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Using Cognitive Interviewing Techniques to Assess Cross-Cultural Comparability


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Quick intro:
My first exposure to "cognitive interviewing"

- **Teaching subtraction:**
The poodle has 9 puppies.
The collie has 5 puppies.
How many more puppies does the poodle have?
- **New version:**
How many more puppies does the poodle have than the collie?
- **Lesson (...and premise of cognitive interviewing)**
It's useful to test things out and make changes based on insights we have obtained.



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The cognitive *testing* process in a nutshell

- **Recruit** members of targeted populations (e.g., cancer survivors, teen smokers)
- (Usually) offer **payment** for participation
- Conduct **one-on-one interviews**
- Administer questionnaire, using **verbal probing** techniques to elicit thinking about question.
 - **Finding:** Note apparent difficulties related to question wording, ordering, format.
 - **Fixing:** Suggest modifications that address problems.
- Cognitive testing is best done as an **iterative** process (multiple testing rounds)
- Cognitive testing is integrated into other pretesting methods: *Expert Review, Focus Group, Behavior Coding*

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Focus of Cognitive Interviewing: Information processing by the survey respondent

- 1) **Encoding** of question (understanding it)
Have you ever received care from a podiatrist?
- 2) **Retrieval** of information (knowing/remembering)
*How many measles shots has your child received?
How many times have you ridden in a passenger airplane?*
- 3) **Decision and judgment** processes (truth, adequacy)
How many sex partners have you had in the past 12 months?
- 4) **Response** (matching internal representation to given categories)
"Would you say your health is excellent, good, fair, or poor?"

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Basic varieties of verbal probing

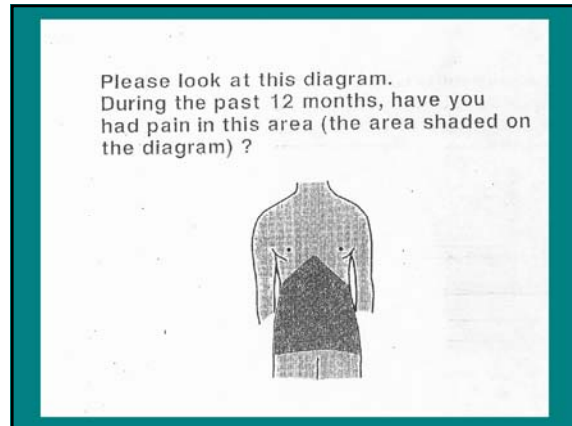
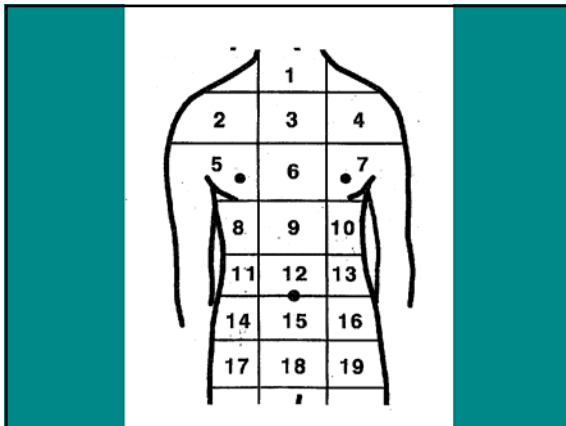
Comprehension probe:	What does the term "dental sealant" mean to you?
Paraphrase:	Can you repeat the question in your own words?
Confidence judgment:	How sure are you that your health insurance covers...?"
Recall probe:	How do you know that you went to the doctor 3 times...?
Elaborative/Expansive probe	Can you tell me more about that...
'Ethnographic' probe	Tell me about the meals that Mexicans eat...

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Tested ("classic") question: Pain in the abdomen

"In the last year have you been bothered by pain in the abdomen?"

Probes-
What time period are you thinking about, exactly?
What does "bothered by pain" mean to you?
Where is your "abdomen?" ➡



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Adapting to cultural variation:
In pursuit of Cross-Cultural Comparability

- We increasingly use cognitive interviewing to study *racial/ethnic/cultural/language* differences
- So, we conduct interviews across subject groups
- But** we need to worry about:
 - Comparability of interviewers, across group -
 - Optimally we have interviewer who is a) bilingual, b) well-versed in questionnaire design, and c) trained in cognitive interviewing
 - Making sense of results -
 - Are they due to translation problems?
 - Are they general problems of questionnaire design?
 - Are they due to culturally-specific differences?

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Study: Cognitive interviewing of Hispanics and Non-Hispanics*

- Research questions:
 - Can cognitive interviewing be feasibly done with Hispanics, in Spanish?
 - If so: Are the results believable?
 - If so: Do we find evidence of cultural differences in the survey response process?
 - If so: Are the differences really due to culture, as opposed to some other confounding factor (especially demographic variables)?

*Miller, Willis, Eason, Moses, & Canfield, 2006

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Cognitive interviewing, with quantitative assessment

- 67 cognitive interviews conducted in DC and Ohio
 - 36 Hispanic interviews by 2 bilingual consultants
 - 31 Non-Hispanic interviews by 4 NCHS staff members
- Hispanics were interviewed in Spanish (35/36); Non-Hispanics were interviewed in English -- *So language was confounded with ethnicity*
- Topics were health conditions, behaviors (diet)
- Cognitive interviews included (a) scripted probes and (b) unscripted "Emergent" probing, to elucidate cognitive processes
 - To you, what is *Chronic Obstructive Pulmonary Disease*?
 - Why do you say your health in general is 'very good'?

Table 2: Miller et al. study: Percentage of participants having response problems, by ethnicity.

	Hispanics	Non-Hispanics
1) How many times did you eat red meat, including beef, pork, lamb, or lunchmeat, hot dogs or sausages made from beef, pork or lamb yesterday?	77.1% (27/35)	35.5% (11/31)
2) Did you eat a morning meal yesterday?	66.7% (24/36)	6.5% (2/31)
3) Did you eat a midday meal yesterday?	54.2% (13/24)	13.8% (4/29)
4) Did you eat an evening meal yesterday?	57.7% (15/26)	6.7% (2/30)
5) When you use butter or oils for cooking or preparing your food, which of the following types do you use most often? 1) Butter, Margarine, Lard or Shortening, 2) Olive oil or Canola oil, 3) Corn oil, Vegetable oil, Peanut oil, Soy oil, 4) non-stick spray, 5) Don't use fat	8.3% (3/36)	38.7% (12/31)

Miller et al. Study: Hispanic/Non-Hispanic differences

- For Hispanics: Translation of "meat" was found to be a problem (involved sub-cultural variation)
- Morning/midday/evening meal was difficult for Hispanics because of terminology issues:
 - One question came across to some as "*Did you eat your dinner in the morning?*"
 - Again, illustrated sub-cultural variation
 - There was also a problem related to the "Mexican meal pattern" in which meals don't correspond well to our concepts of breakfast, lunch, and dinner

Results of Mixed-Method Study: Hispanic/Non-Hispanic differences

- Reporting on cooking oil/fat use was *less* difficult for Hispanics (only 8% had problems, vs. 39% of Non-Hispanics)
 - Hispanics tended to use only two types – lard and butter: So they had little trouble indicating which they used most
 - Non-Hispanics used many oils (margarine, butter, canola, olive, spray oils...); they had more trouble with Recall/Decision processes, when asked which they used the most
 - Good example of cultural discrepancy; but one that favors the "non-dominant" group

Other cross-cultural examples:

- "*Ethnic identification*" → Interpreted as possession of some type of ID card
- "*In your entire life, have you smoked at least 100 cigarettes?*" → "In your entire life" translates to "From birth to death" in Asian languages
- **1-100 scale:** Asians were unfamiliar
- U Mass study: "**Excellent**" medical care? → In Chinese came across as "**Godlike**"
- Census Bureau study: In Chinese, "**Survey**" came across as "**Investigation**"

Real-life 'Lost-in-Translation': Could Cognitive Interviewing have helped?

- Ball-point pen ad, Mexico: "*It won't leak in your pocket and embarrass you*" became "*It won't leak in your pocket and make you pregnant*".
- American T-shirt maker in Miami: "*I Saw the Pope*" became "*I Saw the Potato*"
- Brazil: The Ford Pinto flopped, as "**Pinto**" was Brazilian slang for "*tiny male genitals*." Ford substituted "**Corcel**," or "*horse*."
- Taiwan: The translation of the Pepsi slogan "*Come alive with the Pepsi Generation*" came across as "*Pepsi will bring your ancestors back from the dead*"

Resources

- Agans, R.P., Deeb-Sossa, N., & Kalsbeek, W.D. (2006). Mexican immigrants and the use of cognitive assessment techniques in questionnaire development. *Hispanic Journal of Behavioral Sciences*, 28, 209-230.
- Goerman, P. (2006). An examination of pretesting methods for multicultural, multilingual surveys. *ZUMA-Nachrichten Spezial*, 12, 67-80.
- Miller, K., Willis, G., Eason, C., Moses, L., & Canfield, B. (2006). Interpreting the results of cross-cultural cognitive interviews: A mixed-method approach. *ZUMA-Nachrichten Spezial*, 10, 79-94.
- Willis, G. (2005). *Cognitive Interviewing: A Tool for Improving Questionnaire Design*. Sage: Thousand Oaks, CA.