Participants Sampling

Selecting Participants

- you want your sample to be representative of your population
  - Ex: College population
  - What characteristics of participants would be needed to be representative of a college student population?

Populations & Samples

- a **population** is the entire set of individuals of interest
  - if you are interested in CPP students, your population is CPP students only
  - this does not include faculty or admin, if it did, it would only be a sample
- a **sample** is then a set of individuals from a population of interest
  - it should represent the population
  - if we are interested in everyone from CPP but sample students, is this representative?

Populations & Samples

- a **target population** is a specific population that a researcher may be interested in
  - minors –> adolescents who engage in substances
- an **accessible population** is the population that researchers are able to recruit from
  - adolescents who engage in substances from all community centers in the city of Pomona

Representative Samples

- **representativeness** of a sample is the extent that your sample actually represents a population of interest
- **representative sample** is what every researcher desires
  - the students that you recruit for your projects should be representative of the student body at CPP
  - is this actually going to happen?

Representative Samples

- **biased sample** is a sample that does not represent the population of interest
  - If you want responses from everyone at CPP, then you have to get a sample that is representative of every group on campus
    - in theory, this may be a population that is not accessible
    - this is why it is important to report the demographics of your sample
    - although you're sampling from SONA, are all of your participants Psychology students?
    - the more demographic questions you ask the better understanding you'll have of your sample

Representative Samples

- **selection bias** or also referred to as **sampling bias**
  - you all will fall victim to selection bias since you can only select certain students
  - since you are using convenience sampling, you will not get a sample that is generalizable, even to CPP students
    - Why is that?
- **law of large numbers** is the principle that once you have a large enough sample, you are more likely to have a sample that is representative of the population of interest
  - not always the case
    - 5000 adult participants from Southern California may *barely* be representative of the state of California

Sampling Basics

- **sampling** is the process of selecting participants
  - there are several different ways of choosing participants
- s**ampling methods** (sampling techniques or sampling procedures) can be broken down into probability sampling and nonprobability sampling techniques

Sampling Basics

- **probability sampling**, the ***odds*** of selecting a single participant are known and can be calculated
  - instead of odds, the likelihood of being picked (better language)
  - you have the size of the population to calculate the probability of being chosen
  - each participant should have an equal amount of being chosen
  - when a group of individuals are assigned the same probability, the selection must be unbiased and must be from a **random process**

Sampling Basics

- **nonprobability sampling** is the likelihood of selecting a participant are not known because you don't know the size of the population to get a probability calculation
  - these sampling techniques are easier

Importance of Sampling

- 1936 Election Results
  - Alfred Landon vs Franklin D. Roosevelt
- Predictions were 57% to 43% in favor of Landon
  - reality was that FDR won 62% to 38%
- Does anyone know why there was so much sampling error?

Importance of Sampling

- selection bias
  - sampling recruitment used potentially easier options to recruit
    - telephone directories, club membership lists, magazine subscriber lists
  - during the great depression
    - excluded working-class income brackets
- nonresponse bias
  - those that respond to surveys are different from the actual population
    - there are those that are not willing to take part in the survey
    - example of low response rates

Probability Sampling Methods

Simple Random Sampling

- **simple random sampling** is the method of choosing a participant where everyone has an equal chance of being chosen
- to conduct simple random sampling, you need to
  - clearly define a population of interest
  - list all members of population
  - use random process to select participants
- An example would be to have a coin toss where every individual has an equal chance of being selected for a study
  - random number generator for participants

Simple Random Sampling

- Two principal methods of random sampling
  - **sampling with replacement**
    - you sample participants and then they return to the population; can be in the sample more than once
  - **sampling without replacement**
    - once a participant is sampled, they are removed from the population
- because populations tend to be large, either will result in the same theoretical sample
  - the chance of choosing the same participant again out of thousands would be rare

Systematic Sampling

- **systematic sampling** is similar to simple random sampling
  - you randomize participants, make a list, and choose participants systematically
    - from your list, you choose the 7th participant
    - can choose a random starting point also

Stratified Random Sampling

- **stratified random sampling** takes simple random sampling a step further
  - when you want to have a representative sample, you may want a sample that looks like demographics of your population of interest
  - using this technique, you separate your complete population into smaller subgroups
  - conduct simple random sampling with these smaller subgroups
    - all CPP students –> equal representation from all majors
    - randomly sample from each major
  - every group will be represented
  - can become an issue when you may be over-representing some groups

Proportionate Stratified Random Sampling

- **proportionate stratified random sampling** still separates into smaller groups
  - get the proportion of the full population
    - adjust for the proportions of your specific subgroups to more accurately represent the population
  - also referred to as **proportionate random sampling**

Cluster Sampling

- **cluster sampling** is using the clustering of individuals in a population to preexisting groups
  - you are interested in participants from student organizations
    - you then can randomly sample from those clusters
  - students in classrooms
  - students in schools
  - students from different districts
- quick and easy way to obtain a large sample
- measurement can be done in groups, if you are testing students in classrooms, you can then provide a survey or conduct an experiment using the whole class rather than one-on-one
- issue of independence between scores
  - are students within their own classrooms all that different from one another

Nonprobability Sampling Methods

Convenience Sampling

- **convenience sampling** is exactly what it sounds like
  - you're trying to get any participant that is willing to take your study
    - based on availability
    - not very representative and potentially biased because those that participate may be more likely to take a survey at any time
- used often
- be clear on what your sample looks like and note the limitations of your sampling
  - for your projects, you'll state you have mainly Psychology students from selected classes

Quota Sampling

- **quota sampling** is a nonprobability sampling technique similar to that of stratified sampling
  - once you reach a quota of a subgroup, you start putting more effort into recruiting for other subgroups
  - Ex: age representation at CPP
    - you may start looking for any potential participant
    - once you have a sufficient amount of 18-25 year olds
    - you start to look for participants that are 26-30, and 31-40, and 40+ until you get the number of participants you want
  - you can also state that because you have a college sample, you'll most likely get students representative of a college population
    - majority 18-25 and the minority of 26+

Snowball Sampling

- convenience sampling with additional steps
  - you get your participants that want to participate
    - then you ask them to recruit 2-3 participants
    - or special characteristics of who they recruit (e.g., parents, partners, etc.)

Sample Questions

- age
- sex
- major
- class standing
- sexual orientation (if interested in this)
- race/ethnicity
- languages known
- specifics relating to your study
  - generational status
  - birthplace of parents
  - country of origin
  - first language learned