An Analysis of Computer Assisted Recorded Interviews (CARI)
on the 2008 General Social Survey

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Introduction

Computer audio recorded interviewing (CARI) was conducted as part of the 2008 General Social Survey (GSS). Under CARI permission was obtained from respondents to record portions of the interview. The recordings were done by laptop computers as part of the computer assisted personal interviewing (CAPI) program. A general description of CARI and its application on the 2008 GSS is found in Smith and Sokolowski (forthcoming). This report examines three aspects of CARI: 1) the level of consent to having a recording and the characteristics of those who agreed to the recording, 2) a general assessment of the variables in the recorded sections, and 3) a more detailed analysis of the item on attending religious services.

Agreeing to Audio Recordings

Overall 84% of respondents agreed to the audio recordings of portions of the interview (Table 1). This level was consistent with that obtained by other studies (Smith and Sokolowski, forthcoming). There was no statistically significant variation by education, interviewer's rating of comprehension, verbal ability, gender, age, race, or labor-force status. Consent was lower among Hispanics, those born outside the US, those raised outside the US, those rated as less cooperative by interviewers, and those who refused to report their income. Multivariate analysis indicated the lower consent among Hispanics was due to more of them having been born outside the US. Foreign birth, low cooperation ratings, and refusal to report income were independent predictors of not agreeing to the audio recordings (Table 1).

General Assessment of CARI

Recordings were made of five groups of variables: 1) questions confirming respondents' addresses and if in the 2006 panel, that they were the GSS respondent in 2006, 2) questions on the respondent's name and phone number, 3) questions on the name and phone number of a contact person who would know how to reach the respondent if they moved, 4) respondent's occupation and industry, and 5) attending religious services. Neither respondents nor interviewers knew which portions were audio recorded. The survey group carried an analysis of a random 10% of the CARI (n=299).

Audio quality was good for the interviewer. In almost all cases their entire speech could be understood and there was only minimal need to replay recordings to understand what was being said. Audio quality was much poorer for respondents. Audio was scored as "unclear" for from 14-31% of cases depending of the particular variable (Table 2). For attending religious services in about 20% of the cases their response was inaudible or too unclear to fully transcribe even after listening to each recording several times. About half of these were completely undecipherable and for the other half some appreciable section could not be understood. In addition, even for the 80% that could be fully understood, it was necessary to replay many recordings before responses could be transcribed.

Misreadings (i.e. anything other than exact verbatim administrations of the scripted question) ranged from a low of less than 1% for attending religious services to 27% for confirming address (Table 2). The high rates for the two confirming questions probably occurred because they were collected as preliminary information before the formal start of the questionnaire and interviewers probably thought

they had more leeway in this section. As the analysis on attending religious service below details, most misreading were minor and non-biasing.

Probing errors (e.g. failure to probe when needed, leading probes, other inappropriate probes) were generally rare (Table 2). The only exception was on industry were 22% were deemed to have been errors. Most of these involved failure to used scripted follow-ups for more details. However, since many of these cases had obtained sufficient information from the initial question, the scripted follow-ups were often not actually needed and had presumably been skipped for that reason.

Inconsistent responses between what was recorded by CAPI and what the evaluator coded based on CARI occurred for from 2-8% of cases. It was relatively high for occupation and industry which reflects the complexity of the classification system used to code these variables. Previous research finds as high or higher inconsistency when different coders working from the same verbatim, written descriptions assign occupation and industry (Smith, Crovitz, and Walsh, 1988).

Attending Religious Services (ATTEND)

Along with occupation and industry, the item on attending religious services was the only substantive item recorded. This question asks "How often do you attend religious services?" and instructs interviewers to "USE CATEGORIES AS PROBES, IF NECESSARY." The scripted response categories are:

Never
Less than once a year
About once or twice a year
Several times a year
About once a month
2-3 times a month
Nearly every week
Every week
Several times a week

The analysis of the attending religious services item was carried out by the author and was independent of the general analysis carried out by the survey group. Only interviews in English were examined.

Over 80% of questions were read exactly as written. About 10% involved variations that were minor and created no bias. The most common variations were inserting "and" or "about" before "how" or "now" at the end. About 6% misread the phrase "religious services" by either dropping "religious" or substituting "church" for "religious". Given that the religious attendance question followed questions on a person's religious affiliation, these variations probably did not distort the question since the intent of the questions was clear and appropriate for the respondent. For about 4% a more serious misreading occurred. Examples were asking "Do you ever attend religious services?" and "Do you remember how often you attended religious services when you were growing up?" The first misreading led to a response of "yes" and the interviewer then follow-up by asking "What would you say your frequency would be?"

Probing was carried out for 27% of cases (Table 3). Most probes consisted of reading the scripted response categories in the order indicated and using the exact phrases or close approximates (e.g. "more than once a week" instead of "several times a week"). When the response categories were mentioned, often only a partial list was read either because the respondent interrupted the interviewer when the appropriate category was mentioned or because the interviewer needed to read only a few responses to clarify the response that best fitted as imprecise initial answer. Some probes deviated more from reading the response options, but created no clear bias, such as "How often per year or per week or per month?", "On average," and "What would you say your frequency would be?" A few probes were more leading such as "Just for weddings?"

In addition, to reading the response categories as probes, in 24% of cases they were read as part of the initial administration of the question, coming immediately after the question itself. Thus, the response categories were read either as part of the initial reading or as a probe for 44% of the cases.

In about 7% of the cases interviews repeated the respondent's answer to confirm the answer that had just been given. It did not appear that this technique was used to clarify uncertain or unclear answers. Interviewers also occasionally ended the questioning with general phrases like "OK."

In only 3% of the cases was it determined that interviewers failed to get enough information before coding a response. For example, in the cases with the leading probe "Just for weddings?" the response "pretty much" was used to code an answer. In another case a response of "every Sunday at least" was coded without a follow-up probe to clarify whether Every Week or Several Times a Week was most appropriate.

For 5% of the cases the audio response was considered to be inconsistent with the response entered into CAPI. (This was higher than the 3% rated as inconsistent from the independent survey group analysis. Few cases overlapped across these two analyses.) Most involved a disagreement between adjoining categories. These might represent a data-entry error by the interviewer (e.g. hitting the 2 or 4 key instead of the correct 3 key). Alternatively, there might have been an audio qualification that was undetected. For example, a response of "every week" was coded as Several times a Week (8) instead of as Every Week (7). It is possible that some additional communication such as "twice" before "every week" was not picked up by the recording. Also, some responses are changed after an initial response is entered. That is, a respondent gives a response and that is entered and then either immediately or at some later point the respondent realizes that the answer was incorrect. The interviewer then goes back and corrects the data. The recording would not capture such later revisions and would have retained the original, but errant, audio response while CAPI would have had the revised and corrected data. Such could have occurred for some of these disagreements, but no definitive evidence is available.

Conclusion

CARI is a promising technique for augmenting interviewer validation, monitoring interviewer behavior, and improving interviewing training leading on an improvement in data quality (Smith and Sokolowski, forthcoming). CARI can also be used to improve the coding of data - especially complex, open-ended data and for fine-grained discourse analysis and the investigation of verbal response patterns to questions. CARI's use can both enhance data quality and advance substantive analysis.

References

Smith, Tom W.; Crovitz, Sara P.; and Walsh, Christopher, "Measuring Occupation: A Comparison of 1970 and 1980 Occupational Classification Systems of the Bureau of the Census," GSS Methodological Report No. 59. Chicago: NORC, Dec., 1988.

Smith, Tom W. and Sokolowski, John. "Using Audio-Visuals in Surveys," in The Handbook of Emergent Technologies in Social Research, edited by Sharlene Hesse-Biber. Oxford: Oxford University Press, forthcoming.

Table 1

Consent to CARI

	% agreeing to recording	Prob.
Components:		
Panel	84.6	
Cross-section	84.0	
Combined Components		
Degree		
Less than High School	79.8	
High School	84.0	
Associate	81.5	
4-Year	80.9	
Graduate	81.2	.128
Gender		
Male	82.6	
Female	82.2	.740
Age		
18-29	81.2	
30-39	81.5	
40-49	81.9	
50-64	82.8	
65+	84.8	.472
Race		
White	82.7	
Black	81.6	
Other	80.8	.618
Hispanic		
Not	82.9	
Hispanic	78.6	.000

Table 2 (continued)

	% agreeing to recording	Prob.
Born in USA		
Yes	83.8	
No	73.7	.000
Residence at Age 16		
USA	83.3	
Not USA	74.0	.000
Family Income		
Reported	85.1	
Refused	52.8	
Don't Know	82.9	.000
Interviewer's Rating of Respondent		
Friendly, Interested	84.1	
Cooperative	78.3	
Restless, Impatient	68.7	
Hostile	46.0	.000
Interviewer's Rating of Respondent's Comprehension		
Good	82.6	
Fair	81.3	
Poor	78.2	.507
WORDSUM		
0	79.6	
10	85.0	.690
Labor-Force Status		
Full time	82.1	
Part time	81.0	
Temporarily off Work	74.9	
Unemployed	83.4	
Retired	82.1	
In School	82.5	
Keeping House	86.0	
Other	82.2	.227

Table 1 (continued)

	% agreeing to recording	Prob.
Born in US/Cooperative	84.9	
Born in US/Not Cooperative	78.7	.000
Not Born in US/Cooperative	78.8	
Not Born in US/Not Cooperative	58.4	.000
Born in US/Refused Income	86.3	
Born in US/Didn't Refuse Income	53.1	.000
Not Born in US/Refused Income	76.4	
Born in US/Didn't Refuse income	51.5	.000
Didn't Refuse Income/Cooperative	86.3	
Didn't Refuse Income/Not Cooperative	78.9	.000
Refused Income/Cooperative	55.0	
Refused Income/Not Cooperative	46.3	.179

Source: 2008 GSS

Table 2

Operations Evaluation of Questions

	% Audio UnClear	% Inconsistent Responses	% Misread	% Probe Errors
Confirming Address	31.0	6.5	26.8	0.6
Confirming Panel Respondent	23.1	3.8	16.2	0.8
Contact's Name	30.6	1.6	4.0	0.0
Contact's Phone Number	20.1	1.6	12.9	0.8
Respondent's Name	20.0	1.8	10.3	1.8
Respondent's Phone Number	16.9	1.6	9.0	0.0
Respondent's Occupation	13.8	7.7	11.5	6.4
Respondent's Industry	19.3	4.8	2.4	22.0
Attending Religious Services	20.8	3.0	0.3	7.5

Source: 2008 GSS CARI recordings

Table 3

Administration of the Attending Religious Services Question

No Probes
  Response Options Not Read   48.9%
  Response Options Read   23.9
Probes
  All Response Options Read   6.8
  Partial Response Options Read   13.6
  Other Probes   6.8

Source: 2008 GSS CARI recordings