Evaluating Survey Questions (and Instruments)

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• Discuss methods for evaluating (and improving) survey questions and instruments:
  – Expert reviews
  – Focus groups
  – Cognitive interviews
  – Field pre-testing
  – Experiments
• These are formal ways to conduct pretesting
• Goal is to reduce measurement error
Survey Question Standards

• **Content standards**
  – Are the questions asking the right things?

• **Cognitive standards**
  – Do respondents understand the questions consistently?
  – Do they have the information required to answer them?
  – Are they willing and able to formulate answers?

• **Usability standards**
  – Can respondents (and interviewers) complete the questionnaire easily and as intended?
Expert Reviews

• Have instrument reviewed by
  – Questionnaire design experts
  – Substantive experts

• Review
  – Wording and structure of questions
  – Order of questions
  – Response scales and alternatives
  – Instructions and navigational rules/cues

• See Groves et al. chapters 7.4 and 8.2 for guidelines and checklists
Focus Groups

- **Focus group** is a structured discussion with a small group
  - Topics and questions defined ahead of time
  - Discussion moderated and recorded
- Often conducted **prior** to developing survey instrument
  - Help to define issues, learn terminology and/or subject matter, likely responses, etc.
- Also useful for
  - Exploring unknown/ill-defined research questions
  - Examine rich data not suited to surveys
Characteristics of Focus Group

- **Participants**
  - Carefully recruited
  - 8-10 people/group
  - Similar types of people
  - Repeated groups

- **Environment**
  - Comfortable
  - Circle seating (if possible)
  - If possible, tape record the session
  - 2-hours/session (approximately)

Excerpted from presentation by Dr. Michael Schwerin, RTI
Moderator Duties

• Manage and focus discussion
  – Use pre-determined questions
    • Purposeful small talk
    • Pauses and probes
• Moderator must:
  – Be skillful in group discussion
  – Establish permissive environment
  – Use subtle group control
    • Set ground rules at outset
    • Appropriately Deal with shy & dominant talkers

Excerpted from presentation by Dr. Michael Schwerin, RTI
Assistant Moderator Duties

• Arranges the environment
• Takes notes / records discussion
  – If possible, audiotape recording
  – Set-up and testing of recording devices
• Facilitation aids – wall charts, paper and pencils, props, video

Excerpted from presentation by Dr. Michael Schwerin, RTI
Question Flow

- **Opening/Intro**
  - 2 to 3 questions
  - 15 minutes

- **Key questions**
  - 6 to 12 questions
  - 90 minutes

- **Closing**
  - 2 to 3 questions
  - 15 minutes

- **120 minutes total**

Excerpted from presentation by Dr. Michael Schwerin, RTI
Question Guidelines

- Use open-ended questions
- Avoid dichotomous and “why” questions
- Use think back questions
- Use different types of questions
- Use questions that get participants involved
- Focus the questions
- Be cautious of serendipitous questions

Excerpted from presentation by Dr. Michael Schwerin, RTI
Opening Questions

• Initial question(s) – helps participants see what they have in common
• Introductory question – introduces the topic of discussion and allows them an opportunity to reflect on their experiences with the topic
• Transition question – moves the conversation into the key questions

Excerpted from presentation by Dr. Michael Schwerin, RTI
Key Questions

- Choose among alternatives
- Make a list
- Fill in the blank
- Rate with blank card
- Semantic differential
- Develop a campaign
- Questions that foster ownership – “What can you do...”

Excerpted from presentation by Dr. Michael Schwerin, RTI
Ending Questions

• Review purpose and see if anything has been missed
• Summarize with confirmation
• Appreciation and dismissal
• Minimize distractions
• Identify moderator statements
• Type comments word for word
• Allow sufficient time
• If tape-recording sessions:
  – Use quality play-back equipment
  – Note special or unusual sounds that could help analysis

Excerpted from presentation by Dr. Michael Schwerin, RTI
Data Analysis

• Timing
  – Start while still in the group
  – Immediately after the focus group
  – Soon after the focus - within hours, analyze individual focus groups

• Focus on:
  – Words, ideas and their context
  – Frequency and/or extensiveness
  – Intensity, specificity
  – Finding big ideas

Excerpted from presentation by Dr. Michael Schwerin, RTI
Limitations of Focus Groups

- Participants are not necessarily representative of survey population
  - Generalization not appropriate
- Not a good venue for evaluating specific question wording or how respondents arrive at answers to questions
- Results generally not quantitative and subject to judgments of those conducting the groups
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

• Evaluate sources of response error
• Poorly designed questions often not uncovered by field pretest (Jobe & Mingay, 1989)
• Focus is mainly on the questionnaire
• Explicitly focuses on the cognitive processes that respondents use to answer survey questions
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 recall the information?
- Is the demand on recall reasonable?
Cognitive Interviewing Addresses These Questions (2)

- Has the subject ever thought about the topic of the question before?
- Is it salient in any way?
- 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?

Excerpted from presentation by Dr. Michael Schwerin, RTI
Helps to Resolve Question Comprehension Issues (1)

• **Grammatical ambiguity** – items refers to more than one concept
  – Example: “Can some people on Medicare who have health insurance benefit from prescription drug discount cards?”

• **Overly complicated syntax** – question too difficult to map to intent of question

• **Difficulty with meaning**
  – Vague qualifiers
  – Other vague terms in the question

Excerpted from presentation by Dr. Michael Schwerin, RTI
Helps to Resolve Question Comprehension Issues (2)

- **Unfamiliar terms**: “People on Medicare are not allowed to enroll in a prescription drug discount card program if they belong to a **Medicare managed care plan**."

- **Faulty presuppositions** – leading questions

- **Relevancy** – respondent assumes that if you’re asking the question, it is relevant and that you need their help to obtain an answer.
• **Response options** – the response options you provide informs the assumptions of the respondents
  – Response options match the response being elicited
  – Range of response options is a meaningful range
  – Middle response is “average” or “typical”

➢ **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.”

Excerpted from presentation by Dr. Michael Schwerin, RTI
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

Excerpted from presentation by Dr. Michael Schwerin, RTI
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?”

Excerpted from presentation by Dr. Michael Schwerin, RTI
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

Excerpted from presentation by Dr. Michael Schwerin, RTI
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 or “non-leading” probes

Excerpted from presentation by Dr. Michael Schwerin, RTI
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

Excerpted from presentation by Dr. Michael Schwerin, RTI
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

Excerpted from presentation by Dr. Michael Schwerin, RTI
Field Pre-testing

- Small scale rehearsals prior to main survey
- Time survey to see how long it takes
- With interviewer-based surveys, useful for streamlining procedures and improving questions
- Analysis of survey results useful for identifying problem questions
  - High missingness rates
  - Out-of-range values
  - Inconsistency of answers between questions
Experiments

• Conduct studies to compare different
  – Methods of data collection
  – Fielding procedures
  – Questions and/or instruments

• Many advances in survey research resulted from such experiments
  – Sometimes surveys conducted just to compare methods to see which is better
What We Have Covered

• Discussed methods for evaluating (and improving) survey questions and instruments:
  – Expert reviews
  – Focus groups
  – Cognitive interviews
  – Field pre-testing
  – Experiments

• Described how they are formal ways to conduct question and instrument pretesting
  – Goal is to reduce measurement error