

HW 1 - SAMPLING

NAME Ky

I. Identify whether the following situations are observational studies or experiments. EXPLAIN YOUR REASONING

1.) Some people who race greyhounds give the dogs large doses of vitamin C in the belief that the dogs will run faster. Investigators at the University of Florida tried three different diets in random order on each of five racing greyhounds. They were surprised to find that when the dogs ate high amounts of vitamin C, they ran more slowly.

experiment → they imposed a treatment then observed & made conclusions.

2.) A researcher asks college students how many hours of sleep they get on an average night and examines whether the number of hours of sleep affects students' grades.

observational study → they aren't trying to affect their sleep or grades

I. For each situation, identify the sampling technique used. EXPLAIN your answer.

4.) Every fifth person boarding a plane is searched thoroughly.

systematic "set rule"

5.) At a local community College, five math classes are randomly selected out of 20 and all of the students from each class are interviewed.

cluster

divide into groups, choose entire group

6.) A researcher randomly selects and interviews fifty male and fifty female teachers.

stratified

divide into groups, randomly select some from each

7.) A researcher for an airline interviews all of the passengers on five randomly selected flights.

cluster

divide into groups, choose entire group

8.) Based on 12,500 responses from 42,000 surveys sent to its alumni, a major university estimated that the annual salary of its alumni was \$92,500.

voluntary response

only got data from those who chose to respond

9.) A community college student interviews the first 100 students to enter the building to determine the percentage of students that own a car.

convenience

asking 1st 100 people who are close to him

10.) A market researcher randomly selects 200 drivers under 35 years of age and 100 drivers over 35 years of age.

stratified

divide into groups, randomly select some from each group

11.) To avoid working late, the quality control manager inspects the last 10 items produced that day.

Convenience

he doesn't want to work late so chooses ones most convenient for him

12.) The names of 70 contestants are written on 70 cards. The cards are placed in a bag, and three names are picked from the bag.

random

everyone has the same probability of being chosen

13.) To ensure customer satisfaction, every 35th phone call received by customer service will be monitored.

systematic

"set rule"

II. For the following examples, determine whether the question is potentially biased. Explain your answer.

14.) Question: What is your favorite sport? Sample is chosen from people attending a soccer game.

BIASED. People at a soccer game probably like soccer!

15.) Question: What is your favorite soft drink? Sample is chosen by picking names out of a telephone book.

POTENTIALLY BIASED. Many people are not listed in the phone book.

16.) Don't you agree that the voting age should be lowered to 16 because many 16-year olds are responsible and informed?

BIASED.

Researcher's opinion is clear & trying to influence response.

17.) Do you think the city should risk an increase in pollution by allowing expansion of the Northern Industrial Park?

POTENTIALLY BIASED. Most people don't want to increase pollution, but may want a park. Wording of question could influence responses.

18.) In a survey about Americans' interest in basketball, the first 25 people admitted to a high school basketball game were asked, "How interested are you in the world's most popular sport, basketball?"

BIASED.

Researcher's opinion is clear, people may have different concepts of levels of interest, everyone is attending a basketball game.

19.) Don't you agree that the school needs a new baseball field more than a new science lab?

BIASED.

Researcher is attempting to influence response.