Considering Your Sample

This project is made possible by a grant from the U.S. Institute of Museum and Library Services.
Total Population

• Total of all cases that conform to a prespecified criterion
• Could be used:
  – When population is small enough to survey all
  – When diversity of population makes sampling undesirable
• Otherwise used to draw the sample from
Sampling

- A selection from the total population
- Sampling is necessary with large populations
- Need a *sampling frame* (a list of “units” within the sample), a source of data from which sample can be drawn
- Consider relationship between sampling frame and population
- Identify biases when evaluating results
  - Include those biases in published conclusions/limitations
Considering Your Sample

Populations & Sampling
Types of Sampling
Sample Size
Response Rates
Sampling

Two major types of sampling
• Random/probability
• Non-random/non-probability

Random Sampling

• Participants are representative of all the characteristics of population as a whole

• Every member of the population has an equal, non-zero and calculable probability of being included in the assessment

• Ensure that actual respondents to an assessment are a random sample of population
  - Some sections of the population are often found to be more likely to respond (introduces bias)

Random Sampling Methods

- Assign every member a number, then select random numbers until you reach your desired sample (use formula or random number table).
- **Systematic sampling**: start anywhere in a member list, then choose every $n$th entry until you reach your desired sample. This is not random unless the list itself is in random order.
- **Stratified random sampling**: divide the population into groups, such as by age or gender, then choose random members of each group
  - Proportionate (same percentage from each group) or disproportionate (same number from each group)
- **Cluster sampling**: divide population into clusters or groups and then drawing a sample from each cluster
  - Often used when sample frame is unavailable

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Non-Random Sampling

• Used when representativeness may not be key issue
  – Qualitative data, etc.

• Judgment is used to select respondents who are likely to have information needed
Non-Random Sampling Methods

• Convenience/accidental/haphazard/availability sampling: people are selected because they are available (e.g., stopped and asked to participate without any attempt to define their characteristics)

• Quota sampling: an assessment practitioner decides or is told how many people with specific characteristics to sample
  – example: ten men and ten women
  – example: equal numbers of undergrad students from various departments

• Purposive sampling: an assessment practitioner deliberately select respondents based on advance knowledge of their characteristics

Non-Random Sampling Methods

• Snowball sampling: ask participants to suggest others who may be willing to be participate
  – Useful when it’s difficult to identify most appropriate members of a population

• Self-selected sampling: individuals select themselves (volunteer) for inclusion

• Incomplete sampling:
  – individuals do not participate or complete the study
  – individuals are selected from a sample frame that was incomplete

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• In general, the larger the sample, the more likely it is to be representative of the population as a whole.
  – But often there are time and resource restraints

• One important consideration is whether you are looking for a sample with statistically significant results.
  – Often, the goal is to reach a 95% confidence level
    • 95% chance that the results are as accurate within x% of what would have been found if the whole population had been surveyed
    • The value of x, the confidence interval, is calculated from the sample size and response variation

• Sample size tables (e.g., Krejcie and Morgan) are helpful tools.

Sample Size Methods

• Consider how many participants are needed to ensure that a small number of outlier individuals won’t skew the results

• One general rule is to use about 15 participants per variable (gender, age ranges), but other designs require 30 minimum or 100 minimum for surveys (see Borg and Gall, 1979; Krejcie and Morgan, 1970)

• Increase to allow for non-respondents

• Remember to pilot (i.e., test 5 to start with, improve the design and re-test 5, and repeat the process, rather than test 15 at once)
Sample Sizes & Qualitative Research

• Purpose is to gather deep, complex, rich data in order to understand (not generalize)

• How do you know when you have enough?
  – Saturation (no new responses or nuances are uncovered)
  – Purpose of the sample (may change from the initial selection of a “first sample” and evolve from the first set)
    • Maximum variety of perspectives
    • Extreme experience of study concept
    • Intense (ongoing, multiple occasions) of study concepts
    • Snowball (initial participants lead researchers to others with shared characteristics, experiences, etc.)

• The type of study undertaken affects the sample size needed.
Considering Your Sample

- Populations & Sampling
- Types of Sampling
- Sample Size
- Response Rates
Response Rates

• Response rates tend to be low.
  - Poor communication/distribution
  - Library anxiety
  - Survey/question fatigue
  - Inequitable/unreasonable expectations of labor
  - Lack of confidence in resulting action

• If the response rate is low, are the respondents representative of the population as a whole?
  - If not, how has this introduced bias into the results?
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