

## 1.4.14: Statistical Literacy

### Do Athletes Get Special Treatment?

#### Prerequisites

#### Levels of Measurement



Figure 1.4.14.1: Runners

The Board of Trustees at a university commissioned a top management-consulting firm to address the admission processes for academic and athletic programs. The consulting firm wrote a report discussing the trade-off between maintaining academic and athletic excellence. One of their key findings was:

The standard for an athlete's admission, as reflected in SAT scores alone, is lower than the standard for non-athletes by as much as 20 percent, with the weight of this difference being carried by the so-called "revenue sports" of football and basketball. Athletes are also admitted through a different process than the one used to admit non-athlete students.

#### What do you think?

Based on what you have learned in this chapter about measurement scales, does it make sense to compare SAT scores using percentages? Why or why not?

As you may know, the SAT has an arbitrarily-determined lower limit on test scores of 200. Therefore, SAT is measured on either an ordinal scale or, at most, an interval scale. However, it is clearly not measured on a ratio scale. Therefore, it is not meaningful to report SAT score differences in terms of percentages. For example, consider the effect of subtracting 200 from every student's score so that the lowest possible score is 0. How would that affect the difference as expressed in percentages?

### Statistical Errors in Politics

#### Prerequisites

#### Inferential Statistics



Figure 1.4.14.2: Survey

An article about ignorance of statistics in politics quotes a politician commenting on why the "American Community Survey" should be eliminated:

"We're spending \$70 per person to fill this out. That's just not cost effective, especially since in the end this is not a scientific survey. It's a random survey."

#### What do you think?

What is wrong with this statement? Despite the error in this statement, what type of sampling could be done so that the sample will be more likely to be representative of the population?

Randomness is what makes the survey scientific. If the survey were not random, then it would be biased and therefore statistically meaningless, especially since the survey is conducted to make generalizations about the American population. Stratified sampling would likely be more representative of the population.

#### Reference

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#### Contributors and Attributions

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