CONDUCTING SURVEYS

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Survey: “I’m used in most studies”
Research designs: “You’re such a tool”

* Most misunderstood “method”
Objectives

To understand the issues of survey “design” and be able to design and implement survey-based research

- What do you ask?
  - Determine whether a survey is suitable to answer the research question.

- Who do you ask?
  - How to choose a survey population and sampling frame.
  - Understand factors involved in sample size requirements.

- How do you ask?
  - Understand what is involved in writing suitable questionnaire items.
  - Choose the most appropriate method of administration.
* WHAT?

 dzi What do you want to know?
 dzi How accurately can you measure it?
 dzi If you can measure it, do not ask for an estimate or an opinion.
*WHAT*

1. **Qualitative:**
   * Explore
   * Enumerate

2. **Quantitative:**
   * Measure or estimate
   * Survey is a measuring tool
     * A proxy determination which needs to be validated.
WHAT?
examples

- Define a target population for a particular intervention
- Report ratings of current services
- Describe healthcare providers or recipients attitudes
- Assess patient satisfaction levels
- Explore opinions
Who?

- Who do you want to know about?
- Who is likely to tell you what you want to know?
  - Target population
  - Balance between specificity and relevance VS generalisability.
Who?

Who do you ask?
- Sampling Frame
- Sampling methods
  - Simple random sampling
  - Convenience sampling
  - Systematic sampling
  - Cluster VS stratified sampling
**Who?**

Simple Random Sampling

* All of the units in the target population have a known, positive chance of being selected

* Number all possible sample units then draw random numbers (computer generated)

* Add a column of random numbers to the Excel spreadsheet and then sort the spreadsheet in ascending order by that column then select first or last N rows.

* Purest but most inconvenient.
*Who?*

Systematic sampling.

- Take every $N^{th}$ unit starting from a random point.

- Beware of systematic distribution within sampling frame.
Stratified sampling.

- Group the sampling frame into subgroups or strata e.g.: age, gender, profession, diagnosis, geographical...
- Then select a simple random sample within each stratum.
Cluster sampling

- Particular sampling approach within any other sampling method where **the unit of sampling is a group rather than an individual**

- Beware of Intra-cluster correlation and need to correct for design effect.
* WHO?

Sample size: You can not ask everybody
How many do you ask?

- A sample of the target population which is representative and who’s opinion is faithfully reflecting it.

- The larger the sample, the more precisely it reflects the target group.
*Sampling*

1%  3%  5%
*Sample Size:

- Rate of improvement in the precision decreases as sample size increases
  - Eg. Increase a sample from 250 to 1,000 only doubles the precision.

- Balance time available, budget and necessary degree of precision.
Weighted sampling
Sampling and Weights
Sample size

* Precision: How closely will the answers from your sample correlate with the true answers had you asked all that are concerned?

* Confidence level: How confident do you want the expected range of answers to be?

* Proportion: What is the expected proportion breakdown?
  * 50-50 is the most conservative estimate and requiring the largest sample size

* Methods: Compensation for subgrouping/stratifying and clustering.
* Sample size

* Anticipate survey losses:
  * Non respondents
  * Incomplete surveys

* Rates of non respondents are associated with non response bias.
  * Would non-respondent opinion systematically differ from respondents?
*Sample size*

- Different modes of survey administration have different response rates, with mail surveys having the lowest rate.

- Incentives!
* HOW?
Designing the survey

- Keep respondent mistakes and biases to a minimum

- Audience:
  - proper and clear language
    - Grade reading level
    - Avoid jargon

- Anonymity VS Confidentiality
* HOW?

Survey Design

핵설문 설계

Purpose:

- Core and pertinent questions first
- Demographic questions may distract or deter from answering long surveys: trim to bare essential and save for the end.

- Be cognisant of respondent recall abilities.
* HOW?

Writing the questions: Pitfalls

- Vocabulary:
  - Unclear wording
  - Unclear question
  - Should pilot the questionnaire.

- Double barrelled questions
  - Split questions to ensure one idea or direction per question.
HOW?

Writing the questions: Pitfalls

- Biased questions: Avoid judgement tone to the questions.

- Halo effect: Avoid linking questions to elements that may evoke strong feelings unrelated to the essence of the question.
*HOW?*

Writing the questions: Answer options

- Overlapping responses:
  - (a) 1 hour or less
  - (b) 1 - 3 hours
  - (c) 3 or more hours
*HOW?*

**Writing the questions: Answer options**

- Agreement bias:
  - Opinion or attitudinal questions tend to generate dominance of agreement: Acquiescence Response Factor.
  - Use of forced choice response rather than yes/no or agree/disagree.
* HOW?
Methods of administration.

- Mail, telephone interview and in-person interview.
- Chart audits – extracting data from sample of medical and other records.
* HOW?

Methods of administration.

- Mail surveys: relatively low in cost.
  - But problems exist: Much attention is needed to get high levels of cooperation.

- Most effective when directed at particular groups, such as members of a professional association.
* HOW?

Methods of administration.

* Telephone interviews:
  * Efficient method of collecting some types of data
  * Well-suited when timeliness is a factor and the length of the survey is limited.
  * Costly.
  * Potential ethical requirements.
    * Patients as subjects or survey research require prior informed consent.
**HOW?**

Methods of administration.

- **In-person interviews:**
  - Much more expensive
  - May be necessary:
    - Complex information
    - Presence of health, age, language or education barriers
HOW?
Methods of administration.

* Electronic questionnaires:
  * Web site or e-mail
  * Data are already captured electronically and can be entered directly into a database
  * Missing and out-of-range values can be rejected.
  * Access may be an issue.
    * Target population access.
    * Beware of selection bias.
*HOW?*

Choice of methods of administration.

Decision on mode of survey administration:
- trade-off between cost, time and level of non-response.

Once mode of survey administration determined:
- Questionnaire instrument can be developed, pre-tested for reliability and validated when appropriate.
*Survey question exercise*

**Exercise**

1. If you visited a doctor in the past 6 months, were you satisfied with the visit?
   a. Yes
   b. No

2. Which of these five statements best describes this dean?
   a. Innovative but lacking leadership qualities
   b. About the same on innovation and leadership qualities
   c. Stronger on leadership than innovation
   d. A born leader
   e. A real innovator
Survey question exercise

Exercise

1. Have you ever had an ECG?
   a. Yes
   b. No

2. Which of the following Federal programs do you feel are the most effective in assisting students to succeed? (choose only one)
   a. NCLB
   b. SES
   c. ME
   d. FSS
   e. EETT
*Survey question exercise

Exercise

1. How often did you attend religious services during the past year?
   a. Never
   b. Rarely
   c. Occasionally
   d. Regularly

2. How often do you go jogging? _________

3. Sex? _____
Survey question exercise

Exercise

1. Do you support the murder of unborn children by Abortionists?
   a. Yes
   b. No
   c. Undecided

2. More people have attended the movie, Gone with the Wind than any other motion picture produced this century. Have you seen this movie?
   a. Yes
   b. No

3. Do you favor the legalization of “pot” and similar harmful drugs that young people abuse and increase drug addiction?
   a. Yes
   b. No
Survey question exercise

Exercise

1. Don’t you agree with our President and think that we should increase military aid to governments that fight communists and terrorists?
   a. Yes
   b. No

2. Do you agree or disagree that lack of immunization of the population for measles is not a problem in British Columbia
   a. Agree
   b. Disagree
Survey question exercise
Exercise

1. How many times in the last six months have you eaten away from home? ___________________

2. What percent of the nights spent away from home on trips during 1998 were for business reasons? _______________
Survey question exercise
Exercise

1. People grow up in all different types of families. What type of family did you grow up in?
   a. Mom as single parent
   b. Dad as a single parent
   c. Both Mom and Dad

2. Did you first hear about the bombing:
   a. from a friend or relative
   b. from your spouse
   c. from a newspaper
   d. at work
   e. from the television or radio or other electronic media
Survey question exercise

Exercise

1. To what extent do you agree or disagree with this statement “Living in rural places is better for a person’s emotional health.”
   a. Strongly agree
   b. Somewhat agree
   c. Undecided
   d. Somewhat disagree
   e. Strongly disagree

2. Do you have any chronic conditions diagnosed by a health professional?
   a. None
   b. One
   c. Two
   d. Three
   e. More than three
1. On average, how many times a day do you lift objects weighing 25 pounds or more?
   a. Never
   b. 5 times or less per day
   c. 5-25 times per day
   d. 25 or more times per day

2. How satisfied are you with the visit to your family doctor?
   a. Completely satisfied
   b. Mostly satisfied
   c. Somewhat satisfied
   d. Neither satisfied nor dissatisfied
   e. Dissatisfied
Survey question exercise

Exercise

1. Do you strongly favor, somewhat favor, somewhat oppose, strongly oppose, or have no opinion on whether advertisers should be required to have advertising aimed at children approved by a national board?
   a. Strongly favor
   b. Somewhat favor
   c. Somewhat oppose
   d. Strongly oppose
   e. No opinion
Survey question exercise

Exercise

1. This question is about friends of yours, think of your 4-5 closest friends when answering it. Check the space that best represents how your friends think, or the type of friends you have.

MY FRIENDS ARE:

1. Conservative---------------------- Liberal
2. Athletic ---------------------- Not Athletic
3. Noisy ---------------------- Quiet
4. Studious ---------------------- Not very studious
5. Neat in dress/appearance-------- Sloppy in dress/ Appearance
6. Like Classical music---------- Like Rock Music Music
Survey question exercise

Exercise

1. Which of the following characteristics would you like to see your child develop as he/she grows up? *Please check all that apply.*
   a. An interest in sports
   b. An interest in music
   c. An appreciation of art
   d. An interest in science
   e. An interest in business
Survey question types

- Free text
- Multiple choice: 1 answer VS multiple answers
  - Forced choice vs free choice
- Matrix
- Ranking