

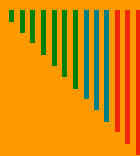


Cognitive Interviewing for Questionnaire Evaluation

Washington Group Extended Set
Bangkok, Thailand February 16 – 20, 2009

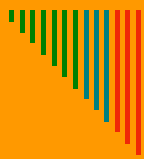
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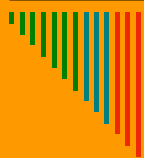
Questionnaire Design Research Lab

- Applied Research for NCHS Surveys
 - Primarily Cognitive Interviewing work
- Question Response and Response Error Methodological Work
 - E.g. cross-cultural comparability, complex questions, evaluation methods,
- Participants in the Field of Question Evaluation
 - Hosting Q-Bank, online database of evaluation reports
 - Guidelines and Standards
 - Calling for rigor and transparency



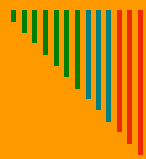
Why Question Evaluation?

- Ensure questions capture intended concept
- Identify incomparable survey data
 - Particular comparability problems for vulnerable populations
 - Lower socio-economic status
 - Fewer resources
 - Translation problems
- To fix problems



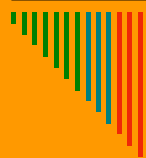
Why Question Evaluation?

- To identify and document what the question measures
 - Not just what is wrong with the question
 - Identify even subtle differences in
 - Patterns of interpretation
 - Patterns of calculation
 - To support data users when conducting analysis of survey data



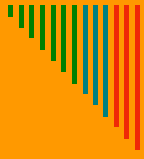
Question Evaluation should answer:

- How do the respondents understand the survey question?
- Do respondents understand the survey question differently?
- Does the question mean the same in all the languages that it is asked?
- Does the question mean the same in all of the cultures that it is asked?



Question Evaluation should answer:

- In processing a question, do all respondents recall information and form an answer the same way?
- What groups should be considered for comparability?
- Age? Education? Income? Gender? Health Status?

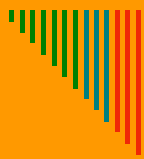


Presentation Goals



Presentation Outline



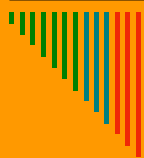


A good question is...

1. relevant to the research agenda

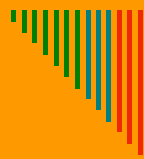
and

2. relevant to each potential respondent's experience and knowledge.



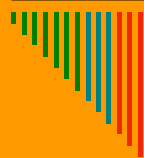
What to Remember about Respondents

- Do not know or understand the research question
- Most likely, do not use scientific, abstract concepts
- Survey puts them in the position of operating as informants
- Reference aspects of their lives



When this relationship is broken,
error is introduced into the data.

- False Positives
- False Negatives
- An entirely different phenomena is measured than intended by the research agenda
- Example: Terrorism

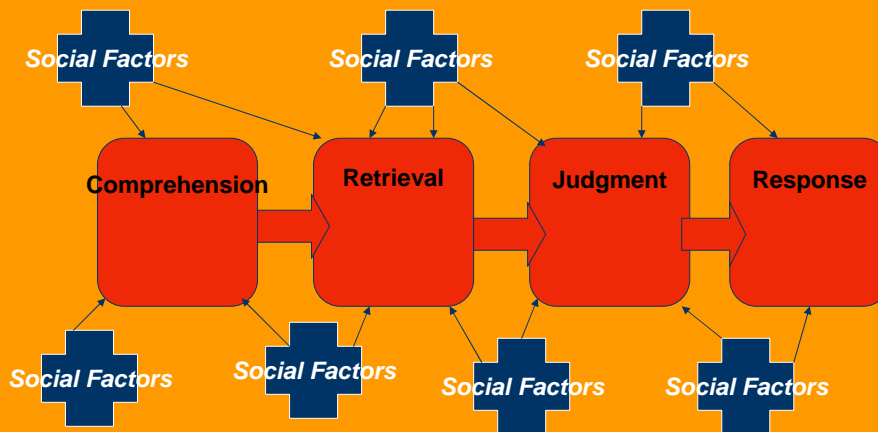


Cognitive Stages to Survey Question Response

1. Comprehension– the respondent interprets the question
2. Retrieval– the respondent searches memory for relevant information
3. Judgment– the respondent assesses the completeness and relevance of memories, and makes an estimation
4. Response: Maps judgment onto response category; may need to edit response to fit the category

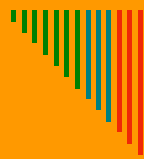


Question Response Process



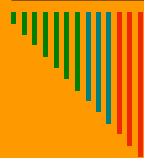
Cognitive Interviews

- Designed to understand how respondents comprehend, retrieve, judge, respond to questions
- Through this examination, can identify
 - potential response errors
 - patterns of interpretation
- Provide insight into social-cultural factors that impact the response process



Cognitive Interviews are Semi-structured

- Core Question- interview is organized by the questions that are being tested
- Probe Questions- open-ended, spontaneous, not pre-scripted, based on the information that the respondent provides



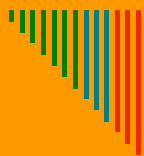
Probing for story

- Why did the respondent answer the question the way that they did?
- Does this story match with the intent of the question?
- video

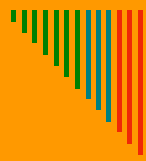


Cognitive Test

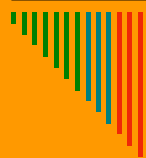
- Qualitative
- Small sample
- Sample selection purposive
- Examines thought processes of respondent
- How does the question work?
- Does the question work as intended?
 - If not, how can it be “fixed”?



How to conduct a cognitive interview

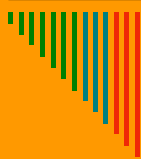


Exercise



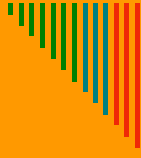
Data from Cognitive Testing

- Collected from semi-structured protocol
- Narrative format
- Validity tied to rich detail
- Findings are grounded
- Insight into question interpretation
- Insight into patterns of calculation

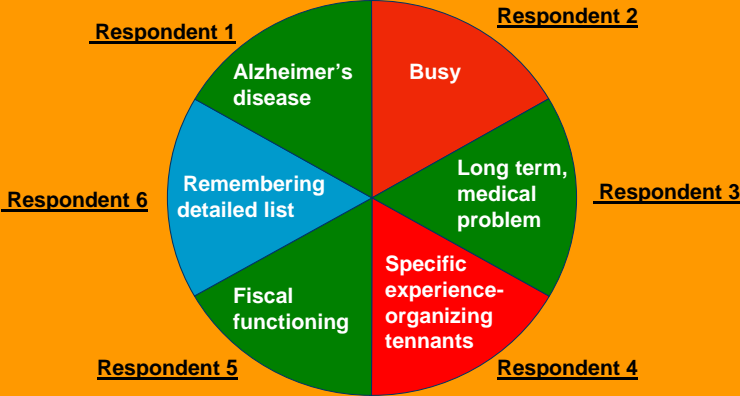


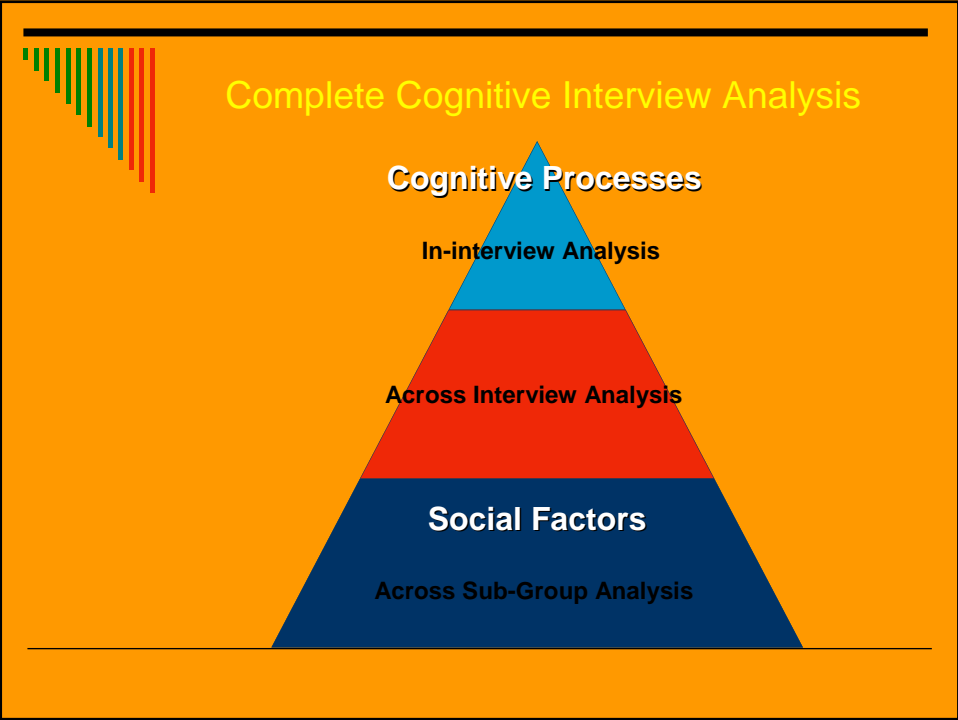
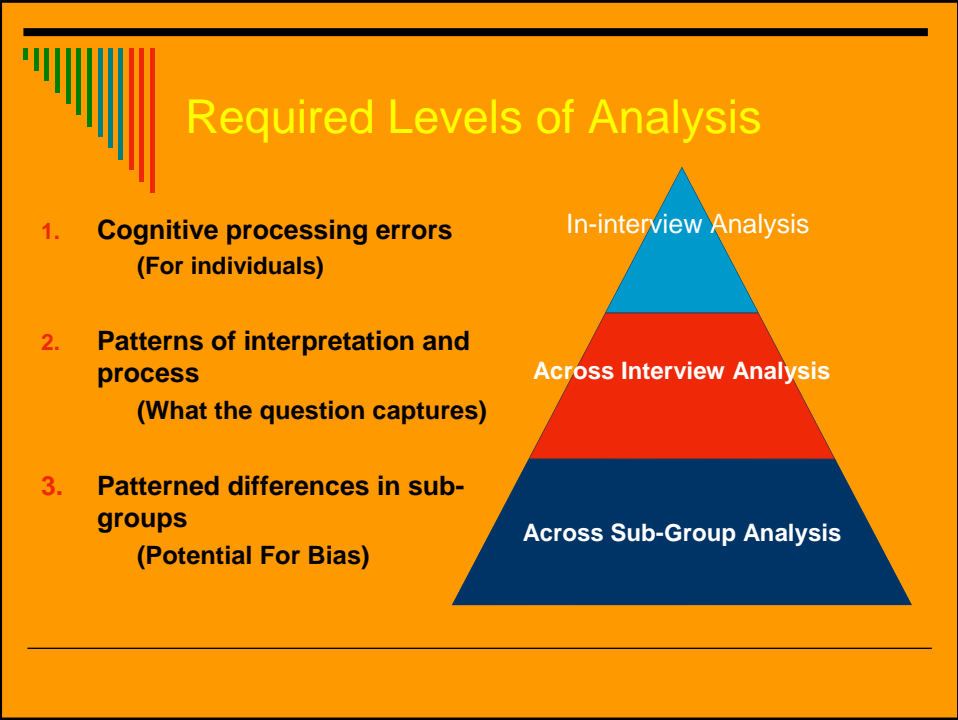
Cognitive Interview Findings

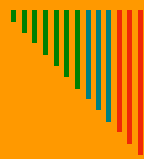
- Provide knowledge of question performance
- Illustrate what the question measures
 - Varied patterns of interpretation
 - Dimensions of response error



Overall, during the past 4 weeks, how much difficulty did you have with thinking clearly and solving daily problems?

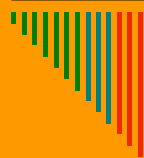






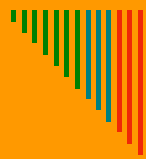
Advantages of a Complete Analysis

- Yields an “inventory” of interpretations
- Provides an *explanation* for interpretations – shows if and how different interpretations are interrelated



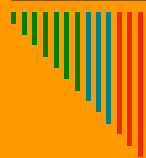
Example: Pregnancy Risk Assessment Monitoring System (PRAMS)

- Self administered (papi) questionnaire tested for PRAMS Phase 6
- Women with babies 2-9 months old



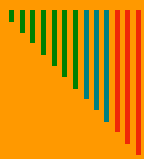
Example: PRAMS

- Questionnaire organized temporally around a woman's most recent pregnancy
 - Before
 - During
 - After



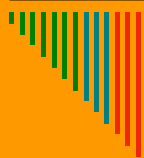
Response Errors

- Organizational structure of the instrument did not fit their experience
 - Led to timeframe being ignored
 - telescoping
- Underlying assumptions of instrument



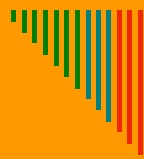
Reasons for Error

- Response difficulties (and errors) were not randomly distributed among respondents
- Most telescoping errors occurred in the “before” section of the instrument



Deeper analysis

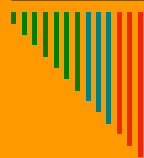
- Telescoping more likely among women who did not plan their most recent pregnancy
- Main problem is the underlying assumption questions make about a woman’s intentions to get pregnant



Question Assumptions

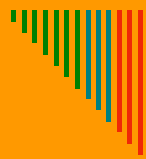
2. During the 3 months before you got pregnant with your new baby, did you do any of the things listed below?

- a. Eat a healthy diet
- b. Exercise most days of the week
- c. Try to lose weight or gain weight so that I would be at a healthy weight
- d. Take a vitamin containing folic acid most days of the week
- e. Get my vaccines updated
- f. Take my prescription medicines as directed by my doctor to control any health conditions such as diabetes, high blood pressure, depression or anxiety
- g. Avoid drinking alcohol
- h. Avoid smoking cigarettes
- i. Avoid using illegal drugs
- j. Get counseling about genetic diseases that run in my family
- k. Talk to my doctor about pregnancy



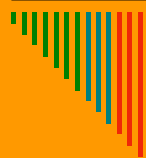
Interpretation Patterns & Question Design

- Identifying a problem suggests a particular design approach
- Problem = Telescoping
 - focus on communicating timeframe
- Problem = False Assumption
 - Strip questions of assumption of planned pregnancy



Cognitive Testing Reports

- Project overview
- Methodology
- Analysis



Q-Bank: Accessing Cognitive Test Findings

- Historically, cognitive test findings have been relatively inaccessible.
- Implications
 - Knowledge is lost
 - Resources are wasted
 - Lack of transparency and accountability
- Important need for a medium to make findings available

Q-Bank

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Q-Bank is a database consisting of questions that have been evaluated for surveys conducted by the United States Federal Government. It is an interagency activity that is designed to improve the quality and usefulness of survey data by facilitating the sharing of knowledge about survey questions.

The database includes survey questions and links each question to its test findings. The primary, but not exclusive, method of question evaluation is cognitive testing. Questions are searchable by survey title, question topic (e.g. income, demographic, chronic health conditions), information type (e.g. objective characteristics, behavioral reports, attitudes), response category (e.g. yes/no, open-ended, quantity), response error (e.g. problems with terms, recall problems). In addition, users can search for keywords within individual questions. The advanced search function allows for a combination of search types.

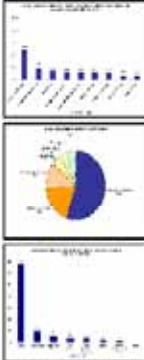
Q-Bank is hosted by the National Center for Health Statistics, Centers for Disease Control and Prevention.

Participating agencies include the U.S. Bureau of the Census, the Office of Behavioral and Social Science Research and the National Cancer Institute of the National Institutes of Health, the Bureau of Labor Statistics and the National Science Foundation.

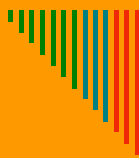
For more information regarding the history and purpose of Q-Bank, see the following paper:

[Miller, R., 2005. Q-Bank: Development of a Tested Questions Database. Proceedings of the AGA Section on Government Statistics, Alexandria, VA. American Statistical Association.](#)

Q-Bank Stats



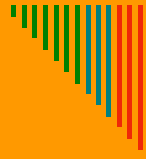
[Click here for more statistics](#)



Who should use Q-Bank?

- ❑ Multiple users
 - Question designers
 - Survey data users
 - Survey methodologists

- ❑ Q-Bank is NOT a database of good questions!
 - Empowers data users to determine the quality of questions.



Q-Bank Website:

<http://wwwn.cdc.gov/qbank/qdrl.aspx>

Q-Bank e-mail:

qbank@cdc.gov