

GUIDED NOTES: Data Collection

There are three ways to collect data:

1. Surveys - involve the use of a questionnaire to measure the characteristics and/or attitudes of people
2. Observational Study - Individuals are observed and certain outcomes are measured, but no attempt is made to affect the outcome
3. Experiment - treatments are imposed prior to observation, only way to show a cause-and-effect relationship

Experiment or Observational Study?

EX1. Fifty people with clinical depression were divided into two groups. Over a 6 month period, one group was given a traditional treatment for depression while the other group was given a new drug. The people were evaluated at the end of the period to determine whether their depression had improved.

Experiment

EX2. To determine whether or not apples really do keep the doctor away, forty patients at a doctor's office were asked to report how often they came to the doctor and the number of apples they had eaten recently.

observational study (survey)

EX3. To determine whether music really helped students' scores on a test, a teacher who taught two U. S. History classes played classical music during testing for one class and played no music during testing for the other class.

Experiment

→ treatment: playing music

GUIDED NOTES: Sampling Techniques

Simple Random Sample - all individuals in the population have the same probability of being selected AND all groups of the sample size have the same probability of being selected

Systematic Sample (Pattern) - the researcher selects a number at random, n , and then selects every n th individual for the study.

Stratified Sample - the researcher divides the entire target population into different subgroups, or strata, and then randomly selects the final subjects proportionally from the different strata. (some from each group)

Cluster sample - a sampling technique where the entire population is divided into groups, or clusters, and a random sample of these clusters are selected. All individuals in the selected clusters are included in the sample. (All in same group)

Convenience Sample - subjects are taken from a group that is conveniently accessible to a researcher, for example, picking the first 100 people to enter the movies on Friday night.

Voluntary Response Sample - when people are self-selected volunteers into the sample. (mail-in or call-in)

Name the Sampling Technique

EX1. The names of 70 contestants are written on 70 cards, the cards are placed in a bag, the bag is shaken, and three names are picked from the bag.

Simple random

EX2. To avoid working late, the quality control manager inspects the last 10 items produced that day.

convenience

EX3. A researcher for an airline interviews all of the passengers on five randomly selected flights.

Cluster (All passengers)

EX4. A researcher randomly selects and interviews fifty male and fifty female teachers.

Stratified (some from each)

EX5. Every fifth person boarding a plane is searched thoroughly.

Systematic