

**STATISTICAL POLICY DIRECTIVE NO. 2 ADDENDUM:
STANDARDS AND GUIDELINES FOR COGNITIVE INTERVIEWS**

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LIST OF COGNITIVE INTERVIEW STANDARDS

Methodological Plan

Standard A.1: A methodological plan must be developed prior to conducting a cognitive interview study. This includes (but is not limited to) an articulation of the study objective, sampling plan, recruitment of respondents, location of interviews, an interview guide, and type of analysis to be conducted.

Sample Selection

Standard A.2: Sample selection for a cognitive interview study must be done in a purposeful way to ensure that the respondents have the characteristics necessary to provide data required to meet the study objectives.

Interview Guide

Standard A.3: An interview guide, or interview protocol, is required and must be designed to collect the processes by which a respondent interprets and responds to a question as well as any difficulties experienced by a respondent in providing an answer. Interview guides contain the questions to be evaluated along with interviewer instructions, such as follow up probe questions, for obtaining information needed to meet study objectives. The guide must direct the interview process so that respondents reveal how and why they answered the question as they did.

Systematic Analysis

Standard A.4: The data produced must undergo a systematic analysis. A systematic analysis ensures that no particular case is overemphasized and that findings represent the full range of responses. Analysts must examine data within interviews, across interviews (by question) and across subgroups (when appropriate given the purpose of the study) with the goal of identifying thematic patterns in question interpretations and response error.

Transparent Analysis

Standard A.5: Analysis of cognitive interviews must be transparent such that study findings can be traced to original data collected in the cognitive interviews.

Final Reports

Standard A.6: The methods used, results obtained, and conclusions drawn must be documented in a final report.

Reporting Results

Standard A.7: Final reports must be made available to the public if cognitive study results are referenced in publications or data collection documentation.

INTRODUCTION

Standards for Federal statistical programs serve both the interests of the public and the needs of the government. These standards document minimum professional practices that Federal agencies are required to implement to demonstrate the responsibilities described in [*Statistical Policy Directive No. 1: Fundamental Responsibilities of Federal Statistical Agencies and Recognized Statistical Units*](#).

This document is an Addendum to [*Statistical Policy Directive No. 2: Standards and Guidelines for Statistical Surveys*](#). This Addendum neither removes nor replaces any of the standards and guidelines identified in *Statistical Policy Directive No. 2*. Instead, this Addendum is intended to complement and augment those standards as part of the continuing efforts of the Federal statistical system to ensure the relevance, accuracy, and objectivity of Federal statistics.

The Addendum provides seven standards for cognitive interviews conducted by, or on behalf of, the Federal government for statistical purposes, including the evaluation of a survey, instrument, or data collection method. These standards pertain to the design, conduct, analysis and publication of cognitive interview studies. The seven standards are presented individually. Accompanying guidelines represent best practices that may be useful in fulfilling the goals of the standard.

Unless explicitly noted, this document incorporates the terms and definitions in [*Statistical Policy Directive No. 2: Standards and Guidelines for Statistical Surveys*](#). The term “standard” denotes a methodological requirement, necessary for the study to be considered accurate and trustworthy. “Guidelines” are intended as best practices in how to interpret and fulfill the standards: they are not intended as necessities or requirements. The document is intended to provide guidance on the preferred methods for all agencies conducting cognitive interviews, with the recognition that resource or other constraints may prevent all guidelines from being followed in every study.

Overview of Cognitive Interview Methods

Cognitive interview studies investigate how survey questions perform when asked of respondents—that is, whether respondents understand the questions according to their intended design and whether respondents can provide accurate answers based on that intent. Cognitive interview studies determine respondent interpretations and detail the phenomena considered by respondents in forming their answer. Findings from cognitive interview studies can indicate whether a survey question captures the intended construct as well as identifying difficulties that respondents experience when formulating a response. As with most question evaluation methods, the goal is to minimize the variability in the data caused by aspects of data collection related to respondent characteristics (e.g., history, comprehension, motivation), interviewer characteristics (e.g., history, experience) or survey administration (e.g., mode, context). Cognitive interviews give us insight into the variability due to the respondent’s response process, allowing us to attempt to either minimize this variability or isolate and manage it post-collection.

Cognitive interview studies are qualitative studies. Interviews generate textual data that includes explanations and examples of respondent circumstances and how those circumstances inform the question-response process. Cognitive interviews consist of one-on-one, open-ended, semi-structured interviews. The typical interview structure consists of respondents, sometimes known as participants, first answering the evaluated survey question and then a series of follow-up questions that reveal what respondents were thinking and their rationale for that specific response. For example, a common follow-up question is: “What were you thinking when you answered the question?” Through this semi-structured design, cognitive interviews provide rich, contextual insight into the ways in which respondents 1) interpret a question, 2) consider and weigh relevant aspects of their experiences and, finally, 3) formulate and report a response based on that consideration. As such, cognitive interviews provide in-depth understanding of the ways in which a question operates, the kind of phenomena that it captures, and

whether and how the question will ultimately collect survey data.

Sample selection for a cognitive interview study is purposive rather than random. The intent is to select respondents who can address the objectives of the study rather than serve as a representative of the population. For example, when studying questions designed to identify persons with disabilities, the sample would likely consist of respondents with a known disability and, to explore causes of false positive or false negative reporting, some respondents with no known disability. Analysis of cognitive interviews does not produce generalizable findings in a statistical sense, but rather, provides insight into patterns of interpretation and the potential for measurement error.

Raw data of a cognitive interview study consist of either a video or audio recording or a written transcript of the interview. As is the case for all analyses of qualitative data, the general process involves data synthesis and reduction—beginning with a large amount of textual data and resulting in conclusions that are meaningful to the ultimate purpose of the study. In addition, as previously described, cognitive interview studies can serve different purposes that pertain to question evaluation. The purposes may include:

- Identifying difficulties that respondents may experience when attempting to answer a survey question. These difficulties may occur within one of the four stages of the question response process: comprehension, retrieval, formulation, and response. The findings can provide clues as to how a question might be improved so the recognized difficulties can be reduced.
- Identifying experiences or events that respondents consider and ultimately include or exclude in their answer to a particular question. This type of study is an examination of construct validity since it identifies the actual phenomena captured by a survey question.
- Examining issues of comparability—for example, the accuracy of translations or equivalence across socio-cultural or other relevant subgroups. This type of study is an examination of potential bias since it investigates how different groups of respondents may interpret or process questions differently.

Findings from a cognitive interview study typically lead to recommendations for improving a survey question. Results are also beneficial to post-survey analysis by informing data interpretation

Requirements for Agencies

Federal agencies subject to the [Paperwork Reduction Act](#) are required to adhere to all standards enumerated in this Addendum. Nonetheless, OMB recognizes these standards cannot be applied uniformly or precisely in every situation. Therefore, agencies should seek guidance from OMB if contingencies arise that would make adherence to these standards infeasible for a given information collection.

These standards and guidelines are not intended as a substitute for the extensive existing literature pertaining to cognitive interview and qualitative research. When undertaking a cognitive interview study, an agency should engage knowledgeable and experienced practitioners to effectively achieve standard goals, consistent with applicable law. Persons involved should have knowledge and experience in survey design and methodology, cognitive interview and qualitative research methodology.

The standards and guidelines identified in this Addendum are not intended to be exhaustive of all efforts that an agency may undertake to ensure the quality of its cognitive interview studies. Agencies are encouraged to develop additional, more detailed standards focused on their specific survey question evaluation activities. Additionally, these standards and guidelines are based on the current state of knowledge about cognitive interview practices. Agencies are encouraged to conduct sound empirical research to strengthen the guidelines included in the document so as to further improve the quality of

cognitive interview studies.

Agencies conducting surveys should also consult guidance issued by OMB entitled [*Questions and Answers When Designing Surveys for Information Collections \(Questions and Answers\)*](#). Developed by OMB to assist agencies in preparing their Information Collection Requests for OMB review under the [*Paperwork Reduction Act*](#), *Questions and Answers* is intended as an easy to read reference.

ADDENDUM: STANDARDS AND GUIDELINES FOR COGNITIVE INTERVIEWS

Section A.1 Methodological Plan

Standard A.1: A methodological plan must be developed prior to conducting a cognitive interview study. This includes (but is not limited to) an articulation of the study objective, sampling plan, recruitment of respondents, location of interviews, development of an interview guide, and type of analysis to be conducted.

Section A.2 Sample Selection

Standard A.2: Sample selection for a cognitive interview study must be done in a purposeful way to ensure that the respondents have the characteristics necessary to provide data required to meet the study objectives.

The following guidelines represent best practices that may be useful in fulfilling the goals of the standard:

Guideline A.2.1: *Sample Characteristics:* Respondents are identified based on their relationship or experiences with the key characteristics of the study. The composition of the intended survey population and the homogeneity of the population's experiences with the key topics or variables of interest also play a role in determining the number of subgroups included in a cognitive interview study. If the respondent population is expected to be similar in its experiences and reaction to the key variables, there may not be a need for subgroups. If, on the other hand, there are known or suspected differences in the way in which particular populations may experience or interpret a construct, multiple subgroups would be desired. If subgroups are identified, the number of respondents within each subgroup needs to be sufficient to allow for identification of themes in question interpretation and response error.

Guideline A.2.2: *Sample size:* A sample size goal is decided at the onset of the study with the final sample size determined by the data being collected. Ongoing analysis of the data determines when "saturation" has been reached (i.e., how much new information is being collected from each participant) and, therefore, informs when interviewing may cease, even if initial sample size has not been met. On the other hand, the sample size goal may be exceeded if the point of saturation has not been reached, or if additional issues or subgroups have been identified that need to be explored to achieve study objectives.

Guideline A.2.3: *Recruitment plan:* Recruitment may include advertisements in newspapers, flyers, websites, social media, community contacts, word-of-mouth, or direct contact of previous survey respondents or members of the survey frame. Respondent selection is considered and guided by the study objectives.

Section A.3 Interview Guide

Standard A.3: An interview guide, or interview protocol, is required and must be designed to measure the processes by which a respondent interprets and responds to a question as well as any difficulties experienced by a respondent in providing an answer. Interview guides contain the questions to be evaluated along with interviewer instructions, such as follow-up probe questions, for obtaining information needed to meet study objectives. The guide must direct the interview process so that respondents reveal how and why they answered the question as they did.

The following guidelines represent best practices that may be useful in fulfilling the goals of the standard:

Guideline A.3.1: As a means of improving questionnaires, cognitive testing is best used as an iterative process, with ongoing analysis and revisions conducted throughout the study. For example, as problems are identified with question wording, the study is paused, the results analyzed, the question–and interview protocol if necessary–revised, before testing continues. The point at which testing is stopped (and changes are final) is based on analytic findings. The researcher should work to ensure that the final product aligns with the intent of the questions.

Guideline A.3.2: Cognitive interviewers also operate as analysts within the interview. Therefore, they should have knowledge of cognitive interview and qualitative methodology. For each study, the cognitive interviewer should have a strong understanding of the research objectives, key variables and potential issues in order to formulate spontaneous follow-up questions and conduct on-the-spot analysis.

Guideline A.3.3: Individual questions are not asked in isolation, but instead operate in a larger context of the full survey administration. The cognitive testing protocol should recognize that there are context, framing, mode, or other effects that may play a role in the response process. In situations where the larger context of the survey may significantly impact the evaluation of the question, testing should mirror the intended context and administration mode. When evaluating whether a tested question should be used in a survey other than for which it was developed, the context within which the question was tested should be evaluated to determine if it adequately informs the question’s anticipated performance in the proposed survey, or if additional testing is needed.

Section A.4 Analysis of Cognitive Interviews

Standard A.4: The data produced must undergo a systematic analysis. A systematic analysis ensures that no particular case is overemphasized and that findings represent the full range of responses. Analysts must examine data within interviews, across interviews (by question) and across subgroups (when appropriate given the purpose of the study) with the goal of identifying thematic patterns in question interpretations and response error.

The following guidelines represent best practices that may be useful in fulfilling the goals of the standard:

Guideline A.4.1: Cognitive interview studies are based on empirical data collected from respondent interviews. Analyses and conclusions can only be based on these data. Expert reviews are not cognitive interview data and should not be treated as such.

Guideline A.4.2: Analysis of cognitive interviews consists of data synthesis and reduction. The process can be conceptualized as five incremental steps. The number of steps taken by the analyst depends upon the particular purpose of the study. These steps are:

1. Conducting interviews, collecting and documenting the ways in which a respondent interpreted and formulated answers to the survey questions;
2. Synthesizing interview text into summaries, detailing how each respondent formulated their answers, including events or experiences considered as well as any difficulties answering the question;
3. Comparing summaries across respondents to identify common themes and to develop common themes that describe phenomena captured;
4. Comparing those themes across subgroups to identify ways in which different groups may process questions differently depending on their experiences; and
5. Making conclusions based on the common themes that depict how each question performs as well

- as providing explanation for the performance.
6. Preparing initial recommendations as to whether the question is fit for its intended use, or whether (and in what circumstances) further testing of alternatives is merited.

Section A.5 Transparent Analysis

Standard A.5: Analysis of cognitive interviews must be transparent such that study findings can be traced to original data collected in the cognitive interviews.

The analytic process must be transparent so that an outsider can understand and assess the legitimacy of study findings. Each step in the analytic process must be documented in a clear and accessible way, such that the findings can be traced directly back to the raw data. The level of detail at which the analytic process is described must be such that an outside researcher could replicate the analysis.

By making analytic processes transparent, readers can understand, cross-examine and judge the quality of the cognitive interview data as well as the way in which the analysis was conducted. Transparency allows the reader to trust the findings and their reputability.

The following guideline represents best practices that may be useful in fulfilling the goals of the standard:

Guideline A.5.1: A plan is prepared to store the raw data according to an agencies' record management schedule. If not available, a schedule for storing raw data for specified length of time based on the nature of the data and project should be developed. Each agency has the legal responsibility to safeguard respondent identity and personally identifiable information, and should treat all data according to their stated security and confidentiality procedures.

Researchers should keep an audit trail—a step-by-step record illustrating how data were synthesized to produce conclusions. This trail can be a spreadsheet, text document, or other qualitative analysis software application capable of documenting the analysis process. Evidence in the form of detailed examples and quotations are written into study findings.

A report is written and made public when possible (see Standard A.7).

Section A.6 Final Reports

Standard A.6.1: The methods used, results obtained, and conclusions drawn must be documented in a final report.

Complete reporting improves both the rigor and the credibility of a study, maximizes the transparency of the analyses, and is essential for evaluating study quality. A final report offers clear and conceptually adequate descriptions of all aspects of the study and its execution.

The following guidelines represent best practices that may be useful in fulfilling the goals of the standard:

Guideline A.6.1: It is important to document the key procedures and findings of cognitive interview studies, allowing interested parties to evaluate the study. Table A.1 provides a list of questions addressed by the final report and provides examples of elements that fall under each item.

Table A.1. Issues Addressed in Cognitive Interview Reports

| Question | Example |
|---|--|
| What is the study objective and why are the selected methods appropriate? | Original purpose(s) of the study Background/present state of knowledge Rationale for using cognitive interview method |
| How was the sampling done? | Description of and rationale for type of sampling (e.g., purposive) given study objective(s) Description of recruiting method Target sample (number and characteristics) Achieved sample (number and characteristics) |
| What data were collected, by whom, and by what methods? | Description of interview guide (include as an attachment if possible) Details on the interviewer(s), interview location, interview length, etc. Method of note taking, session recording, use of transcripts Changes to methods during testing |
| How was the analysis conducted? | Procedures for summarizing data, drawing conclusions and making recommendations Discussion of sub-group comparisons |
| What results are presented? | General overview of responses Identification/exploration of key findings or themes Provision of illustrative quotes or examples Summary of patterns and trends Discussion and explanation of counterexamples Recommendations, future research, etc. |
| How credible and transferable are the findings? | Description of relevance of findings to study objectives Links to data and/or methods documentation Discussion of sample coverage issues Identification of other study limitations |

Guideline A.6.2: The content and format of cognitive interview study reports may vary somewhat by researcher and project, but they generally contain the following elements:

- Study title, author(s), and date of report;
- Executive summary: concise précis of objectives, procedures, and key findings;
- Introduction: for example, background information about the survey or topic and a statement of the cognitive interview study purpose;
- Methods: description of procedures for sampling/recruiting, data collection, and data analysis;
- Findings: question-by-question review, identification of common themes, consideration of counterexamples and, possibly, recommendations;
- Discussion: review of key findings, study limitations, ideas for future research; and
- Addenda: interview protocol and supplemental methodological documentation.

Section A.7 Reporting Results

Standard A.7: Final reports must be made available to the public if cognitive study results are referenced in publications or data collection documentation.

The following guideline represents best practices that may be useful in fulfilling the goals of the standard:

Guideline A.7.1: Survey data documentation, including descriptions of the data collection process, survey forms, and information about the available data, should include links to cognitive testing reports. Reports are linked to survey data documentation. This can be done directly on the website of the survey for which the cognitive interviews were conducted, or another public website or database.