

Solutions

1. Which of the following is an unacceptable rating scale?

- A Agree Undecided Disagree
- B Frequently Occasionally Rarely
- C Usually true Occasionally true
 Sometimes true
- D Important Moderately important
 Unimportant

C) The options are all positive.
There are no negative options.

2. Which of the following statements is true?

- A Observational studies are used to determine the cause of various events.
- B Experimental studies must have variables controlled throughout the study.
- C Observational studies should have all of their participants randomized.
- D Experimental studies keep track of the behaviour of groups that are created by the participants.

B)

3. For each of the survey questions, explain how the question could be improved. Then, rewrite it.

- a) Do you exercise daily and get enough sleep at night? Yes No

This is asking two things, so you could want to answer yes and no. Separate into two questions:

Do you exercise daily? Yes No

Do you get enough sleep? Yes No

3. For each of the survey questions, explain how the question could be improved. Then, rewrite it.

b) The *Star Wars* saga is one of the best science fiction stories of all time. How do you feel about Disney taking over the franchise?

Strongly agree Agree Don't know
 Disagree Strongly disagree

The statement and question are unrelated. The statement is also biased.

Do you think that the *Star Wars* saga is one of the best science fiction stories of all time?

Strongly agree Agree Don't know Disagree Strongly disagree

Obviously, you should take out "one of" in the first sentence...

3. For each of the survey questions, explain how the question could be improved. Then, rewrite it.

c) Which is your favourite type of music?
 Rap Electronic Pop

Not enough options. Maybe make it into an open response question...

What is your favourite type of music? _____

3. For each of the survey questions, explain how the question could be improved. Then, rewrite it.

d) How do you feel about the following statement:

We should not reduce the number of recycling days in the school.

Strongly agree Agree Don't know

Disagree Strongly disagree

Use of a double negative makes the statement more confusing than it needs to be (OSSLT take note).

We should keep the number of recycling days in school the same.

Strongly agree Agree Don't know Disagree Strongly disagree

4. Use the scale to write a survey question.

Very frequently Frequently

Occasionally Rarely Never

How often do you exercise?

5. Identify each case as an observational or experimental study. Indicate what relationship is being studied.
- a) People are asked if they have had magnetic therapy and whether their pain is reduced.
- b) As part of a study to gain information regarding travel to Mars, NASA is paying subjects \$18 000 to lie in bed for 70 days.
- c) Two randomly selected groups of 100 students are studied. One group has all left-handed students while the other has right-handed students. Their math grades are collected and analysed.

a) **Observational - Studying the effect of magnetic therapy on pain. Does it help to reduce it.**

b) **Observational - Studying the effect of lying in bed for 70 days. Trying to establish if being inactive for an extended period is equivalent to weightlessness.**

c) **Experimental - Studying to see if handedness has an effect on math grades.**

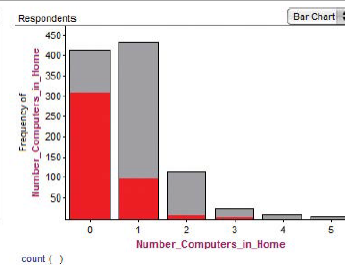
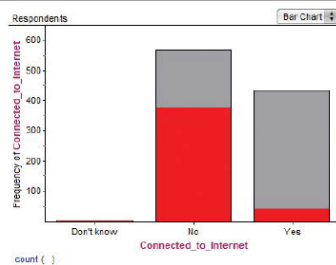
Recall

Observational means there is no controls or randomisation.

Experimental means there is some sort of control or randomisation.

6. In 2000, a survey was given to 1000 Canadians about their use of technology. The results for two of the questions are shown. The red bars show people who answered no when asked whether they had used the internet.

- a) Approximately how many people had no computers in their home?
- b) Why do you think a large portion of the people who had no computers are highlighted in red?
- c) This survey was a cross-sectional study. How do you think these graphs would change if the same questions were asked now?



a) **About 410 (the height of column 0 computers in home)**

b) **Those who don't have a computer probably hadn't used the internet.**

c) If asked now, then I would think that

- the number of homes with no computers would be much smaller
- the number of people not connected to the internet would be much smaller and those connected would be much higher
- the red bars for not used the internet would be almost zero