Cognitive Interviewing:
The missing step in most survey design

CQI Conference

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Introductions

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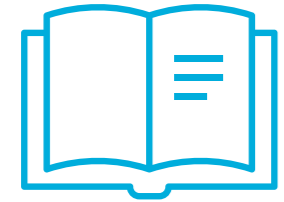Jewish United Fund

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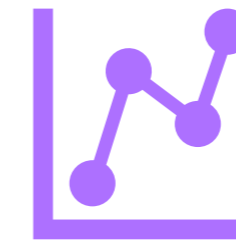
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Session Overview

What is Cognitive Interviewing?

Drafting a Cognitive Interview Protocol

Conducting the Interview

Analyzing the Results to Make Changes

More Reliable, Actionable Information

Why Pre-Test?

What is a Cognitive Interview?

Cognitive interviewing refers to a set of techniques (e.g., think aloud protocols, verbal probes) that enable an evaluator to deeply analyze how respondents understand the survey questions they are to answer.
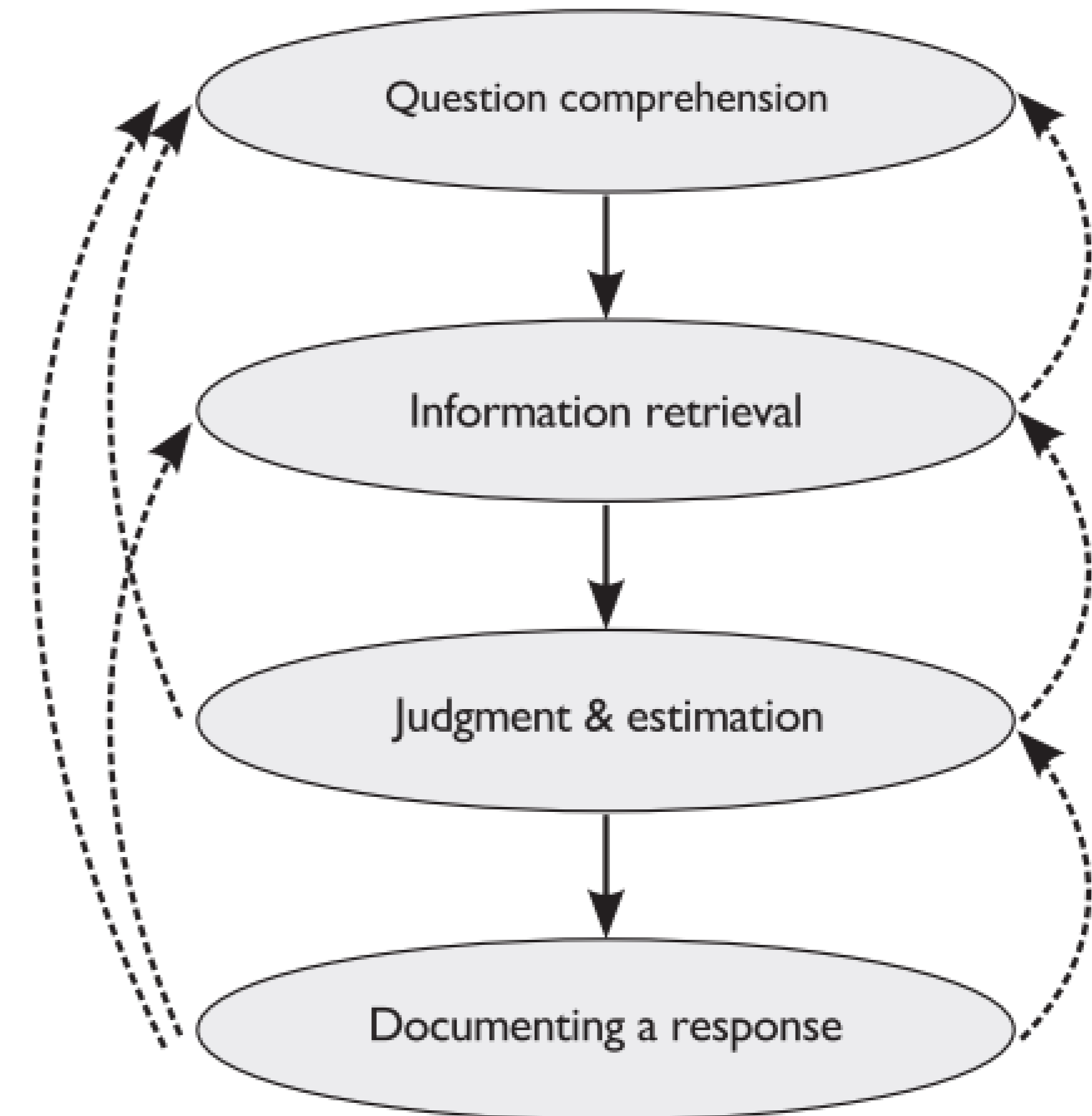
Ryan et al (2012)

Figure 1. A four-step model of cognitive processing in answering questions.

Comprehension

- Paying attention to instructions and questions

- Making sense of the question

- Determining what is being asked

- Connecting key terms in question to relevant concepts

Retrieval of Information

Bringing to mind information from long-term and short-term memory

Retrieval cues

Semantic memory

Episodic memory

Judgement

How we extend and integrate what we have retrieved from memory

- Importance

- Completeness

- Inferences about gaps

- Synthesizing

Judgement processes are the same whether assessing facts, behaviors or attitudes

Respondent may be unable to make a judgement or take shortcuts (satisficing)

Documenting a Response

Key task is to fit their answer to the response format offered

Response boundaries

Order effects

Social desirability

4. How did you experience each of the following?

	Excellent	Above Average	Average	Below Average	Poor	NA
Communications/invitation to the event	○	○	○	○	○	○
Food and breaks	○	○	○	○	○	○
Schedule and structure of agenda	○	○	○	○	○	○
Facility and meeting rooms	○	○	○	○	○	○

Cognitive Interviewing Techniques

Verbal Probing Examples

Table 1. Examples of Cognitive Probes

Think aloud/general[1]/general probe[2]	How did you go about answering that question?[1] Tell me what you are thinking[1] I noticed you hesitated before you answered – what were you thinking about?[1] How easy or difficult did you find this question to answer? Why do you say that?[1] How did you arrive at that answer?2 Was that easy or hard to answer?[2]
Comprehension[1]/Interpretation[2]	What does the term X mean to you?[1] What do you understand by X?[1] Could you tell me in your own words what the question is asking you?[1] How would you say that question yourself?[1]
Paraphrasing[2]	Can you repeat the question I just asked in your own words?[2]
Retrieval[1]/Recall[2]	How did you remember that?[1] Did you have a particular time period in mind?[1] How did you calculate your answer?[1] How do you remember that you went to the doctor five times in the past 12 months?[2]
Confidence judgement[1,2]	How well do you remember this?[1] How sure of your answer are you?[1] How sure are you that your health insurance covers drug and alcohol treatment?[2]
Response[1]	How did you feel about answering this question?[1] Were you able to find your first answer to this question from the response option shown?[1]

Adapted from Collins 2003[1], p. 235-236 and Willis 1999[2], p. 6

Hofmeyer et al (2015)

Cognitive Interview Protocol

Key Considerations for Drafting a Protocol

- Timing – be sure to allow time for corrections and retesting

- Participants – small group that reflects the broader sample or population

- Interviewers– consistency and clear documentation

- Hybrid Approach – utilize think aloud, observation and verbal probing

- Impassive Listening – there are no wrong answers

Elements of a Cognitive Interview Protocol

- Script or talking points for the Interviewer

- All survey items to be tested

- Verbal probes following each question

- Space to record feedback and observations

- Demographics of the respondent

Case Example 1 – 8th Grade Trip

Goal – Shift from a parent to youth-focused evaluation approach with 8th graders about their experience traveling to Israel

Approach - Conducted interviews with four volunteer youth ranging from 7th to 9th grade, including 1 7th grader, 2 8th graders, and 1 9th grader. Kept it simple with 3 probing questions:

- Was this hard to answer?

- Were there enough choices?

- Can you put the question in your own words. What do you think we are asking?

Case Example 1 – 8th Grade Trip (continued)

Option A) Thinking about how you felt before the trip and how you feel now after the trip, please rate your level of agreement with the statements below:

	Before the trip					After the trip				
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I feel a strong sense of connection to the land of Israel	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
I feel a strong sense of connection to Israelis	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
I know about Israel's history	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
I appreciate Israeli culture (language, music, art, etc.)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

VS

Option B) To what extent did the Ta'am Yisrael trip help you to.....?

	Not at all	A little bit	Somewhat	A lot
Feel a strong sense of connection to the land of Israel	☐	☐	☐	☐
Feel a strong sense of connection to Israelis	☐	☐	☐	☐
Know about Israel's history	☐	☐	☐	☐
Appreciate Israeli culture (language, music, art, etc.)	☐	☐	☐	☐

Case Example 2 – Youth Anxiety Support Group

Goal – Understand if a standardized tool (PROMIS® Pediatric Item Bank v2.0 – Anxiety) can be used for 4th graders to measure their anxiety

Approach - Conducted a cognitive interview with a 4th grader to test out the assessment embedded within a larger survey. Kept it simple:

- Asked child to complete the survey first to observe how long it took to complete each question and where they might have paused.

- Followed up with questions:
  - Is there anything that was confusing? (including the Introduction)
  - Were any of the questions hard to answer?
  - Were there enough choices?
  - I noticed that you paused X, what were you thinking?

Case Example 2 – Youth Anxiety Support Group

Original Survey

Date: _____
Unique ID (e.g., Your Initials, Birthday Month – e.g., DC09): _____

Anxiety Empowerment Group – Child
Please take a few minutes to respond to the questions below. Your responses will help to inform these groups moving forward.

Please respond to each question or statement by checking one box below per row.

In the past 7 days...	Never	Almost Never	Sometimes	Often	Almost Always
1. I felt like something awful might happen	☐	☐	☐	☐	☐
2. I felt nervous	☐	☐	☐	☐	☐
3. I felt scared	☐	☐	☐	☐	☐
4. I felt worried	☐	☐	☐	☐	☐
5. I worried when I was at home	☐	☐	☐	☐	☐
6. I got scared really easy	☐	☐	☐	☐	☐
7. I worried about what could happen to me	☐	☐	☐	☐	☐
8. I worried when I went to bed at night	☐	☐	☐	☐	☐

What things make you feel worried at home or school?

What do you do when you start to feel worried?

Is there anything else you want to share about yourself?

Updated Survey

Name: _____

Anxiety Empowerment Group – Child
Please take a few minutes to answer the questions below. Your answers are going to make these groups better for other kids like you.

Please respond to each question or statement by checking one box below per row.

In the past 7 days...	Never	Almost Never	Sometimes	Often	Almost Always
1. I felt like something awful might happen	☐	☐	☐	☐	☐
2. I felt nervous	☐	☐	☐	☐	☐
3. I felt scared	☐	☐	☐	☐	☐
4. I felt worried	☐	☐	☐	☐	☐
5. I worried when I was at home	☐	☐	☐	☐	☐
6. I got scared really easy	☐	☐	☐	☐	☐
7. I worried about what could happen to me	☐	☐	☐	☐	☐
8. I worried when I went to bed at night	☐	☐	☐	☐	☐

What things make you feel worried at home or school?

What do you do when you start to feel worried?

Is there anything else you want to share about yourself?

Case Example 3 – Client Feedback Questions

Goal – Explore if Client Feedback questions used for other impact areas (e.g., Older Adults, Mental Health) need to be revised for people with disabilities, caregivers and family members, and community members.

Approach – Across the 8 organizations providing services for people with disabilities, agency staff to interview a total target of 15 individuals with a disability, 10 family members and caregivers, and 15 members of the Jewish community based on populations served.

Case Example 3 – Client Feedback Questions

Interviewers identified by each of the 8 organizations

- 3 Client Feedback Survey Tools

- Detailed cognitive interview testing protocols

- Interviewer Report Forms including the script, observations, and respondent feedback

Case Example 3 – Client Feedback Questions

Interviewer Report Form Example

1. **Are the program/agency's staff members open to your questions and concerns?**

    Confusing? ☐ Yes

    New way to ask question:

    Problem remembering/knowing how to answer:

    Sometimes reason:

    Good answer option:

    Other Notes and Observations (e.g., *identify if the respondent paused or needed additional clarification. If the question was completed with assistance, indicate any clarifying language or rephrasing that was provided.*)

Case Example 3 – Client Feedback Questions

Design
- Existing Surveys
- Literature
- Experts
- Data Working Group

Refine
- 1 month for organizations to complete interviews
- Analyze Feedback
- Edits

Implement
- Implement across all participating organizations

Case Example 4 – Jewish Early Childhood Education

Goal – Develop a survey for use across 36 unique centers serving Jewish and non-Jewish children and families

Approach – Recruited 2-4 parents in each of the following categories:

- Part-day
- Full-day
- Newborn to toddlers
- 3s and 4s
- Final year (5s)
- Children with special needs

- Non-denominational
- Not Jewish
- Reform
- Conservative
- Orthodox

Case Example 4 – Jewish Early Childhood Education

3 different interviewers

Detailed script and recording form

Probes for each survey section (5 to 10 items):

- *Comprehension* – Were there any items where you were not sure of the meaning? Do you have any suggested improvements?

- *Retrieval* – Did you struggle to remember anything asked? Is there a way to make this easier to jog your memory?

- Response Process – Did you find the appropriate response in the options offered? Were there any options you wanted that were not offered?

Case Example 4 – Jewish Early Childhood Education

Design

- Taskforce
- Literature
- Experts

Refine

- 8 round 1 interviews
- Edits
- 8 round 2 interviews

Pilot

- Aimed to recruit 5 schools but 24 schools piloted the survey

Let's Practice

1. Pair up

2. Pick a role:

- Interviewer

- Respondent

3. Carry out the Protocol and take detailed notes

4. Be ready to share your observations

Analyzing and Acting on Results

Analyzing Interview Feedback
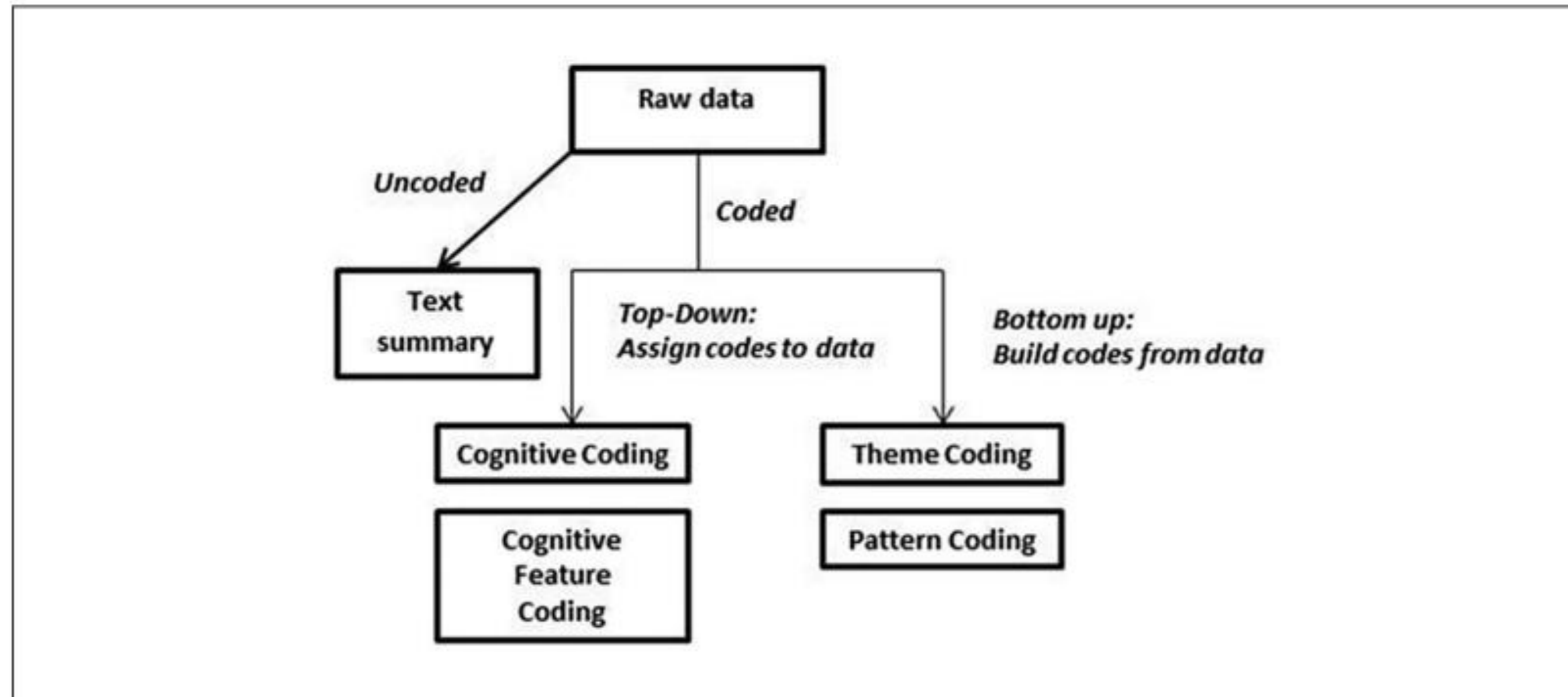
Qualitative Analysis Approaches

Figure 1. Analysis models for cognitive interviews. After Willis (2015).

(Meadows, 2021)

Considerations:

- Data Management System
- Interrater Reliability and Collaborative Analysis
- Population sub-groups (e.g., age, respondent group) to understand feedback
- Determine criteria for action (e.g., # of respondents with an issue, type of issue)

Analyzing Interview Feedback - Coding Examples

- ## Respondent-Level (Within Interviews)

Respondent	Age	Group	Time Spent	Introduction	Q1	Q2	Q3
AB1	56	Caregiver	5 minutes	OK	Issue	OK	Issue
AB2	30	Child	30 minutes	OK	Issue	OK	OK
AB3	17	Individual	15 minutes	OK	Issue	OK	OK

- ## Question-Specific Across Respondents (Across Interviews)

Respondent	Age	Question	Group	Comprehension	Retrieval/Recall	Confidence	Response Options
AB1	56	Q1	Individual	X	X		
AB2	30	Q1	Caregiver	X			X
AB3	17	Q1	Individual	X			

- ## Sub-Groups

Benefits of Cognitive Interviewing

- Content validity is improved

- Relevance and meaning in the local context are understood

- Measurement error is reduced

- Can be used in conjunction with expert review, survey and content literature findings

More Reliable,
Actionable Information

Thank you!