

Chapter 6 SAMPLING

Fraenkel & Wallen

Prof. Dr. Sabri Koç

SAMPLING

- What is a sample?
- Samples and populations
- Defining the population
- Target vs accessible populations
- Random vs nonrandom sampling
- Random sampling methods
- Nonrandom sampling methods
- Sample size
- External validity

What is a sample?

- The term *sampling*, as used in research, refers to the process of selecting individuals who will participate in a research study.
- A *sample* is any part of a population of individuals on whom information is obtained.

Samples and Populations

- The term **population**, as used in research, refers to all the members of a particular group. It is the group of interest to the researcher, the group to whom the researcher would like to generalize the results of the study.
- A **target population** is the actual population to whom the researcher would like to generalize; the **accessible population** is the population to whom the researcher is entitled to generalize.
- A **representative sample** is a sample that is similar to the population on all characteristics.

Samples and Populations

- A **sample** in research study is the group on which information is obtained. The larger group to which one hopes to apply the results is called the **population**.

For example: All **320** students at EMU ELT Department majoring in ELT constitute **a population**,

50 of those students constitute **a sample**.

Defining the population

- The first task in selecting a sample is to **define** the **population** of interest. The **population**, in other words, is the group of interest to the researcher to whom he/she would like to generalize the results of the study. For example:
 - All students attending the EPS
 - All EMU students
 - All secondary school principals in TRNC
 - All English language teachers at EMU

Defining the population

- The actual population called the ***target population*** to whom the researcher would like to generalize is rarely available.
- The population to which a researcher is **able** to generalize is the ***accessible population***. The first choice is **ideal choice**, the second choice is the researcher's **realistic choice**.

Defining the population

- Ex: Research problem to be investigated:
The effects of computer-assisted instruction on the reading achievement of freshmen at universities in TRNC.
- ***Target population:*** All freshmen at universities in TRNC
- ***Accessible population:*** All freshmen at EMU
- ***Sample:*** Ten percent of freshmen at EMU

Random vs Nonrandom Sampling

- Sampling may be either random or nonrandom. Random sampling methods include:
 - Simple random sampling (see table of random numbers)
 - Stratified random sampling
 - Cluster random sampling
 - Two-stage random sampling

Random Sampling

- A **simple random sampling** is one in which every member of the population has an equal and independent chance of being selected. (Example: Using a table of random numbers.)
- **Stratified random sampling** is a process in which certain groups contain subgroups, or strata, are selected in the same proportion as they exist in the population.

Random Sampling

- **Two-stage random sampling** combines cluster random sampling and simple random sampling.
- Rather than selecting 100 students from 3000 students of ninth-graders located in 100 classes,
- **Stage 1:** Select 25 classes randomly from 100 classes
- **Stage 2:** Select 4 students from each class

This method is less time consuming than visiting most of the 100 classes.

Nonrandom Sampling

- **Nonrandom sampling methods** include:
 - Systematic sampling
 - Convenience sampling
 - Purposive sampling

Nonrandom Sampling

- **Systematic sampling:** In systematic sampling every n th individual in the population list is selected for inclusion in the sample.
- A **random start** (starting with n th individual)
- The **sampling interval** (distance in the list between each of the individuals selected for the sample)
- The **sampling ratio**
(population size/desired sample size) $5000/500 = .10$
or 10 percent
- **Periodicity** (If the population has been ordered systematically, it may lead to a markedly **biased sample**)

Nonrandom Sampling

- **Convenience sampling:** A **convenience sample** is a group of individuals who (conveniently) are available for the study.
- In general, convenience samples cannot be considered representative of any population and should be avoided if possible. The study should be replicated with a number of similar samples to decrease the likelihood that the results obtained were simply a one-time occurrence.

Nonrandom Sampling

- **Purposive sampling:** On occasion, based on previous knowledge of population and the specific purpose of the research, investigators use personal judgment to select a sample.
- See pp. 439-440 of the course book for types of purposive sampling in qualitative research.