

# Expanding the Use and Applicability of Cognitive Interviews in Research

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## Abstract

This paper explores the benefits of expanding the use of cognitive interviews to test the execution of a full survey *process*, as opposed to just a survey question's format. The bulk of the literature on cognitive interviewing to date focuses on the need to test the meaning and intent of survey questions, as well as the extent to which survey response options match the thought processes of a given respondent. These are undoubtedly valid and important uses for the technique. However, researchers can also expand the traditional scope of the cognitive interview for a more encompassing evaluation of their research processes.

This paper will focus on the Nielsen Company's recent use of cognitive interviews to test materials beyond the standard survey question. Cognitive interviews focused on materials for the television and radio ratings studies show how the technique is useful in testing various components of the research process – from the appearance and number of survey and informational materials, to respondents' impression of the incentives offered. Further, we show that this testing can be more successful when researchers limit bias by employing external moderators. These moderators are trained in cognitive interviewing and probing techniques, but have no personal involvement in the project. The findings of expanded, bias-free cognitive interviews can be implemented to improve an organization's final research product.

**Key Words:** Cognitive interviewing techniques, interview style, probing, mail materials, incentives

## 1. Introduction

The cognitive interview is principally seen as a means to test the functionality of survey questions. For example, Gordon Willis's short courses, papers, and presentations typically center on the meaning of questions (e.g., intent and terminology) and the extent to which the response options presented match the thought processes of a given respondent. Nielsen's use of cognitive interviews has undoubtedly demonstrated the technique's success rate in this regard. However, we also expanded the traditional scope of the cognitive interview – both in the administration and type of material tested. We limited researcher bias by using external moderation and showed that cognitive interviews' benefits extend well beyond simply testing a question's format. This can also measure the impacts of how we choose to execute each step in the survey process.

Recent Nielsen research examples include:

- The perception of diary cover designs
- The likelihood that an envelope design will prompt a potential respondent to examine the contents
- The impact of mentioning incentive types and levels on a respondent’s survey compliance
- How bilingual text formatting impacts a respondent’s perception of a study’s (and company’s) credibility
- The extent to which informational materials used to introduce a new study encourage participation and convey the true scope of associated tasks

Even “cognitive questions” about the Nielsen diaries themselves have consistently “pushed the envelope.” They move beyond the format of presented questions to focus more so on the extent to which respondents could interpret a set of directions to complete a specific, hands-on task. This includes, for example, filling out a daily television and radio viewing grid and returning the diary to Nielsen at the end of a survey period. Our work has challenged the general assumption that cognitive interviewing does not have universal applicability to social science research. It shows that the interviews can be molded to accommodate almost any type of inquiry and influence the final design of test materials. The remainder of this paper will present a brief review of the cognitive interview methodology and findings that Nielsen applied to the design of recent research products in both our television and radio ratings services.

## **2. Methodology**

The Nielsen Company’s Department of Methodological Research conducted a series of one-on-one cognitive interviews between February 2008 and February 2009 to test respondent reaction to new and enhanced research products for the television and radio ratings services. Testing was completed in four two-day sessions over the course of the one-year span. Each session involved an average of 10 respondents. These respondents were selected to represent target and non-target homes included in our research studies.<sup>1</sup> The interviews gauged respondent interpretation of demographic and lifestyle questionnaires included in our diary services, but focused more so on how new research materials impacted respondents’ overall impression of and willingness to participate in our studies, as well as their ability to correctly complete the tasks associated with participation. We also took each of the four testing periods throughout the course of the year as opportunities to explore new methods for decreasing bias in our research findings – principally through the employment of an external interviewer. This interviewing technique and our research findings in each testing period are summarized in the sections that follow.

## **3. Interviewer Selection**

Research on the execution of a cognitive interview focuses in large part on determining “what do we have to do to interview the people we need” (Willis 1999). This

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<sup>1</sup> Targets include homes with a head of household who is under the age of 35, black, or Hispanic. Non-targets include all other respondent groups.

determination involves selecting the right group of respondents, an appropriate location in which to conduct the interview and selecting a sufficient number and type of interviewers to complete a given research project. In his “How-to” Guide for conducting cognitive interviews (ibid), Willis writes that the ideal cognitive interviewer is one who fulfills the following basic criteria:

1. Is a staff member with a history of cognitive interviewing
2. Works with a separate, specific staff member charged with respondent recruitment
3. Has experience in relating to clients and questionnaire sponsors
4. Has questionnaire design experience

These criteria, while applicable in many respects, may be incomplete. Our research shows, for example, that client /sponsor and design experience should be extended well beyond the standard questionnaire to include all materials and processes involved in conducting a study. Further, limiting interview recruitment and administration to an experienced staff member may introduce undue bias into a given study.

Researchers charged with creating research materials have a tendency to develop a level of “closeness” to a project – especially when the project has a lengthy duration – that can make it difficult to show objectivity when presented with respondent feedback. For this reason, Nielsen employed an external moderator for all four rounds of cognitive interview testing from 2008-2009. Consistent with the basic criteria Willis outlined, this moderator was experienced with interviewing; we enhanced his skill set by providing training in the principles of the cognitive interview. We believe that this proved to be advantageous because of the fact that he had no creative input on the creation of the tested materials and was therefore able to serve as an unbiased collector of respondent information. Interviews were generally “smoother” and respondents felt less pressure to satisfy, or give the interviewer the “right” answer. Therefore, we felt we came away from the interviews with more credible results.

## **4. Interview Results**

### **4.1 Diary Design**

#### *4.1.1 Simplified Diary*

The first round of cognitive interviews, conducted in February 2008, focused on efforts to increase participation in the Nielsen television diary service via a “simplified” version of the standard Nielsen TV Ratings Diary. Throughout the hour-long interview respondents were presented with a series of cover designs for the new, simplified diary and for the standard diary currently used. Much of the contents of the new diary were also modified based on previous testing in an attempt to increase overall completion of the TV Diary. We utilized standard cognitive interviewing practices – for example, the concurrent and retrospective think-aloud methods – but applied them to more than just gauging respondent reactions to question design.

In typical usage, the concurrent think-aloud process involves asking a respondent to talk through what is going through his head while answering a given survey question. The retrospective think-aloud requires that they explain how they arrived at the answer

supplied for the question (McCormack 2008). Nielsen expanded the usage so that interview respondents were asked to concurrently describe their impressions of diary cover designs, and retrospectively tell the interviewer how their reactions to the cover may influence their decisions to participate in the Nielsen Diary study. This retrospective technique also allowed the moderator to observe the process respondents used to enter their daily television viewing into the diary's viewing grids and communicate their typical weekly viewing patterns.

#### 4.1.2 *Radio Diary*

Cognitive interviews for Nielsen's Radio Diary pilot study were conducted in August 2008 with a specific focus on the grid design (the level of respondents' receptiveness to recording how, where, what, and for how long they listened to the radio) and the use of stickers to designate the stations to which they listened. In conducting these interviews the moderator employed a similar concurrent and retrospective questioning approach to test respondents' comprehension of the Radio Diary's design. The interviewees' top-down and bottom-up information processing styles were specifically analyzed.

Tourangeau's cognitive interview framework (1984) explains that in using the top-down view of question processing, a respondent uses what he already knows to make sense of a question – regardless of whether that assumed knowledge is accurate or in reality a miscomprehension. Conversely, bottom-up processing requires a respondent to listen to different components of a question and piecing them together to formulate an overall concept. As with the Simplified Diary analyses, we expanded the use of these processes beyond the during our Radio Diary testing by probing respondents about specific components of recording their weekly radio listening rather than a single survey question or set of questions.

We learned, for example, that respondents' peel-and-stick notion of any sticker (pre-printed labels with a valid radio station frequency number and call-letters that respondents "peel and stick" to the diary rather than write in) was not sufficient in leading them to accurately record any one instance of radio listening. They needed expanded instructions and more obvious place indicators in the final diary to appropriately place their station stickers in the listening grids. Similarly, simply knowing that any instance of radio listening involves a time, station, and place does not translate into intuitively recording each of these components in a Radio Listening Diary. Recording a combination of these tasks requires an expanded set of written instructions.

## 4.2 Mail Materials

Incorporating a new Nielsen brand and logo into research recruitment materials was the focus of cognitive testing in June 2008. Respondents were presented with new outgoing envelope designs as well as a variety of introductory letters and questionnaires to gauge their perception of Nielsen, the likelihood that they would open envelopes with new imaging to read the contents, and the extent to which the materials motivated participation.

Respondents were presented with each of four different outgoing First-Class envelopes and asked to provide feedback on which was most appealing and would be most likely to prompt them to open the envelope. The method employed during this round of testing was similar to those focused on the Simplified and Radio Diary designs. Concurrent and

retrospective think-aloud processes allowed us to determine which envelopes left the respondents with the most positive initial feelings about Nielsen. We also probed to determine how those feelings would lead them to choose one envelope over others, or possibly a combination of envelopes, as the most likely to prompt study participation. Think-aloud methods during this round of testing also gave us the opportunity to evaluate a number of options for bilingual text formatting in a questionnaire to determine which design was most comprehensible and simplistic.

### **4.3 Incentives**

Respondent perceptions of the type and amount of incentives offered for participation were tested in both the television and radio interviews, as well as those that were focused on the Nielsen image and another new service we examined during interviews conducted in February 2009 – the Mailable Meter. Our implementable findings on the topic resulted from an analysis of respondents’ top-down views of the value and use of awarded monetary incentives. It was apparent throughout testing, for example, that respondents were more willing to participate in, and show enthusiasm about, a study if they saw a personal benefit in doing so. To this end, individualized incentives were favored over those meant to be shared by an entire household. Respondents are also more receptive to receiving incentives that make it easier for them to see the product of their work and make larger purchases. Therefore, less frequent incentive payouts in larger denominations are preferred over small, frequent payouts.

## **5. Conclusions**

Qualitative research conducted by the Nielsen Company throughout the course of the last year challenges the long-standing assumption that cognitive interviewing is a questionnaire- dominated enterprise. Question format, readability, and comprehension do play a critical role in completing and implementing findings from social science research. However, to say that the cognitive interview’s only function is to test this one critical path of research is to limit the scope of social science research and our ability to evaluate its successes. Cognitive interviewing can strengthen our studies when used to test all components of the research process. Further, by removing ourselves from the interview and allowing external moderators to interact with the respondents, we limit the bias introduced into our work and have the potential to strengthen the final research product.

## **References**

- Caspar, R.A., Lessler, J.T., and Willis, G.B., (1999). Guide created for Reducing Survey Error through Research on the Cognitive and Decision Processes in Surveys. Short course presented at the 1999 Meeting of the American Statistical Association. Retrieved April 2009 from the National Cancer Institute. Website: <http://appliedresearch.cancer.gov/areas/cognitive/interview.pdf>.
- McCormack, Cathryn, (2008). “Are they answering what we think they’re asking? The importance of pre-testing survey questions using cognitive interviews. Prepared for The Australasian Evaluation Society’s 2008 International Conference. Retrieved

April 2009 from the Australasian Evaluation Society. Website:  
[www.aes.asn.au/conferences/2008/papers/p65.pdf](http://www.aes.asn.au/conferences/2008/papers/p65.pdf).

Tourangeau, R. (1984). Cognitive sciences and survey methods. In T. Jabine, M. Straf, J. Tanur, & R. Tourangeau (Eds.), *Cognitive aspects of survey methodology: Building a bridge between disciplines*. Washington, DC: National Academy Press.