

## What's Driving Test Scores in Minnesota Schools?

### *A Look at the Data*

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By analyzing the data from all high schools and elementary schools in the state ([www.schooldigger.org](http://www.schooldigger.org)), interesting correlations were found. In the broadest sense correlation is any statistical association, though it commonly refers to the degree to which a pair of variables are linearly related. Familiar examples of dependent phenomena include the correlation between the physical statures of parents and their offspring, and the correlation between the demand for a limited supply product and its price.

Correlations can indicate a predictive relationship that can be instrumental in planning. Generally, the presence of a correlation is not enough to infer the presence of a causal relationship. However, when used in a technical sense, correlation refers to any of several specific types of relationship between mean values. As we are pulling data regarding a specific subject (K-12) with a larger data set (489 high schools and 858 elementary), we can infer the correlations between variables to be causal.

The correlation between free/discounted lunch rates and average standard test scores for all high schools is -0.73. A 1.0 would signal a perfect correlation and a -1.0 a perfect inverse relationship. An inverse relationship of -0.73 shows that higher percentages of free/discounted lunch rates has a negative effect on test scores. It was -0.75 for elementary.

The student/teacher ratio to scores showed a correlation of 0.20 for high schools and 0.09 for elementary. This reflects little correlation between the two for high schools and nearly unrelated for elementary. Claims that student/teacher ratios determine scores isn't shown by the evidence, particularly for ratios up to 20:1.

The correlation between average standard scores and the number of students showed 0.39 for high schools and 0.11 for elementary. This suggests that larger schools have higher average standard schools for high schools than smaller ones. Elementary average standard scores show that school size has little bearing on average standard scores. Perhaps students are seeking more opportunities and better preparation for life after school as they reach older ages. Smaller schools cannot match the enrichment programs of larger schools. Historically, Floodwood has shown better scores in its elementary than its high school. Something is clearly lost and/or changes as students move from elementary to high school.

In summary, lower teacher/student ratios show little difference in higher average standard scores. The higher the percentage for free/discounted lunches, the lower the average standard score. Lastly, the higher number of students in the school, the higher the average standard score in high school. The number of students has little effect for elementary.

These figures show the variables affecting average standard scores but falls short of painting the whole picture. There are many other unmeasured variables, such as bullying and home related issues. Nonetheless, it is useful information to dispel commonly sold myths like lower student/teacher ratios ultimately lead to higher test scores. Yes, to a degree for high schools, but minimal. They have almost no effect on elementary scores. The numbers also serve as a starting point to fix the root problems. Some schools overcome obstacles, such as those seen in poorer communities, and others engrain the handicap into the students. It has been said, 'poverty is like a disease, going on generation after

generation.' It doesn't have to be, and every student should believe they can do better than their parents. Dream and put in the work, and things will work out just fine. Self-discipline is a key trait for success. With it, you will do the right thing even in the hardest of times.