

2007 Update
With New Internet, Visual, and Mixed-Mode Guide

MAIL and INTERNET
SURVEYS

The Tailored Design Method

SECOND EDITION

DON A. DILLMAN

Mail and Internet Surveys

The Tailored Design Method

Second Edition

2007 Update with New Internet, Visual,
and Mixed-Mode Guide

Don A. Dillman



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With thanks to

Joye Jolly Dillman
from Pleasantville, Iowa

faculty colleague, friend, and spouse

Preface to the 2007 Update

METHODS FOR conducting sample surveys are changing with unprecedented speed. Since the publication of this book in 2000, our ability to conduct reliable telephone surveys has declined because of lower response rates and the trend toward abandoning household telephones in favor of cellular connections. Although our ability to conduct web surveys has increased dramatically, their use remains limited by inadequate coverage of the general population. Caught between these trends surveyors are increasingly drawn toward the conduct of mixed-mode surveys, which collect data from some respondents by one mode and use a different mode to reach other respondents, in order to preserve data quality. However, the design of mixed-mode surveys is itself being affected by new knowledge on the likelihood that different visual layouts for questions produce different answers from respondents.

This update to the second edition adds a new Appendix that traces the interconnections among these recent developments in survey methodology. It summarizes new ideas and research, particularly in the area of visual design and layout, which are changing the way that surveys must be done.

DON A. DILLMAN

June 4, 2006

Preface to the Second Edition

THE ELAPSE of 22 years between the first and second editions of this book was not an attempt to set a record. Nor was it planned.

Development of the first edition, *Mail and Telephone Surveys: The Total Design Method*, or the TDM book, as I have often heard it described, was an attempt by a young assistant professor to solve the immediate problem of how to collect meaningful survey data inexpensively. It was begun at a time when neither mail nor telephones were used much for serious surveys.

In the flatlands of Iowa, where roads run true north and south and east and west, sampling was easy and personal interviews the norm, and my graduate education at Iowa State University did not prepare me for the mountains of Washington state. Here, most of the state's population was located on the other side of the Cascade Mountains, nearly 300 miles away from the rolling wheat fields and winding roads that surrounded the small university town of Pullman, Washington. Consequently, collecting data by means of personal interviews was not possible with the small amount of support that seemed within my reach. Initially, as I worked to convince staff to manually type names at the top of letters preprinted on departmental stationery and watched interviewers get sore fingers from dialing the noisy rotary phones, I had little idea of the increased importance that mail, and telephone methods in particular, would soon achieve in the nation's survey system. That would come later.

Ink on the first edition of this book was barely dry before people began asking me questions for which I had few answers. Are you sure those methods will work for diaries? Sending a certified letter to people asking what television program they watched sometime the month before doesn't make sense. Will these procedures work with business surveys? Could I do better if I combined mail and telephone? Will these ideas work for federal government surveys? Why didn't you include financial incentives? And, what about the other sources of error about which so little is mentioned, such as coverage and measurement?

Each of these questions provided grist for experimentation and other research. Although I was only vaguely aware of it at the time, the process of converting to a tailored design approach for self-administered surveys, from

the one-size-fits-all approach of the Total Design Method, had begun. Tailored Design refers to the development of survey designs that use common procedures grounded in a social exchange perspective on why people do or do not respond to surveys, similar to the TDM. However, it goes further to describe the additional shaping of procedures and techniques for particular surveys based on a more precise consideration of costs, rewards, and trust associated with specific populations, sponsorship, and/or content. Specific designs are influenced by major changes in the technological options now becoming available for conducting self-administered surveys.

It became apparent in the early 1990s that the benefits of computerization, which had steadily accrued to telephone interviewing since its development in the early 1970s, were poised on at least three fronts to finally benefit the design and delivery of self-administered questionnaires. Yet, another new agenda for research was the result. First, the many formatting alternatives (ranging from font changes to the use of icons and colors) that word processing and printing software presented for designing mail questionnaires made it necessary to understand the specifics of how visual design can influence survey response. Second, the development of self-administered electronic modes of surveying, from e-mail and web to interactive voice response (IVR), made it necessary to research how surveys by these modes should be designed for greater effectiveness. And third, the emergence of optical character recognition and imaging technologies raised the likelihood that the labor-intensive data entry process for turning individual answers into data sets could be automated. That made it necessary to consider how the visual design and layout of questionnaires could best facilitate optical processing.

My goal in this book is to articulate principles for tailoring the design of self-administered questionnaires to population, content, and sponsorship in ways that will reduce survey error from coverage, sampling, measurement, and nonresponse. It is also my purpose to take into account the massive technological changes that are giving efficiency to and expanding the possibilities for the use of self-administered questionnaires to collect survey data in a variety of situations, and to provide further possibilities for tailoring survey designs appropriately.

The decision to omit discussion of telephone interviewing, to which fully half of the first edition was devoted, was a practical one. Whereas only a few dozen published articles about telephone interviewing existed in 1978, there are now thousands. The complexities of conducting telephone interviews expanded even more rapidly than those associated with doing self-administered surveys, and it is no longer possible to adequately discuss detailed procedures for doing both telephone and mail (or self-administered) surveys in the same book.

The elapse of 22 years between the first and second editions does not diminish the excitement I feel about the methods described in this book. Research continues to be done and new ideas put forth as surveyors try to develop designs with greater effectiveness. Just as I had the feeling of being in the midst of a great change in the use of survey methods in 1978, that feeling exists today, as well. Once again we are experiencing a survey revolution, the consequences of which are yet to be clearly known.

DON A. DILLMAN

Pullman, Washington

Acknowledgments

ONE RESULT of publishing the first edition of this book was the opportunity to look at thousands of other people's surveys, spending from a few minutes to many months contemplating means of improvement. Thanks to all of you who have given me that opportunity. Appreciation is also expressed to more than 150 graduate students who have often redesigned my redesigns of questionnaires in the graduate survey practicums I have taught, and encouraged me to rethink ways of doing them. I also wish to thank a number of specific individuals who have influenced the tailored design procedures described in this book.

Roberta Sangster and Todd Rockwood, two of the many extraordinary graduate students I have had the opportunity to work with, and John Tarnai, long-time collaborator and director of the Washington State University Social and Economic Sciences Research Center, helped me work through the difficulties of conducting mixed-mode surveys and other innovations.

The Department of Rural Sociology has provided research support for my work continuously since 1969. In recent years, that support has included participation in a regional research committee, "W-183: Rural and Agricultural Surveys." This group of scientists from agricultural experiment stations of land grant universities throughout the United States continues to influence my thinking about the need to develop better survey methods and has taught me the value of replicating one another's experiments. I am especially indebted to Tommy Brown, John Carlson, Ed Carpenter, Virginia Lesser, Fred Lorenz, Bob Mason, John Saltiel, and Fern Willits.

Gary Machlis and Dana Dolsen introduced me to the problem of how to improve response in personal delivery situations, and helped me to understand the nuances of that special challenge. Lesli Jo Scott and Sonia Hussa provided assistance, and Pat Carraher and Barbara Petura provided the sponsorship needed for researching the difficulties of delivering surveys through publications. Ed Schillmoeller and Bob Patchen introduced me to some of the problems of doing diary surveys. Jon Krosnick, Michael Curtin, and Dean Narcisco helped me to understand the potential of conducting election prediction surveys by mail, as modeled so effectively by the *Columbus Dispatch*.

Working under the Intergovernmental Personal Act as Senior Survey Methodologist in the Office of the Director at the U.S. Bureau of the Census from 1991 to 1995 introduced me to the challenges of doing government

self-administered surveys, and particularly the U.S. Decennial Census. I am grateful to the staff of the Census Bureau, whose collective patience was surely tested by getting me to understand why and how government surveys were different. I cannot possibly name everyone whose knowledge benefited me during what I remember as an incredibly stimulating time, as we moved from one research challenge to the next. However, included among the people from this superbly professional organization whom I wish to thank are: Barbara Bryant and Bob Groves (who convinced me that I should go there), Nancy Bates, Pat Berman, Sandy Chambers, Cynthia Clark, Jon Clark, Mary Ann Cochran, Terry DeMaio, Bob Fay, Ed Gore, Debbie Griffin, Carolyn Hay, Jane Ingold, Charlie Jones, Therese Leslie, Betsy Martin, Carol Miller, Susan Miskura, Al Paez, Harry Scarr, Mike Sinclair, Phyllis Simard, Bill Starr, John Thompson, Jim Treat, Kirsten West, and Henry Woltman.

One benefit of the Census experience was to begin work on new concepts of visual design that were not a part of the Total Design Method. This research was a collaborative effort with Cleo Redline (aka Jenkins). Two papers we produced provided the concepts and motivation for taking a much different conceptual approach to the challenge of questionnaire design. Her influence on the ideas expressed in Chapter 4 is substantial. I am especially grateful for the opportunity to work with her, and the Census Bureau's willingness to support continued research on the new and provocative ideas that have come from this collaboration.

I also wish to thank several individuals at the Census Bureau who helped me begin to think about the challenges of doing business surveys, in particular Bud Pautler and Nash Monsour. I also appreciate the opportunities for attempting to redesign business surveys provided by Lynda Carlson, Antoinette Martin, and many other staff of the Energy Information Administration.

The Gallup Organization, where I have had the good fortune to serve as a senior scientist since 1995, encouraged me to learn about the challenges of doing Internet and interactive voice response surveys, and provided the opportunity to try, at a production level, many ideas on visual design of paper questionnaires. I am especially grateful to Gale Muller and Bev Conroy for their support of my work there, Scot Caldwell for teaching me about new methods of converting questionnaires to data without keypunching, and Mary Gansmer, who put many abstract ideas into questionnaire designs.

Bob Tortora, at the Gallup Organization, insisted that I contemplate the problems of doing Internet surveys and contributed to the development of an initial set of design principles. Dennis Bowker, another extraordinary graduate student, has taught me many of the technical aspects of creating web surveys and contributed greatly to the development of the chapter on this topic. I am also appreciative of the help David Schaeffer provided in

working through the challenges of e-mail surveys. Kent Miller of the SESRC is co-author of a paper on optical scanning and imaging of questionnaires, part of which is included in Chapter 12, and has contributed continually to my thinking about how to implement mail surveys.

There are a number of other individuals and experiences that affected the rewriting of this book in less specific but very influential ways. They include faculty and staff at the University of Michigan's Survey Research Institute, where teaching since 1988 has given me a nearly annual exposure to new ideas, as did three visits to the Center for Survey Methods Research (ZUMA) in Mannheim, Germany, to work with Hans-Jurgen Hippler. I am also grateful to Edith de Leeuw and Joop Hox from the Netherlands, who visited Pullman at the time writing on this book was beginning, and who, on an excursion into the mountains of Northern Idaho, helped convince me that this book was about Tailored Design. Thanks also to Anton Nederhoff, who was one of the first to teach me about applying the TDM outside the United States, and to Lars Lyberg and staff at Statistics Sweden for their help in doing that as well.

Washington State University provided a professional leave in 1997 to 1998 that allowed me to begin the writing of this second edition. I appreciate the willingness of the Department of Rural Sociology, the Social and Economic Sciences Research Center, and the Department of Sociology to make that leave possible. I also wish to thank the U.S. Bureau of the Census and the Gallup Organization for supporting several visits to their organizations that helped greatly with the writing.

Finally, the staff of the SESRC, who remain, collectively, one of the most challenging groups I have faced when discussing new survey ideas, have influenced significantly my thinking on many aspects of surveying. In addition to the staff mentioned, I want to thank others with whom I have had the pleasure of working for many years on a variety of different projects, including: Thom Allen, Rodney Baxter, Sandy Johnson, Rita Koontz, Danna Moore, Julie Nielson, Jolyn Persons, Renee Petrie, Dretha Phillips, Zoltan Porga, and Dan Vakoch. This local environment for working and thinking daily about surveys is a constant reminder that doing a survey is a team effort for which each person performs an essential role, and that doing surveys can be fun!

Two important members of that team, Tammy Small and Lisa Carley-Baxter, have carried much of the burden of helping to move the book from draft to final pages. I both appreciate and marvel at their professional skills and dedication to quality work.

All of the people mentioned have been my teachers in pursuit of better quality survey design, and for that I am grateful.

Research that led to development of the TDM started within weeks of arriving at Washington State University in 1969, and continues today. The person who knows best what it took to produce both the TDM and the Tailored

Design editions of this book came with me to Pullman and it is to her this book is dedicated. Thanks, Joye, for 35 years of always being there. Thanks also to our children, Andrew and Melody, who learned about the connection between stamps, questionnaires, cover letters, and printouts at about the same early ages that their parents had learned about the connections between tractors, balers, alfalfa, and cows. The TDM has been part of our family life and travels ever since.

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PART ONE

ELEMENTS OF
THE TAILORED
DESIGN METHOD

Introduction to Tailored Design

IN THE late 1970s, a well-done mail survey was likely to exhibit a series of four carefully timed mailings, laboriously personalized by typing individual names and addresses atop preprinted letters. In combination with other meticulous details, including real signatures and a replacement questionnaire sent by certified mail, this procedure, the Total Design Method (TDM), demonstrated the ability to achieve high response rates (Dillman, 1978). Two decades later, self-administered surveys are recognizable as much for the ways they differ as for their common features. For example:

- In a national test of possible procedures for the Year 2000 Census, a four-contact sequence of prenotice letter, questionnaire, reminder postcard, and replacement questionnaire was sent. Personalization was impossible for such a large mailing, but the outgoing envelope contained these words: “U.S. Census Form Enclosed; Your Response is Required by Law.” The mailings were sent by first class mail to “residents,” and not named individuals, at each address, and a response rate of 78% was achieved (Dillman, Clark, and Treat, 1994).
- In surveys of visitors to national parks, researchers used a several step sequence, ending with a request for the address to which a thank-you postcard could be sent. This procedure resulted in average mail-back response rates of 75% in 21 parks compared to 38% in 11 other parks, where questionnaires were simply handed to the respondent with a request that they be completed and returned (Dillman, Dolsen, and Machlis, 1995).
- In a survey of people who had turned in out-of-state driver’s licenses to obtain a Washington state license, researchers used a four-contact sequence of individually signed letters and included a \$2 bill as an incentive. A response rate of 65% was obtained from this population, which

was younger (and therefore a more difficult one from which to obtain responses) than most general public samples, with an increase of nearly 20 percentage points as a result of the incentive (Miller, 1996).

- In a survey of university faculty, an electronic mail survey which used no paper or stamps, but did use individually addressed e-mails and a pre-notice with three replacement questionnaires, achieved a 58% response rate. This response rate was the same as that obtained by a four-contact paper mail strategy (Schaefer and Dillman, 1998).

These surveys had much in common. Each was designed according to the principles of social exchange theory regarding why people do or do not respond to surveys. Each used multiple contacts and respondent-friendly questionnaires. Communications were carefully constructed so as to emphasize the survey's usefulness and the importance of a response from each person in the sample. All four surveys obtained reasonably high response rates.

On the other hand, the surveys differed from each other in important ways. The Census correspondence was not personalized, in contrast to the other surveys, and was sent to household addresses instead of to named individuals. The announcement on the envelope that response was mandatory added about 10% to the response rate on top of the contribution made by other factors (Dillman, Singer, Clark, and Treat, 1996). The national park survey was delivered personally, providing an opportunity to engage the sampled person in a carefully structured conversation that utilized a foot-in-the-door principle designed to improve response. The general public survey of new state residents used a token financial incentive which seemed especially effective in improving response among younger people. Finally, the electronic mail survey of faculty did not use stationery or return envelopes, essential trappings of the typical mail survey. In sum, mechanically applying one set of survey procedures in lock-step to all survey situations, as was recommended by the original TDM, is not the best way of assuring high quality responses as we begin the twenty-first century.

However, these four surveys do share a commonality, which I call Tailored Design. It is the development of survey procedures that create respondent trust and perceptions of increased rewards and reduced costs for being a respondent, that take into account features of the survey situation, and that have as their goal the overall reduction of survey error. The main features of the Tailored Design perspective are outlined in this chapter.

When the first edition of this book was published in 1978, the mail survey method was considered undesirable—a procedure to be avoided if at all possible because of poor response rates and a host of other deficiencies. In that book, I described the Total Design Method (TDM) as a new system of interconnected procedures for conducting high-quality mail surveys with a