

What's Going On?

Checking In

Minds on

CBC Survey

Action!

Statistical Bias

Consolidation

What Could Possibly Go Wrong?

Learning Goal - I will be able to identify different types of statistical bias and understand how to avoid them.

Minds on

CBC Survey

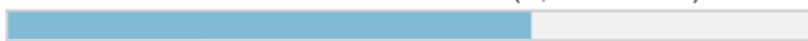
Last night I read an online article about a pregnant woman (8-months) in Calgary who was repeatedly not offered a seat on a busy train car during rush hour.

When I got to the end of the article there was a survey question, do you think this is a "good" survey question? Why or why not?

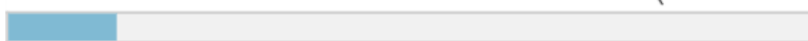
Is common courtesy dying in Calgary?

Yes. It seems to be getting worse over the years as the city grows.

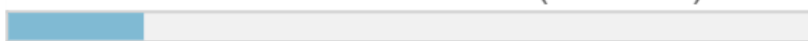
(1,815 votes) **64.91%**



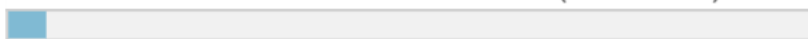
No. I see good acts in Calgary all the time. **13.59%**
(380 votes)



It was never all that common. (468 votes) **16.74%**



I haven't noticed. (133 votes) **4.76%**



Total Votes: 2,796 [Return To Poll](#)

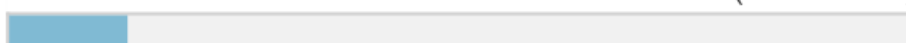
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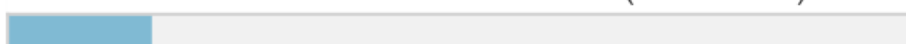
(3,665 votes) **65.93%**



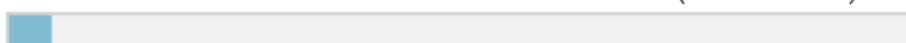
No. I see good acts in Calgary all the time. **13.37%**
(743 votes)



It was never all that common. (895 votes) **16.1%**



I haven't noticed. (256 votes) **5%**



Total Votes: 5,559 [Return To Poll](#)

Action!

Statistical Bias

Statistical Bias

Bias that occurs when the measurement technique has errors which cause unreliable results.

Action!

Statistical Bias

There are four types of statistical bias.

- 1. Sampling Bias**
- 2. Non-Response Bias**
- 3. Measurement Bias**
- 4. Response Bias**

Action!

Statistical Bias

There are four types of statistical bias.

1. Sampling Bias

The sample does not reflect the population being studied.

Causes

- non-random samples
- small sample size

Examples

- ask your friends
- only guys
- grade 12s / 16 yr olds

Action!

Statistical Bias

There are four types of statistical bias.

2. Non-Response Bias

Specific groups are under-represented in a sample due to low rates of participation.

Also occurs if there is a low overall response rate (below 80%), as non-responders may have different opinions than responders.

Causes

- people don't care enough to respond
- effort required

Examples

- mail-in survey
- only asking people you know
-

Action!

Statistical Bias

There are four types of statistical bias.

3. Measurement Bias

The measurement technique has errors which cause unreliable results.

Causes

- improper measurements
- improper calibration

Examples

- Shorter person measuring taller people
- scale not zeroed
- survey questions not appropriate
What are your opinions on football?
Love it
Like it
It's pretty good

Action!

Statistical Bias

There are four types of statistical bias.

4. Response Bias

Participants purposely give false or misleading answers.

*Another source of response bias is leading questions

Causes

- perceived embarrassment
- desire to influence outcome of survey

Examples

Do you want a dog park?

- Dog owners could answer multiple times.

Consolidation

If you make tips, should your minimum wage be lower than those who don't?

<http://www.cbc.ca/player/Embedded-Only/News/Canada/NB/ID/2174429297/>

What kind of bias(es) could be introduced here?

1. Sampling Bias

waitresses wouldn't be able to respond

2. Non-Response Bias

3. Measurement Bias

4. Response Bias

people w/o computers can't respond

*leading question →
* no backing to confirm identity*

people can answer as many times as they want

Consolidation

Homework!

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3, 7, 8

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