

# Ensuring Comparability and Measurement Equity: A Socio-Cultural Approach to Cognitive Interviewing

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# Agenda

1. Goals, Definitions, Theory
2. Overview of Method Steps
  - Sampling
  - Interviewing
  - Analysis
3. Analysis: Case Study
4. Resources & Questions

## com·pa·ra·bil·i·ty

NOUN

*comparability (noun)*

the fact of quality of being similar and able to be compared:  
“there are differences in recording practices that will affect the comparability of results”

## eq·ui·ty

NOUN

*equity (noun)*

the quality of being fair and impartial: “equity of treatment”  
Synonyms: fairness·fair-mindedness·justness·justice·equitableness·fair play

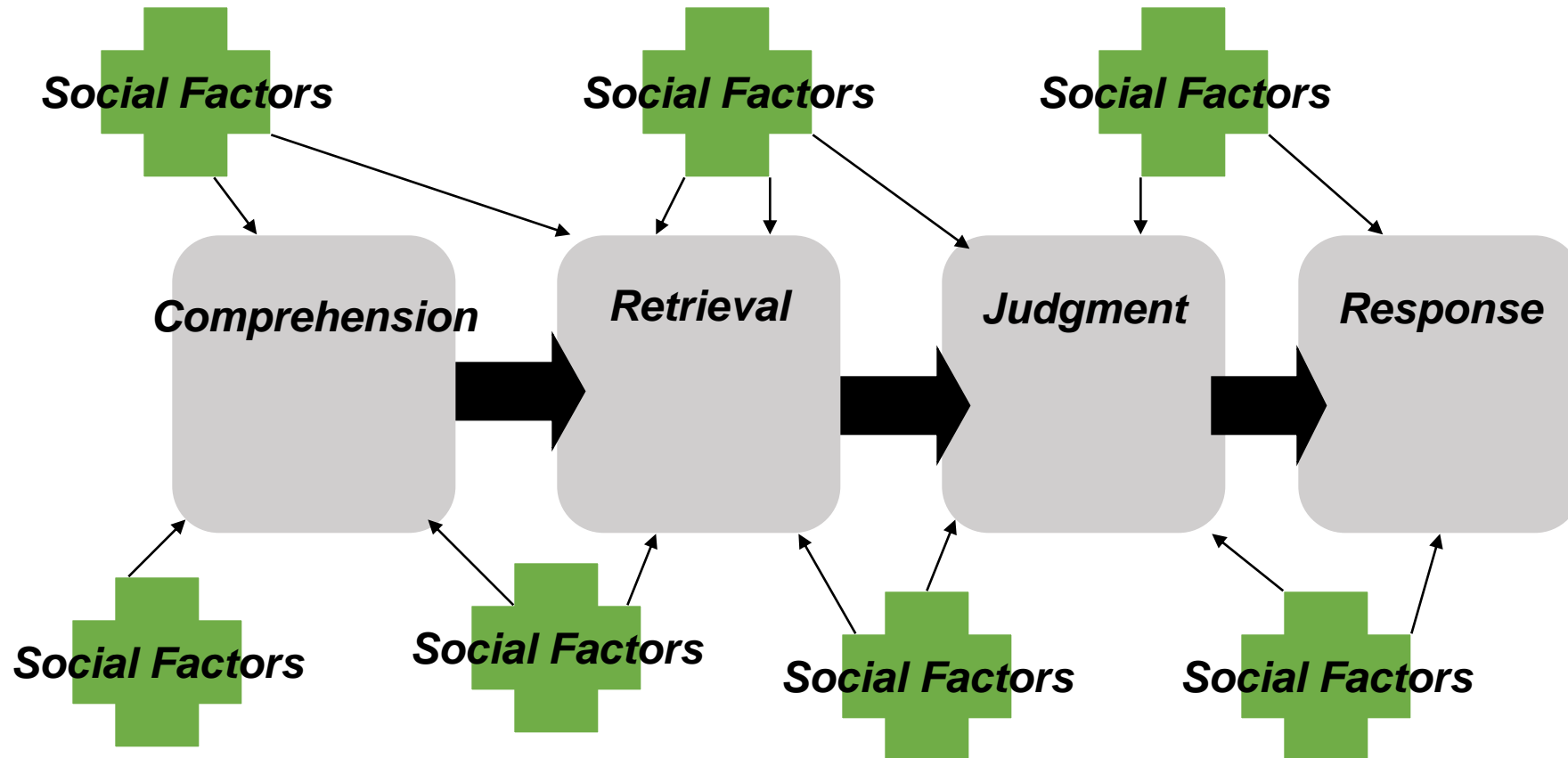
## in·clu·siv·i·ty

NOUN

*inclusivity (noun)*

the practice or policy of providing equal access to opportunities and resources for people who might otherwise be excluded or marginalized, such as those having physical or intellectual disabilities or belonging to other minority groups

# Question Response Process



# Respondents...

- Serve as informants to their situation or experience
- Do not necessarily know why they are being asked the question
- Do not use scientific or abstract concepts
- Make sense of a question within the context of their own lives

# Standpoint Theory

Theoretical perspective that argues knowledge (how people make sense of things) comes from their daily experiences and social position.

The perspective argues that traditional science is not objective and suggests that research and theory have ignored marginalized groups and their way(s) of thinking.

- Sandra Harding: *Whose Science? Whose Knowledge?* (1991)
- Dorothy Smith: *The Everyday World as Problematic* (1989)
- Patricia Hill Collins: *Black Feminist Thought: Knowledge, Consciousness, and the Politics of Empowerment* (1990)

# Our Purpose

How can we use cognitive interviewing methodology to make science (e.g., survey research) more objective, so that data is:

- More comparable
- More inclusive
- More equitable

# Analytic Goals of Cognitive Interviewing Studies

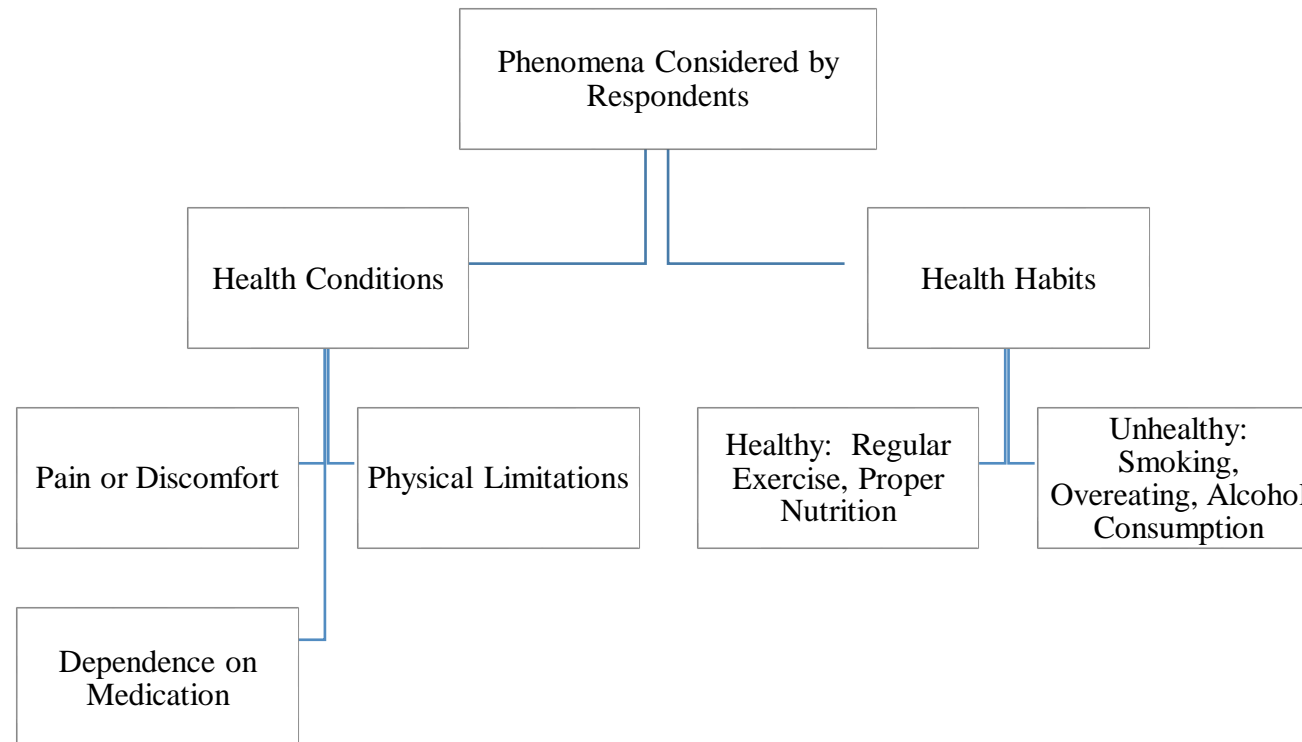
- Cognitive Testing: Conducting interviews to “look for problems”
- Construct Validity Study: Identifying the constructs captured by individual questions by identifying the specific **phenomena that account for respondents’ answers**
- Comparability Study: Determining whether constructs are **consistently captured across salient** respondent groups



# Construct Validity

## Visual Representation of Construct Schema

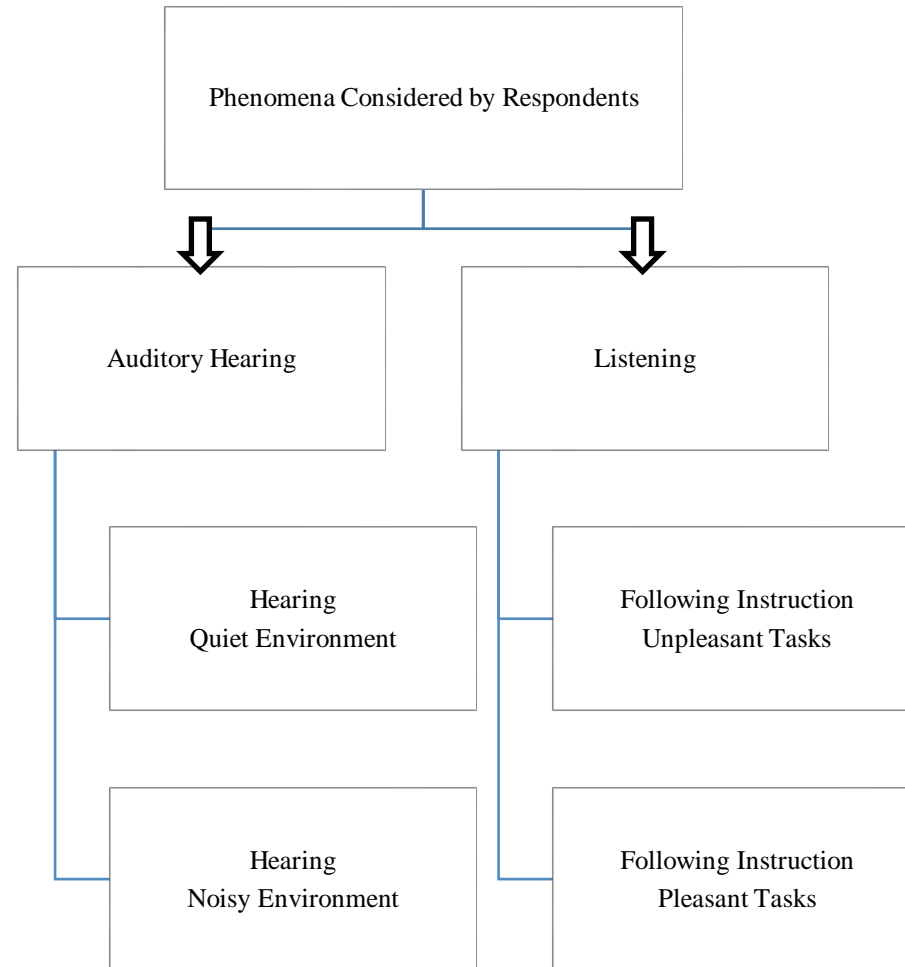
Question: In general, would you say your health is excellent, very good, good, fair or poor?



# Construct Validity

## Visual Representation of Construct Schema

Question: Does your child have difficulty hearing?



# Cognitive Interviewing: A Study in Comparability

Determines whether constructs are **consistently captured across salient** respondent groups.

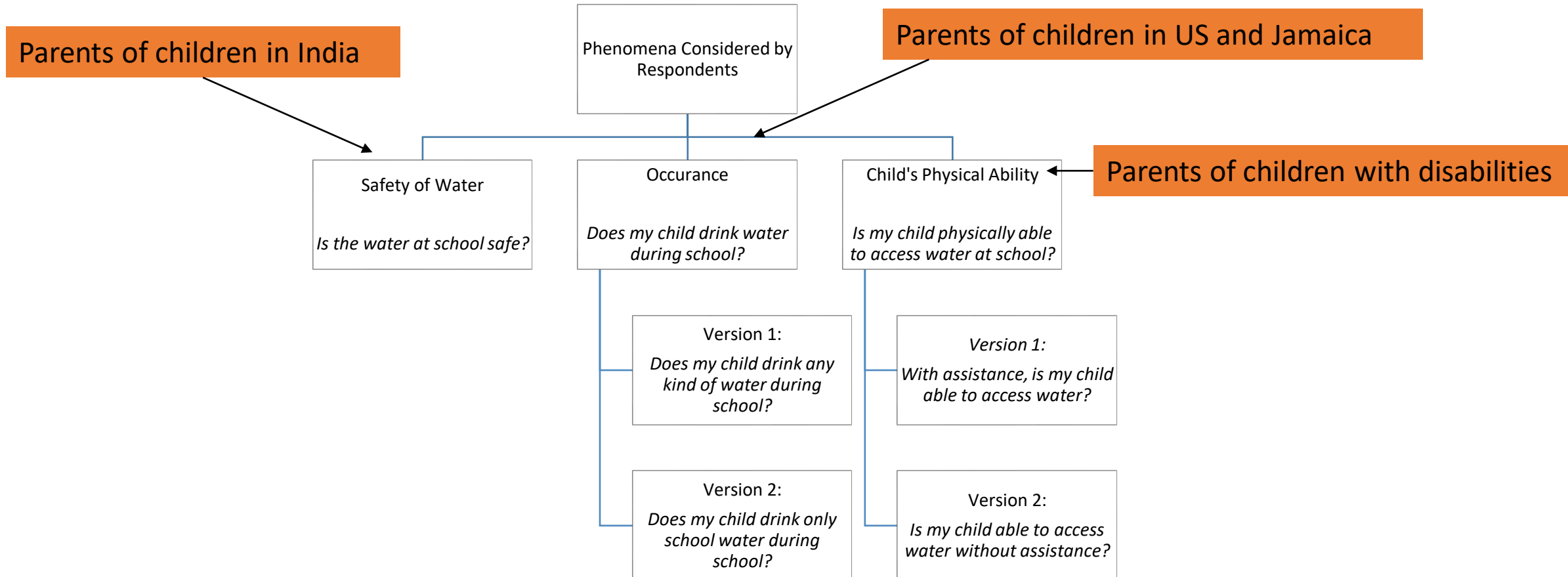
# Comparative Study

1. Identify the various constructs captured by individual questions
2. Determine whether they are consistently captured across groups of respondents
3. For identified differences, determine reason for differences
  - What about respondents' experiences inform how they interpret or process a survey question?
  - Do the differences impact comparability?

# Comparative Study

United States/English, Jamaica/English: Does your child use drinking water facilities at school?

India/Hindi: क्या (नाम) स्कूल में की पानी पीने की सुविधा को आसानी से इस्तेमाल कर सकता/ सकती है?



# Criteria for judging conclusions

- Understanding differences vs. testing hypotheses
- Findings must be credible
  - Arguments are logical
  - Assertions are supported by evidence
  - Data are transparent (i.e., available for scrutiny)
- Findings must be convincing
  - Conveys respondent experiences accurately
  - Vividly (with direct quotes)
  - Convincingly (face validity)

# Examples

- Different understandings of 'race' and 'ethnicity'
  - Hispanic respondents not seeing themselves as 'White'
  - MENA respondents having difficulty selecting a category
- Different understandings of 'sexual assault': men vs women
- Different understandings of 'opioid misuse'

# Steps for a Cognitive Interviewing Study

## *Using the Principles of Qualitative Methodology*

### 1. Data Collection

#### A. Sample Selection

The principle of theoretical saturation dictates a diverse sample in order to saturate all possible question-response patterns.

#### B. Cognitive Interview

Obtaining a full narrative on personal experience in relation to the question illuminates the response process for a particular respondent.

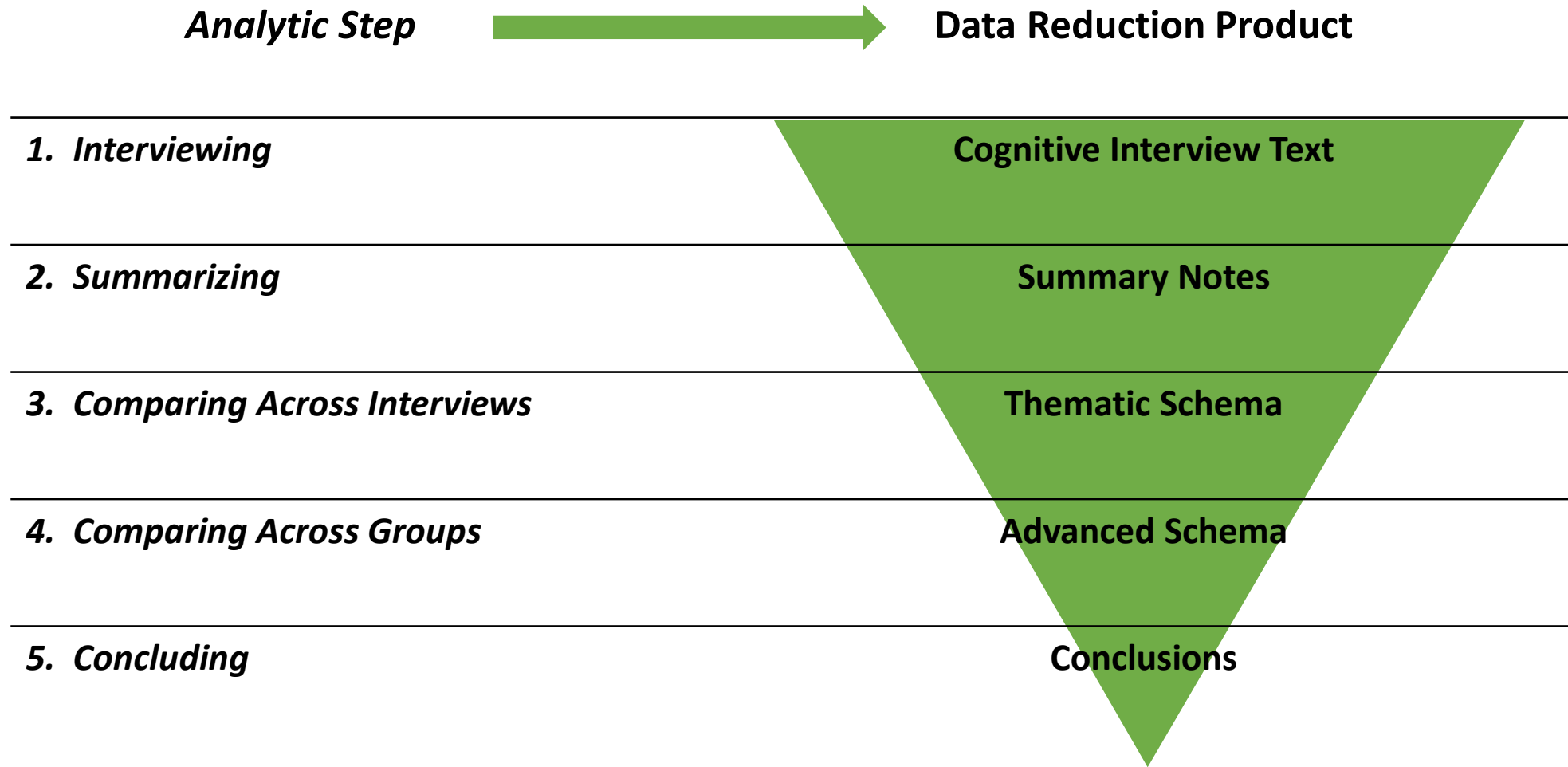
### 2. Analysis

Constant comparative method helps to reveal patterns within an interview for a single R, across questions for all Rs, and among subgroups that may demonstrate similar/different patterns.

### 3. Documentation of Findings



# Products of Data Reduction for Analytic Steps



# Tiers of Theory Building for Analytic Steps

*Analytic Step*



**Tiers of Theory Building**

**1. *Interviewing***

**Individual Response**

**2. *Summarizing***

**Record of Respondent Difficulty  
Identification of Potential Themes**

**3. *Comparing Across Interviews***

**Identification of “What Question Captures”  
(Construct Validity)**

**4. *Comparing Across Groups***

**Response Process Differences Across Groups  
(Bias)**

**5. *Concluding***

**Explanation of Question Performance  
(Why)**

# A Closer Look at Analysis

- Theory building means developing an understanding and explanation of question performance
- The analytic strategy that produces this understanding is informed by the Constant Comparative method first outlined by Glaser & Strauss\*

\*Glaser, B. and Strauss, A. (1967) *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Hawthorne, NY: Aldine de Gruyter.

# Analysis as Constant Comparison

1. Steps in a cognitive interviewing study
2. Example of analysis using a recent cognitive interview project

# 1. Steps for a Cognitive Interviewing Study

## *Analytic Step*

## Tiers of Theory Building

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### **1. Interviewing**

### **Individual Response**

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### *2. Summarizing*

Record of Respondent Difficulty  
Identification of Potential Themes

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### *3. Comparing Across Interviews*

Identification of “What Question Captures”  
(Construct Validity)

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### *4. Comparing Across Groups*

Response Process Differences Across Groups  
(Bias)

---

### *5. Concluding*

Explanation of Question Performance  
(Why)

# Step 1: Interviewing

- Administer survey questions as intended
  - Read exactly as worded
  - Have respondent complete for self-administered
- Probe retrospectively or concurrently, as necessary
  - Obtain respondent's rationale for answering
  - Ask for specific experiences and examples that the respondent drew upon
  - Explore any confusion, contradictions, or misunderstandings either expressed by the respondent or suspected by you
- Record the interview
  - Notes during interview
    - Serves as failsafe in case of technology failure
    - Brief silence while writing acts as an excellent probe
    - Taking notes cues the respondent on the kind of information you're looking for
  - Transcript

## *Analytic Step*

## Tiers of Theory Building

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(Why)



## Step 2: Summarizing

- Unit of analysis = a single interview/respondent
- Summarize response process for all questions for each individual respondent
- Make note of patterns of response and interpretation throughout the interview
- Make note of respondent difficulties
- Make note of any response error
- Compare respondent narrative against their survey response
- Compare survey responses for logical consistency

## *Analytic Step*

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(Why)

## Step 3: Comparing Across Interviews

- Unit of analysis = a single survey question
- Compare the response process for each question across all respondents
- Look for similar interpretations, difficulties, and errors for each question

## *Analytic Step*

## Tiers of Theory Building

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1. *Interviewing*

Individual Response

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2. *Summarizing*

Record of Respondent Difficulty  
Identification of Potential Themes

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3. *Comparing Across Interviews*

Identification of “What Question Captures”  
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# Step 4: Comparing Across Groups

- Unit of analysis = a response pattern
- Group response patterns into larger themes (evolves as interviewing proceeds)
  - Merge ideas
  - Rename themes
  - Clarify themes
- Compare patterns by subgroups
  - Note similarities and differences in interpretations among subgroups
  - Note difficulties and errors among subgroups

## *Analytic Step*

## Tiers of Theory Building

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Individual Response

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2. *Summarizing*

Record of Respondent Difficulty  
Identification of Potential Themes

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**5. *Concluding***

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(Why)**

## Step 5: Concluding

- Conclusion = Statement of how the question performed and why
- Describe how the patterns fit together into an overall theme of question-response
- Identify the underlying phenomena/construct revealed by the theme

# Analysis is NOT...

- A concatenation of respondent quotes
- A list of patterns with no context
- An assertion of themes without supporting quotes (data)



## 2. Example of analysis using a recent cognitive interview project

# Example: Adding an 'X' Gender Marker to US Passport Application Form

- Goal of project: Evaluate respondents' understandings of and preferences for different definitions of an X gender marker to be included on US passports alongside M (male) and F (female)
- Different definitions of X were tested, including:
  - non-binary, intersex, and/or gender non-conforming
  - neither male nor female
  - unspecified

# Findings\*

- The basis on which respondents chose a gender marker (M, F, or X) depended on concerns for either:
  - Inclusivity
  - Privacy or safety
  - Clarity
- Example here will focus on Privacy/Safety

\*A full documentation of findings can be found in the final report, available on Q-Bank:  
<https://wwwn.cdc.gov/qbank/report.aspx?1225>

# Passport Application Mock-Up Form



**CLEAR**

U.S. Department of State

## APPLICATION FOR A U.S. PASSPORT

OMB CONTROL NO. 1405-0004

EXPIRATION DATE:

ESTIMATED BURDEN: 85 MIN

Use black ink only. If you make an error, complete a new form. Do not correct.

Select document(s) for which you are submitting fees:

U.S. Passport Book     U.S. Passport Card     Both

The U.S. passport card is not valid for international air travel. See instructions Page 3

Regular Book (Standard)     Large Book (Non-Standard)

The large book is for frequent international travelers who need more visa pages.

1. Name Last

D     O     S     NFR

End. # \_\_\_\_\_ Exp. \_\_\_\_\_

First

Middle

2. Date of Birth (mm/dd/yyyy)

3. Gender (Read Instruction Page 3)

M    F    X Changing gender marker?

           Yes

4. Place of Birth (City & State if in the U.S. or City & Country as it is presently known.)

5. Social Security Number

6. Email (see application status at [passportstatus.state.gov](http://passportstatus.state.gov))

7. Primary Contact Phone Number

# Application Instructions Page

## GENDER MARKER INFORMATION

We print passport holders' gender in the 'Sex' field of U.S passports. The gender markers we use are: M (male), F (female) and X (non-binary, intersex, and/or gender non-conforming). The gender marker that you check on this form will appear in your passport regardless of the gender marker(s) on your previous passport and/or your supporting evidence of citizenship and identity. If changing your gender marker select Yes in the "Gender" field on page 1. If no gender marker is selected, we will print the gender as listed on your supporting evidence. **Please Note: We cannot guarantee that other countries you visit or travel through will accept the gender marker on your passport. Research the laws of the countries you plan to visit or travel through to make sure you understand their entry requirements. Some countries and travel companies may not recognize the X gender marker. Visit [travel.state.gov](https://travel.state.gov) for more information.**

## *Analytic Step*

## Tiers of Theory Building

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### **1. Interviewing**

### **Individual Response**

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Identification of Potential Themes

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### *3. Comparing Across Interviews*

Identification of “What Question Captures”  
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### *4. Comparing Across Groups*

Response Process Differences Across Groups  
(Bias)

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### *5. Concluding*

Explanation of Question Performance  
(Why)

# Passport Project: Interviewing

- *Administer survey questions as intended*
  - Respondents first completed the form (in the Zoom platform)
- *Probe retrospectively or concurrently, as necessary*
  - Interviewers explored understandings of 'X'
  - Interviewers explored understandings of and preference for definitions that appeared in the instructions
- *Record the interview*
  - Video recorded
  - Transcripts conducted

## *Analytic Step*

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Explanation of Question Performance  
(Why)



# Passport Project: Summarizing

- *Unit of analysis = single interview/respondent*
- *First-hand account of what happened in an interview*
- *Make note of patterns of response and interpretation throughout the interview (understandings, difficulties, inconsistencies, response error)*

# Summary Example

R saw the versions and said, “Oh! After everything I just said, ‘unspecified’ sounds like ‘it’s none of your business.’” I asked if R felt that unspecified meant ‘prefer not to say,’ since that is what her comment suggested. R said, “Yeah – ‘neither male nor female’ is almost more appealing than ‘unspecified’ because I can picture someone going over your passport and going – ‘oh unspecified.’ Like, it’s prejudiced or something. Now I don’t like any of them.” I asked if she saw the versions as having different meanings. R then said, “They have a different feeling about them. Like the top one [version A] is trying to be ‘with it’ and it gives folks the chance to say ‘I’m non-binary’ and put X. Or, I’m gender non-conforming. ‘Unspecified’ seems like – [reads to herself] now I think the first one is trying too hard to include everything. Like there could be other things...trans....transsexual...Now I think ‘neither male nor female’ is rising to the top. There could be lots of things.” [Version B is more open and inclusive to R] R then wondered if other categories are not included. And, then she said “And prefer not to say is not there.” I asked if she thinks that’s what the X means. She said, “Yeah, in a way. X – you’re just not answering that question.” Now R feels that all the ‘stuff’ in Version A seemed like too much and may be missing categories of people.

*Analytic Step*

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5. *Concluding*

Explanation of Question Performance  
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# Passport Project: Comparing Across Interviews

- *Unit of analysis = survey question*
- *Compare the response process for each question across all respondents*
- *Look for and note common interpretations, difficulties, and error for each question*

# Example of Comparison Across Respondents

**R1:** R saw the versions and said, “Oh! After everything I just said, ‘unspecified’ sounds like ‘it’s none of your business.’” I asked if R felt that unspecified meant ‘prefer not to say, since that is what her comment suggested. R said, “Yeah – ‘neither male nor female’ is almost more appealing than ‘unspecified’ because I can picture someone going over your passport and going – ‘oh, unspecified.’”

**R2:** In looking at all three R said, “Well, I like the first one the best because it’s the most specific, but I don’t see the harm in just having all of them. And, I’m not sure what gender non-conforming is either.” So, R saw Version A as more specific but also more jargon. R said, “I know what intersex is, but that’s because I read a book about it. And, I don’t know if the general public knows or not. It’s when a person is born with characteristics of both genders. By characteristics I mean...body.” I asked R about Version B – and she said, “Well, that is different in that ‘unspecified’ could mean, I’m not picking either of the previous ones so that is what I have left or it could mean, I have one but I don’t want to tell you.”

## Example of Comparison Across Respondents (cont.)

**R3:** R said that “Out of the three is probably, for me...and I mean I am intersex and I do speak out about it, but I just – I would never choose that on my passport or any government information because I could stand out. So, if they are definitely putting it on a passport, I would say ‘unspecified.’ Because, that is almost more like a choice. Unspecified can mean so many different things. Like, unspecified to a third party could mean you just didn’t fill out the box – it means so many different things. To me ‘unspecified’ seems like the safest terminology.”

**R4:** I show R all the versions and ask if one would be preferred over the others. "Well, G [unspecified]. Because then if I want to cover something because I don't feel safe to somebody -- decline to answer.”

**R5:** Which version seems best? "I guess...I think G [unspecified] would be the safest bet as to not put trans and non-binary people in further danger. Because the assumption, too, is that someone could also be cis and pick G just because they decline to answer or they're neutral about it.”

# Example of Comparison Across Respondents (cont.)

- Pattern identified = Interpreting “unspecified” as a refusal to answer
- Two sub-patterns for refusing to answer
  - Privacy
    - It’s none of your business
    - I don’t want to tell you
  - Safety
    - It’s safer than revealing “true” identity
    - Don’t want to stand out when traveling abroad

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(Bias)**

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5. *Concluding*

Explanation of Question Performance  
(Why)



# Passport Project: Comparing Across Groups

- *Unit of analysis = response patterns*
- *Group response patterns into larger themes*
  - ‘None of your business’ and ‘need to stay safe’ both represent an opt-out/refuse to answer
- *Compare patterns by subgroups*
  - Interpreting ‘unspecified’ as “none of your business” prevalent among gender non-minorities
    - R1: Gender non-minority
    - R2: Gender non-minority
  - Interpreting ‘unspecified’ as a “need to stay safe” prevalent among gender minorities
    - R3: Gender minority
    - R4: Gender minority
    - R5: Gender minority

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**5. *Concluding***

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(Why)**

# Passport Project: Concluding

- *Conclusion = Statement of how the question performed and why*
  - The term 'unspecified' is prone to different interpretations
- *Describe how the patterns fit together into an overall theme*
  - 'Unspecified' can mean an opt-out or refusal to answer
  - But this refusal means different things to different groups of respondents
    - Tied to the notion of an inherent right to privacy
    - Tied to a concern with prejudice and discrimination associated with certain gender identities
- *Identify the underlying phenomena/construct revealed by the theme*
  - Two constructs are captured by 'unspecified,' which vary by gender identity
    - Privacy vs.
    - Safety

# In Sum

Following the principles of qualitative methodology (for example, grounded theory and the constant comparative method) ensures an outcome commensurate with the goals of comparability, equity, and inclusivity.

# Resources

[Q-Notes: Analysis Software for Question Evaluation \(cdc.gov\)](#)

[Q-Bank: Question Evaluation for Surveys \(cdc.gov\)](#)

Miller, K., Willson, S., Chepp, V., & Padilla, J.-L. (2014) *Cognitive Interviewing Methodology: A Sociological Approach for Survey Question Evaluation*. Hoboken, NJ: Wiley.

# Thank You!

## Questions?

Note: The findings and conclusions in this paper are those of the author(s) and do not necessarily represent the official position of the National Center for Health Statistics, Centers for Disease Control and Prevention.