

## **SURVEYS**

Survey = ask the same questions of a large sample

see Designing Surveys by Ron Czaja and Johnny Blair for more information on surveys

### **Basic Survey Process:**

1. Design Questionnaire
2. Design Sample
3. Pretest
4. Pilot
5. Final Design
6. Data Collection
7. Data Processing
8. Data Analysis

### **Why all these steps?**

Need to control as much variance as we can before we start collecting data because we won't be able to affect how the data is collected once started

Need high response rates: eligible responses/ eligible sample members

Non-respondents = refusals and non-contacts.

Ineligibles = not eligible for study (Example: Ineligible in injury prev. study - providers who don't see kids)

Higher the RR, the more representative the sample

The more important the topic is to the sample, the higher RR

### **When are surveys appropriate?**

- When you know what information you want.
- When you need to collect information that is generalizable, and you can get an appropriate
- sampling frame from which you can randomly sample.
- When you need to collect information for comparative purposes
- When you need your data to be persuasive
- When you need to test a theory
- When you can design a survey that is reliable (you can write questions that will reflect your research questions) and people will answer your questions

## **Survey Administration Modes:** Mail, Telephone, Face-to-Face

Which one is best depends on:

1. Sample/Pop (Data quality Issues): What is your unit of analysis? Are they available via phone, mail, in person (can they read, language barriers?)
2. What are your resources? - money, time, labor
3. Topic (Questionnaire issues):
  - How many questions
  - Open or closed ended questions?
  - Are the questions controversial or intimate?
  - Are the questions complicated?
  - Response effects = aspects of the research design which bias how people respond.

### **Mail Surveys**

Design questionnaire with simple self-explanatory and short questions; cover letter, return envelope, multiple mailings.

Need a list of addresses: driver registration list, voter list, member lists (sale of lists).

Bias: if people can't be reached at their address

Most Appropriate When: Low budget, highly literate and motivated populations (example: NSF survey of social science PhDs)

Response Rates: target = 70%. To get high RR with mail survey, you should:

1. Cover letter: Should state why topic is important, how respondent chosen, how data will be used, how to contact researchers, confidentiality statement
2. Minimum of 3 contacts to non-respondents.
  - a. Survey and cover letter
  - b. 1 week later post card
  - c. 2 weeks later replacement survey with new cover letter. indicate in cover letter your awareness of why people aren't responding (from returned survey comments)
  - d. 2 weeks later registered mail survey or follow up phone calls
3. Track the # of returns each day

### **Advantages of Mail Surveys**

- Low cost, low administrative needs (can be a 1 person operation).
- Can ask questions with long response sets
- Can ask sensitive questions

### **Disadvantages of Mail Surveys**

- Response rates tend to be low, except for motivated populations;
- Literacy barriers
- Hard to get good sampling frames for general population;
- No control over interview setting (respondent confusion, who responds)
- Slow data collection
- Not good for open-ended questions
- Not good for complex questions

### **Telephone Surveys**

Most appropriate when: General population study; short survey (because people get tired, eating or making dinner, the baby cries), need fast data capture

Need a place with phones and ideally computers (CATI), interviewers, people to monitor interviewers

Need a sampling frame of phone #'s:

Telephone surveys omit people without phones or a residence. However, over 95% of residences in USA have phones, though % lower in rural areas.

People w/o phones are hard to reach via any method.

Phone lists often omit unlisted numbers.

Alternative: Random Digit Dialing. Don't need list. And unlisted #'s aren't omitted.

Response Rates: target = 80%. To achieve this you need to do at least 5-15 call backs at different times of the day and week.

### **Advantages of Telephone Surveys**

- Can do complicated skip patterns
- Less item-non response - trained interviewers probe for responses

### **Disadvantages of Telephone Surveys**

- Can't ask complex questions
- Answer sets must be short

## **Face-to-Face Surveys**

Most Appropriate When: survey is long or includes complex questions; population is difficult to reach by mail or telephone; you need highest quality data

Don't need a list of phones or addresses. Can door knock. Need to make sure you sample neighborhoods appropriately. Take small samples from homogenous neighborhoods.

Response Rates: target = 90%. To achieve this, you should:

1. Contact respondent to set up interview
2. Require extensive interviewer training
  - How to probe
  - How to "read" people - what they don't understand, when they are holding back, etc.
  - How to illicit surveys
  - How to code data
  - Need someone to monitor interviewers and data collection

### **Advantages of Face-to-face Surveys:**

- Trained interviewers allows you to ask more complex questions, get high responses rates and item response rates, can do complicated skip patterns
- Validity tends to be higher in personal interview settings, with the exception of highly personal or controversial topics which work better in self-administered more anonymous situations. Easiest to develop rapport.
- Response bias low - most people have trouble saying no
- Best for long surveys (30 minutes)
- Can ask complicated questions
- Best for open ended questions

### **Disadvantages of Face-to-face Surveys:**

- Expensive (\$250 an interview, 2-3 times as much as phone, 3-4 times as much as mail)
- Need to have a trained, mobile staff
- Long data collection period
- Interviewer biases - try to match on demographics
- Reactive effects - desirable responses

## **Combining Methods**

1. Self-administration in presence of researcher/interviewer: strong control who fills out survey, RR very high.

Problem: random sampling infrequent

2. Mail w. Initial Phone contact: Call to say survey is coming. Improves RR. Lessens chance of trashed surveys.

3. Phone with initial cover letter via mail: Letter says we will be calling. Improves RR. Can't do with RDD.

## **Questionnaire Construction**

Organization:

1. Intro: cover letter, opening statements in a tele/f-to-f
2. Respondent selection (screening Questions)
3. Substantive questions
4. Background (demographics)
5. Post interview questions

Always do demographics last. They are boring to answer and will not motivate respondents to complete survey.

Need to pre-test and pilot your survey.

## **Introduction/Cover Letter**

Purpose is to convince respondents:

That the study is important

How respondent chosen

Screening Questions

How data will be used

Who are the researchers and how to contact them

Confidentiality statement

In telephone and F-to-F surveys, you need to shorten the introductory or cover letter material to 2-3 sentences

## **Screening Questions**

Examples: Injury Prevention study; victimization surveys

If you expect a large % of screen outs you should:

- do a pre survey post-card.
- screen people in cover letter or in intro to tele and f-to-f

## **Substantive Questions**

1. Question order can bias answers to following questions (testing/instrumentation effect). Need to have a smooth flow. Should read and flow like a conversation
2. First question should be :
  - a. Easy but interesting questions.
  - b. Clearly relevant to the survey topic. ex. for a study on crime, first question should be on crime
  - c. Applicable to all respondents
  - d. Closed ended
  - e. Not a sensitive question (if unavoidable, tell respondent why sensitive question is necessary).

Consider asking a few buffer questions first

3. Put harder substantive questions at the end before the demographics
4. Post interview questions
  - any comments or questions?
  - Ask for other names to interview
  - interviewer reflections

## **Mail Questionnaire Formatting**

- Needs to look good. Appearance influences RR.
- Lots of white space. (Looks like less work)
- Booklet form (easier to handle)
- Response categories easy to mark -- checks rather than circles.
- List responses down, not across
- Use different font type for transitions
- use font big enough for all people to read
- use arrows for skip patterns
- Use of bubble sheets: probably lowers RR. Body of research growing on this.
- pre-code responses

## **Telephone and Face-to-Face Questionnaire Formatting**

No direct effect of the format on the respondent. But indirect via the interviewer.

Needs to be usable by interviewers.

CATI: easier skip patterns, immediate data entry, prompt suggestions, lower costs

**Pre-Testing:** this is very important to do to obtain good data

1. Begin by reading the initial drafts out loud to your self.
2. Next pre-test on colleagues, family, and friends.
3. Pre-test questions and questionnaire on group from population
  - a. Ask people:
    - how they interpreted questions.
    - what questions they had trouble with or where in survey they got lost
    - what's the best way to reach people - mail, phone, in person, give choice, multi-methods
    - about response effects
  - b. This info reveals
    - Terms not understood by all, or which have varying meanings
    - Sampling problems, need to over or under sample, ineligibles
    - Response set problems - no variation
    - Poorly written questions - too hard, too sensitive as indicated by high missing
    - Questionnaire organization problems
4. Use open questions to get response set if you don't know the responses
5. Pre-test questions from lit for your population
6. Do in person and mail pre-tests for mail surveys

#### 7. Types of Pre-tests

- a. Small # of pop members (not randomly selected)
- b. Interviewer debriefs with telephone and f-to-f:
  - need to use expert interviewers
  - ask them about rapport, comprehension, flow, interest in subject, cooperation
- c. Focus groups/Think alouds: bring group together. Each do survey. Then talk about the survey – what the questions meant to them, where they had problems, etc... Audio or video tape.
- d. Expert panels: review survey instrument before meeting. Discuss and make recommendation at meeting. Not a substitute for a pre-test with pop members.

#### 8. Analyzing pre-test data:

- a. Did you get what you expected? If not, are questions worded ok?
- b. Is there variation on all questions? Drop any constants.
- c. Look at no answers, missing data..9
- d. Look at written comments.

9. Revise survey based on pre-test

a. Rewrite questions

b. Throw out questions that can't be fixed or are determined unnecessary

**Pilot Studies:** Do on a small sample from the pop. Test questionnaire and data collection process and data management

Do same analysis as pre-test, add:

1. How is the response rate? Do you need to revise the cover letter? Reconsider mode of administration?

a. RR for subgroups? Do you need to oversample?

b. Response Bias - are those who responded different than those who didn't.

Influences findings:

- More likely to be women, old, some value of DV (trust in institutions, attitudes about homosexuality, volunteerism)

Ideally you look at data on non-respondents (hard to get). Usually can't get, so use census data or your knowledge about what sample should look like. Or you look at sampling frame and try to determine info about non-respondents (sex, region, etc..)

Example: non-response data on Injury Prevention Study.

2. How is the item response rate?

3. Look at how data management went.

## **Survey Errors in Data Collection**

Great deal of error possible in surveys. Caused by errors in each step of the survey process (data collection method, sampling method, question wording, interviewer bias).

Need to anticipate problems before data collection starts (see pg 172 Research Design)

## **2 Types of Errors:**

1. Random error (variance): error in response to questions that cancels out.

Ex. Satisfaction with teachers. Some rate higher than true score, some low, not due to anything in survey design.

Doesn't affect data analysis or findings.

2. Systematic error (bias): error in responses due to survey design that doesn't cancel out.

Ex. People over or underestimate their age or income due to poor questions, data collection method



## **Sources of Error**

### **1. Non-response**

a. Unit non-response = refusal, non-contact, due to either random or systematic errors, depends on topic

\*can check data for non-response error: does sample match expected demographics

\*can get data on non-respondents: check to see if respondents and non-respondents differ

b. Item non-response = doesn't answer question, usually due to systematic errors - survey too long, question too sensitive

### **2. Interviewer error: typically small effects.**

- students produce high response errors
- high status interviewers produce attitudinal response effects - please interviewer
- dress and behavior to reflect respondents
- some studies say female interviewers are better for sensitive questions
- most important is interviewer training and experience

3. Respondent error: Ex. doesn't circle category, instead writes in; doesn't remember answer (example: seafood study); doesn't answer truthfully, reactivity effects

4. Design errors: location of the survey; question ordering; question wording

## **Reducing Unit Non-response**

1. Interesting topic

2. Appropriate method

3. Advance calls/letters

4. Cover letter and intro.

5. Call backs and converting refusals

a. Telephone has advantage here b/c you find something out about non-respondents by calling them.

- no answer to repeated calls - working #?
- no adult fitting sample criteria
- doesn't speak English
- sick or on vacation
- moved

## **Reducing Item Non-Response**

1. Interviewer training (see pg 194-204 Designing Surveys)
  - a. Gain Cooperation - be persuasive
  - b. Probe questions - some don't b/c it makes them uncomfortable
  - c. Item non-response - ask again, come back to at the end of survey
  - d. Be professional, take survey serious: don't make up or infer answers
  - e. Follow directions - sample criteria
  - f. Pay them well
  - g. How to deal with problem respondents - difficult, talkative
2. Researcher's job to anticipate these issues and train interviewers and monitor them
  - a. Listen in on telephone interviews
  - b. Call backs to respondents: verify survey and some responses
  - c. Data checking on phone and f-to-f: look for suspicious patterns

**Incentives to cooperate: money, trips, etc..**

## **Ethical Issues in Survey Research**

1. What influence does asking questions have on respondents?
2. Protection of confidentiality and of data  
don't put names in data.  
don't discuss respondent answers
3. Informed consent: don't mislead respondents as to the purpose of the research
4. Don't force/harass respondents to answer/cooperate.  
Fine line between persuading and probing and harassing for some respondents and interviewers

## **Question Construction**

Need to go back to your research question(s)

- What are your conceptual hypotheses?
- What questions will you need to ask to explore these hypotheses?

The validity of your data depends on the quality of your theory and your ability to write clear, understandable questions that reflect that theory.

Your theory determines which questions are asked.

If your theory is weak:

- You won't ask the right questions
- The questions you do ask may not be written well -- your sample may not interpret them as you do.
- Result: You won't be able to rule out alternative explanations.

Questions must reflect real life behavior, attitudes, beliefs and must represent or indicate the concepts in your research question. Operationalization is critical, both to obtain “good” data but also to achieve high response rates.

Whenever possible use questions with acceptable validity and reliability from the literature. This improves data quality. Allows comparison of results to previous and future research

If you write new questions: use literature on subject and on writing questions, use focus groups and pre-tests to help develop and improve questions.

Which questions should you include? At some point you will have to limit the number of questions you include on the final draft of the survey.

1. Don't ask respondents unnecessary questions:
  - questions you don't need to answer the RQ
  - questions you know the answer to
  - questions about how other people think or believe
2. Can respondents provide the info we want?
  - can they understand the question?
  - is it asking for info that is too hard to provide? For example, asking exact income last year. Or asking “what charitable donations have you made in the last year?”
3. Must be written so respondent can understand the question:
4. No ambiguous words. Define terms. Use everyday language (unless the study is of a specific population with their own vocabulary, for example “socialization” is ok to use with sociologists)
5. Be specific: Example. How satisfied are you with the care you received? (Not specific) Vs. How satisfied are you with the info your nurse provided about your illness?
  - Trade off: writing simple, easy to answer questions vs. getting the data necessary to answer RQ
6. Question should ask only question. Ex. Do you believe skill level and competency has improved among the staff? Vs. Do you believe skill level has improved among the staff?
7. Don't write loaded questions. Question should not imply a correct answer.  
Ex. Do you think our schools need improvement? Don't use loaded terms. For example, may not want to use the word “welfare,” use “poor” instead.

8. Don't write questions with a "it depends" answer:  
Ex. How many previous computer classes have you had?  
It depends on what counts as a computer class? Do we count high school and college?
9. Question length - generally shorter is better but as concept becomes more complex so does question
10. Mix up direction of response sets. So you don't get a response effect.

## **Response Sets**

1. Needs to reflect true variation:

Example: race question on Census

Sometimes yes/no is appropriate. Sometimes you need a likert scale. Depends on subject.

2. Response sets need to generate variation.  
Ex. What is your highest educational degree?  
Some high school  
HS degree  
College degree  
Most responses will be HS degree, unless special population

3. Open vs Closed questions: close up as many as possible

Open question: no response categories provided.

ex. How old are you..4

ex. What do you think about managed care?

Advantages: good when you don't know what the responses are likely to be

Disadvantages: missing and unreliable, biased against the inarticulate, rapport sensitive, high cost in time and coding. Exception - numerical answers to open behavioral questions: How many times last month did you X?

Closed questions: 2 or more mutually exclusive categories

5 categories is maximum without visual aids, otherwise people get confused.

See page 70 Designing Surveys for common response sets

Common likert type - strongly satisfied to strongly dissatisfied

Categories should be specific, not subject to individual interpretation

Alternative: scales, Ex. 1-10. Don't use these unless each category is labeled. If not, won't have any standard of meaning for each category

Advantages: precise, pre-code

Disadvantages: measurement error

#### 4. Don't Knows and No Opinions

Give it and people will take it. Result: no variation, little data to analyze

Theoretical measurement argument: what's more valid:

- a. Forcing people to respond. Responses may not reflect true answers.
- b. Leaving people an out. Don't knows/no opinions are not true answers.

Solutions:

- a. Don't ask questions with true no opinion responses. Most people have an opinion.
- b. Don't give them Don't knows/No Opinion. People who don't want to answer will skip questions anyway.

Exception: not applicable is a valid response. Don't want people responding when the question doesn't apply to them.

5. If you don't know what the response set should be, pre-test your question with an open response set.

6. Don't ask agree/disagree - people tend to agree