

**Definition**

**Researcher bias** occurs when a researcher influences the results of a study.

**Response bias** occurs when a researcher's behavior causes a participant to alter his or her response or when a participant gives an inaccurate response.

**Participation bias** occurs when there is a problem with the participation—or lack thereof—of those chosen for the study.

**Nonresponse bias** occurs when there is a lack of participation in a self-selected sample from certain segments of a population, when a person refuses to participate in a survey, or when a respondent omits questions when answering a survey.

**Consider the Conclusions**

In the end, it's the conclusions of the study that we should be most wise about. If we have a perfectly constructed, well-thought-out, unbiased study, we then want to make sure that our conclusions are actually correct. Do the data support the conclusion? Most often, the answer is yes, but why not make sure yourself? What if you read the following headline: "Most Americans Don't Like to See Pajamas Worn in the Grocery Store"? The results given to support the headline were: Of those who responded, 60% do not like to see it and 30% don't mind. What isn't stated is that 95% of the people surveyed couldn't be bothered to answer the question! (Not hard to imagine, is it?)

Here are some other things to consider: Do the results present the whole picture or just a part? Could there be other conclusions drawn? Could there be other reasons for the same conclusion drawn? Does the study have any practical applications? It's not that you should distrust all studies and results that you run across; it's that you should be an informed consumer of information and process critically what you read or hear through the news, journals, or any other outlet of information.

**1.4 Section Exercises****Vocabulary**

*Complete each statement.*

1. A \_\_\_\_\_ occurs when results from a study are tabulated incorrectly.
2. \_\_\_\_\_ occurs when the person administering the study influences the participants' responses.
3. \_\_\_\_\_ occurs when the results of a study tend to favor one outcome over another.
4. A participant who begins a study but fails to complete it is referred to as a \_\_\_\_\_.
5. A participant who does not fully comply with the instructions for a study is called a \_\_\_\_\_.
6. If participants are asked to answer survey questions in an uncomfortable setting, there is potential for \_\_\_\_\_ to occur.

**Considering the Variables**

*Respond thoughtfully to the following exercises.*

7. Consider the following science fair question: Does the quality of air get better with more rain? Name the variables indicated by this question, some different ways one might measure these variables, and some of the terms that need more precise definitions.
8. How would you measure the "Ten Best Colleges of the Midwest"? Name at least five distinct measurements.

9. How would you measure “quality of life”? What are some difficulties you might face?
10. Consider the magazine article that claims to know the “Best Vacation Spots in the World”. Name at least 5 variables that could be possible measurements. What issues are there in this claim?

### Considering the Setup

*Describe as many potential sources of bias as you can for the following studies.*

11. Star Crazy magazine wants to determine America’s favorite celebrities. A survey is placed inside each subscription for readers to fill out and mail in to the company.
12. A struggling retailer wishes to improve sales. Store employees are given the task of polling local residents regarding their opinions about the store as well as asking them to make suggestions for improvement.
13. A major television network wants to know what TV shows people in one state are watching most often. For the study, televisions in 350 households in the four largest cities are monitored for one week.
14. American Star is a hit TV show in which Americans are asked to decide who has enough talent to be a star. Each week viewers call in and vote for their favorite performers. The contestant with the fewest votes is eliminated from the show.

*Respond thoughtfully to the following exercises.*

15. The governor of Tennessee would like to know if Tennesseans want to move to a state income tax. Using Sections 1.3 and 1.4, construct a plan to gather the information you would need to answer the governor and explain how you would carry out the plan.
16. A study regarding physical fitness is being conducted on campus. The title of the study is “Are We Fit?” All exercise science majors are required to be a part of the study. Using Sections 1.3 and 1.4, construct a plan to gather the information you would need to answer the question of “Are We Fit” and explain how you would carry out the plan.