

## Surveys & Sampling

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## Overview

- Surveys in the context of a research question
- Question & survey design
- Survey administration
- Pretesting
- Sampling
  - Sampling procedure
  - Response rate
  - Sample size
- Analysis & Reporting

## Readings

- Prescribed
  - Zikmund, W. (2000). Questionnaire Design. (chapter 15). In Business Research Methods (6th edition). Orlando: Dryden Press.
  - Visser, P. S., Krosnick, J. A., & Lavrakas, P. (2000). Survey Research. In H. T. Reis & C. M. Judd (Eds.), Handbook of Research Methods in Social Psychology (pp. 223-252). New York: Cambridge University Press.
- Further reading
  - Dillman, D. (2000) Mail and Internet Surveys. The Tailored Design Method. New York: Wiley.
  - Lindell, M., & Whitney, D. (2001). Accounting for common method variance in cross-sectional research designs. *Journal of Applied Psychology*, 86, pp. 114-121.
  - Podsakoff, P., MacKenzie, S., Podsakoff, N., & Lee, J. (2003). Common method bias in behavioural research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88, pp. 879-903.
  - Roberson, M., & Sundstrom, E. (1990). Questionnaire design, return rates and response favourableness in an employee attitude questionnaire. *Journal of Applied Psychology*, 75, pp. 354-357.
  - Sekaran, U. (1992) Research Methods for Business, 2nd edition, New York: John Wiley and Sons, pp. 223-257.
  - Schmitt, N., & Klimoski, R. (1991). Chapter 10 in Research Methods in Human Resources Management. Cincinnati: South-Western Publishing Co.
  - Zikmund, W. (2000). Chapters 13 & 16 in Business Research Methods (6th edition). Orlando: Dryden Press.

## What is a survey

- Visser et al define it as the administration of a questionnaire to a defined population.
- Elements
  - Type of data collection (questions)
  - Interest in generalisation (to a defined population)

## Research Process

- Define Research Question
- Assess Data Needs
- Design study
- Collect Data
- Analyse Data
- Draw Conclusions about research

Is a survey the right tool for the job?

## Types of Data Collection

- Distinctions
  - Primary versus secondary
  - Qualitative versus quantitative
  - Exploratory versus descriptive versus causal
  - Cross-sectional versus repeated cross-sectional versus panel data (longitudinal)
- Where do surveys fit into these distinctions?
- What role, if any, do surveys play in your thesis?
  - Pros & Cons versus other methods of acquiring answers

### Knowing what we want to measure

- Defining constructs
- Defining variables of interest
- Useful sources
  - Focus groups
  - Qualitative interviews
  - Observation
  - Discussion with experts
  - Reading the literature
- Example 1: Job Characteristics Model

### Question Types

- Attitude versus factual/behavioural
- Assuming participant has knowledge versus testing participant's knowledge
- Open ended versus closed ended
  - Open ended
    - coding
  - Closed ended
    - Ordered versus unordered categories

### Some Questions to critique

- Do you like eating chocolate bars at dinner time?
  - [ yes ; no ]
- Are you keen to do a good job on your thesis and finish on time?
  - [ yes ; no ; don't know ]
- What kind of films are your favourite (e.g., action, comedy, drama, etc.)?
- \_\_\_\_\_
- The Police Force is doing a good job of managing crime in my area? (Disagree – Agree)
- From IPIP (on scale: 1=Very Inaccurate; 2=Moderately Inaccurate; 3=Neither Accurate nor Inaccurate; 4=Moderately Accurate; 5=Very Accurate)
  - I am not easily bothered by things.
  - I do not have a good imagination.
  - I talk to a lot of different people at parties.

### Item Writing Recommendations

- Recommendations
  - Be specific
  - Use simple language, considerate of the audience
  - Keep questions short
  - Avoid double-barrelled question
  - Avoid ambiguity
  - Avoid leading questions
  - Avoid loaded / unbalanced questions
  - Avoid making assumptions
    - Inappropriately assuming knowledge, opinions, or behaviour
  - Avoid negatives and particularly double-negatives
  - Question can be answered / it applies to the respondent
- Useful to have a checklist
- Scientific literature can assist in refining our understanding of recommendations

### Response options

- Types
  - Open versus closed-ended
  - Ordered versus unordered
- Recommendations
  - Comprehensive and mutually exclusive categories
  - Don't know / No opinion / not applicable / neutral
    - The many facets of attitude/belief strength
  - Avoid vague quantifiers (e.g., sometimes, often, usually)
  - Use equal numbers of positive and negative categories for scalar questions (Dillman)
- Example 2: Sample questions

### Sensitive Questions

- Social desirability
  - Deliberate and unconscious distortion
- Inappropriate topics
  - E.g., Sexuality, religion, bodily functions, income, etc.
- Concern with breach of confidentiality
- Should you include them?
- If they are necessary, how can reliability and validity be maximised?

### Cognitive model of item response

- Tourangeau, Rips & Rasinski (2000)
  - Comprehension
  - Retrieval
  - Judgment
  - Response
- Survey response styles
  - Satisficing versus optimising (Krosnick & Alwin, 1987)
  - Computing versus retrieval (Strack & Martin, 1987)

### Question Sequencing

- Order effects
- Some recommendations
  - Randomise where order effects may be a concern
  - Save sensitive questions to the middle or end

### Skipping & Branching Logic

- Whether question is asked depends on previous questions
- Useful for ensuring only relevant questions are asked
- Easy with computers, internet, CATI scripts, etc.
- Important to check
- Makes survey design & analysis slightly more difficult
- Example
  - Have you seen the movie "The Dark Knight"? [YES, NO]
  - If YES → How would you rate this movie on a zero to ten scale? \_\_\_\_

### Delivery Format

- Face-to-Face
- Mail / Paper & pencil
- Telephone
- Online
- Pros & Cons
  - Cost
  - Response Rate
  - Accessing sample
  - Question formats that are allowed
  - Implications for sensitive questions / honesty

### Online Surveys

- Preventing duplicates
- Excluding non-serious responders
  - Item/survey completion time can be useful
- Data security

### Pre-testing

- Conventional Pretesting
- Behavioural Pretesting
- Cognitive Interviews
- Things to Test (Converse & Presser, 1988)
  - Question properties: Variation; Meaning; Task difficulty; respondent interest
  - Survey properties: flow; question order; skip patterns; duration; respondent interest; respondent well-being

## Sampling

- Population
- Sample Frame
- Obtained Sample
- Census versus sample
- Examples
  - National survey
  - Census survey of particular group (class; school; organisation)
  - Theoretical research

## Sampling Methods

- Probability sampling
  - Simple random sampling
  - Systematic sampling
- Nonprobability sampling
  - Convenience/haphazard sampling
  - Snowball sampling
- Quota sampling
- Stratified sampling
- Survey Weighting

## Sample Size

- Desired accuracy of parameter
  - Whole samples
  - Sub-group analyses
  - Needs of particular analyses
    - e.g., correlations, SEM, regression, etc.
- Pragmatic/cost considerations
- Guidance
  - Rules of thumb from experts
  - Power Analysis
    - GPower 3 (<http://www.psych.uni-duesseldorf.de/abteilungen/aap/gpower3>)

## Standard error of percentages

$$s_{\bar{x}} = \frac{s}{\sqrt{n}} \quad s = \sqrt{p(1-p)} \quad s_{\bar{x}} = \sqrt{\frac{p(1-p)}{n}}$$

- $p$ : Percentage is just the mean of a variable where 0 equals no and 1 equals yes
- Standard deviation of binary variable is a function of its mean
- Multiply standard error by  $\pm 1.96$  to get 95% confidence intervals

## Response Rate

- Non-response
- Non-response error
- Response Rate
  - Many types of non-response
    - Never received notification (blocked by spam filter; changed address; not home when called)
    - Started completing survey, but dropped out
- Maximising response rate
  - Dillman (1978)
    - Minimise perceived costs of responding
    - Maximise perceived benefits of responding
    - Establish trust

## Maximising Response Rate

- Consider pre-survey notification
- Make it easy to reply/complete
- Send reminders
- Consider offering incentives
  - Money, feedback, potential prizes,
- Good survey design
  - Good question design
  - Consider allowing skipping of sensitive items
- Make the survey topic appear interesting
  - Motivating concise cover letter / introductory spiel
- Appear professional & reputable
- If you are collecting data from people, how are you planning to maximise your response rate?

## Analysis

- Important when designing a survey and sampling procedure to think about how you are going to analyse the data
- Data cleaning
- Most common tools
  - Frequencies & percentages
  - Cross-tabulations
  - Means
- But of course, there's many more tools
  - Correlations, Regression, SEM, multilevel modelling, longitudinal modelling

## Ethics

- Three big issues
  - Informed Consent
  - Confidentiality / Anonymity
  - Respondent well-being

## Reporting

- Different settings call for different approaches
  - Research
  - Consulting
- Meaningful metrics to report consumer
  - Percentages? Means?
- Benchmarking
  - Temporal, within organisation, actual-ideal, other organisations, etc.
- Communicate confidence level
  - Report sample size
- Recommendations – Integrating into decision making