

Old Dogs New Tricks

Instrument Innovations to Reduce Measurement Error and Nonresponse

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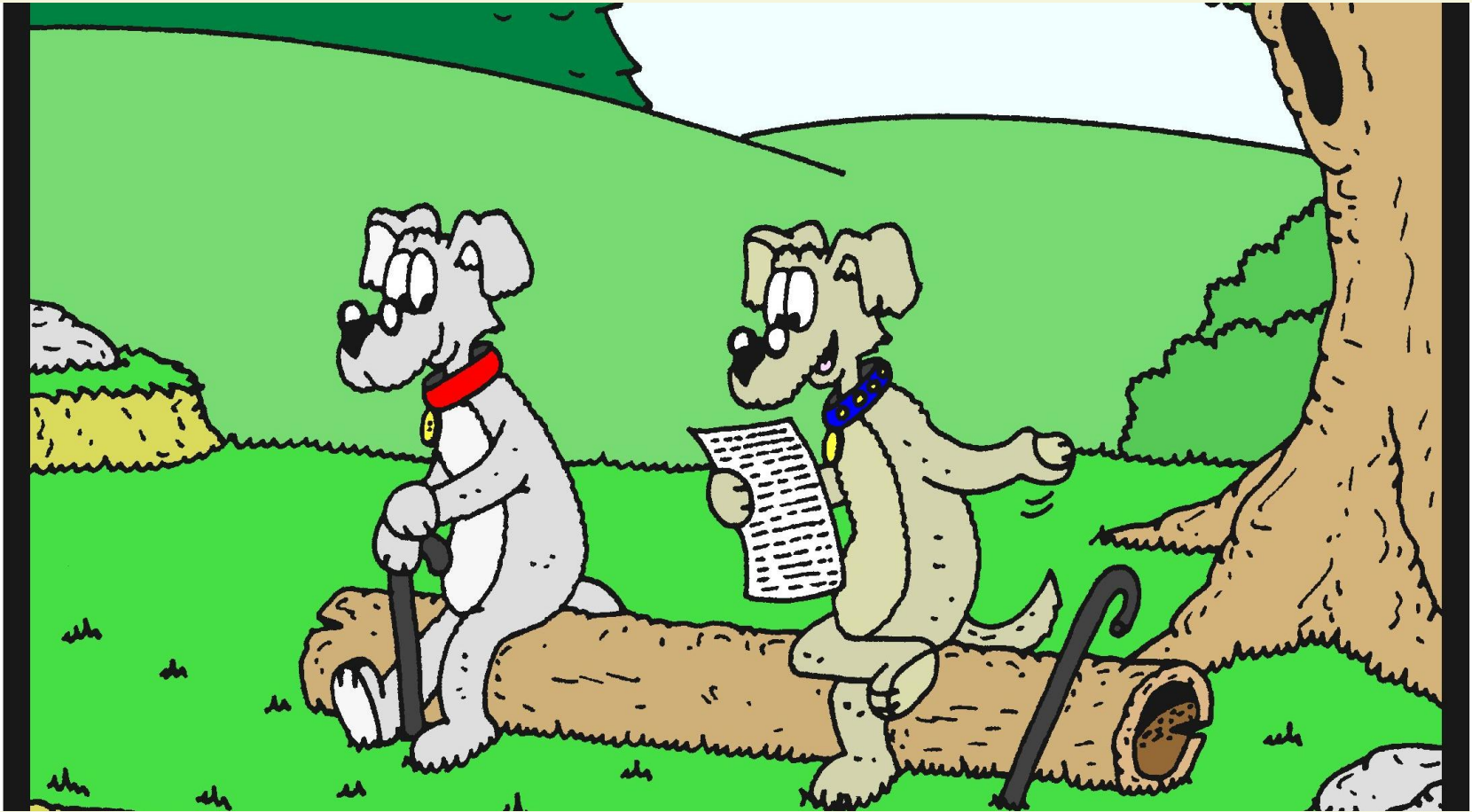
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The logo for the National Health & Aging Trends Study (NHATS). It features a dark blue circle on the left containing the lowercase letters 'nhats' in white. The 'n' is a light blue color. A thin horizontal line is positioned below the text.

nhats

National Health &
Aging Trends Study

how daily life changes as we age



Well, this trick has been around for five years now, so we might be able to learn it...

Increasing Survey Value

- Rising costs, falling response rates
- Packing the survey experience
- Challenges for quality management
- Repurposing CASIC tools on the National Health and Aging Trends Study (NHATS)

NHATS

- Westat working with a team led by Johns Hopkins Bloomberg School of Public Health
- Funded through cooperative agreement from NIA
- CAPI panel study with 11-12,000 Medicare beneficiaries, annual interviews starting 2011
- New and improved measures of disability for producing data on trends and trajectories; self-reports, mental and physical assessments, eventually biomarkers, links with admin data

NHATS Validity Study

- Early test of core disability measures
- Purposive sample in 4 sites
- 300 initial CAPI interviews, 90 minutes in the home
- 125 re-interviews for reliability
- Data collected April/May 2010

Brief CARI Timeline

- 1990s CARI technology introduced in surveys (Thissen *et al* '08)
- random time slices
 - falsification detection, interviewer monitoring
- 2007 System approach introduced for recording, reviewing, coding audio files
- linking data from a specific question to an audio file, coder dashboard
 - question assessment
- 2010 Evolution continues today
- remote users, dashboard with dynamic CAPI screen
 - data capture, pretesting, integration with paradata, training

CARI & the 2010 NHATS Validity Study

- Exploring other CARI uses
 - data capture
 - question design and pretesting
- Using same audio recording and coder dashboard approaches from 2007
- Anticipating implementation with COTS Blaise in Fall Field Test
- Preliminary data just now becoming available

Animal Fluency Design Issue: Interviewer or CARI for Data Capture

- **Memory Assessment Task:**
**I want you to tell me all the animals
you can think of in one minute.
Ready? Go!**
- Data collector records names on
paper; enters names after interview
- CARI coder listens independently to
audio recording and enters names

Comparing Data Collector & CARI/Coder Capture of Animal Reports

	Counts	%
Total cases reviewed	73	
Perfect matches	27	37
Cases where data collectors		
– missed animals	39	53
– added animals	32	44
Cases with both error types	24	33

CARI Data Capture Discussion

- Generally, difficulty due to R behavior
 - how fast reel off names
 - reporting atypical names (cat, dog vs. stellar sea cow, dugong sea cow)
- But also potential for interviewer bias
 - interviewer request “slow down”
 - interviewer allow reporting longer than allotted minute

“CARI + Coding” Reduces Error

- Reduce variable error by allowing better review of respondent reports
- Identify and address problematic interviewer behaviors
 - coaching to improve interviewer behavior
 - only record data reported in the allotted time frame
- May also reduce burden of task

CARI for Q. Design and Pretesting

- Using CARI as part of the pretesting and development cycle can provide insight into natural language used
- Natural language can be built into the actual question or surrounding help materials

NHATS Design Problem: Example

From other studies, longstanding problem with activities of daily living (ADLs), instrumental activities of daily living (IADLs)

- **Q. “Do you have any difficulty doing laundry?”**
- **A. “I don’t do laundry.”**
- **Follow-up Q: “Is that because of your health or functioning, or some other reason?”**
- **A. “[LONG STORY]”**

NHATS Validity Approach

- Question modified; instead of global response categories, detailed categories created from most common responses to cognitive interviews; intention was to create derived global variable *post hoc*
- Assumption was that a wider variety of natural language responses would be collected in validity study, to refine detailed categories further or craft help text or training examples for fall pretest

Results: Stories Didn't Map Easily to Detailed Categories

Health or functioning reasons

- The laundry room is upstairs, and it's hard to climb the stairs
- It's up a few stairs...
I have trouble with my walker on the stairs
- My health isn't very good
- Before my surgery I used to cook. The surgery changed how things get done

Other reasons

- Laziness
- Because I never do it
- I told her when we got married I would do anything but laundry
- She's a housewife, she does the laundry
- That's just what she do
- Because he likes to be busy all the time.

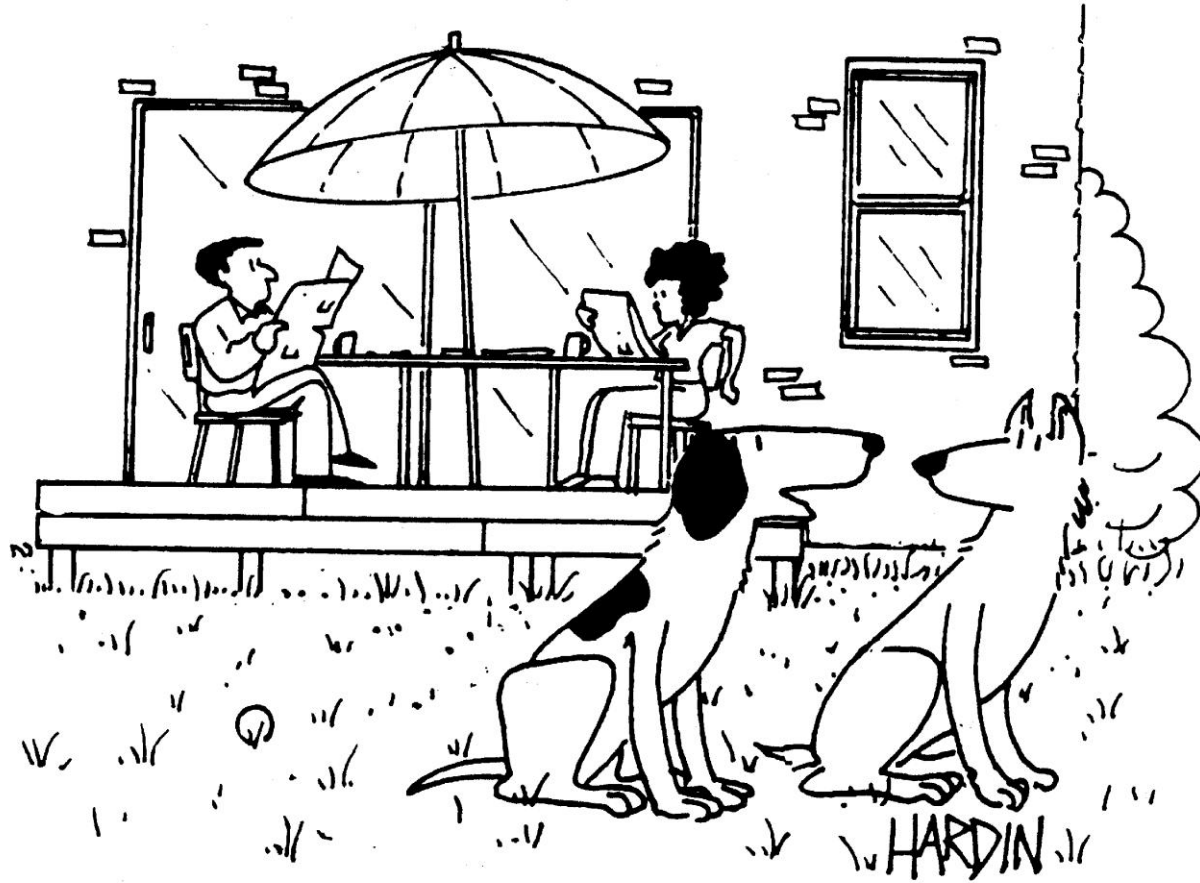
More Other Reasons...

Other Reasons

- She knows what's healthy and what's not, I don't.
- We've done it that way for a long time
- Needed help and she's always done it
- Because she's a better cook
- Because he likes to do it
- She prefers it that way
- For my convenience (laughter)

CARI as a Question Design Tool

- Hear 'natural language' used in survey environment
- Laboratory/cognitive pretesting more limited in the number of respondents



"They feed me and they let me in and out, but those are the only tricks they know."

A Simple CAPI Trick

- 2 memory tests: 10 word recall and 10 word delayed recall
- 3 ordered word sets with random start, so no respondent gets same set more than once in 3 interviews
- CAPI “feeds” words to interviewer at controlled pace, computer takes over navigation task

Potential Reduction in Data Collector Error

- All interviewers forced to read words at the exact same pace
- Removes chance of a systematic error associated with a particular list of words

CAPI/CASI Hybrid Approach

- Income and Assets module, field test in Fall 2010
- Part of complex CAPI instrument, with tailored brackets for income/asset amounts
- CASI-like screens for categories shown to respondent, in lieu of show cards
- If feasible, may explore respondent entry as well, perhaps via touch screen



A Novel “CASI” Application

- Stroop test of executive function, created in 1930s: Name the color
 - **XXX** (in blue ink)
 - **CLEAN** (in red ink)
 - **BLUE** (in green ink)
- Traditional paper approach annoys Rs
- NHATS validity study incorporated CASI application of Stroop, developed at JHU

NHATS Validity Study: A Computer Game

- Color coded wireless keypad
- Practice
- Reward
- Feedback on performance

Stroop Demo

CASI Discussion

- High level of respondent acceptance, even among computer-phobic elderly
- Very low nonresponse
- Placement at end of 90 minute interview fortuitous; left most respondents with a very positive feeling, wanting more
- Feedback a casualty
- Help from ADAMS supplement to HRS

What's Next?

- NHATS results are informing development of next generation CARI system, in production Fall 2010
 - Q development, pretesting, evaluation
 - data capture
 - training capabilities
- Integrated with larger system for...
 - survey response data collection
 - measurement error assessment
 - quality control data linked with paradata
 - training support on CAPI, CATI surveys



“No, no, no. Double-click to open.
I’ll walk you through it one more time.
Go get your leash.”

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