Name: _____ Hour: _____ Date: _____
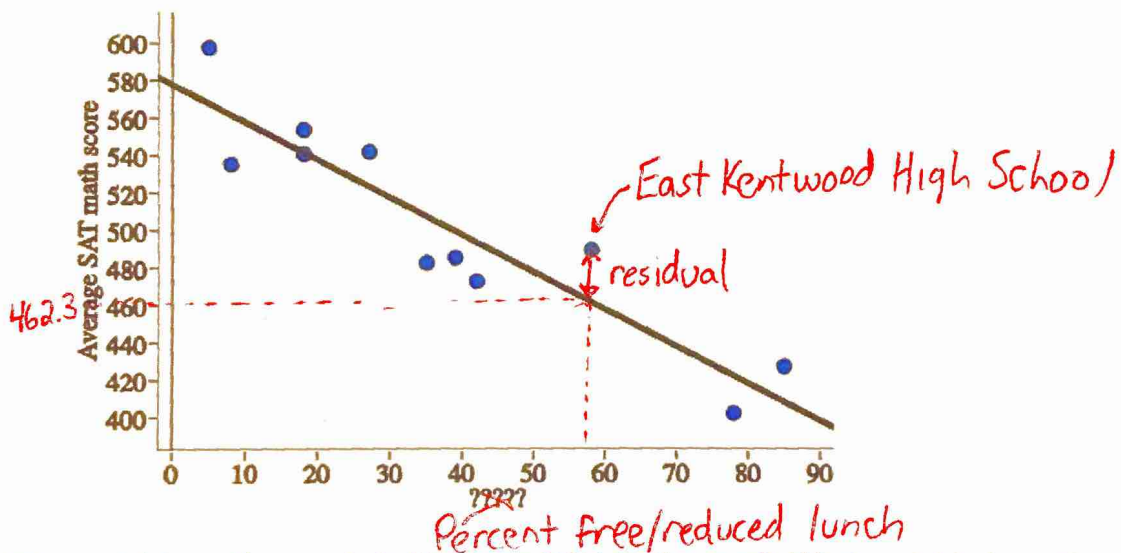
Why Do Some Schools Do Better Than Others?

JONATHAN KOZOL

SAVAGE INEQUALITIES

I HAVE A DREAM
— Martin Luther King, Jr.

> Academic performance of students varies widely from one school to another. What are some of the reasons? How can public education improve outcomes for all students?

A random sample of 11 high schools was selected from the state of Michigan and data was recorded for two variables. In Michigan, all high school Juniors are required to take the SAT.

East Kentwood High School
residual
462.3

Percent free/reduced lunch

1. The variable on the y-axis is "Average SAT math score". What variable is on the x-axis? Brainstorm several ideas in your groups.

   Percent teacher turnover

   Average class size

   Hours of video games per month

2. Your teacher will reveal the variable on the x-axis. Write it in on the above scatterplot.

3. Describe the relationship between x and y. *Percent of students who are free or reduced lunch.*

   There is a strong, negative, linear relationship between percent free/reduced lunch and average SAT math score, with no apparent outliers.

   Direction ✓
   Outliers ✓
   Form ✓
   Strength ✓
   + context ✓

+TheStatsMedic

5. Can we conclude that being poor causes student achievement to decrease? Explain.

No! There is a correlation between income level and student achievement, but we cannot say this is a causal relationship because it is an observational study. To show causation, we would need a properly designed experiment (unethical).

6. What might be some confounding variables that would help explain this relationship?

Access to resources, parental education level, value for education school systems and structures, nutrition, physical health

7. The equation of the line of best fit is $\hat{y} = 577.9 - 1.993x$. Use it to predict the average SAT math score for a high school with 58% of students free/reduced lunch.

$\widehat{SAT} = 577.9 - 1.993(58) = 462.3$

8. East Kentwood High School (home of The Stats Medics!) is represented in the data set with 58% free/reduced lunch and an average SAT math score of 490.4. Calculate and interpret the residual for East Kentwood High School.

Residual = actual y - predicted y = 490.4 - 462.3 = 28.1

The average SAT math score at East Kentwood High School is 28.1 points higher than predicted by the line of best fit.

9. We are working hard in public education to eliminate this very clear relationship that currently exists between academic achievement and poverty. What is your school currently doing to eliminate this inequity? What else could they do?

- No tracking for math + english classes (no Honors, no remedial)
- No pre-requisites for students to take AP classes.
- After school support for struggling students
- Progressive instructional techniques.

TheStatsMedic