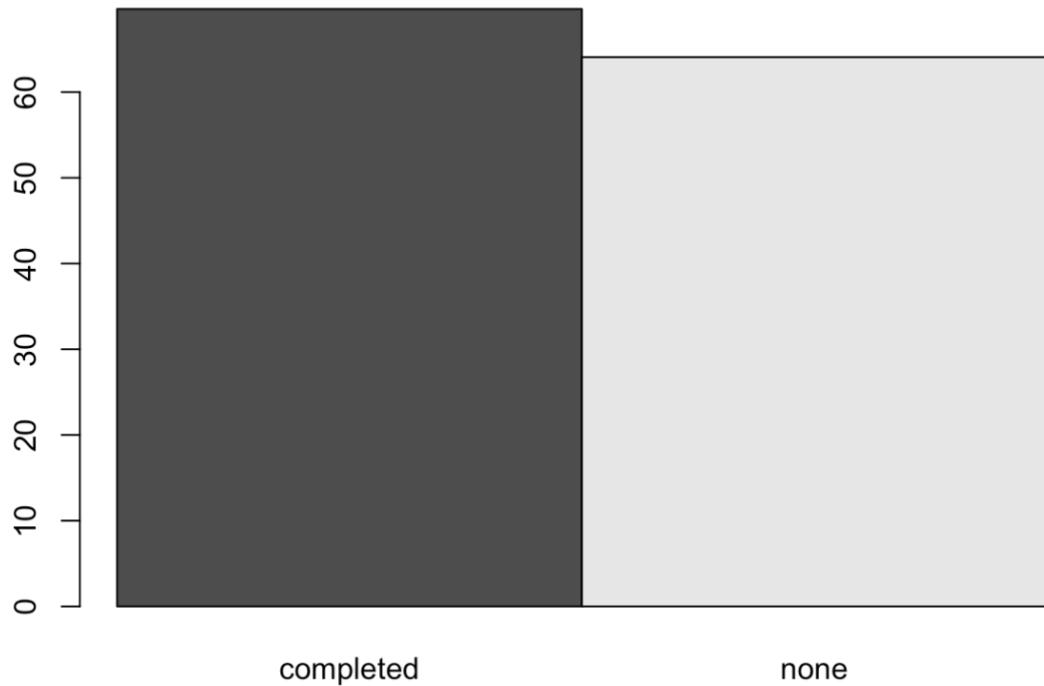
I am a sophomore majoring in BAIT and minoring in Data Science. I have always been a very motivated student but lately, I have been wondering what factors affect students and their standardized test grades. For SATS and other standardized tests does test preparation help one do well on a test? Does parental education also act as a factor? Can one study themselves instead? Is test preparation a rip-off? We'll find out.

## Data Set

The dataset for this assignment has been taken from Kaggle to analyze the correlation between test preparation and exam scores. The dataset was obtained through a survey about high school students in the US. The purpose of this dataset was to explore the effect certain factors have on the math scores of students. Let's explore some of the trends found in the data set when it comes to testing preparation and parental education levels.

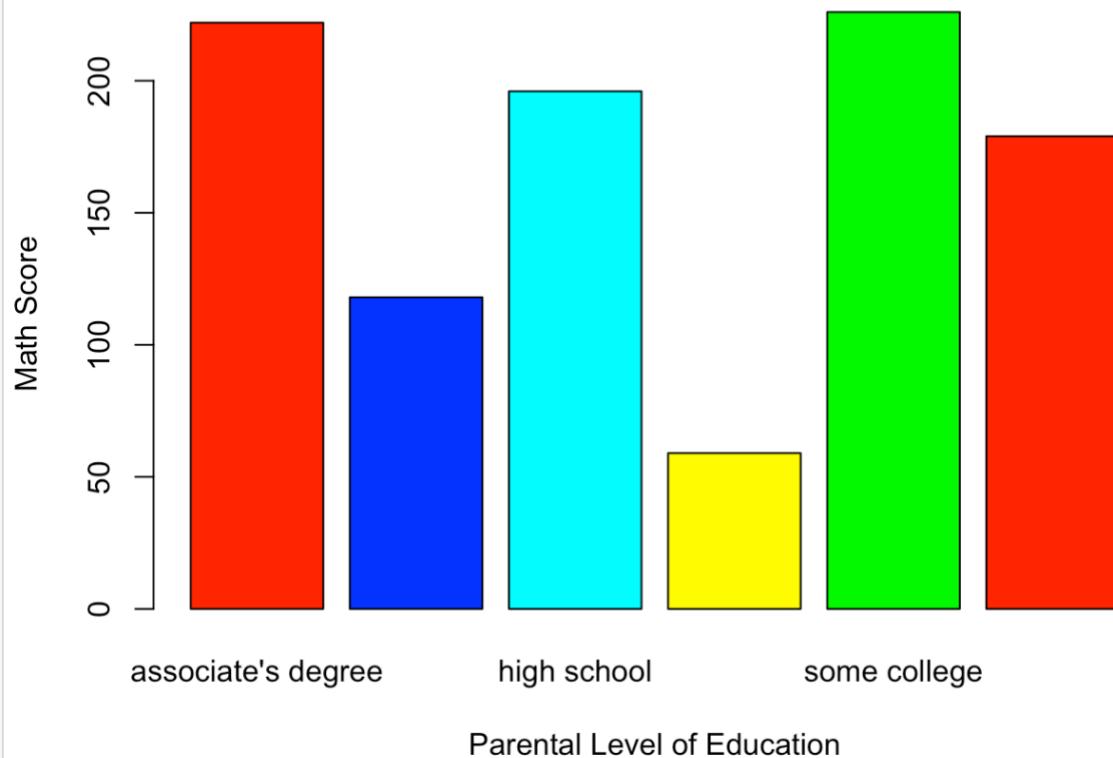
## Test Preparation and Math Scores for High School Students

**Math Scores Based on Test Preparation**



This graph shows the comparison between math scores and test preparation for high school students. The graph helps us realize that test preparation does help students achieve a better math score.

### Barplot for Math Score in comparison to Parental Level of Education



This graph shows the comparison between math scores and parental level of education for high school students. The graph helps us realize that parental level of education does not seem to impact the grades that students currently get.

### Z-test

To see if the relationship between test preparation and math score, I conducted a z-test. The mean score of kids who completed test prep is 69.6953, whereas the mean score of kids who did not complete it is 64.077. Based on this, my null hypothesis is that there is no difference in scores between the status of test preparation. My alternative hypothesis is that students who completed test preparation achieved a higher score than those that didn't.

## Conclusion

Consequently, it can be concluded that test preparation does in fact improve the grades of students. Students who completed test preparation were well prepared for the exam. Parental level of education however does not affect the math scores of students in high school as there are other factors that are of importance.