

**CHAPTER
10****More Examples of Bias**

A random sample is a sample where each member of the population has an equal chance of being in the sample. When members of a population do not have an equal chance of being in the population, then the sampling method is said to be **biased**.

EXAMPLE 1 A biased sample

A grocery store wants to know if costumers are satisfied with the new delicatessen. The grocery store places a survey on their website. Is this sampling method biased?

Yes. This question is biased towards those who have computer access. ■

The wording of a question on a survey can greatly influence the answers given. When a survey question directly or indirectly forces a certain response, then the question is biased. Extra care should be given to the wording of a question.

EXAMPLE 2 Forcing a response

John is running for class president. He gives out a survey to see how he compares with his competitor. He puts the following question on the survey: “Do you want to vote for me because I am the better candidate”. Is this question biased?

Yes. This is a bad question because it tries to influence the respondent. ■

Every effort should be made to respect the privacy of survey respondents. If a survey question causes embarrassment or forces dishonesty on the part of the respondent, then it is a bad survey question.

EXAMPLE 3 Identifying respondents

The student government wants to survey the student body to see how many students have overdue library books. On the survey, the respondents are asked to write their names at the top of the survey, and indicate if they have any overdue library books. Is this question biased?

Yes. Here, a respondent who has an overdue library book might be tempted to answer dishonestly to avoid embarrassment. Asking for a name on a survey is rarely a good idea. ■

EXAMPLE 4 Oral questions versus written questions

Suppose you want to take a survey of adults to see how much they earn annually. Is this an appropriate oral question?

No. Issues of personal income are considered personal matters, so an oral question would not be appropriate.

This kind of survey question is best in written form, where the respondent can answer anonymously. ■

**CHAPTER
10****More Examples of Bias** *continued*

Good questions are mutually exclusive.

EXAMPLE 5 Mutually exclusive questions

Is this a good question: “Did you grow up on a farm, in the country, or in the city?”

No. This question is not mutually exclusive because most farms are in the country.

Therefore, this is not a good question. ■

EXAMPLE 6 Good questions should not make assumptions

Is this a good question: “What kind of car do you drive?”

No. This is not a good question because it assumes that the respondent owns or has access to a car.

Survey questions should avoid unfamiliar words and abbreviations. A survey question such as “Do you believe the AGC excise should be semiannual?” is confusing. What does AGC represent? Will all respondents know the meanings of the words in the question?

Here is a possible improvement on the wording of the question: “Do you believe that the American General Contractors’ dues should be collected twice a year?” ■

Practice

Describe if each situation represents bias or a poor question. Explain your reasoning.

1. Carl is handing out surveys at lunch. On the survey, he asks respondents to write their names and then write their favorite sport.
2. “Candidate *A* should be elected because she has more experience. Are you going to vote for candidate *A* or candidate *B*?”
3. Mrs. Chang has 30 students in her English class. She selects 4 of the students by blindly drawing names from a hat.
4. “Do you prefer salad or vegetables with your dinner?”
5. Amy wants to know the political preferences of the people at her school. She walks up to 10 of her classmates and asks them what their political preference is.
6. “Do you play soccer, football, or another sport?”
7. “Painting the school library would be very expensive for the school. Do you think the school library should be painted?”
8. “How many hours of TV do you watch per day?”