An Introduction to Survey Research

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What mode of data collection is best for me? Considerations:

- Cost
- Coverage
- Response rates
- Time frame
- Kinds of data that can be collected
- Other issues: missing data, flexibility, branching, overall quality
RESEARCH EXAMPLES

1. Masters thesis (very little funding) looking at a rare form of an eating disorder among college students

2. Well funded, complex study looking at stress levels and interactions among family members enrolled in a local “parenting” community program

3. Looking at basic satisfaction questions regarding retirement among members of AARP

4. Looking at opinions and attitudes among a nationwide sample of people who watched a press conference on a recent scandalous event (and need data quickly)
## COST

<table>
<thead>
<tr>
<th>Method</th>
<th>Cost Description</th>
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<tbody>
<tr>
<td>Face to Face</td>
<td>Usually expensive ($100+/completed interview), but some designs are cheap</td>
</tr>
<tr>
<td>Phone</td>
<td>High ($30 to $60/completed interview)</td>
</tr>
<tr>
<td>Mail</td>
<td>Middle ($20 to $40/completed interview)</td>
</tr>
<tr>
<td>Web</td>
<td>Low ($10 to $20/completed interview)</td>
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## COVERAGE

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
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<tbody>
<tr>
<td>Face to Face</td>
<td>Very good – can theoretically interview almost anyone, but usually limited to geographic clusters and smaller N’s due to expense.</td>
</tr>
<tr>
<td>Phone</td>
<td>Good, but R must have a phone (becoming problematic with cell phones, answering machines, blockers, etc.), RDD provides fairly representative sample, can also utilize lists (list must be in good condition), Good for “screening” for eligibility.</td>
</tr>
<tr>
<td>Mail</td>
<td>Okay, but usually requires access to a list, possible literacy issues.</td>
</tr>
<tr>
<td>Web</td>
<td>Limit on populations (must have access to web), best to have access to good list of email addresses (can be very difficult), can sample large N’s for minimal costs.</td>
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## RESPONSE RATES

<table>
<thead>
<tr>
<th>Method</th>
<th>Response Rate</th>
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<tbody>
<tr>
<td>Face to Face</td>
<td>Best</td>
</tr>
<tr>
<td>Phone</td>
<td>Okay, but declining (25-50%)</td>
</tr>
<tr>
<td>Mail</td>
<td>Okay (20-40%)</td>
</tr>
<tr>
<td>Web</td>
<td>Typically poor (10-20%)</td>
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<tr>
<td>TIME FRAME</td>
<td></td>
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<tr>
<td>------------</td>
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<tr>
<td>Face to Face</td>
<td>Varies (CAPI faster)</td>
</tr>
<tr>
<td>Phone</td>
<td>Can be quick if needed, but response rate suffers (CATI faster)</td>
</tr>
<tr>
<td>Mail</td>
<td>Slower if using appropriate follow-up strategies</td>
</tr>
<tr>
<td>Web</td>
<td>Quick turnaround (instant data because no data entry)</td>
</tr>
</tbody>
</table>
## KINDS OF DATA THAT CAN BE COLLECTED

<table>
<thead>
<tr>
<th>Method</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face to Face</td>
<td>Can ask almost any type of question, CAPI is great for complexity, Can use lengthy response scales (use response cards), Can examine nonverbal data (video recorded), Can collect biological data</td>
</tr>
<tr>
<td>Phone</td>
<td>CATI is good for complexity, Scales with wordy response options are difficult, Data can be audio recorded</td>
</tr>
<tr>
<td>Mail</td>
<td>Good for sensitive questions, Good for simple questions, Open-ended data can be cumbersome for R and illegible for data entry</td>
</tr>
<tr>
<td>Web</td>
<td>Good for sensitive questions, Can handle some complexity, Open-ended data can be cumbersome for R, Questions should fit on one screen</td>
</tr>
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</table>
# MISSING DATA

<table>
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<tbody>
<tr>
<td>Face to Face AND Phone</td>
<td>Can “require” an answer, allows interviewer to input explanation if no answer offered, Interviewer can offer more info to avoid nonresponse by using probes, Interviewer can clarify if R has questions (can be problematic if interviewers provide different information), Interviewer ensures all questions are asked</td>
</tr>
<tr>
<td>Mail</td>
<td>No control and can be substantial problem (especially if poor design), questions could be skipped, answers could be recorded incorrectly which can cause missing data (e.g., R selects multiple responses for single response item)</td>
</tr>
<tr>
<td>Web</td>
<td>Can “require” an answer (better to program reminders to answer question if skipped rather than force an answer), Can have on-line help, audio and video displays, but must think of all possibilities beforehand</td>
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### FLEXIBILITY/BRANCHING

<table>
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</tr>
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<tbody>
<tr>
<td>Face to Face AND Phone</td>
<td>CAPI/CATI - Skip patterns can be programmed, and if data entry error occurred – interviewer can go back and fix easily, Interviewer can input notes, Changes can be made to instrument mid-study (easier for phone)</td>
</tr>
<tr>
<td>Mail</td>
<td>Not great for skip patterns, but possible through design techniques, Cannot change the instrument once finalized</td>
</tr>
<tr>
<td>Web</td>
<td>Skip patterns can be programmed, if R enters wrong data – they may be confused, but could go back and fix, Usually cannot change the instrument once finalized</td>
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## CONTROL/OVERALL QUALITY

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<tbody>
<tr>
<td>Face to Face</td>
<td>Fairly controlled setting, but interviewer effects possible – usually high quality</td>
</tr>
<tr>
<td>Phone</td>
<td>Fairly controlled setting, but interviewer effects possible - usually high quality</td>
</tr>
<tr>
<td>Mail</td>
<td>Very little control over quality – no control over who completes survey, data can be illegible</td>
</tr>
<tr>
<td>Web</td>
<td>Reliable – more consistent than human interviewer, but no human element to identify problems, no control over data entry errors or who completes the survey</td>
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A COUPLE OTHER OPTIONS:

- CASI (Computer Assisted Self Interviews)
- IVR (Interactive Voice Recording)
  - Benefits of self-administered survey with additional controls associated with interviewers
  - Reliable, more consistent than human interviewer
  - Skip patterns can be programmed, can check for problem answers
MIXED MODES

■ Combine modes to:

- Increase response rates (mail survey with telephone follow-up)
- Reach different populations (telephone and face to face)
- Ask sensitive questions, but need an interviewer too (face to face and CASI)
- Save money (web and mail survey)

■ Mode Effects

- R’s answer questions differently for different modes
RESEARCH EXAMPLES WITH SUGGESTED MODES

1. Masters thesis (very little funding) looking at a rare form of an eating disorder among college students
   • Web: little money, need a large sample, sensitive questions

2. Well funded, complex study looking at interactions among family members enrolled in a local “parenting” community program
   • Face-to-Face: adequate funding, can videotape interactions, can collect biological data (cortisol levels), can deal with complexity and lengthy data collection
RESEARCH EXAMPLES WITH SUGGESTED MODES continued

3. Looking at basic satisfaction questions regarding retirement among members of AARP
   - Mail: have a list of names and mailing addresses, simple questionnaire

4. Looking at opinions and attitudes among a nationwide sample of people who watched a press conference on a recent scandalous event (and need data quickly)
   - Phone: nationwide, quick turnaround, screening for eligibility
Questionnaire Design and Pretesting Issues

- Goals of questionnaire design
  - Provide questions that are understood by most respondents as intended most often
  - Provide questions in which people can retrieve and evaluate information accurately
  - Provide questions that account for pitfalls:
    - Sensitive questions
    - Context effects (question and response option order)
Analysis Plan

- What questions are about need to be defined in an analysis plan
- Constructs to measure
- How these constructs will be analyzed
- Translating constructs to questions
- Focus groups
  - Developing an analysis plan and questionnaire
Improving Questionnaire Draft

- Three Main Methods
  - Expert review
  - Cognitive interviews
  - Pretest
- All can be implemented on same questionnaire
Cognitive Interviewing Techniques

- Major purpose is to discover problems in cognitive processing that can lead to response error
- From problem discovery, solutions can be crafted
- Standard model of cognitive processes:
  - comprehension and interpretation
  - retrieval and memory
  - Judgment
  - communication and formatting response
- A dozen to two dozen respondents (informants) are needed
Some of the techniques

- Think-aloud
- Structured probes
Think-Aloud: Technique

- Instructions to respondents
- Reminder probes -- "keep talking" "tell me what you're thinking" "remember to think-aloud"
- Provide positive feedback to encourage motivation
- If respondent reports difficulty (in comprehension or retrieval), inform and motivate by "that is what we need to know to make our questions easier to answer," "thank you for telling me that"
- Spontaneous follow-up probes-- if response is made without think-aloud, "how did you come-up with that answer?"; there may also be probes that are more focused that are created on the spot
- Probe nondirectively -- do not bias response
- I-R surveys vs. self-administered
Think-aloud: Validity

- Reports likely to be valid when
  - information is available in short-term memory
  - information is descriptive rather than interpretive; what rather than why
Think-aloud examples (1)

- Assistive devices questionnaire (canes, wheelchairs, hearing aids)
  - "How long has (name of household member) used the (name of device)?“
  - How long – ambiguous for those who used devices intermittently
  - the -- present item or old discarded item in the same category.

- Comprehension problems
  - Revision -- "How long ago did (name of household member) first use a (name of device)?"
Think-aloud examples (2)

- Radon questionnaire
  - "What is the primary reason you have not tested your home for radon?"
  - Respondents attempted to construct a response to satisfy both themselves and the interviewers, but it was apparent that they could not retrieve any already determined reason.

- Retrieval problem (no original encoding)
  - Solution -- remove question
Think-aloud: advantages

- Lack of interviewer imposed bias
- Open-format with potential for unanticipated information
Think-aloud: disadvantages

- Unnaturalness -- need for verbal respondents and practice
- High respondent burden -- need R w/ good verbal skills
- May be a tendency to wander off task -- use supportive feedback when responses are on target
- Reactivity -- respondents may undergo processing in answering that would not occur in more naturalistic survey setting
- Cannot expose nonconscious processing directly
- Coding may be burdensome
- Spontaneous probes can introduce interviewer bias and lack of comparability among different respondents
Structured Probes

- researcher may identify suspected problems in questions
- may design ahead of time follow-up (retrospective) probes
- structured probes can be combined with either concurrent or retrospective think-alouds in same instrument
- following a series of think-alouds, researchers may become aware of structured probes that would yield additional useful information
- can focus structured probes on all four of the cognitive processes
Structured Probes: Comprehension (1)

- concept probes –
  - Q-"During the past 12 months, since (ref period), about how many days did illness or injury keep you in bed for more than half of the day?"
  - P- "What does half of the day mean to you?"
    "What did you think of by half of the day?"
Structured Probes: Comprehension (2)

- sentence structure probes – paraphrasing
  - Q-"Did anyone in your household receive income from wages, salaries, fees, rents, interest, dividends, or commissions in the past 12 months?“
  - P- "Please repeat the question in your own words“
  - STM -- respondents could not remember all the income sources, tended to remember the last ones
  - Paraphrasing can be used to examine response options as well
Structured Probes: Example

- "During the past year, have you been bothered by pain in your abdomen?“
  - Probed with top diagram
- Revision included bottom diagram
  - "Please look at this diagram. During the past 12 months, have you had pain in the area shaded in the diagram?"
Structured Probes: Evaluation

- **Advantages**
  - Structured probes effective for well-defined research issues
  - Respondents need little practice

- **Disadvantages**
  - Earlier probed questions may affect later ones
  - Interviewer bias can be problematic -- need care to construct nondirective probes
  - Appear best to locate comprehension problems rather than retrieval, judgment, or response formatting problems
Pretests

- Conduct “mock” data collection with a subset of targeted sample
- Best for assessing how well the survey instrument will operate in the field
  - Questionnaire length
  - Item nonresponse problems
  - Technical administrative problems
- Interviewers may provide insights of question problems
- Verbal behavior coding an objective assessment technique that avoids interviewer bias
Proposals

- When developing a new questionnaire
  - Need to include a questionnaire development phase including cognitive interviewing
  - Need to include a pretesting phase
- SSP and BOSR can help!