

# Strategies for Subject Matter Expert Review in Questionnaire Design

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Paper presented at the  
Questionnaire Design, Evaluation and Testing Conference  
Charleston, SC  
Thursday, November 15, 2002

## Abstract

Subject matter experts who have broad, unique insight on target populations and the information requested by a survey (particularly surveys of special populations on technical subjects), but who are not prospective respondents, might be incorporated into questionnaire development and testing in a variety of ways. This approach is distinct from protocols using expert review by questionnaire designers, and pretest or cognitive interview methods with typical respondents.

In addition to commentary on survey questions and answers, subject matter experts are often asked about respondent knowledge, motivation, and authority to respond, levels of sensitivity or threat, burden, respondent selection criteria, and other challenges in survey administration, but probably not the technical aspects of questionnaire design. In many surveys, such experts might come from professional or trade associations, news media, consulting or research firms, and academia.

Based on informal assessments of several applications of expert review, the author observes that expert input was obtained in a variety of ways, using different protocols. The characteristics and relevance of subject matter expert feedback was examined. A few suggestions for how subject matter expert involvement might be optimized are made.

## Roles of Subject Matter Experts in Questionnaire Design and Testing

The need for subject matter expertise is inherent in survey design. Many have noted a gap between the researcher's survey methodological expertise and familiarity with the survey's subject. This need is most acute in surveys requesting complex or technical information, such as establishment surveys, as opposed to opinion surveys of the general population. Survey researchers attempt to address this in part by involving the client, presumably knowledgeable about the subject and population of the survey, and other non-survey experts. Subject matter expert review is distinct from review by questionnaire design experts, as embodied by the "questionnaire appraisal" approach (as exemplified by Lessler & Forsyth, 1996; Willis &

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<sup>1</sup> The views expressed are the author's own and do not reflect the position of the U.S. GAO. The author thanks Sylvia Fisher of the Bureau of Labor Statistics for her assistance in this research.

Lessler, 1999). It is also distinct from the host of methods used to obtain feedback from members of the respondent population. A number of survey methodologists have proposed approaches for incorporating subject matter expertise. Dillman (2000), for example, recommends review by knowledgeable colleagues and analysts as the first stage of pretesting. He recommends tapping the experience of a) people who have analyzed data, b) policy makers who can opine on how meaningful and relevant questionnaire data may be, as well as c) individuals with survey experience. This section describes typical sources of subject matter expert input, and how and when it figures in questionnaire design and testing, based on the author's review of survey practice.

### Sources of Subject Matter Expertise

Many kinds of people have been identified as subject matter experts in survey development efforts. A common definition seems to emerge: someone with extraordinary insight into the population and/or subject under study above and beyond what a member of the population under study or participant in the phenomenon being investigated might have. The subject matter expert is usually not part of the population under study. Table 1 gives some examples from actual survey projects.

*Table 1: Examples of Subject Matter Experts Consulted in Surveys*

<b>Subject</b>	<b>Population</b>	<b>Expert</b>
Characteristics of private schools	Principal administrators at private primary and secondary schools	<ul style="list-style-type: none"> <li>• Education experts from national-level educational and religious school associations</li> </ul>
Investor success in winning awards against stock brokers in securities arbitration cases	Securities investors	<ul style="list-style-type: none"> <li>• Attorneys in bar associations specializing in securities litigation</li> </ul>
Vocational education certificate programs	Vocational education participants	<ul style="list-style-type: none"> <li>• Military and college personnel in vocational education programs</li> <li>• Consultants to programs</li> <li>• Program directors from accrediting bodies</li> </ul>
Use of specialized financial instruments by publicly-traded US companies	Large businesses	<ul style="list-style-type: none"> <li>• Officials of professional associations of corporate finance officers such as the Financial Executives Institute</li> </ul>
Commercial air service to small communities	Directors of small airports	<ul style="list-style-type: none"> <li>• Federal Aviation Administration Officials</li> <li>• Officials of American Association of Airport Executives</li> </ul>

In addition to the specific examples in Table 1, there are some general classifications of experts that recur in the development of many surveys:

- Government officials at regulatory agencies overseeing the program or industry of interest in many business surveys
- Subject or program analysts, both inside and outside the survey organization
- Academics specializing in the subject area
- Representatives of professional or advocacy organizations connected to respondent population or questionnaire subject
- Data analysts and others using survey results
- Members of the media covering the population of interest
- Former members of the populations who have above average expertise and experience.

Methods tailored to obtaining the input of some of the preceding groups to aid questionnaire design have been discussed in the survey research literature. For example, Kydonieffs and Stinson (1999) discuss methods tailored to data users. When considering sources for expert input to questionnaire design, care must be taken to consider agendas that experts interested in the outcome of the research may bring to the task. Experts in an advocacy role (industry association officials, for example) may reflect in their review a particular, narrow perspective towards the policy issues that the survey addresses.

#### Scope of Subject Matter Expert Involvement

Subject matter experts are consulted for a variety of reasons. The following subjects have been asked of experts:

- Content of questionnaire
- Importance/meaningfulness of question areas to research aims
- Wording and terminology of items
- Comprehensiveness/mutual exclusivity of answer choices
- Respondent identification – titles/roles of best respondent
- Respondent motivation/knowledge/ability to answer questions
- Simulation of respondent behavior in survey
- Sensitivity/threat of information request
- Cost/burden to respondent population
- Appropriate incentives and/or fieldwork methods for the population
- Sample frame evaluation

In general, subject matter experts are asked to consider the technical aspects of the subject matter, and/or the characteristics of the respondent population, or problems from the perspective of data analysts using survey responses. However, they are sometimes asked to serve as proxies for respondents, and to complete items as pretest participants would, based on their familiarity with the population. Incorporating expert input may be most helpful in surveys on technical subjects, of establishments, and when resources for respondent-based questionnaire development methods are limited.

## Timing of Subject Matter Expert Involvement

Subject matter experts can be approached at various stages of survey development. Often they are consulted early in the survey design process, when the general topics of the survey are being chosen and question areas defined. Early involvement of expert reviewers is often used to explore respondent-related issues (such as who the appropriate respondent in an establishment should be) rather than instrument-related issues. Interviews with experts often occur before a questionnaire is developed, and the interview is conducted with a protocol that doesn't refer to specific items from a survey.

However, experts are also consulted after a questionnaire is drafted. In such cases, they may be asked to comment on alternative versions of individual questions, or entire questionnaire drafts. In other cases, experts are consulted on existing surveys that are undergoing redesign – they are asked for feedback on current questionnaires or specific items and asked to suggest improvements.

In summary, subject matter expert reviews can vary across a number of design dimensions, as described in Table 2. While the types of subject matter experts chosen dictate to a great extent the nature of such input, survey designers have some choice in how their input is solicited, and that choice of protocols may have consequences for the quality of feedback received.

*Table 2: Dimensions in the Design of Subject Matter Expert Protocols*

<b>Timing</b>	Early – questions have not yet been drafted; interview focuses on background issues concerning population or subject	Late – questionnaire has been drafted or already exists
<b>Item specificity</b>	Low – no specific questions used in expert interviews; only general question areas or survey issues discussed	High – experts are asked to consider individual items in questionnaire form, and/or entire instruments
<b>Structure of Interview</b>	Unstructured – relatively little guidance given to expert for scope of their commentary; informal request for comments. (Also occurs when expert plays role of respondent in pretest or cognitive interview setting)	Structured – formal, specific queries focus expert on one task (e.g., evaluate burden of a question, or comprehensiveness of answer categories)

Some survey development projects employ expert input in a combination of the above ways and stages. For example, the National Center for Education Statistics' Private School Survey underwent testing by the Bureau of Labor Statistics. In an initial wave, cognitive interviews with respondents (school administrators and administrative assistants) focused on individual items were conducted. In a second wave of interviews, educational experts from professional associations and other organizations were asked to evaluate individual redesigned items, complete items as if they were respondents (since some of them had been teachers and

administrators), and to comment on the revised questions. They were also asked for their insights into private education issues.

In addition to the dimension of timing, a variety of protocols may be followed with expert testing. Interviews may be scripted (a structured, formal approach), with researchers using specific probes, such as asking directed questions about respondents or possible measurement categories. If expert involvement is planned after an initial questionnaire has been developed, the interview may focus on the questionnaire itself (higher item specificity), with experts asked to review or complete the survey in a less structured way, in which fewer scripted probes are used. While most expert interviews are conducted one-on-one, experts can be assembled in a group or panel as well.

For example, to develop questions of students seeking vocational/technical certificates, Fisher (2002) describes a semi-structured approach not using actual items, but instead using specific probes on issues concerning respondent knowledge and memory of the subject, ways to define vocational certificates, what survey information on vocational certificate participation they would find useful, etc. But the protocol also allowed for unsolicited feedback on any issues of concern the experts had.

### **Challenges and Opportunities in Conducting Subject Matter Expert Testing**

The author conducted a qualitative, informal review of the content of materials (researcher notes and completed or annotated copies of questionnaires or items) from six expert interviews on three separate survey development projects<sup>2</sup>. While other assessments of questionnaire testing methods (e.g., Presser and Blair, 1994) sometimes use measures such as the number of questionnaire problems identified as a way to compare the utility of testing methods, the analysis reported in this paper makes no attempt to do so. While unscientific, this review of actual subject matter expert review suggests the following general observations on the use and value of this technique.

#### Risk of Misplaced Focus in Expert Review

If the item specificity of the review is high – that is, if individual questions or entire survey instruments, formatted in final questionnaire form, are used in interviews with experts – and if the structure of the review is low (experts are not compelled to respond to direct probes that the researcher has designed), then the reviewer’s focus may fall on the question or answer format, visual layout, or other aspects of questionnaire design that tend towards methodological reflections on survey design, rather than question content, respondent perspective, or other issues

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<sup>2</sup> In general, these expert interviews were conducted using some form of draft questionnaire (higher item specificity, later phase of design) as the vehicle for prompting commentary, either written or spoken. A generally unstructured, informal approach was used to obtain the expert’s review – in most cases, experts were given a limited background briefing about the survey, and asked at the beginning of the session to focus on a few issues while reviewing the questionnaire, such as understandability of questions and answers, answerability/burden for respondents, and general likelihood of receiving valid answers. Spontaneous comments, questions and nonverbal reactions were generally noted throughout the reviews, and some form of debriefing period followed in which the analyst asked a limited number of directed questions.

that the survey researcher may want the expert to focus on. For example, several comments in a number of expert interviews referred to the usability of the answer form (“need more answer space” and “too many instructions at the beginning of the survey”). While only a small fraction of total comments from expert interviews took this form, these behaviors recurred throughout the interviews. This may be a minor inconvenience for the researcher, but it may also detract from the value of the experts’ review if time and attention is focused on question design issues that may be better addressed by questionnaire design experts.

However, “technical” design and format comments from subject matter experts may be insightful and useful after all. For example, an expert in one interview remarked that a 5-point extent scale should not have been used; a dichotomous yes/no format was preferred. On the surface, this was a technical observation about measurement techniques. But the true importance of this comment was that the object being measured had only two states, and not a graduated set of states. Another example: a reviewer might want to reorder the answer categories in order of likely frequency of response, regardless of other effects this reordering might have. However, this information might be useful for highlighting very frequent answers in the stem, or eliminating rare answers and consolidating them in “other” categories. A third exemplary comment from an expert reviewer was a preference for an open-ended format over precoded answer categories, perhaps suggesting concerns about the comprehensiveness of the original answer categories. Finally, a typical comment from experts observed in the cases used in this study was that there was too much or extraneous introductory material in questionnaire cover pages and instructions, and that this would impact likely participation by respondents. Although unaware of the need for and prioritization of introductory material, these comments are not without merit – they may reflect an innate understanding of the burden and other obstacles to participation.

### Risk of Lack of Context for Expert Review

On the other hand, subject matter expert reviews conducted before a questionnaire is drafted (early timing) or otherwise without reference to complete questions or questionnaires (low item specificity) may suffer because the reviewers lack knowledge of the context in which the respondent will have to provide information. If experts are asked in general terms about the characteristics of respondents, or respondent knowledge and likelihood to give accurate answers to a question on some subject, their answers may be too generic and uninformed if they do not know the particulars of what the respondent will actually see.

### Variation in Depth of Expert Commentary

Some experts offered a great deal of commentary on the items, while others reserved any comment unless they perceived a problem. Without active probing and followup by interviewers, different levels of commitment to the task, and different interpretations by experts of their role may lead to uneven results. In addition, the nature of commentary varied significantly from one reviewer to the next within the same survey. They appeared to have different concerns and suggestions for change on two of the questionnaires for which multiple experts were observed. Part of this variation may be a natural tendency of experts to have specialized information and perspectives about the survey topic or population, at least compared to survey participants, who may be a more homogeneous group by comparison. The following

table demonstrates the variety in the types of volunteered comments received across a number of subject matter expert interviews reviewed by the author.

*Table 3: Categories of Expert Review Volunteered Comments*

1. Observation on respondent's predicted characteristics or behavior
  - a. Predicted respondent reaction to item or task (usefulness, challenge, burden, propriety)
  - b. Predicted ability or likelihood of respondent to answer
    - i. Likely validity of answer
    - ii. Likelihood of respondent question or need for clarification
  - c. Substance of likely R response (what answers will be)
2. Reviewer's reaction to item or task, or substance of answer (in role of respondent or from previous experience as member of respondent population)
  - a. Affect of reaction to item or task (usefulness, challenge, burden, propriety)
  - b. Ability or likelihood of response
  - c. Substance of response
3. Observation related to information requested
  - a. Policy issue related to use of survey data
  - b. Opinion on whether item taps desired construct
4. Methodological observations
  - a. Question or answer wording, but not substance-related
  - b. Questionnaire/item format or layout
  - c. Instructions, other materials
  - d. Other appearance-related issues

## **Conclusions**

There is great potential variety in the nature of and protocols for subject matter expert review in questionnaire development efforts. To begin with, it may be the very nature of each of the expert reviewers to have a unique perspective on the subject, thus leading automatically to a higher level of heterogeneity in the feedback received from each one. The characteristics and quality of the output from such reviews may also vary depending on the protocols used. This suggests that the researcher consider the design of the protocols for expert review carefully, to obtain the desired kind of feedback.

A second general observation is that while methodological commentary from subject matter experts might appear extraneous, subject matter experts might be particularly attuned to question design problems, and perhaps could be trained and prompted to recognize question design flaws that questionnaire experts are usually relied on to detect. For example, experts could be trained to be watchful for hidden "double-barreled questions" – when one question has two or more separate elements that respondents could have multiple opinions about. The subtlety of some double-barreled conditions may require subject matter expertise to detect. Whether the training of subject matter experts in this way is cost effective depends on the case.

Finally, it bears repeating that subject matter experts often occupy roles that have a direct interest in the policy discussions that the survey data informs. Strong partisanship should be considered when evaluating all but the most methodological of comments given by experts.

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