

# Survey Design



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  - By Arlene Fink
- Survey Design and Sampling Procedures
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## What is a survey?

- A system for collecting information:
  - From or about people
  - Describe, compare or explain/predict
  - Knowledge, attitudes, behaviors or characteristics



## Seven Steps of Surveys

- Setting objectives
- Designing the study
- Composing a reliable and valid instrument
- Administering the survey
- Preparing the data
- Data analysis
- Reporting the results



## Setting Objectives

- Be specific
- Questions determined by objectives
- Define all imprecise or ambiguous terms
- Which questions address each objective?
- May be stated as:
  - Research questions
  - Null hypotheses
  - Research (alternative) hypotheses



## Where do objectives come from?

- Defined needs
- Literature review
- Focus groups
- Consensus panels

## Sound Choice of Population and Sampling Scheme

- Define the reference population
- Define the sampling scheme
  - Probability sample vs. nonprobability sample
  - Random assignment to groups
  - Consider likely response rate
    - Unsolicited surveys may be as low as 20% after 1 mailing
    - There are techniques to improve response rates

## Power and Sample Size

- An underpowered trial is unlikely to demonstrate a difference and may ultimately be considered of little or no value.
- Sample Size: an educated wild guess vs. a wild guess.
- Generally the sample size estimate I give you will be larger than you are able to obtain.

## Types of Survey Instruments

- Self-administered questionnaires
  - Mailed, emailed, or completed in person
  - Paper or electronic format
- Interviews
  - Telephone, face-to-face, video-conferencing
- Structured record reviews
  - Specially created form
  - Gathers data from written records (e.g. medical records, court records)
- Structured observations

## Validity and Reliability

- Validity: Does the instrument measure what you think it measures?
- Reliability: If I used the instrument again would I get the same score?

## Some Ideas for Increasing Response Rate

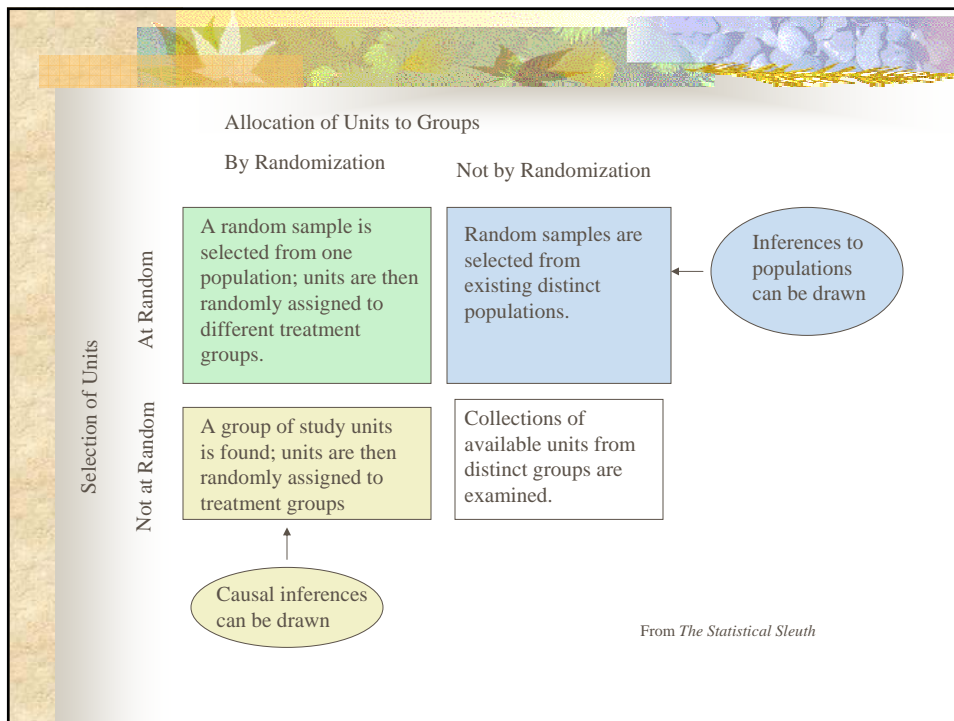
- Use a population that is fairly interested in the topic.
- Assure anonymity
- Follow up nonrespondents (Dillman's total design or tailored design method)
- Keep the survey as short and straightforward as possible.
- Provide gift or cash incentives.

## Survey Design

- Experimental
  - Comparison of two or more groups (at least a treatment and a control)
    - Concurrent, randomly assigned
    - Concurrent, not randomly assigned
  - Self-controls
    - One group surveyed twice
  - Historical controls
  - Combinations (e.g. concurrent controls with pre and post measures)

# Survey Design

- Descriptive or observational designs
  - Information on groups that already exist
  - No new groups created
  - Cross-sectional vs. longitudinal or time-series
  - Cohorts
    - Prospective
    - Provide changes in specific populations across time.
  - Case Controls
    - Retrospective
    - At least two groups



## Survey Plan

- Objective: What is the purpose of the survey?
- What is the reference population?
- Sample:
  - How will you draw the sample? (Probability sampling vs. nonprobability sampling)
  - What is the appropriate sample size?
  - Consider the expected response rate
- How will the survey be administered?
- How long do you expect the survey to take?
- Resources required/ privacy concerns.

## Contact me at any stage!

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- Make an appointment and we can talk through any of these issues.
- Office of Research: a resource for you.
  - <http://www.isu.edu/research/>