

Warm Up

Assume that you are a member of the Family Research Council and have become increasingly concerned about the drug use by professional sports players. You set up a plan and conduct a survey on how many people believe the American Culture (TV, movies, magazines, and popular music) influences illegal drug use. Your survey consists of 2250 adults and adolescents from around the country. A consumer group petitions you for more information about your survey. Describe how you would set up your survey (using the representative techniques we learned)



Wrong Ways to Sample

1-4(b)

BIAS

Sampling methods that tend to over or underemphasize some characteristics of the population are said to be biased.

Many of the most convenient forms of sampling can be seriously biased.

Wrong Ways to Sample

Voluntary response sample-a large group of individuals is invited to respond and all who do respond are counted.

Internet polls

Call in shows

Causes voluntary response bias because sample is not representative. People with a strong opinion would be more likely to respond.

Example 1

You're trying to find out what freshmen think of the food served on campus, and have thought of a variety of sampling methods, all time consuming. A friend suggests that you set up a "Tell us what you think" web site and invite freshmen to visit the site to complete a questionnaire. What's wrong with this idea?

Solution

Letting each freshman decide whether to participate makes this a voluntary response survey. Students who were dissatisfied might be more likely to go to the web site to record their complaints, and this could give me a biased view of the opinions of all freshmen.

Sample Badly, but conveniently

Convenience Sampling- Include the individuals who are convenient for us to sample.

Example 2: To try and gauge freshmen opinion about the food served on campus, Food services suggests that you just stand outside a school cafeteria at lunchtime and stop people to ask them questions. What's wrong with this sampling strategy?

Solution

This would be a convenience sample and its likely to be biased. I would miss people who use the cafeteria for dinner, but not for lunch, and I'd never hear from anyone who hates the food so much that they stopped coming to the school cafeteria.

Undercoverage

Some portion of the population is not sampled at all or has a smaller representation in the sample than it has in the population.

Example 3: Telephone surveys leave out people with no home phone and only cell phones, resulting in undercoverage.

Nonresponse Bias

Those who don't respond may differ from those who do respond and they may differ on the variables we care about.

Its impossible to tell what the nonrespondents might have said.

It is often better to design a smaller randomized survey for which you have the resources to ensure a high response rate.

Response Bias

Anything in a survey design that influences responses falls under the heading of response bias.

One typical response bias arises from the wording of questions, which may suggest a favored response.

Tendency of respondents to tailor their responses to try to please the interviewer based on wording of question and/or interviewer appearance.

Unwillingness of respondents to reveal personal facts or admit to illegal or unapproved behavior

Example 4

Asking the question “Are you going to vote for the candidate Jones even though the latest survey indicates that he will lose the election?” instead of “Are you going to vote for candidate Jones?”

Homework

Pg. 725 # 1-8

Follow the directions below, NOT in the textbook:

For problems 1-8, identify if there is bias present and if so, what type of bias? Rewrite the questions so that no bias is present.