

Survey Research Centre

An Introduction to Survey Research

Outline

- Introduction to the SRC
- Beginning with data
- Two design choices: cross-sectional survey and experiments
- Coffee break
- Best practices
- Your work

The Survey Research Centre

- Our mandate:

to support research on campus conducted by students, faculty and administration, and in the larger community, through consultation, courses and seminars

www.src.uwaterloo.ca

The Survey Research Centre

- Our staff:
 - Co-Directors Professor Mary Thompson, Statistics and Professor John Goyder, Sociology
 - Office manager Fiona Heath
 - Special projects manager Kathleen McSpurren
 - Call centre supervisor Lindsey Skromeda



Services

- Survey methodology
- Ethics applications
- Sampling
- Questionnaire design
- Data collection
- Data analysis/ Reporting



Survey Methodology

- Research approach
 - Telephone, mail, web or combination methods
- Response rates
 - Incentives
 - Pre-contact efforts
 - Follow-ups/reminders
- Other design types: experimental, validation, evaluation

Ethics Applications

- Ethical issues
- Review process advice
- Completion of ethics submission
- Standard scripting

Sampling

- Sampling frames
- Power calculations
- Types of sampling
 - Simple
 - Stratified
 - Systematic
 - Cluster

Questionnaire Design

- Questionnaire consultation
 - Flow
 - Wording
 - Open versus closed questions
 - Scale construction

Data Collection

- Quality
- Format
- Verification
- Goals of study

Data Analysis and Reporting

- Top line analysis
- Sub-group analysis
- Tables
- Interpretation
- Graphical representations

Recent Projects

- Best Practices in Problem Gambling Measurement
- Ontario Tobacco Research
- Wind Energy in Waterloo Region
- Referral Wait-times for Optometric Conditions
- Undergraduate Program Evaluation in Math Faculty
- First Year Engineering Students Survey
- St Jerome's Alumni Survey
- Workplace Safety for Teens
- Walkable Communities

Statistics Consulting Service

The Statistical Consulting Service at the University of Waterloo is the unit through which the Department of Statistics and Actuarial Science provides statistical advice to those working on research problems.

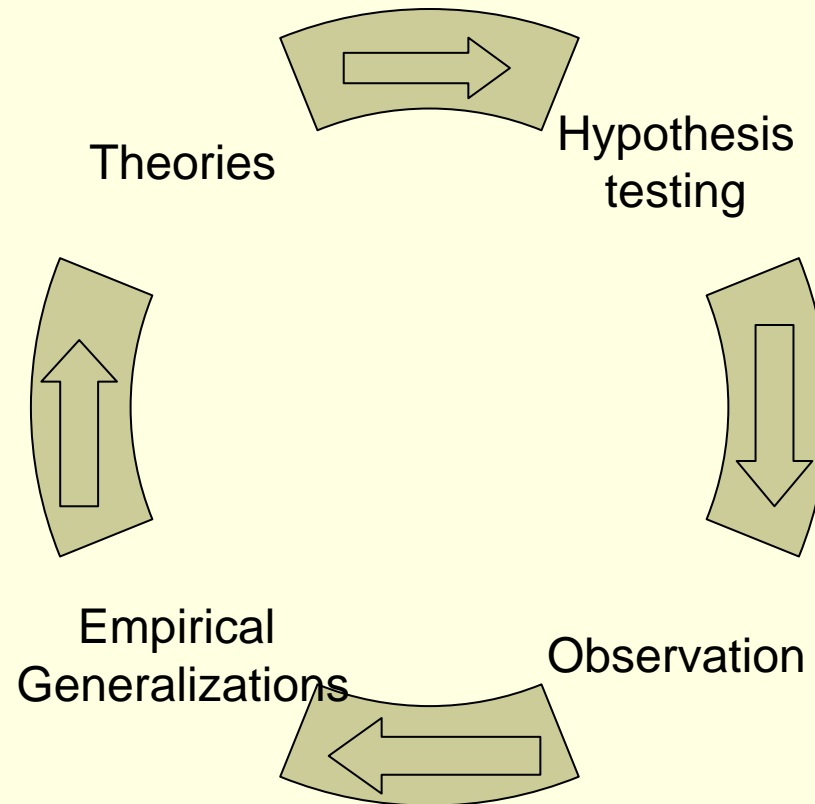
The faculty and staff associated with the Consulting Service will be pleased to help with:

- Designing experiments, surveys, and other studies
- Monitoring intermediate stages of long-term projects
- Analyzing data, and interpreting results
- Using statistical software packages such as SAS, or SPSS
- Contacting an expert in the particular area of statistics or mathematics which you wish to use
- Arranging a presentation on a statistical topic.

http://www.stats.uwaterloo.ca/stats_navigation/Consulting/StatConsulting.shtml

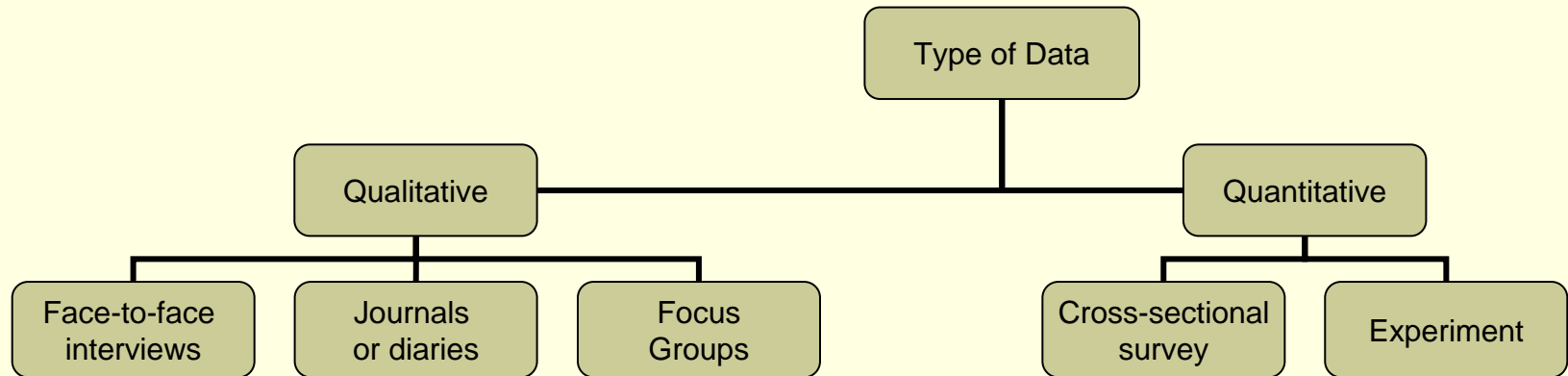


Research Process





Research Design Choices





Data

Qualitative

- Descriptive
- Detailed
- Idiographic
- Emerging themes or concepts

Quantitative

- Descriptive
- Concise
- Nomothetic
- Levels of measurement
- Counts/statistics



Data Analysis

When data is collected, what will be your plan?

- Qualitative data plan
 - Emergence of themes
 - Count incidences
 - Examine or describe sub-groups
- Quantitative data plan
 - Cross-tabular tables of demographics by each question
 - Comparing means (scales can be treated as means) across different groups or times
 - Multivariate models

Research Design Choices

What factors influence decisions about design?

- Purpose
- Scope
- Timing
- Cost
- Access to resources



Cross-sectional Survey

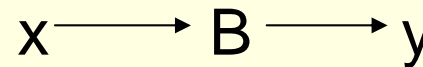
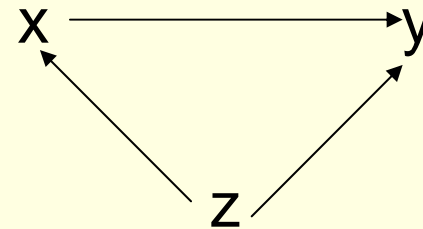
- One-time snapshot of attitudes
 - Standardized question formats
 - Self-reporting is possible
 - Effective with large groups
-
- Course evaluations as example



Experimental design

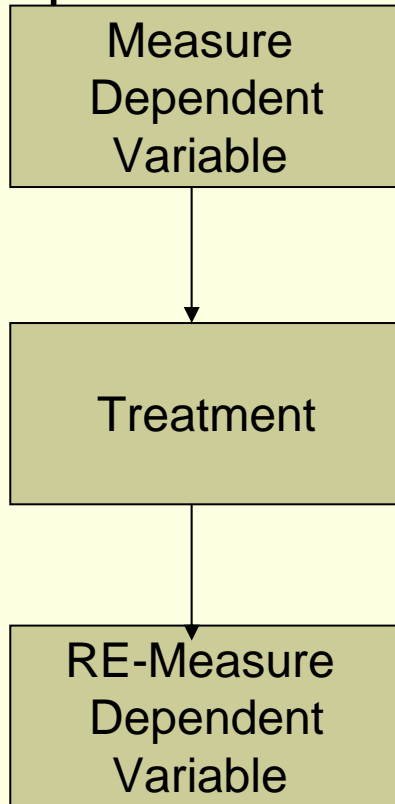
Demonstrating causality:

1. Correlation
2. Temporal order
3. Non-spuriousness

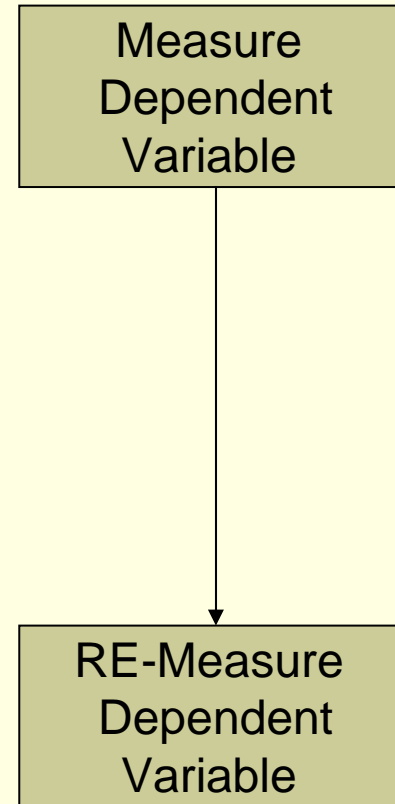


Experimental Model

Experimental Group



Control Group





Validity of Experiments

Threats to internal validity:

1. History
2. Maturation
3. Testing
4. Instrumentation
5. Statistical regression
6. Mortality
7. Diffusion or cross-pollination
8. Compensation
9. Rivalry or demoralization



Best Practices

Four types of error in surveys (Dillman, 1999)

- Sampling
- Coverage
- Measurement
- Non-response



Sampling Error

- Must have random selection to assess – error is random
- Can calculate this very precisely
- If you have low incidence in population, need large sample
- If population is small, N can be small



Coverage Error

- Zero chance of selection
- Multiple chances of selection
- Differing characteristics of included/excluded members
- Error is not random, but systematic



Measurement Error

- Reliability
 - Test-retest
 - Inter-rater
 - Inter-item
- Validity
 - Content
 - Face



Non-response Error

- Response rates declining
- Bias from lack of responses from selected individuals
- Random selection from frame should help
- Correct by comparison?



Maximizing Response

- Pre-contact
- Promotion
- Multiple contacts
- Personalized contact
- Multiple modes of contact
- Incentives



Questionnaires

Basic Dos and Don'ts

- avoid double-barreled questions
- respondent must be competent to answer
- questions should be relevant
- short items are best
- avoid negative items or statements
- avoid biased items and terms



Questionnaires

- avoid slang, jargon, and technical terms
- use very clear definitions when using complex concepts
- develop consistent response methods or scales
- use impersonal questions
- avoid biasing later responses
- develop exhaustive and mutually exclusive response categories

Questionnaires

- move from the general to the specific
- group questions by theme
- create an attractive and professional questionnaire format

Scales

- Labeling
 - Length of scale
 - Balance of scale
 - Labels on all points
 - Labels on extremes only
 - Labels on midpoint
- Layout
 - Vertical
 - Horizontal
 - Linear or not



Providing Instructions

- Numbers
- Don't know option
- Open text boxes



Look and Feel

- Font choice? San serif recommended
- Style of font to suit subject
- Avoid distractions not adding to survey
- Emphasis? Avoid using too much