Cognitive Interviewing

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Goals for this Lecture

• Define cognitive interviewing

• Discuss cognitive interviewing in more detail, particularly how it can be used to improve survey questions and response sets

• Describe the types of cognitive interviewing methods, particularly
  – Think aloud
  – Verbal probing
Cognitive Interviewing

• **Cognitive interviewing** is an empirical approach to pre-testing questionnaires.
• Applies cognitive theory and psychological principles to instrument development process.
• “…the practice of using a limited degree of think-aloud instruction, combined with the judicious use of verbal probing by the interviewer.” (Willis, Schechter & Whitaker, 1996).
Uses of Cognitive Interviewing

- Explicitly focuses on the cognitive processes that respondents use to answer survey questions
  - Spotlight is on the questionnaire, particularly the questions and response sets
  - Goal is to identify sources of response error
- Poorly designed questions often not uncovered by field pretest (Jobe & Mingay, 1989)
Cognitive Interviewing Addresses These Questions (1)

• What do the question and/or key phrases mean to the subject?
  – Does this interpretation meet the design intent?
  – Is the question interpreted the same way by all subjects?

• How does the subject recall the information requested?
  – Can the subject even recall the information?
  – Is the demand on recall reasonable?

• Has the subject ever thought about the topic of the question before?
Cognitive Interviewing Addresses These Questions (2)

• Are the questions salient to the subject?
• How does the subject express information retrieved from memory?
  – What mental adjustments does he/she make?
  – Is it simply guessing?
• What aspects of the question topic or survey situation does the subject consider when deciding on an answer?
  – How do these factors affect the answer?
• **Grammatical ambiguity**: “How much do you agree or disagree with the following statement: ‘Students hate annoying professors’?”

• **Overly complicated syntax**: “Do you favor or oppose not allowing students to take elective without the approval of the program officer?”

• **Faulty presuppositions**: “From the list below, please indicate the hotel you stayed at during this conference.”
• **Unfamiliar terms:** “To what extent do you agree or disagree with the following statement: ‘All ACAT-1 acquisition programs should go through the JCIDS process.’?”

• **Response options:** The response options provided drive respondent assumptions
  - Range of response options is a meaningful range
  - Middle response is “average” or “typical”
• Difficulty with meaning
  – Vague qualifiers: “On a scale of 1 to 10, please rate the utility of the NPS MWR program.”
  – Other vague terms in the question: “How much do you agree or disagree with the following statement, ‘In my workgroup, the leader resolves conflicts among team members in a timely and effective manner.’?”

✓ Note: Avoiding one set of comprehension problems can create other (unintended) comprehension problems
Think Aloud
Cognitive Interviewing Method

• Subjects are instructed to “think aloud” as they answer the survey question
• Interviewer trains subjects to “think aloud” before the interview
• Interviewer reads each question, then records/notes the processes that the subject uses in arriving at their answer
• Interviewer interjects little more than “tell me what you’re thinking” when the subject pauses
Think Aloud Example

Classic example - rooms in your home

We’re going to ask you to complete the survey and we would like you to talk aloud as you think through your response. We want to hear how you understand the question, how you decide what answer you’re going to give, and other things going through your mind as you answer the question. Here’s an example:

Question: How many rooms are there in your home? We would like you to tell us what you’re thinking, and how you arrive at your answer.

So, you might say “The front door of my apartment opens up into the living room, so that is one room. To the left is the kitchen, room #2. There is a dining room that is attached to the kitchen. There is no door, so I’m not sure whether to consider it a separate room or not. I consider it a separate area, so I guess I will, so room #3. To the right of the dining room there is a hall leading to the bedroom, which is room #4 and room #5 is the bathroom. So altogether there are 5 rooms in my apartment.”
Advantages and Disadvantages

**Advantages**
- Freedom from interviewer bias
- Minimal interviewer training requirements
- Open-ended format
- Can do concurrently (while answering questions) and retrospectively (after answering questions)

**Disadvantages**
- Need for subject training
- Subject resistance
- Burden on the subject
- Tendency for subject to stray from task
- The process may contaminate the process of answering the question
Verbal Probing
Cognitive Interviewing Method

• After the interviewer asks survey question and subject answers, interviewer asks for more specific information relevant to the question or answer given
• Follow-up probes used to understand subjects’ strategies for answering questions
• Interviewer uses probes to elicit information
  – For example:
    Confidence judgment: “How sure are you that you remember the number of anti-smoking commercials in the past 30 days?”
Verbal Probing
Cognitive Interviewing Method

- **Comprehension/Interpretation probes**: “What is an ‘anti-smoking commercial’ to you?”
- **Paraphrasing**: “Can you repeat the question I just asked you in your own words?”
- **Recall**: “How do you remember the number of anti-smoking commercials you saw in the past 30 days?”
- **Specific probe**: “Why do you think that smoking cigarettes makes young people feel cool or fit in?”
- **General**: “How did you arrive at that answer?” or “Was it easy or hard to answer?” or “I noticed that you hesitated – tell me what you were thinking.”
Verbal Probing Advantages

• Flexibility to direct the interview
  – Irrelevant/non-productive discussion is avoided
  – Interviewer may focus on areas that appear to be possible sources of response error
  – Interviewer may focus on emerging themes

• Ease of training the subject: It is fairly easy to induce subjects to answer probe questions

• Planned probes yields comparable information across subjects
Verbal Probing Disadvantages

• Artificiality: Interjection of probes by interviewers may produce a situation that is not a meaningful analog to the usual survey interview
  – For example, subject may try harder because of the interview setting

• Potential for bias: The use of probes may lead the respondent to particular types of responses
  – Minimize by using neutral, non-leading probes
Concurrent vs. Retrospective

**Concurrent Probing Steps**
- Interviewer asks survey question
- Subject answers question
- Interviewer asks probe question
- Subject answers the probe question
- There may be additional cycles of probing and responding

**Retrospective Probing Steps**
- Subject completes the survey
- Interviewer asks probes after the entire interview has been administered (debriefing session)
- Subject asked how they arrived at their answers
Concurrent vs. Retrospective

Concurrent is used when...

- One is early in questionnaire development, testing key terms, new items,
- Testing long survey instruments and recalling thought processes may be difficult

Retrospective is used when...

- Testing a self-administered questionnaire
  - Main purpose is to determine the subject’s ability to complete the instrument unaided, and especially to follow sequencing instructions
- One wants to simulate a more realistic presentation
  - In later stages of instrument development
- Timing data are necessary
What We Have Covered

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