Books for review are to be sent to the Book Review Editor Jaki S. McCarthy, USDA/NASS, Research and Development Division, Room 305, 3251 Old Lee Highway, Fairfax, VA 22030, U.S.A.

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G. B. Willis. *Cognitive Interviewing. A Tool for Improving Questionnaire Design.* Thousands Oaks, CA, Sage Publications, 2005. ISBN 0-7619-2803-0, 335 pp, 69.95USD (cloth); ISBN 0-7619-2804-9, 34.95USD (pbk.).

At a conference a colleague proudly told me (with a big smile) that "cognitively testing" the questionnaire pleased her client. It seems that cognitive interviewing (C.I.) is the key phrase some researchers use to make their pretests sound "more scientific." For others C.I. is just another stamp of approval much like the Institutional Review Board or the Office of Management and Budget authorization. But what exactly is a cognitive interview and how should we conduct it? What are its strengths and limitations?

Consider the following question taken from Willis (1994): "In the last year have you been bothered by pain in the abdomen?" Although this question appears rather straightforward and did not generate many problems during a field pretest, a closer look revealed otherwise. In a round of cognitive interviews, given a picture of the upper body, respondents were asked to indicate where the abdomen was. Interestingly, almost no one chose the correct region (Willis 1994).

Cognitive Interviewing. A Tool for Improving Questionnaire Design is the second book on this very new and important topic (see Snijkers 2002). The volume is organized in four parts: Orientation and Background, The Intricacies of Verbal Probing, The Cognitive Testing Process, and Other Issues and Topics. Each chapter is further divided into an overview, a summary and, where applicable, some practical exercises. A great deal of clarity is provided by tables, figures, and text boxes that summarize the material and can be used to prepare presentations for lectures. The book is concluded with two useful appendixes with examples of cognitive testing protocols and findings from cognitive testing reports.

In the first part, Willis provides the theoretical background of the emergence of C.I. that is probably one of the first concrete outcomes of the CASM movement (Cognitive Aspects of Survey Methodology). C.I. is defined as applied CASM research and it is based on the

four-stage model of the survey response process, the second main outcome of the CASM movement. The goal of C.I. is to find possible problems in each of the stages and to learn how respondents arrive at an answer. Think aloud techniques and verbal probing (concurrent and retrospective) are introduced, together with the use of vignettes, card sorts and other field-based probes.

In the second section, entitled "The Intricacies of Verbal Probing", the author devises a taxonomy of verbal probes that can be used in a C.I. This is really the strongest and most innovative part of the book. The administration of probes can be proactive (initiated by the interviewer) with anticipated or spontaneous probes, or reactive (triggered by the subject behavior) with conditional or emergent probes.

Verbal probes are not new to survey research and have been used in pretesting questionnaires since the beginning of questionnaire design. For example, in order to develop response options for a close-ended question, Fee (1981) asked: "In the next question we are interested in what the expression *big government* means. Think for a moment about what *big government* means to you" (p. 75). This type of probe is now classified as a comprehension probe and is frequently used in C.I. Another example of pre-CASM probing is the "intensive individual interview" developed by Belson (1981).

But what are, from another point of view, verbal probes? They are questions about the questionnaire items, questions about the respondent's answers, or questions about the subject behavior (most often nonverbal cues). There are other probes that are not cognitive in nature: probes that request elaboration (expansive probes), confirmatory probes, and probes that simply give feedback to the respondent. It is important to know what information a probe elicits, and how a probe should be asked. Since probes are questions about questions, we can devise just "bad" or leading probes that can bias the findings. Unfortunately, cognitively testing our probes creates an endless loop. The problem of testing probes as well as the risk of finding problems that do not exist, or the issue of finding *false positives* (Tourangeau 2004), and other problems are discussed in Chapter 8.

The third part, The Cognitive Testing Process, addresses the practical aspects of conducting a C.I.: selecting and training the interviewers, planning and conducting C.I., and analyzing and documenting C.I. results (an issue not very much investigated in the literature). I just want to point out what novices tend to overlook: the recruitment of subjects. As Willis puts it, "recruitment is the 500 pound gorilla that determines the feasibility of C.I."(p. 138). Many of us have experienced a similar situation when recruitment was overlooked for a focus group: empty sessions or sessions of just one or two participants.

In the last part, Other Issues and Topics, the debate is centered on special applications of C.I., evaluating C.I., affiliated pretesting methods, and future directions. In reading these chapters I receive the impression that the author is laying down a table of contents for a future book. Two important areas where the research is emerging are cross-cultural and establishment survey C.I. (Snijkers 2004). Do people speaking Spanish have the same problems with the word *abdomen* that is, in fact, a word derived from Latin? We know, for example, that distinctions between *stomach* and *abdomen* in everyday (Southern) German do not match the distinctions understood in either English or (Northern) Standard German (Harkness 2004). What are the challenges in cognitively testing an establishment survey questionnaire in which multiple respondents participate? Or when is it necessary to look up records in order to answer some questions?

One of the "positive side effects" of the C.I. technique is that the problems highlighted cause survey author(s) to rethink their measurement objectives. In fact, a C.I. report often contains more questions than recommendations. Sometimes one of the biggest frustrations of a cognitive interviewer is to test a question and find problems only to have clients argue that nothing can be changed because they have been asking the question for so long. I hope that readers of this book with the authority to make changes in questionnaires are more courageous in acting on results from C.I., especially when they can be implemented in a large-scale pretest of a new question wording. The choice here is to lose comparability (time series) or decrease measurement error while increasing validity.

The pollsters or political scientists reading this book will find that it primarily contains examples of behavioral and factual questions rather than attitude or opinion questions. Such example selection was most likely due to two factors: first, the author worked mainly in U.S. federal agencies (typically more concerned with measuring "hard facts"; second, the majority of cognitive labs, at least in the U.S., are located in institutions that primarily collect factual data with the natural outcome being that publications report results from testing factual questions. Willis addresses this point in Chapter 12, observing that attitudinal questions are amenable to the C.I. as well. However, he warns not to induce subjects to speculate on the sources of their attitudes, which they may not have direct access to (Wilson et al. 1996). In any case, it will be useful to see more C.I. literature on testing attitude questions.

Overall, the book reads smoothly. It is easy to follow the sequence of the contents since Willis put a lot of effort into systematizing the sparse literature. The reader will find many issues worth investigating in the copious twenty pages of references. I see this manuscript as the basic reading for both beginners and experienced researchers. It is definitely a book to keep in our "survey research toolbox."

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Mario Callegaro
University of Nebraska, Lincoln
Program in Survey Research and Methodology
http://sram.unl.edu
200 North 11th Street
4th Floor
Lincoln, NE 68588-0241
U.S.A.
Tel: +1 402 458 2035
Fax: +1 402 458 2038
Email: mca@unlserve.unl.edu

E. Schulte Nordholt, M. Hartgers, and R. Gircour (eds). *The Dutch Virtual Census of 2001: Analysis and Methodology*. Voorburg, Netherlands: Statistics Netherlands, 2004. ISBN 903571469 0, 276 pp, €48.50.

Nowadays there are many papers and manuscripts on census methodology (see, for instance Wright and Farmer 2000). Nevertheless, the practical complications involved in setting up a census give rise to the exploration of new methods. This book describes one of these situations.

A virtual census is a census without the direct contact of a statistical agency with all the households resident in a country. Hence, the census is conducted exploiting only administrative archives (population registers, registers of the fiscal administration and others) and sample surveys (such as the labour force survey). These sources are combined in order to produce the tables requested from the current legislation or supernational standard practices, for example, those established by Eurostat. The virtual census allows timely results, with a substantial reduction of the expenses. Furthermore, response burden is drastically reduced as well as the risk that a nonnegligible part of the residents tend to avoid being contacted or fill in the census form erroneously.

The use of administrative archives or sample surveys for the production of census tables is not new. For instance, the censuses of many European Nordic countries are currently based on the exploitation of highly informative archives, while the decennial census of the United States is partly based on a sample survey on supplementary questions about occupation, parentage, and fertility (with the exception of basic information required from

every person for constitutional or legal reasons) since 1940. The Netherlands had to face a declining cooperation of the residents in traditional censuses and the fact that administrative archives do not possess all the necessary information. For this reason, the Dutch Virtual Census jointly uses archives and already available samples. This approach raised some methodological problems, solved with the application of integration methodologies such as record linkage (at a micro level) and repeated sampling (at the macro level).

As revealed in the subtitle, this book focuses on the description of some results and of some methodological aspects of the 2001 Dutch Virtual Census. After an introduction consisting of an overview of problems related to traditional censuses, a short history of traditional censuses in the Netherlands and an outline of the book (Chapter 1), these two aspects are discussed, although with different emphasis.

Chapters 2–12 show how fruitful a virtual census is and the level of detail it is possible to obtain. These chapters are mainly concerned with the analysis of economic activity issues, with special attention to the familiar (Chapter 2) and individual (Chapter 3) characteristics of workers, the economic activities of young people (Chapter 4), the senior labour force (Chapter 5) and the characteristics of foreign workers (Chapter 6). Other chapters cover the topic of municipal characteristics (Chapters 8–10) and commuting (Chapter 11). Comparisons of the 2001 Dutch virtual census results with previous censuses and with other countries are provided respectively in Chapters 7 and 12. This last chapter is particularly focused on the comparison between the Netherlands and the United Kingdom.

The methodological part of the book is in Chapters 13 and 14. These chapters do not require any mathematical skill. However, they are complemented by examples and tables that highlight the critical methodological issues in a virtual census. Those interested in the statistical properties of the discussed procedures should consult the references.

Some aspects covered in Chapter 13 are the following: description of the characteristics of the data sets that are combined in order to gain the necessary information for the virtual census; harmonization of the data sets; micro-linkage of the different data sets. A peculiar aspect for the Dutch virtual census is actually the second. In fact, the harmonization phase should meet the census requirements imposed by the Census 2001 Programme guidelines, defined by Eurostat: more precisely, harmonization of units, of reference periods and of census variables is discussed in depth. As far as micro-linkage of units of the different sources is concerned, this phase is presented underlining that some sources do not have record identifiers. An *ad hoc* record linkage procedure is illustrated.

Chapter 14 covers the topic of the use of samples for the production of some census tables. More precisely, some detailed job characteristics that are not available in any archive are investigated with the help of the Labour Force Survey. Survey results are very likely to produce estimates that are inconsistent with figures computed from the archive data. In order to avoid inconsistencies between the different census tables, the method of repeated weighting has been implemented in a software package (VDR) and was used for the 2001 Dutch virtual census. The method of repeated weighting consists of modifying the sample weights for any table estimation, in order for each table to match known marginal distributions (a sort of repeated weight calibration).

The authors belittle this procedure, stating that it is just a "cosmetic" operation. Actually, consistency of the tables is one of the most important components of the accuracy of the disseminated results. Hence, this procedure is important, not just for virtual censuses but for any database, statistical information system or collection of results from different sources.

The key idea of the book is that integration of different sources is not just a problem for information technology experts but also for researchers in statistical methodology. This may suggest the exploration of other methodological aspects, for example the analysis and combination of multiple sample surveys for the production of joint contingency tables, or the application of probabilistic record linkage approaches. In the case of a virtual census, these inferential and probabilistic approaches should be studied also from the point of view of the production of "legal" figures. Hopefully, this book will be a source of inspiration for all those researchers and statistical agencies interested in virtual censuses and, more generally, in integration of different sources, and give a stimulus to further research on these challenging and demanding problems.

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Mauro Scanu
ISTAT
Istituto Nazionale di Statistica
Division for Statistical Methodologies and Informatic Technologies
via Cesare Balbo 16
00184 Roma
Italy
Phone: +39 06 4673 2887

Fax: +39 06 4673 2940 Email: scanu@istat.it

Brian P. Macfie and Philip M. Nufrio. *Applied Statististics for Public Policy*. Armonk, NY: M.E. Sharpe, Inc., 2005. ISBN 0-7656-1239-9, 552 pp, \$94.95.

This book is a fairly standard statistics book. It covers descriptive and inferential statistics, and has the usual sections on estimating means, validating hypotheses about single population proportions, correlation, regression, and so on. The book is intended for introduction to social science statistics courses. The approach that Macfie and Nufrio take is to focus on understanding, e.g., what statistics measure and what they mean. To do this, they present numerous examples of statistical calculations and show what conclusions can be drawn from those examples.

However, there are a number of problems with this book and I would not recommend it. The problems center on poor examples and poor writing. Each individual instance of a problem, by itself, would be a minor annoyance if there were only one or two, or if this

book was otherwise outstanding. However, the book is only average, and there are too many of these annoyances. In this review, I will present a few examples.

Starting in the introduction, Macfie and Nufrio give examples of inferential statistics, many of which are fine. But then they use an agricultural example. Suppose someone from USDA samples 90 bushels of wheat from one farm in Nebraska. This one sample, Macfie and Nufrio argue, is likely to be pretty much representative of the entire crop, and "it may even be representative of all wheat grown in the county or, for that matter, even the whole state" (page 5). This seems somewhat unlikely. It seems more likely that irrigation and soil conditions will differ throughout the state, that some areas may be using different fertilizers, and so on. It would have been better to leave this example out.

In one section of another chapter on presentation of data, Macfie and Nufrio give various examples of the use of graphs. This section shows various graphs presenting the results of an opinion poll about whether congress should have term limits. People can respond on a five-point scale from strongly agree to strongly disagree. On a bar chart, it is fairly clear that the middle category, "neither agree nor disagree," is the most frequent response (25%), and that the remaining responses are fairly evenly distributed among the other categories. Macfie and Nufrio, unfortunately, also present the results in a pie chart. On this chart, it is not clear at all which response is the most frequent, as all the "slices" look pretty much the same. Again, it would have been better to leave this example out, unless the point was that pie charts do not do so well when the responses are fairly evenly distributed, which was not the point that Macfie and Nufrio were making.

In this same section, Macfie and Nufrio show scatter plots, and one example shows the relationship between outside temperature and household energy use. This would seem like a nice example, as obviously when it is colder, houses use more energy, and the graph looks good. However, Macfie and Nufrio spend a paragraph describing in detail that temperature is measured in degree days, and that a degree day is 65 degrees minus the average daily temperature. Further, household energy usage is measured in therms, which is a unit of measure equaling approximately one cubic foot of natural gas. I do not see the need for this extra detail, which just gets in the way of an otherwise clear example.

As an example of confusing writing, on page 8, explaining interval-ratio data, Macfie and Nufrio write, "Interval data involves assigning of numbers in such a way that the intervals between the points become meaningful." It would be simpler to say, for example, that in an interval scale, the numbers show an equal distance between each event. They also explain ratio data as data that "have a natural zero point such as a percentage or proportion." They give this example, "if there are 100,000 individuals in the labor force, they can be classified by occupation (i.e., manufacturing, service, retail trade, etc.) and expressed in a category as a percent of the total." Much simpler examples of ratio scales would be age, education, income, and so on, which need no explanation, and which are actually presented by Macfie and Nufrio as examples of interval data.

There is one final issue that I do not know how to understand. On page 192, about hypothesis testing, Macfie and Nufrio write "However, we have to be careful here. In some studies, your prediction might very well be that there will be no difference or change. In this case, you are essentially trying to find support for the null hypothesis and you are

opposed to the research." I happened to find, by chance, the following statement in a well-known web-based text book¹: "You have to be careful here, though. In some studies, your prediction might very well be that there will be no difference or change. In this case, you are essentially trying to find support for the null hypothesis and you are opposed to the alternative."

Presumably one selling point of this book is the inclusion of an excel add-on, to help illustrate statistical concepts. However, I was so disappointed in the rest of the book that I never looked at it.

In sum, this book is intended to introduce students in beginning social statistics classes to the tools used in making decisions in public policy and social sciences. The book would be very helpful if it were well-written and free from the problems mentioned in this review. However, there are too many other introductory statistics books that do not have a lot of confusing or poorly written explanations or examples, and which are fairly easy to understand. Even if these other books are not geared toward public policy, students would be better off using them.

Gene Shackman, Ph.D.
The Global Social Change Research Project
12 Camp Terrace
Albany, NY 12203
U.S.A.
Email: gsociology@fastmail.fm
http://gsociology.icaap.org

George Bishop. *The Illusion of Public Opinion*. Pittsburgh, PA: Rowman and Littlefield Publishers, 2004. ISBN 0-7425-1644-X, 248 pp, \$80.

George Bishop's *The Illusion of Public Opinion* warns consumers and producers of taking the results of public opinion polls at face value. The author asserts that public opinion is an illusion as it is a measurement artifact. Surveys are inherently vague, public opinion questions are ambiguous, and respondents frequently state opinions on topics about which they are uninformed. These factors, combined with occasional carelessness by polling organizations and media outlets, result in the illusion of public opinion. Bishop draws on critiques of the concept of public opinion made by scholars such as Pierre Bourdieu, Harold Blumer, Susan Herbst, and Walter Lippman. Though these scholars differ on the specifics, they all refer to public opinion as an artifact, an illusion, a fiction, a phantom, or as socially constructed. While this book does not directly contend with this literature, it starts with the notion that polls serve the interests of elites who set the agenda in public office, the media, and the academy.

Bishop responds to a specific definition of public opinion – the pollster's definition that considers it to be that which opinion polls measure. Even with this practical definition,

¹ Trochim, William M. The Research Methods Knowledge Base, 2nd Edition. Internet WWW page, at URL: \(\text{http://www.socialresearchmethods.net/kb/index.htm}\) (version current as of January 16, 2005). The quote is on the hypothesis section, http://www.socialresearchmethods.net/kb/hypothes.htm, version current as of January 16, 2005.

public opinion is still an elusive concept. After establishing the normative argument in the first chapter, Bishop provides ample evidence of public ignorance and ambiguous survey questions from reputable polls. The evidence is convincing and certainly consistent with the vast literature on the low levels of political information among the American public (e.g., Delli Carpini and Keener, 1996). Chapter 2 draws on Philip Converse's (1964) "nonattitudes" thesis in asserting that respondents feel compelled to provide an opinion, either because the logic of conversation demands it or because they do not want to look ignorant. Bishop describes many examples from polls that received significant media coverage. He shows that seemingly minor question wording differences result in large differences in poll results and in people's willingness to admit to having no opinion. The most damning evidence of illusory opinions is of respondents providing opinions on fictitious issues.

This certainly suggests that public opinion is a fiction, and in Chapter 3 Bishop challenges the notion that survey questions reveal reality. He asserts that what we learn from surveys is inextricably linked to how we measure it, citing ample evidence of how question format affects responses. His strong caution against taking poll results as a public referendum is well-supported. For example, open-ended versus closed questions result in different responses to a question on the most important problem in the country. Offering respondents an explicit opportunity to say "don't know" changes the proportion of missing data and can even result in the opposite conclusion being reached. Also, polls often present a public that is satisfied with the status quo. However, middle of the road alternatives are often chosen by respondents who know little about an issue. These are significant examples since if we use opinion poll data to understand or predict political consequences, we may be grossly misconstruing the preferences and behavior of those who know little about an issue. In Chapter 4, Bishop goes on to challenge certain facts that form the cornerstone of academic thinking on mass political behavior, such as on the debate about ideological thinking among the American public. He also questions evidence on the alleged drop in civic duty, decline in public faith in elections, and falloff in attention to politics. He asserts that these apparent changes over time are due more to changes in the measurement instrument – namely changes in question order and the resulting change in context - than to real change over time.

Bishop pursues this point in more depth in Chapter 5, where several of his arguments come together. He asserts that if question meanings and interpretations are not constant across respondents and over time, then such comparisons are impossible to make. While it is certainly necessary to heed the cautions in this book about producing and interpreting public opinion data, statements such as this are somewhat defeatist about the polling enterprise. People respond to survey questions about politics as they do to those political events (or the rhetoric surrounding those events) with their own assumptions and understandings. Polling organizations ask subjective questions about political objects because they are interested in the political consequences of people's opinions about them. It is not clear why it is necessarily problematic that interpretations vary across respondents or across time. It may be difficult to discern when change is real or an artifact, but apparent changes should not be dismissed as "essentially meaningless" because they are short-term trends. For example, Bishop argues that the sudden surges after 9/11 in presidential approval and in the perceived role of religion in public life are mere artifacts because the

surges declined again months later. He states that "all that had really changed was the meaning of the question[s]" due to post-9/11 media coverage of the president and of religious sentiment by public figures. However, both of these changes in opinion are substantively interesting. If the criteria people use to make judgments vary with real political events or media exposure (and persuasiveness), then those are genuine changes.

Chapters 6 and 7 describe additional ambiguities of measurement on topics such as political tolerance, political ideology, partisan identification, and trust in government. Bishop's treatment of these subjects acknowledges that they are politically interesting phenomena, but he also states that it "become[s] impossible, if not a fundamentally meaningless exercise" to make comparisons across respondents because they interpret these terms differently. Nevertheless, one need not accept this to agree that one should be careful of confusing short-run political occurrences and longer-term trends. Such "spurious impressions in the press" spread misinformation about public opinion on matters such as the Contract with America and support for teaching creationism in public schools. This directly relates to the normative arguments declared early in the book. The final two chapters end with an important call to polling organizations, journalists, and academics to be cautious about their work. Bishop reminds us of well-established evidence that people are not adept at determining causal reasons for their actions. This implies that surveys should not ask respondents to determine causality, and yet exit polls – and the resulting analyses and media reports – do this all the time.

The biggest strength of this book is the evidence used to support the cautionary remarks to producers and consumers of public opinion data about responsible reporting. Bishop also reminds us of the importance of academic integrity with regards to using public opinion data. He proposes that polling organizations take a few simple steps – even if they cost more or result in fewer press releases per poll – in order to improve the state of affairs. In particular, he recommends explicitly allowing for "no opinions" and accounting for some measure of political knowledge or attention in press releases. His proposed solutions are not new, but that is the point. They have been practiced before, demonstrating that they can be realistically adopted by polling organizations. These solutions address Bishop's examples of carelessness by polling organizations and media outlets. However, as he notes, aside from the example of exit polls, it is difficult to hold polling organizations accountable since there is no peer review of "direct to the media" polls. This results in a public that is often misled and unprotected, and it is unclear what the solution is to this problem.

The criticisms that Bishop makes against public opinion polls are severe in places and it is not clear that his proposed solutions address the more fundamental critique of the elusiveness of public opinion. To say that the substance of public opinion and the measurement instrument are inextricably linked is judicious. To dismiss several of the trends he discusses as artifacts is perhaps an overstatement. Some of those trends in public opinion reflect real changes in the political environment; they are not "essentially meaningless" artifacts. He does note that he is not calling for an end to public opinion polls, but the tone throughout the book is strident. Perhaps it is to impress on consumers of opinion data that they should be skeptical about the methods that polling organizations use to measure and report on public opinion.

The critique of the state of public opinion is not necessarily aimed at the survey methodologist who is aware of the many pitfalls of asking questions. However, this book speaks to a wide audience of educated consumers – those who conduct polls, those who report on them, and those who read and analyze them. The book presents many of the arguments commonly leveled against polls. As such, it is a well-articulated and useful resource for students and professionals in the field, whether they are conducting public opinion polls or reporting on them.

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Danna Basson University of Wisconsin Survey Center Department of Political Science University of Wisconsin-Madison 1800 University Avenue Madison, WI 53726 U.S.A.

> Telephone: 608-265-9886 Email: dbasson@ssc.wisc.edu