

Current Practices in Cognitive Interviewing

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Abstract

The conduct of cognitive interviews for survey pretesting has attained the status of an industry best practice without clear agreement about how such pretesting should be conducted or how its quality can be assessed. Beyond noting its acceptability as a method for instrument development for federally-funded surveys, there is little “official” guidance from OMB or statistical agency standards for cognitive interview pretesting. There is literature on procedural methods (Willis 2005), and on effects of alternative protocol design (Beatty and Willis 2007, Conrad and Blair 2006), but little systematic information about what organizations actually do, or the efficacy of alternative approaches. Fifteen years ago, Blair and Presser (1993) found that the methods employed under the rubric “cognitive interviewing” varied in significant and striking ways. For this paper, we collected information from a judgment sample of federal statistical agencies and leading survey organizations to review current practices of development, execution and analysis.

Keywords: Cognitive interviewing, best practices, probing methods, think aloud

1. Introduction

The techniques and procedures that constitute cognitive interview pretesting practice have been a subject of ongoing research and discussion. This paper adds to that discussion by reporting on talks with survey researchers about their cognitive interview practices. As a preface to reporting those findings, it is useful to provide a thumbnail sketch of some factors that have brought us to the point where cognitive interviewing has become an industry best practice without having developed a consensus about how it should be implemented.

We have arrived at this point despite the fact that researcher-practitioners roughly agree on the premises and goals of cognitive interview pretests.

- Each survey question is intended to measure some behavior, attitude, fact or other construct, however well or poorly conceived that construct is; or however well or poorly the survey question presents it to elicit an answer. The goal is a measurement of the construct that is sufficiently accurate for the survey’s analysis purposes.
- In answering a survey question, respondents engage in a response process involving comprehension, recall, judgment and reporting.
- If we learn how respondents perform this response process, we gain insights into whether the results of that performance are likely to produce sufficiently accurate answers consistent with the researcher’s intent.

- One way to learn about how responses are formulated and reported is to elicit that information from respondents through verbal reports.

The survey cognitive interview was initially inspired by the notion that respondents can produce verbal reports that shed light on the response process. Early on, those verbal reports were obtained mainly by asking respondents to think aloud, roughly following the *interview* procedures described by Ericsson and Simon (1993). In this view, it is postulated that respondents can report those aspects of the response process available to them in working memory when answering a survey question, while acknowledging that there are other mental activities that affect the response process which are not accessible to respondents.

One idea initially put forward was that learning about how respondents generate their response to survey questions could possibly provide broadly applicable insights that might be used to improve survey question design (Loftus 1984). There are other possible applications of cognitive interviewing as well, which we will return to. In the twenty-five years since the CASM seminar that opened the collaboration between survey methodologists and cognitive psychologists (Jabine et al. 1984), a fairly large literature has developed that includes descriptions of alternative pretest cognitive interview techniques and experimental research on the method. One thread that runs through this body of work is the recognition that there is no single accepted cognitive interview method.

Survey researchers and practitioners have taken different paths in eliciting verbal reports, while still largely agreeing with the above premises. In commenting on an early version of the cognitive interview that relied mainly on respondents' concurrent thinking aloud, Presser (1989) noted both the similarity to much earlier work of Belson (1981) and that beyond the think aloud, there was "little in either the method or interpretation of results that comes directly from cognitive psychology." It may be mentioned that one critique of Belson's work is that respondents' difficulties with the task of describing their understanding of the survey questions may somewhat confound conclusions about whether their comprehension was adequate or not for answering the survey questions. This resonates with the concerns some of our respondents expressed about cognitive interview subjects' difficulties with the think aloud procedure.

Cognitive interviewing very quickly expanded beyond the Think Aloud paradigm to add various types of probing and other subject tasks generally conducted in a laboratory setting (Lessler and Forsyth 1991). Different perspectives on the efficacy of alternative interview techniques also influences practice (Beatty and Willis 2007), as do practical constraints and project-specific requirements.

Beyond arguments from theory (which were not prominent) some practitioners we interviewed felt the think aloud was too difficult for some respondents, produced insufficient information relevant to pretesting and testing conjectures about potential question flaws. Client and organizational requirements and constraints also, and probably still, influence the evolution of the method.

Added to these factors are the myriad characteristics of a particular survey - including survey topic, population, administration mode, and types of questions, among several others - that could influence choice of techniques.

That state of affairs, in itself, is not necessarily either a strength or weakness of cognitive interviewing practice. However, it does make advancing either the science or the practice difficult and somewhat haphazard. But that aside, what do we know about current practices and the thinking that influences them?

One approach to investigating this could be a descriptive survey of the field such as one conducted many years ago (Blair and Presser 1993).

On the other hand, there are practitioners and researchers who have been involved in cognitive interview pretesting since its inception, as well as many younger researchers with both formal training and experience in the method, whose practices and rationale for their approaches may provide valuable insights.

We have chosen this avenue to examine the state of the field: to consider and contrast the practices and thinking of a group of experienced researchers and practitioners. Our project is not intended to identify “best practices” or to compare the effectiveness of alternative methodologies. We conducted interviews with a small group of researcher-practitioners to learn about:

1. What methods do they use for different aspects of the method?
2. Why do they choose particular methods and procedures?
3. How do they assess the efficacy of their practices?

In summary, the topics of interest are:

- Cognitive interviewer selection and training
- Respondent recruitment
- Protocol development: use of expert reviews, types of probing, and other interview techniques
- Data capture: recordings, notes and summaries
- Analysis: individual or group, identification of evidence, review of interview recordings or other materials
- Presentation of findings and/or recommendations

2. Methods

We selected a convenience sample of six individuals from federal agencies, government contractors and universities. The findings are not intended to represent those particular organizations. There are frequently multiple practitioners within an organization whose techniques may differ; and in some cases we conducted multiple interviews, in others we did not. The goal was to sample a range of experienced practitioners and a variety of views.

We interviewed the sample either in person or by telephone, using an instrument consisting of X open-ended questions. Detailed notes were taken during the interview. In the remainder of the project we plan to ask the respondents to review our notes and summaries for accuracy; we also plan to conduct some follow-up interviews to further

explore some issues¹.

The questionnaire was organized according to the usual chronological steps in designing, conducting and analyzing cognitive interviews, and reporting the results. However, the focus of our interest was on the cognitive interview procedures (which, following, recent convention) we refer to as the interview protocol, and the methods of analysis. The interview guide is provided in Appendix A.

We have also requested copies of pretest material to supplement and illustrate the practices described in the interviews.

3. Findings

3.1 General Influences on the Selected Techniques: an Overview

In this section, we present some selected findings from our preliminary analyses. There were a number of areas of agreement on some overarching issues. Most respondents thought that testing in early exploratory stages should focus more on exposing a full range of possible problems, as well as learn generally how respondents react to the demands of the survey. When an instrument is close to fielding, the purpose of the cognitive interview is more confirmatory, focusing on whether respondents can provide acceptable answers.

The design of the pretest and the types of analyses that can be done are greatly influenced by the sample size. There also seemed to be support for larger sample sizes (OMB restrictions aside) than are currently common.

Most respondents felt that iterative testing is more effective than a single round of testing. And, further, that actual survey conditions should be emulated when possible.

3.2 Protocol Development and Interview Procedures²

Expert review seems to be a common starting point for most practitioners, but exactly how it's used varies. The review can guide development of probes or generate issues to discuss with the question designer about item intent.

It is important to understand the measurement goals of the items both for the design of the protocol and interpretation of the pretest verbal report data.

Single vs group development: There is variation, which seems to reflect the experience levels of available staff, as to whether a single person or a group participate in developing the protocol.

Researchers differed quite a bit in their typical use of think aloud instruction versus various types of probing. Some practitioners always use thinking aloud as part of their protocols, while other rely almost exclusively on (both concurrent and retrospective) probing.

¹ The results in this paper are based on preliminary analysis of the first round of interviews (as presented at AAPOR 2009), and should be considered preliminary analyses.

² We use the term protocol to mean the set of respondent and interviewer instructions, along with any probes or guidelines for probing, rather than the original use of the word protocol to mean the verbal report produced by the interview.

Finally, the protocol should take into account the skill levels of the cognitive interviewers. This is mainly a factor in the nature and types of probing. More experienced interviewers can combine scripted and unscripted (emergent) probes; while less experienced interviewers need to rely more, or exclusively, on scripted probes.

3.3 Cognitive Interviewers and Training

There was general agreement that some type a social science background was more important than the actual level of the interviewers' degree. Naturally, most practitioners thought that cognitive interviewers needed to be good at establishing rapport and interacting with respondents. Both general and project-specific training were recommended by most, though it is possible to simply rely on project-specific training.

3.4 Interview Summaries and Analysis

In general, summaries are structured in a question-by-question format. The results are based on notes and recordings. There was quite wide variation in the extent to which analysts returned to the actual interview recordings. No one routinely produced transcripts. In general, counts of number of occurrences of particular issues or problems were avoided unless the client insisted on them. Considering the small sample sizes of most cognitive interview pretests, counts given an impression of precision unsupported by the actual amount of data.

Analysis is the least studied and least developed aspect of cognitive interviewing. Many people are moving toward a model in which the analysis approach is planned as part of the design, particularly when larger numbers of interviews will be conducted. It appears that presently, identification of problems is fairly impressionistic. However, this can be tempered by the organization of the analysis process. In some organizations, the pretest staff meets to determine the findings, either at the meeting or to provide information to the lead analyst to decide which findings to report. In another model (especially for long questionnaire and larger numbers of interviews), the analysis is allocated among staff, with each person taking the lead on a section of the instrument.

4. Discussion

To this point, we have not learned as much about influences on choices of techniques for protocol design or verbal report analysis. There was very little mention of the research literature as a factor. Nor was there much said about project methodological reports from other organizations as a source of information about the efficacy of different techniques. In most cases, a combination of the researchers' individual experience and traditions of organization practice seem to be the most prominent determinants of practice.

Features of the instrument and the survey were noted as important factors in pretest design, though there was less said about exactly how these characteristics were taken into account in the pretest design. One exception was the matter of testing self-administered instruments, where the question of how best to test them was raised (and different conclusions reached). Although there are some relevant findings in the literature, these, like other parts of the literature, do not seem to have had much effect.

While most respondents cited the expert review as a starting point, few (none?) returned to the expert review later in the process, though it would seem interesting to know when

experts, or particularly formal appraisal frames correctly predicted question problems, and possibly informative in selecting review experts or modifying appraisal checklists. Similarly, there did not seem to be a systematic review of whether other pre-interview conjectures about possible problems were supported.

Beyond what these unused approaches might contribute to a particular instrument's testing, they might help assess and improve the cognitive interview processes that are employed. One exception was the testing of self-administered questionnaires, where some practitioners had changed either respondent instruction about reading aloud, procedures for probing, or both. Ongoing self-appraisals on their practices were not evident, though this could be simply because we did not consistently ask about it.

Beatty and Willis (2007), in their article "The Practice of Cognitive Interviewing," devote considerable space to what they describe as separate paradigms: the techniques of having respondents thinking aloud as they come up with their answers versus asking respondents probing questions about the questions or their responses. In developing our questions we expected and found that our respondents expressed their thoughts on this issue. We expected this and were able to probe respondents' initial statement, though some follow-up questions are needed. Nearly all of our respondents' practices for protocol design and interviewing fell on a continuum between these two paradigms.

Two other paradigms emerged in a few interviews. These alternatives to instrument pretesting focused on using cognitive interviews not primarily for problem identification, but for hypothesis development in a particular subject area; or on understanding the survey question response process from a different, "interpretive," perspective.

This latter approach seems to be more concerned with documenting all possible interpretations of the question. In this way, all phenomena potentially captured by the question are documented. As such, this approach seems an alternative way to interpret cognitive interview verbal reports if one is not focused solely on problem identification. The underlying principle in this approach is the application of rigorous qualitative research methods (i.e., grounded theory) to cognitive interviewing. This approach assumes that the respondent constructs reality in terms of a narrative – and it is the "story behind the response" that is of interest to these researchers. The practitioners of this approach maintain that respondents are not fully aware of their cognitive processes and cannot report on their cognition with any level of accuracy. Consequently, these practitioners do not believe that a respondent can report his/her mental processes at the point when the respondent has received a survey question and is constructing his/her answer. While these points are at odds with much survey and cognitive psychology research, the pursuit of this alternative method does not depend on the validity of these initial assumptions. The method is based on the supposition that respondents can provide a narrative that demonstrates their interpretation of the question. The respondent can discuss his/her behavior or the particulars of his/her life in a way that reveals their interpretation of the question and what their answers may actually mean. The goal is to capture all possible interpretations of the question. Additional respondents are interviewed until the "saturation level" is reached. This approach could provide a framework for understanding the factors that may influence interpretation of a question. As such it would seem that this approach may be as applicable to survey analysis as to survey development.

The picture of cognitive interviewing that emerges from these interviews is of a method

of great flexibility that can be adapted to more than one aspect of instrument development. Each practitioner has shaped the method to his or her particular objectives and resources. These findings suggest that there may be as much to gain from understanding these different approaches as from efforts to develop a set of best practices.

5. Next Phase of the Study

In this paper, we have reported some preliminary findings from an ongoing research project. In reviewing the interviews conducted to date, we noted areas where respondent comments could be clarified. Other comments suggest additional questions or perspectives that we may want to ask all the respondents about. We plan to expand the interview protocol and do follow-up interviews with those respondents with whom we have conducted initial interview. We will also expand the sample with interviews of additional researchers. We plan to provide all respondents with a copy of our interview summaries to provide an opportunity to correct errors and clarify any points. To supplement the interviews, we will review any materials the respondents are able to provide that illustrate their cognitive interview practices. The analysis will then be done using a qualitative analysis software package.

The completed project will provide a summary of the practices and rationales for chosen procedures of a set of experienced researcher-practitioners. This summary will be neither representative of all current practice nor will it prescribe recommended methods. What we expect it will do is contribute to an exchange of thinking about particular techniques and practices, and perhaps foster consideration of modified methods or even the emergence of new paradigms---both of which may improve cognitive interviewing practice and suggest research on the method.

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Appendix: Interview guide

1. Respondent recruitment

- Can you talk about how you recruit participants for cognitive interviewing projects?
How are your recruitment efforts structured?
Do you have a centralized unit that handles recruitment or does each project have a designated recruiter from the project staff?
What do you do to recruit special populations?
Do you maintain a participant database where you can invite participants based on their characteristics listed in the database?
How do you handle “fresh” recruiting? What would necessitate “fresh” recruiting?

2. Training Cognitive Interviewers

- How many interviewers used to do, say, a round of 9?
Are you concerned about interviewer effects?
What type of backgrounds do your cognitive interviewers have?
What type of training does your organization offer cognitive interviewers?
How much experience/training does an interviewer need before going solo?
About how long does it take to get a new interviewer up to speed so that he/she can function independently?

3. Protocol Development

- Can you talk about how you develop a cognitive interview protocol?
Can you give us an overview of the procedural steps you use to *develop a cognitive interview protocol*.

For instance, to what extent do you give instructions to respondents; instructions to interviewers; what general or specific probes; think aloud or other procedures; and anything else that happens during the interview?

Possible steps in protocol development:

1. Expert review of the questionnaire.
2. Discussion with question designer about:

- i. History of questions
- ii. Possible findings from previous fielding
- iii. Identification and discussion of measurement goals

Follow-ups: “Would you tell us a bit about why you’ve settled on [] rather than some other way of doing []?”

“What do you think are the strengths and weaknesses of []?”

4. Incentives

What is a typical incentive for a one-hour interview?

What is the range of incentives (from X to XX dollars for ZZ amount of time)?

Is it difficult or easy to pay incentives in your organization?

Is the typical incentive paid in cash, check, or some other payment form?

5. Conduct of the Cognitive Interview

Do you use cog interviewing to evaluate prenotification letters, consent forms, and other materials sent to the respondent?

How structured or unstructured are the cognitive interviews that your organization conducts?

Are the cognitive interviewers required to follow a script, or are they allowed to probe freely, or something in between?

How do you capture and make a record of the cognitive interview?

Note-taker? Recordings? Digital? Tape cassette? Video recording?

How is the identity of the respondent protected when he/she is recorded?

If you do not record in some way, what are the reasons (IRB) ?

Notes?

Use of both an interviewer and a note taker?

How do you deal with observers?

Are observers permitted to ask questions or comment during the interview?

6. Analysis and Reporting

Most times, cognitive interviewers write up “a summary” of the interview. How is this handled in your organization?

What would the typical content of a “summary” be?

How would the material in a summary be used?

Are the respondents identified in the summaries so a given set of responses across questions can be attributed to the respondent who generated those responses?

Do you take into consideration the number of respondents that did or said a given thing (i.e., do counts, 6 of 12 said XX, matter)?

Can you describe the process that your organization uses to determine the findings?

An analysis meeting/committee method?

Individual analyst or team of analysts reviewing the summaries?

Or some other method?

How do you determine which questions warrant revision?

7. Presenting Finding/Making Recommendations

Can you describe a typical report on cognitive interviewing that your organization produces?

Preface or front matter before the findings?

Global findings?

Question by question findings?

Findings by individual rather than by question?

How are the recommendations made?

 Suggested question revision?

 Multiple question revisions?

8. General Issues

Would you say that the cognitive interview methodology that your organization practices has a particular flavor or philosophical underpinning? [E.G. BOOKS; THEIR OWN AMALGAM; CONFERENCES, WORKSHOPS, ETC.]

To what extent are your methods typically influenced by client, organization standards/rules, resources/schedule?

Are there things you would like to change or review about your methods?

What kinds of research studies/topics would most contribute to improving your practices?

What do you think would most improve cognitive interviewing practice industry-wide?