1 Introduction

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Although the beginnings of survey research can be traced as far back as the late 1880s, the discussion of question design and the need for standardized questions did not appear for another 50 years (Groves et al. 2009). Since this time, notions about question design have dramatically transformed, particularly in regard to question evaluation. In 1951, Stanley Payne published his book, *The Art of Asking Questions*, and laid out 100 considerations for writing survey questions. Although he maintained that question evaluation studies could be helpful, he argued that the actual writing process should be the higher concern. Today, however, there is a greater emphasis on question evaluation. Also, with the entrance of psychologists, psychometricians, and more recently, anthropologists, qualitative methodologists, and cognitive sociologists, the scientific rigor and scope have increased.

A significant advancement for question evaluation occurred in the 1980s with the entrance of cognitive psychology and the study of the cognitive aspects of survey methodology (CASM). The CASM movement not only brought attention to the issue of measurement error, it also established the idea that individual processes, specifically, respondents’ thought processes, must be understood to assess the validity and potential sources of error (Schwarz 2007). The underlying supposition is that, as noted by Willis (2005), “the respondent’s cognitive processes drive the survey response, and an understanding of cognition is central to designing questions and to understanding and reducing sources of response error” (p. 23). Thus, with the advent of CASM, the focus of question design shifted from the question writer to the respondent and cognitive processes.

The cognitive processes that make up question response have been represented in a number of theoretical models. A commonly cited question-response model contains four stages: comprehension, retrieval, judgment, and response (Tourangeau 1984; Tourangeau et al. 2000; also see Willis 2005 for a detailed discussion). To provide a response, each respondent proceeds through four specific steps: (1) determining what the question is asking, (2) recalling or retrieving the relevant information, (3) processing the information to formulate an answer, and (4) mapping that answer
onto the provided response categories. By recognizing the cognitive processes, it is possible to understand the complexity of the question-response process as well as the numerous possibilities for response error (Tourangeau et al. 2000; Willis 2004, 2005). By establishing a theoretical foundation for survey question response, the CASM movement provided a basis for scientific inquiry as well as a practical basis for understanding and reducing response error in survey data.

Today there is little debate that question design—how questions are worded and the placement of those questions within the questionnaire—impacts responses (e.g., Fowler 2009; Krosnick and Presser 2010). Newly developed or re-conceptualized methodologies (e.g., latent class analysis, behavior coding, and item-response theory) have repeatedly demonstrated the impact of question design (Madans et al. 2011). Psychometricians, for example, have shown that scale items with more response categories are increasingly likely to produce response distributions with a wider spread than those with fewer categories (Crocker and Algina 2008). Split sample experiments—a method that divides a survey sample into two groups whereupon one group receives a question and the other receives a different version of the same question—have also shown varying estimates (Krosnick 2011; Fowler 2004). In terms of substance and practicality, each methodology has its own benefits but also limitations (see Madans et al. 2011 for in-depth explication). The future of question evaluation lies in the use and integration of varying methodologies. Understanding the range of methodological perspectives—the suppositions, benefits, and limitations—will improve knowledge of question response and survey error, and ultimately ensure quality survey data.

1.1 COGNITIVE INTERVIEWING METHODOLOGY

This book focuses on the question evaluation method of cognitive interviewing—a method arising directly from the CASM movement. It is a qualitative method that examines the question-response process, specifically the processes and considerations used by respondents as they form answers to survey questions. Traditionally the method has been used as a pretest method to identify question-response problems before fielding the full survey. The method is practiced in various ways (Forsythe and Lessler 1991), but is commonly characterized by conducting in-depth interviews with a small, purposive sample of respondents to reveal respondents’ cognitive processes. The interview structure consists of respondents first answering a survey question and then providing textual information to reveal how they went about answering the question. That is, cognitive interview respondents are asked to describe how and why they answered the question as they did. Through the interviewing process, various types of question-response problems that would not normally be identified in a traditional survey interview, such as interpretive errors and recall accuracy, are uncovered. DeMaio and Rothgeb (1996) have referred to these types of less evident problems as “silent misunderstandings.” When respondents have difficulty forming an answer or provide answers that are not consistent with a question’s intent, the
question is typically identified as “having problems.” A problematic question can then be modified to reduce response error.

By definition, cognitive interviewing studies determine the ways in which respondents interpret questions and apply those questions to their own lives, experiences, and perceptions. In that cognitive interviewing studies identify the content or experiences contained in the respondents’ answers, the method is a study of construct validity. That is, the method identifies the phenomena or sets of phenomena that a variable would measure once the survey data is collected. Moreover, cognitive interviewing studies can examine issues of comparability, for example, the accuracy of translations or equivalence across socio-cultural groups (Goerman and Caspar 2010; Willis and Miller 2011). In this way, the method is an examination of bias since it investigates how different groups of respondents may interpret or process questions differently. To this end, cognitive interviewing studies can encompass much more than identifying question problems. Cognitive interviewing studies can determine the way in which questions perform, specifically their interpretive value and the phenomena represented in the resulting statistic.

This book will lay out procedures for conducting cognitive interviewing studies with an eye toward studying constructs, including processes and considerations for data collection, analysis, and making conclusions. The book will also describe how to write results of cognitive interviewing studies so that findings can serve as ample documentation for both survey managers and data users who will use the study to more fully understand and better interpret survey data. Finally, the book will lay out limitations of cognitive interviewing studies and explore the benefits of cognitive interviewing with other methodological approaches. This book is not intended to be a stand-alone guide for conducting a cognitive interviewing study. There are many aspects of the method that cannot be fully addressed in this volume. Other books and articles, such as Willis’ (2005) already cited work, *Cognitive Interviewing*, offer significant and complementary material.

Unlike other works, however, the perspective of this book is set specifically within an interpretivist framework in which the construction of meaning is considered elemental to the question-response process. The method explicated in this book, then, is oriented toward the collection and analysis of interpretive patterns and processes that constitute the question-response process. This perspective does not run counter to the psychological focus of cognition, but rather emphasizes interpretive value and the fluidity of meaning within the context of a questionnaire as well as (and perhaps more significantly) within the socio-cultural context of respondents’ lives. An interpretivist perspective understands that meanings and thought patterns do not spontaneously occur within the confines of a respondent’s mind, but rather those meanings and patterns are inextricably linked to the social world (Berger and Luckman 1966). Context is not identified only as the context of the survey interview, but most significantly it includes the socio-cultural context of that respondent’s life circumstance and the perspective that he or she brings to the survey interview. How respondents go about the four cognitive stages—of comprehending, recalling, judging, and responding—is informed by respondents’ social location, including such significant factors as their socio-economic status, education, gender, age, and cultural
group. Consequently, not all respondents will necessarily process questions in the same manner. An important aspect, therefore, addressed in this book includes a method for examining the socio-cultural influence and comparability across groups.

In thinking about the various objectives that can be accomplished by cognitive interviewing studies, the ultimate goal of a cognitive interviewing study is to better understand question performance. Again, this includes not only identifying respondent difficulties (a.k.a. "problems with questions"), but also identifying the interpretive value of a question and the way in which that question may or may not be consistent with its intent—across particular groups and in different contexts. With a more complete picture of a question’s performance, more options emerge in regard to how a question could be altered before fielding or how the resulting variable should be utilized by data users. Moreover, by understanding question performance, a more sophisticated portrayal of response error emerges—one that illustrates response error as a non-binary variable when considered across the entirety of the survey sample. When interpretive findings from cognitive interviewing studies are combined with quantitative studies (as described in Chapter 9), insights into question performance are exponential. A particular limitation of cognitive interviewing methodology is that, while it can discern various patterns of interpretation, it cannot determine the extent to which interpretive patterns exist or vary in the actual survey data. Coupled with a quantitative design, however, it is possible to begin measurement of interpretive variation.

In keeping with the basic tenets of scientific investigation, a predominant theme throughout the book is the necessity for systematic and transparent processes. Systematic data collection and analysis ensure accuracy in the identification of interpretive patterns and processes. Transparency allows readers to understand as well as to cross-examine the ways in which studies were conducted and how conclusions were reached. In addition, transparency instills the trustworthiness of a study and the reputability and believability of study findings. These tenets carry through data collection and analysis to the final report, which must document the analytic process and present evidence to support findings.

The chapters of this book are presented as components of a cognitive interviewing study. Chapter 2 lays out the theoretical foundations of cognitive interviewing methodology, more closely connecting an interpretivist framework to the method that will be articulated in this book. Chapter 3 discusses issues of sampling as well as issues pertaining to quality interview data. The role of the interviewer and the role of the respondent become central themes in the discussion of data quality for cognitive interviews. Chapter 4 lays out a step-by-step process for performing analysis of cognitive interview data while, at the same time, producing an audit trail that links analytic findings with the original interview data. Chapter 5 is a separate analytic chapter devoted to cross-cultural and multi-lingual cognitive interviewing studies. From an interpretive perspective, the impact of socio-cultural context on comparability is a significant component of question evaluation and, therefore, is highlighted in its own chapter. Chapter 6 describes the process for conveying the results of a cognitive interviewing study. In this chapter attention focuses on the importance of transparency and the presentation of empirical evidence—a necessary criterion for
producing a credible study. Chapter 7 provides a case study which illustrates how a cognitive interviewing project conducted in the manner presented in this book can be practiced. Chapter 8 presents newly developed tools that benefit cognitive interviewing studies as well as the field of question evaluation. Those tools include Q-Notes, a data entry and analysis application, and Q-Bank, an online resource that, among various other features, houses question evaluation studies and is searchable by question. Chapter 9 discusses limitations of cognitive interviewing studies and illustrates how the method can be integrated with quantitative methodologies to improve understanding of question performance. Finally, the concluding chapter summarizes key principles articulated throughout the book as well as presents emerging ideas and recommendations for the field of question evaluation and survey research.