Chapter 14

14.3 Surveys and Questionnaire Design

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Objectives

- Identify factors that can bias responses on a survey and
- Recognize poor questions.

Applying the Concepts

Identify factors that can bias responses on a survey and Recognize poor questions.

A baking company selected 36 women weighing different amounts and randomly assigned them to four different groups. The four groups were white bread only, brown bread only, low-fat white bread only, and low-fat brown bread only. Each group could eat only the type of bread assigned to the group. The study lasted for eight weeks. No other changes in any of the women's diets were allowed. A trained evaluator was used to check for any differences in the women's diets. The results showed that there were no differences in weight gain between the groups over the eight-week period.

1. Did the researchers use a population or a sample for their study?
2. Based on who conducted this study, would you consider the study to be biased?
3. Which sampling method do you think was used to obtain the original 36 women for the study (random, systematic, stratified, or clustered)?
4. Which sampling method would you use? Why?
5. How would you collect a random sample for this study?
6. Does random assignment help representativeness the same as random selection does? Explain.

Surveys

Identify factors that can bias responses on a survey and Recognize poor questions.

There are two types of surveys.

- **Interviewer-administered surveys** require a person to ask the questions.
- **Self-administered surveys** can be done by mail or in a group setting such as a classroom.

Common Mistakes in Writing Questions for Questionnaires

Identify factors that can bias responses on a survey and Recognize poor questions.

1. **Biased questions.** By asking questions in a certain way, the researcher may lead the respondents to answer in the way the researcher prefers. Bias introduced by the instrument is known as **response bias**.

   Example:

   "Are you going to vote for the candidate Jones even though the latest polls indicate that he is behind in the election?"

   instead of the more neutral

   "Are you going to vote for candidate Jones?"

This question has another problem as well. The question is in two parts, Are you going to vote? and, Do you prefer candidate Jones?

That leads us to the next issue.

Common Mistakes in Writing Questions for Questionnaires

Identify factors that can bias responses on a survey and Recognize poor questions.

2. **Confusing questions.** Ambiguous or confusing words. In an ambiguous case, the participant may misinterpret the meaning of words and answers the questions in an unintended way. There may be no way to determine what the respondent actually meant.

Example:

"Do you think people would live longer if they were on a diet?" could be misinterpreted since there are many different types of diets—weight loss diets, low-salt diets, medically prescribed diets, etc.

What is meant by "live longer"?

Example:

"Do you think the required GPA for graduating high school should be lowered?" From what?, to what?, No might mean the respondent believes it should be raised.

Common Mistakes in Writing Questions for Questionnaires

Identify factors that can bias responses on a survey and Recognize poor questions.

3. **Asking double-barreled questions.** Sometimes questions contain compound sentences that require the participant to respond to two questions.

Example:

"Are you in favor of a special tax to provide national health care for the citizens of the United States?" asks two questions: "Are you in favor of a national health care program?" and "Do you favor a tax (to support a health care program)?"

Is the question about national health care or taxation?

Common Mistakes in Writing Questions for Questionnaires

Identify factors that can bias responses on a survey and Recognize poor questions.

4. Using double negatives in questions. Questions with double negatives can be confusing to the respondents.

Example:

"Do you feel that it is not appropriate to have areas where people cannot smoke?"

Do you know what is being asked? The question will most likely confuse many respondents since "not" is used twice in the sentence.

Common Mistakes in Writing Questions for Questionnaires

Identify factors that can bias responses on a survey and Recognize poor questions.

5. **Ordering questions.** By arranging the questions in a certain order, the researcher can lead the participant to respond in a way that he or she may otherwise not have done.

Example:

"At what age should an elderly person not be permitted to drive?"

followed by "List some problems of elderly people."

Respondents may indicate that transportation is a problem based solely on reading the previous question. At the very least, it will be a more common response from respondents simply because of the first question.

Designing a Survey

Identify factors that can bias responses on a survey and Recognize poor questions.

Designing a Good Survey requires significant thought.

First you must decide what kind of questions to ask. Do you want free response type (Open ended) questions, or do you want limited response (close ended) questions.

Open ended questions may provide more information but may be difficult to record and interpret.

Close ended questions limit the respondent's choices. To get more information requires multiple questions that must be carefully worded.

When possible, it is best to get numeric value responses as numbers are easily analyzed.

Designing a Survey

Identify factors that can bias responses on a survey and Recognize poor questions.

Everybody lies

People have an natural inclination to respond as they believe the questioner wishes them to respond.

People also tend to exaggerate good answers and attenuate bad answers.

"What is your GPA?"

"How often do you brush your teeth?"

"How many times have you cheated on an exam?"

"How many times have you given to a charity?"

Designing a Survey

Identify factors that can bias responses on a survey and Recognize poor questions.

Anonymity

It is almost certainly best to provide anonymity to the respondents. People are more likely to be honest when they believe no one knows who is filling out the form. The problem with anonymity is that the respondents also know you cannot identify who did not bother to respond.

The problem of non responding participants leads to a sample that is not representative of the entire population of interest (**non-response bias**).

Designing a Survey

Identify factors that can bias responses on a survey and Recognize poor questions.

Timing

When you approach a respondent has a significant effect on responses.

"Would you like to try a veggie burger?" will get different responses just before lunch than if asked just after lunch. This is also a form of **Response Bias**.

"Is the government doing enough to ensure the safety of it's citizens?" will get different responses shortly after a mass murder attack when compared to responses gathered a few weeks later.

The public has a short attention span.

Designing a Survey

Identify factors that can bias responses on a survey and Recognize poor questions.

Interviewer Effects

If the survey is administered by an interviewer the interviewer herself influences participation and responses. (**Response Bias**)

Gender, race, religion, style of dress, accent, size, and nearly every other characteristic of the interviewer engenders some reaction in a respondent. The resulting reaction may affect how the respondent will respond.

A female interviewer and a male respondent may get more moderated responses about gender relations than if that same respondent is interviewed by a male interviewer.

Designing a Study

Identify factors that can bias responses on a survey and Recognize poor questions.

It is difficult to design an instrument for gathering information. Researchers do the best they can, but we must always be cognizant of the difficulties inherent in design and cautious when interpreting the results.

Bad information is certainly worse than no information, but decent information, even if flawed, is far more valuable than no information.