

# Statistical Bias

## Learning Goal

### *Observations & Comments from our Blog*



Mr. C. Stewart

Hi

You've successfully met the criteria for the assignment.

I particularly like your use of "bias statistic". As per your description, you're describing intentional bias that an organization is introducing to getting their, biased point of view across. Equally possible, is the unintentional introduction of bias. This can be done when either sampling techniques, survey design, or both have not been done appropriately.

Moving forward, you'll have a chance to study these types of bias, design principles, and sampling techniques.

As with the example of averages, you might want to pay close attention to the 'average' being reported--mean, median, or mode. It is possible that the average chosen might be affected by outliers--data that can skew a relationship. For instance, a few high salaries can distort an individual's view of what graduates are really earning.

Nov 9, 2015, 12:10am (24.235.58.173) [Edit](#) | [Remove](#) | [Reply](#) | [Unapprove](#)

## *Minds on Math...*

What is 'bias'?

The accuracy of a survey is greatest when they are free from *statistical bias*.

*Statistical bias* is defined as "when a systemic error [in survey design or data collection] contributes to the statistics for a *sample* being different from those of the *population*" (p236, MHR textbook).

## *Forms of Statistical Bias*

The four forms of statistical bias arising from errors in data collection include...

- sampling bias
- response bias
- measurement bias
- non-response bias

**Define each of these in your notebook and review the examples provided on pages 237 & 238.**

## *Practice*

p239

#1-5, 8, 9

## *Activity: Check Your Understanding*

Around the room, several scenarios have been posted that contain one of the four forms of bias.

-Using stick-it notes, your group is to discuss which form of bias is present and labeling the scenario with the bias type.

# Survey Design & Data Collection Techniques

## Learning Goal

### *Minds on Math*

Examine the survey that has been provided.

- Identify any possible sources of error that could arise due to the design of the survey.

## *Take Action!*

1. Read the "Principles of Proper Surveying", p153.
  - Decide which principles of surveying were not being followed in the sample survey provided.
2. See the list of "Question Types" on p156. Read Ex. 2, p155 for examples of each survey question type.
3. Return to the sample survey provided.
  - Decide which question types are being used in the survey.

## *Practice*

p156

#1, 4 to 7, #10 (one of a, b, or c)