

THIRD EDITION

INTERNET, MAIL,  
and MIXED-MODE  
**SURVEYS**

*The Tailored Design Method*

DON A. DILLMAN  
JOLENE D. SMYTH and  
LEAH MELANI CHRISTIAN

2009



John Wiley & Sons, Inc.

for the opportunity to work together, and our collaboration underscores to us the importance of a continuing process of listening, learning, and critiquing (as well as rewriting the umpteenth draft of) papers and chapters. We hope it benefits this book and your use of it.

This book is dedicated to James F. Short Jr., Professor Emeritus at WSU and founding director (1970–1985) of the Social Research Center (renamed the Social and Economic Sciences Research Center in 1986) that for nearly 40 years has contributed to the survey research education, accomplishments, and success of university faculty, staff, and graduate students. His inspiration and support for researching and writing the first edition of this book is remembered, and his continuing presence and perspectives on our work are warmly felt and deeply appreciated.

Don A. Dillman  
Washington State University  
Pullman, Washington

JOLENE D. SMYTH  
University of Nebraska-Lincoln  
Lincoln, Nebraska

LEAH MELANI CHRISTIAN  
The Pew Research Center  
Washington, DC

FOR MORE than 75 years, sample surveys have remained a remarkably useful and efficient tool for learning about people's opinions and behaviors. The characteristics of millions of people can be estimated with confidence, then as well as now, by collecting information from only a few hundred or thousand respondents selected randomly from carefully defined populations. To estimate within 5 percentage points the preferences of 100 million U.S. voters, one needs only to survey 400 randomly selected voters. Or if one wants greater precision, for example 3 percentage points, about 1,150 voters need to be surveyed, as is commonly done for predicting the outcomes of national elections.

But beneath this commonality in sampling a small proportion of the population to estimate the views of many, huge changes have occurred in the past 8 years in how surveys are conducted and in the modes available to survey researchers. These transformations, which have occurred incrementally over time, have changed substantially the levels of human interaction and trust between surveyors and respondents, the time and attention individual respondents are given, the level of control respondents have, and the likelihood of response. The sample survey has been transformed from being a comfortable face-to-face conversation to a highly impersonal experience that with increasing frequency is mediated by an electronic device. The nature of this new experience, and its consequences, are intricately linked with cultural transformations and technological innovations occurring in industrialized societies throughout the world.

## CHAPTER 1

# Turbulent Times for Survey Methodology

To understand surveying in the early twenty-first century requires comprehending the nature of this great transition, which is the focus of this chapter. These turbulent times that now exist dramatically influence the practice of survey research, and the impact of these changes is likely to continue to affect how surveys are conducted in the coming years. We describe these changes here in order to provide needed context for discussing the procedures for conducting high-quality Internet, mail, and mixed-mode surveys in today's rapidly changing survey environment.

Figure 1.1 provides a way of looking at some of the changes in surveying and the ways that human interaction, trust, time involvement with each respondent, and the locus of control has changed over time. We discuss these aspects of change in more detail throughout this chapter.

**Figure 1.1** Seventy-five years of change in respondent involvement and control over the survey process.

| Characteristic                                    | Through the 1960s   | 1970s through 1980s  | 1990s to the Present  |
|---|---|--|---|
| <b>Human interaction</b>                          | High: Face-to-face through in-person visits to respondent homes     | Medium: Remote through a telephone connection  | Low: Encounter is more likely to be with a machine or its products                      |
| Trust that the survey is legitimate               | High: Encouraged by interviewer presence, appearance, and sincerity | Medium: Encouraged through voice inflection and ability to listen and request additional information | Low: Because of possibility that survey is fake and potentially harmful to respondent   |
| Time involvement with each respondent             | High: Interviewer goes one-on-one                                   | Medium: One-on-one, but contact effort is minimal  | Low: Minimal to no time with individual respondents                                     |
| Attention given to each respondent                | High: Because of time to find and interview each respondent         | Medium: Because of placing calls one after another   | Low: Mass e-mails   |
| <b>Respondent control over access</b>             | Low: Households generally accessible                                | Medium: Unlisted numbers, voice mail, and call monitoring  | High: Caller ID, call blocking, e-mail filters  |
| <b>Respondent control over whether to respond</b> | Low: Required breaking off human interaction                        | Medium: Ease of hanging up telephone refusing  | High: Increased disclosures required to be communicated and social support for refusing |

## SURVEYING THROUGH THE 1960S

During the first two thirds of the twentieth century, there existed only one generally accepted mode for conducting surveys: the in-person interview. When the science of drawing random samples to represent entire populations was developed and applied in the 1940s and 1950s, it was carried out by sending interviewers to people's homes or places of work. To do this efficiently often required quite complex sampling methods such as drawing samples of households in stages, and clustering locations for interviews in order to reduce costs. Planning and conducting such studies was laborious. Months and sometimes years were needed to justify the importance of a particular survey and obtain the resources to carry it out. Data collection itself took additional weeks or months, as every aspect of the survey had to be physically transported from place to place. Under these conditions the sample survey was reserved for only the most important of survey needs.

Prior to the 1960s, a respondent guided by prevailing norms of politeness would be approached by an interviewer, usually a woman who was dressed appropriately to sit as a guest in one's home and engage in a fairly comfortable conversation. A survey methodologist at the U.S. Census Bureau summed up the situation by describing efforts to train interviewers in the 1930s and 1940s on putting respondents at ease by asking ice-breaker questions such as "How is your family?" (D. Rothwell, Personal communication, 1975). The respondent would often be persuaded by the interviewer to answer the questions at length, giving substantial detail and explanation. Getting people to answer thoroughly was the hallmark of a good interviewer. Responses would be recorded by paper and pencil, and the respondent would be made to feel at ease and good about the experience, as if the interviewer were genuinely interested in the respondent as a person (and she often was). Response rates of 70%, 80%, and even 90% were common.

During this time period, telephone and mail modes were only occasionally used to conduct surveys. Both were considered inferior methods, in large part because of the botched *Literary Digest* prediction that Alf Landon would emerge victorious over Franklin Roosevelt (55% to 41%) in the 1936 presidential election. This prediction was based on a mailing of straw vote ballots to more than 10 million people sampled from telephone directory listings (36% of U.S. households had telephones at the time) and auto registrations, for which only a 20% response rate was achieved. More than 2.3 million ballots were returned and, when tallied, predicted that Landon would win the election. When the election was over, however, Roosevelt had won by a margin of 61% to 37%, an outcome that was in the opposite direction and much larger in magnitude than *Literary Digest* had predicted. This botched prediction cast a shadow over the use of both mail and telephone surveys for many decades.

The *Literary Digest* blunder provided a tangible example of some of the shortcomings of telephone surveying, but problems during this time period went much deeper than just limited telephone coverage and low response. There were also large technological and cultural problems that had to be overcome before the telephone could become a survey mode to be taken seriously. One problem was that area codes did not exist, making it necessary to place calls through operators, with multiple operators sometimes being needed to complete a single call. Long-distance calls were also enormously costly and the voice quality of conversations poor, with people often having to shout to be heard over poor connections. In addition, many portions of the U.S. population were on party lines, so their neighbors could, and often did, listen in on calls, making confidentiality difficult. Culturally, people viewed the telephone as a short-conversation device, and long distance, in particular, tended to be reserved for sending or receiving critical information. Until the 1960s picking up a telephone and hearing the operator say "I have a long-distance call for you" was tantamount to being warned that something bad had happened to a friend or relative. Moreover, the idea that one would reveal personal information, from health problems to income, over the telephone to a person they had never met was close to unthinkable.

The situation for mail surveys was a little different in that they began being used extensively in the 1940s, but generally only for specialized populations. Adequate household lists did not exist for conducting general public surveys, and selecting people within households seemed impossible to accomplish. In addition, response rates tended to be quite low. As a result, methods texts consistently rejected the mail mode for important surveys (e.g., Kerlinger, 1965; Parten, 1950). However, as with the telephone, the problems with conducting mail surveys extended well beyond these methodological concerns. For one, manual typewriters were the only means of preparing questionnaires, and they significantly limited the composition possibilities. In addition, duplicating copies of questionnaires was a cumbersome task that could only be done by ditto or mimeo machines, which produced poor-quality copies. These challenges meant that the normal procedures for conducting mail surveys were incredibly time consuming, required extraordinary effort (especially for more than one mailing), and were often ineffective.

As a result of these technological and cultural difficulties as well as their diminished reputation attributable to the *Literary Digest* poll, neither the telephone nor mail enjoyed the status of a respected survey mode in these early days of conducting surveys.

#### SURVEYING IN THE 1970s THROUGH THE 1980s

By the mid to late 1960s, however, a number of cultural and technological changes were on the horizon that would foreshadow great opportunities for

telephone and mail surveys. As these changes began taking place in the early 1970s, the development of modern telephone and mail survey methods began in earnest (Dillman, 2005a; 2005b). In the late 1960s, area codes made direct dial calls possible, and long-distance charges decreased significantly in part because of the development of Wide Area Telecommunication/Telephone Service (WATTS). Telephone line quality was also greatly improved so that it was possible to have a conversation in a normal tone of voice. Moreover, by 1970 about 87% of U.S. households had telephone service. Also at about this time random-digit-dialing (RDD) procedures were being developed that made it possible to randomly select households, and once someone answered the phone, an interviewer could ensure that the proper person in the household was interviewed.

Yet for some time the perception persisted among surveyors that people would not allow themselves to be interviewed over the telephone, and for this reason the telephone was still viewed as leaving much to be desired as a way of collecting survey information from the general public. This perception turned out to be more myth than reality, though, as it was soon discovered that norms of conversational politeness carried over to telephone interviews (Dillman, 1978). It soon became evident that responses quite similar to those obtained through in-person interviews could be obtained via the telephone and that competitively high response rates could be achieved as well (Groves & Kahn, 1979).

However, telephone interviewing changed the respondent experience dramatically. Telephone calls now came without warning, usually in the early evening hours, as fewer and fewer households had anyone home during normal working hours. Upon picking up the phone, the respondent often heard a script read by a stranger in an emotionally uncharged, rather than conversational, way. The respondent was also oftentimes unfamiliar with the organization from which the call originated and had to decide in only a few short seconds whether or not to proceed with the interview based upon only the sound of the interviewer's voice. If he decided to participate, he was read scripted questions and had to provide answers in predesigned ways. Open-ended questions were often eliminated because of the high time and coding costs. Elaborations or extra explanations were often discouraged, as the respondent became someone to be managed for the sake of calling efficiency.

During this same time period, key breakthroughs were also made in the technologies needed to make mail surveys more efficient. One such development was the invention and widespread availability in the 1970s of copy machines that could quickly produce quality copies on normal white paper. Electronic typewriters and better printing methods also became available. The impact of these technologies is that they allowed surveyors to efficiently combine multiple survey elements such as personalization and multiple mailings that could produce far higher response rates than those previously obtained (Dillman, 1978).

Both the telephone and mail methods that were developed during this time allowed surveys to overcome distance, thus reducing the need to develop the complex multistage sampling schemes required for in-person interviews and greatly reducing survey costs. As a consequence, it became possible, from a cost perspective, for more surveys to be conducted and for smaller organizations from nearly any location to conduct them. Given these changes, it was not surprising that in the early 1980s the dominant mode of surveying for government surveys approved by the Office of Management and Budget was mail. A total of 69% of all approved surveys in 1981 relied exclusively on mail, and another 11% used mail in conjunction with other methods (U.S. Office of Management and Budget, 1984). Nor was it surprising that in the early 1980s the telephone, with its advantage of speed, almost completely replaced in-person interviews for surveys of the general public, such as election surveys.

For a time in the late 1980s it appeared that three modes of surveying were destined to share responsibilities for the conduct of sample surveys—telephone, when national household samples were needed; mail, when postal address lists were adequate and costs a concern; and in-person, when even small coverage omissions could not be tolerated (e.g., the Current Population Survey, which makes monthly employment estimates for the United States). The survey environment at this time might, however, be compared to the quiet surface of the sea in which everything seems orderly, but underneath currents of change are beginning to shift and overhead a storm is beginning to form.

#### TURBULENT TIMES: THE 1990S TO THE PRESENT

The time from 1990 to the present has been marked by a number of fast-paced cultural and technological changes that have demanded equally fast-paced innovation on the part of surveyors to keep data quality high. One aspect of the changing currents was the trend toward gated communities and locked apartment buildings that made it more difficult for interviewers to gain access to people's homes. Another aspect was the move toward unlisted telephone numbers, and the removal of postal addresses from telephone books, making these listings less representative of populations that had been traditionally accessed through them.

Many of the currents of change in this time period had dramatic effects on telephone surveying. For one, sellers of products quickly found telephone calls to be an effective way of marketing their products and services, and they found that many of the methods used to improve response rates in surveys (e.g., time of day to call) worked for them as well. Receiving calls during the "dinner hour" became a distasteful phenomenon, regardless of whether for marketing or surveying purposes. The increased use of telemarketing had the consequence of increasing greatly the number of unsolicited calls people were

receiving and making it more difficult for respondents to determine when a call was for legitimate research purposes and when it was a marketing effort. Indeed, in some instances marketing calls were made under the guise of survey research.

As the number of unsolicited calls increased, so too did mistrust of callers, and people began looking for ways to avoid unwanted calls. This tendency was likely magnified by the surveyor tactics of using repeated call backs at different times of the day to contact hard-to-reach respondents and implementing refusal conversion call backs for respondents whose initial refusal was delivered in a friendly rather than angry or terse tone of voice. People soon found relief from unwanted calls through a number of new technologies including unlisted telephone numbers, answering machines, caller identification, and call blocking. These technologies let respondents take charge of whether any interaction at all occurred. The culture of response was changing significantly, with people learning to say "no" to almost all telephone requests. Additionally, people's tolerance of long interviews was on the decline, a factor that spurred many firms to limit the length of the surveys they conducted by telephone.

At the same time that people became less willing to accept unsolicited calls, the addition of extra telephone lines to many homes for fax machines and computer dial-up modem connections made it increasingly difficult to sample households adequately by telephone. However, the sampling challenges raised by these trends were minor compared to the challenge that would soon arise with the development of cellular telephones. As cellular telephones became more popular and accessible, the telephone came to be viewed less as a household device and more as an individual device. This cultural and technological change made it more difficult to call a household and select a respondent, as calls now went to individuals. As a result, one of the tenets of scientific surveying that allowed generalizing from hundreds of sampled households to millions of other households—giving all members of a population an equal (or known, nonzero) chance of being selected—became increasingly difficult to achieve. In addition, per-minute charges to the respondent and the disconcerting possibility of trying to interview someone while that person was driving a car added to the concern that the telephone was not working well as a survey method. Taken together, these cultural and technological shifts have resulted in significant reductions in both the proportion of the population that can be reached by telephone and the proportion that is willing to comply with a survey request over the telephone (Lepkowski et al., 2008).

During this same time period, significant advances in computer technology also had substantial impacts on survey methodology, from making mail survey production more efficient to combining with other modes to improve data collection. One of the earliest applications of computer technology to another survey mode was *computer-assisted telephone interviewing* (CATI), in

which a telephone interviewer follows a script on the computer to administer a questionnaire and then enters the respondents' answers directly into the computer. Other ways that computers have been combined with telephones for interview purposes are through *touchtone data entry* (TDE), whereby respondents can provide responses to a computer by pressing keys on their telephone keypad; and *interactive voice response* (IVR), in which a computer administers an interview and can register vocal as well as keyed respondent answers.

As computers went mobile (e.g., laptops and handhelds) *computer assisted personal interviewing* (CAPI) became possible. With CAPI, an interviewer enters responses directly into a computer program on a laptop computer or other small computing device. *Computer-assisted self-interviewing* (CASI) occurs in much the same way, except that the respondent runs the computer. The advantages of using computers in these ways are that they help standardize the interview, eliminate the need for interviewers to administer skip patterns, and efficiently combine interviewing and data entry into one step.

Although each of these applications of computer technology has had significant effects on survey methodology, perhaps the biggest storm of change has been caused by the development of the Internet survey. To place Internet surveying in perspective, it is important to recall that before 1980, the personal computer was not readily available for purchase by individuals and was also quite costly. Even by 1990, e-mail communication was mostly a novelty. The idea of going to a computer in one's home to access a distant computer in order to complete a questionnaire was impossible for most people to fathom. Yet by the mid-1990s, surveyors were beginning to post web surveys for people to complete, though mostly for those who were associated in some way with online communications.

From very early on it was apparent that the potential for web surveys was enormous. The cost savings were particularly appealing, as interviewer wages, long-distance charges, postage, printing, and keypunching costs associated with telephone and mail surveys are essentially eliminated. Thus, it should not be surprising that surveyors have rushed to embrace the Web as a data collection methodology just as consumers have rushed to accept computers and other uses of web technology. As a result, the use of the Internet for surveying people has increased dramatically during the past decade.

However, since the beginning, web surveying has faced a number of challenges, not the least of which have been major gaps in computer and Internet access rates and lack of computer skills among some segments of the population. Although both access and computer operation skills have improved substantially in recent years, significant proportions of the U.S. population remain without the technology or ability to go to a web page and complete an Internet survey. The lack of standards for creating e-mail addresses that

would make it possible to develop sampling algorithms is also a problem. Likewise, there is no systematic list of Internet users from which to draw a sample (these issues are dealt with in more depth in Chapter 3).

Because of these challenges, use of the Internet as a survey mode has been largely limited to surveying specific populations of interest with high Internet access rates and skill levels, such as members of professional associations, students in universities, employees of certain organizations, purchasers of certain products and services, and similar targeted groups. For these populations, Internet surveys can be designed and implemented and results reported faster than with any of the traditional survey modes and often at lower costs. However, even these surveys are subject to the inability to ensure that each respondent receives the same visual stimulus from the questionnaire because of the myriad combinations of hardware and software configurations currently in use.

As with the previous technological innovations, the rise of the Internet has also been accompanied by cultural shifts that have real consequences for survey methodology. One such shift has been in the way people have viewed the Internet itself. Over time there has been an increasingly widespread distrust of Internet communications and interactions resulting from the increased occurrence of cyber crimes including phishing scams, identity theft, and the danger of receiving a computer virus. Because of this distrust, as well as unwanted and oftentimes offensive e-mail appeals, many people now avoid responding to unsolicited e-mails or to invitations from unrecognized sources to go to web sites, especially when they involve clicking on links in e-mails.

Another cultural change that has accompanied the growth of the Internet has been a shift in preferred ways of communicating with others. E-mail has become the standard method for communicating in most work organizations and for many individuals. The growing preference for e-mail means that telephones are even less likely to be answered by individuals, and when messages are left, people often respond by e-mail. E-mail has also replaced postal mail for many letters and memos. The shift toward e-mail as the communication mode of choice for significant sectors of the population is somewhat ironic as it is one of the very factors that make Internet surveys possible, but it is also making surveys by traditional modes more difficult to complete.

The development and widespread implementation of these communication technologies in recent years has meant that surveyors have to take extra steps to distinguish their surveys from the countless other contacts (mail, phone calls, e-mails, text messages, etc.) one receives on a daily basis. Additionally, the wedging of surveys to high-technology devices requires surveyors to give additional consideration to how different populations interact with new technologies. For example, although younger people may be more familiar with new technology, they may also be more inundated with contacts and

appeals for their time and attention. In fact, the 18- to 30-year-old demographic segment is probably the most difficult group to get to respond to surveys by any mode.

In summary, the past 2 decades have seen in-person interviewers lose access to secured apartment buildings and neighborhoods, and telephone surveying become less representative of the general population because of the disconnection of home landlines in favor of cellular phones and the increased likelihood of refusal. In addition, emergent web surveying suffers from a whole new set of technology-related problems (e.g., access, skills, etc.) as well as low response rates. Although there is some evidence that mail surveys have also undergone modest decline (Connelly, Brown, & Decker, 2003), there is also evidence that response rates can be maintained (Dillman & Carley-Baxter, 2001; Dillman & Parsons, 2006). As a result, in a situation opposite of what was seen 30 years ago, mail surveys can now achieve higher response rates than the typical telephone survey.

The respondent experience has also been significantly transformed. Now when the respondent answers the telephone she might be met by a voice recording or electronically contrived voice rather than a real person. Rather than speak her answers, she may punch keys on her phone or other mobile device to register them. Instead of receiving a paper questionnaire in the mail to fill out with pen or pencil, she may now be asked by e-mail to fill out an electronic questionnaire using a mouse and keyboard. In deciding whether to respond she now also has to consider the risk involved in responding to an unsolicited e-mail. And if she chooses not to respond by one mode, she is likely to receive a request to respond by another mode altogether. Or she might be given the option to choose from among several response modes from the very beginning. The respondent experience is now highly impersonal and is increasingly controlled by respondents who feel less obligated to provide requested information and for whom refusing is now more socially acceptable.

### GETTING BEYOND THE TURBULENCE

Decisions are being made every day that reflect what is wrong with some survey modes as well as what is right with others. The days are far behind us when surveyors would simply declare that the in-person mode is the best mode or when the telephone was viewed as the heir apparent to such interviews. The reality of today is that certain survey modes are better for some populations, survey topics, and survey sponsors than are others, and even choosing the "best" mode may leave one far short of being able to collect quality data. Consequently, one of the most significant changes within survey methodology in the past 15 years has been the shift from using predominantly single-mode surveys to using multiple modes in the same data

collection effort to compensate for the inadequacies of each. This ability is largely facilitated by the computerization of society, which has made it possible to transform questionnaires easily from one survey mode to another.

In the preceding century many survey methodologists were able to specialize in a single survey mode, leaving it to others to grapple with the intricacies of other modes. In this new mixed-mode era, such specialization is no longer possible. When surveyors decide from the beginning that achieving good results requires using multiple modes, questions must be written that achieve the same measurement across modes, and modes must be implemented in ways that support one another and maximize response rates. These requirements mean that survey methodologists must be competent in multiple survey modes.

Despite all of the change and turbulence, in this new survey environment the goal remains the same as in the past: to design scientifically sound data collection systems that allow us to obtain precise estimates of the behaviors and attitudes of all people in a population by sampling and obtaining results from only a fraction of them. However, the means for doing so have changed in a number of ways.

In preparation for writing the third edition of this book, interviews were undertaken with professionals in a number of survey organizations. When asked at the beginning of these interviews how surveying had changed since the publication of the second edition in 2000, the first three people who were interviewed stated at the outset that surveys are now respondent driven, rather than driven primarily by the needs of the survey organization. For example, the administrator of one large government survey stated, "We are trying to give respondents what they want, but still do valid surveys. That means giving people a choice." As this administrator's comments reflect, the survey world today is different than it was even 10 years ago in ways that make it critical not only to understand the elements of doing valid sample surveys, but to better understand the role of respondents in producing such responses.

### FROM TOTAL DESIGN TO TAILORED DESIGN

The first edition of this book (Dillman, 1978) introduced mail and telephone survey methods as cost-effective alternatives to in-person interviews and provided step-by-step procedures for conducting such surveys. The subtitle of the book, "The Total Design Method," was chosen to describe the need to give attention to designing every aspect of a survey that in some way touched respondents. However, the total design method had a one-size-fits-all orientation, advocating the use of the same procedures for all populations and survey situations (Dillman, in press). That orientation was in part a reflection of the mass society orientation of the time, which emphasized

standard procedures and production methods. It was also a reflection of the rapid developments in mail and telephone methodologies that had not yet allowed for research and development of different procedures for different populations and situations.

In the 1990s it became apparent that massive changes in the design and implementation of sample surveys were occurring. Surveyors began to carefully match their selection of survey mode to characteristics of the population, the survey topic and length, and the sponsor's situation as well as to take advantage of the new availability of electronic modes of data collection (Internet, interactive voice response, portable computers, etc.). These changes were introduced in the second edition of this book as the beginning of the wide-scale use of tailored design strategies for designing surveys (Dillman, 2000a). The tailored design strategy involved a significant methodological shift from a one-size-fits-all approach to one in which solutions were tailored to most effectively and efficiently deal with the contingencies of different populations and survey situations. In the second edition, discussion of the telephone was removed because of space constraints in favor of discussion of the Internet and other electronic modes that share many similarities with mail methods (e.g., visual communication and self-administration).

In addition to these changes, the criteria for successful surveying were expanded from the focus on response rate concerns in the first edition to simultaneously reducing four sources of error—coverage, sampling measurement, and nonresponse. The second edition also introduced, somewhat tentatively, the importance of mixing survey modes and consideration of how visual layout concepts might influence people's answers to survey questions, both of which are dealt with in somewhat more detail in an updated version of the second edition (Dillman, 2007).

In the 9 years that have now elapsed since the publication of the second edition of this book, more change has occurred in how sample surveys are designed and implemented than had occurred in the 22 years between the first two editions. These 9 years can be described as a period of intense confrontation between technology and culture. On the one hand, the Internet has reached nearly all businesses, but it is still unavailable in many homes. In the meantime the telephone, although reaching its maximum penetration of more than 97%, has changed from being a household device to belonging only to an individual within the household. On the other hand, human culture in the United States and a large number of other countries has changed, so responding to surveys has become much more a matter of respondent choice, both with respect to allowing oneself to be contacted in the first place and with respect to the ability and willingness to say "no" to survey requests. Thus, one of the ironies of modern surveying is that there now exists more means of reaching people and doing so more quickly than ever before, but there is a greater likelihood of people not allowing certain means of access, whether

through mail, Internet, or telephone. We have entered an era of choice not just for surveyors, but also for respondents.

In response to these changes, this third edition of this book retains the tailored design focus introduced in the 2000 edition but takes this concept considerably further in order to address some of the difficulties that arise out of increased respondent choice as well as the availability of more survey modes, greater differences in the resources available to survey sponsors, changes in the contact possibilities for potential respondents, and differential respondent access to resources. More so than either of the previous editions, this edition sees surveyors confronted with an era of enormous variation in how surveys are designed. As a result, this edition expands on the previous editions in three important ways.

First, since the second edition of this book was written, enormous resources have been devoted to developing and testing ways of designing web surveys and to simplifying the tasks of accessing and completing them. At the same time, the power of computers and Internet connections and cultural understanding of computers have increased dramatically. Therefore, whereas in the previous edition only one chapter was devoted to the Internet, in this new edition the Internet has been integrated throughout—from coverage and sampling to writing questions and obtaining high response rates.

Second, the recognition that all survey modes face challenges and that none alone may be sufficient for getting adequate responses has led to many surveys being conducted using multiple modes. In the first edition of this book, virtually no mention was made of mixed-mode surveys. In the second edition, a chapter was devoted to the mixing of survey modes, and *unimode design* (i.e., unifying the way in which questions are asked across survey modes) was advocated. In this edition, mixing modes becomes a central issue throughout the book. Even when a survey or limits the design to a single mode, as remains warranted in many instances, we believe it is prudent to keep mode comparisons in mind because researchers often wish to compare data collected by different survey modes from different populations. In addition to unimode or unified design, we also build the case for mode-specific design that takes into account the occasional need to construct questions differently in order to obtain comparable results across survey modes.

The third change of major significance in this book is the discussion of visual design concepts and their importance for designing surveys. Whereas telephone interviews must rely entirely on aural communication and paralanguage, web and mail surveys must rely on visual communication made up of words, numbers, symbols, graphics, and their properties (color, contrast, location, etc.). The consequences of these differences, though recognized for many years, were not systematically researched until the late 1990s and were only preliminarily dealt with as controllers of navigation in the previous edition of this book. Since the publication of that edition, however, research

has shown that visual layout affects respondents in many different ways. These effects were the main focus of the 2007 update (Dillman, 2007) and are developed further throughout this third edition of the book.

In addition, we also devote a chapter to longitudinal surveys and a new kind of tailored design, the Internet panel survey. In that chapter we discuss the unique challenges faced by each of these types of surveys as well as some challenges that are common to both. Another new chapter discusses how sponsorship affects survey design, with an emphasis on the regulatory impacts of institutional review boards and the Office of Management and Budget.

## CONCLUSION

When interviewers walked city streets or traversed the countryside by car in the 1940s to sample households and interview the people who lived in them, they were pursuing the same objective that would later be pursued by surveyors in the 1970s who sent written questionnaires to postal addressees or who called telephone numbers randomly to contact people, and by surveyors in the 2000s who sent e-mail requests asking people to complete a survey on the Internet. The scientific tenets of surveying—that is, getting a sample of a few hundred or thousand respondents to allow estimates with known precision to be made for the population from which they are selected—have remained the same. However, the methods used for asking questions and obtaining answers and knowledge of the factors that influence the accuracy of those answers and the proportion of people who will provide them have changed dramatically.

This book is about obtaining high-quality responses in the early twenty-first century using the technology available and results of decades of research on factors that influence people to answer survey questions and to respond accurately. Each of the remaining 12 chapters covers some aspect of data collection and how to tailor to different survey populations and situations. We begin in Chapter 2 with the tenets of tailored design, focusing on scientific and theoretical knowledge about what makes people likely to respond to surveys and how to create effective interaction with respondents to encourage cooperation and valid answers to survey questions.

CONSIDER FOR A moment the following examples of the enormous variety of circumstances surveyors now face, each of which captures a situation we have encountered recently:

- Each month a federal agency conducts a survey of thousands of businesses about their number of employees. The survey is very short; only six questions, but the agency has to collect the data and report it in less than 2 weeks.
- A television rating organization collects people's viewing habits from each of the nation's several hundred television markets to describe those habits accurately for each market for a specific week of the year.
- The elected leaders of a U.S.-based professional organization changed the program for its annual meeting and now wants to know whether attendees liked or did not like the change. One challenge was that the number of attendees from other countries had increased significantly and the leaders wanted to survey enough of them to know whether their satisfaction level was different from that of U.S. participants.
- A federal agency that is surveying universities faces the challenge of collecting information that is known in individual academic departments but is not generally available from a centralized office.

It should be apparent, even from this small list, that the same procedures will not work for all surveys. But how does one go about deciding which procedures to use and not use, and by what criterion does one choose certain methods for collecting data over others? Also, under what conditions should one choose a single survey mode, and under what conditions is it better to use multiple modes?

## CHAPTER 2

# The Tailored Design Method