

MBF 3CI 3.2 Warm-up

Date: Oct. 10/17Warm-up: Sampling Techniques**You do NOT need to copy these down.**

You have learned about several sampling techniques: Given the following situations, state which sampling technique is used:

1. Simple random
2. Stratified random
3. Cluster
4. Voluntary response
5. Convenience
6. Systematic random

- a) A survey of the speed of cars on a particular section of a street (section is not randomly chosen), to determine the average speed of drivers.

 **Convenience**

- b) Names of family members at a reunion are placed on pieces of paper 3 cm by 3 cm. The great grandfather randomly draws names for gifts from a box that contains these pieces.

 **Simple random**

- c) A survey of 120 students at HHSS is conducted. At HHSS (student population size of 1100), the student body is distributed as:  
 Grade 9: 30%  
 Grade 10: 25%  
 Grade 11: 25%  
 Grade 12: 20%  
 The sample is created so that there are 36 grade 9s, 30 grade 10s, 30 grade 11s and the rest grade 12s.

 **Stratified**

- d) After randomly choosing an apartment to begin with, every third apartment on one floor is chosen.

 **Systematic**

Before we begin, are there any questions from last day's work?

## Today's Learning Goal(s):

By the end of the class, I will be able to:


- a) Understand the difference between primary and secondary data
- b) Understand what bias is.
- c) Distinguish between different types of bias.

From yesterday's homework p.108 #9

		9	10	11	12
9	307	$\frac{307}{991} \times 100$	$\frac{242}{991} \times 100$	$\frac{230}{991} \times 100$	$\frac{212}{991} \times 100$
10	242	$\div 30.9$	$\div 24.4$	$\div 23.2$	$\div 21.3$
11	230	$\div 31$	$\div 24^{25}$	$\div 23$	$\div 21$
12	212	30	25	25	20
Total	991				

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Define: Primary vs. Secondary Data   
 Refer to text p.111

### 3.2 Bias in Data

**Bias** is any factor that favours certain outcomes or responses in a statistical study.



A survey with bias *may* have incorrect results.

The methods used for choosing the sample and collecting the data must be free from bias.

Bias	Characteristics	Example(s)
<p><b>Sampling Bias</b></p>	<p>The sample does not reflect the characteristic(s) of the population based on the sampling technique chosen.</p>	<p> omitted certain groups from the sample</p> <p> incorrectly calculated the number to be sampled</p>




<p><b>Non-Response Bias</b></p>	<p>Member(s) are under-represented in a sample because they chose not to participate.</p>	<p>👉 too few from 1 or more strata gave responses</p>
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Bias	Characteristics	Example(s)
<p><b>Measurement Bias</b></p>	<p>The data has not been collected properly. This is due to human error and/or the wording of survey questions is poor.</p> <p>Questions that are worded poorly tend to be either <b>loaded</b> and/or <b>leading</b>.</p>	<p><i>Original Wording of Parents' Night Question</i></p> <p>👉 <i>Do you make sure your teen eats breakfast daily?</i></p> <p><i>Modified Wording of Parents' Night Question</i></p> <p>👉 <i>Eating breakfast results in better school achievement.</i></p> <p><i>Do you make sure your teen eats breakfast daily?</i></p> <p>👉 <i>The statement of fact "leads" the responses.</i></p>

<b>Response Bias</b>	Participants in a survey give false answers on purpose.	<p> Do you ever drive above the speed limit?</p> <p> Would you ever cheat on your partner?</p>
<p><b>Review the learning goals. Were we successful today?</b>  <b>Today's entertainment: pp. 114-117 #1 to 5, 7 to 14</b>  <b>Note: ** Answers to 3 a,d are incorrect</b>  <b>**they should be MEASUREMENT BIAS!!</b>  <b>Be ready for a Quiz on Thursday !</b></p>		

The 1936 Presidential poll...next page

The 1936 campaign concluded with the *Literary Digest* (1936a) publishing survey results forecasting a landslide victory for the Republican presidential candidate, Alf Landon. The actual election was, of course, won by the incumbent, Franklin Roosevelt, by a large margin. Thus the *Literary Digest* poll gained an infamous place in the history of survey research.

- ①  How many of you have studied President Landon?
- ② 
- ③  Something went wrong with their telephone survey.  
Can you guess what it was?