

Mixed-Mode Questionnaires and Survey Implementation

CONCLUSION

Mail surveys have experienced a considerable reversal of fortune in recent years.

Although mail surveys still have a place in survey research, they are no longer the dominant mode of survey collection.

WHEN SINGLE-MODE SURVEYS ARE NOT ACCEPTABLE

Single-mode surveys remain important in many situations, as discussed in Chapters 8, 9, and 10. However, in other circumstances such surveys, regardless of whether telephone, web, or mail, are likely to produce inadequate results. Three discussions with survey sponsors illustrate the compelling need to consider mixed-mode approaches, and how these mixed-mode designs require changes to be made in the procedures for single-mode designs that we have covered in the preceding three chapters.

A university faculty member approached one of us to discuss his plan to conduct a mail-only random sample survey of university students. He believed that significant differences were likely to have occurred in alcohol and marijuana use among undergraduates since he had conducted a similar survey in 1995. He wanted to compare results from a new survey with his previously collected data to assess change among students. For the original survey, he had obtained a complete mailing list of local addresses for students from the university registrar; at that time, addresses were updated at the beginning of each semester during registration. Nearly two thirds of the students sampled completed the 12-page paper survey.

For the new survey, postal addresses were no longer automatically updated by the university; that task is now left to the students, and many do not update their address information. As a result, some mailing addresses are the same as those reported when students first applied for university admission, thus increasing the likelihood that a nonrandom subset of students was unlikely to receive a questionnaire mailed to that address. In addition, some students may have an updated address but are unlikely to check postal mail regularly. It seemed probable that repeating the same procedures used a decade earlier would not obtain acceptable results. Instead, a plan was made to obtain e-mail and postal addresses for students, as well as their telephone numbers. By using all three modes of contact, the expectation was that he would increase his chances of making contact with sample members and get them to do the survey, overcoming the weaknesses that each mode has when used alone. The faculty member was also encouraged to obtain responses mostly over the Internet using e-mail communication, supported by postal letters and token cash incentives, a mixed-mode methodology described later in this chapter.

Another discussion involved staff of a state agency that regularly conducted random digit dial telephone surveys to measure the general public's concerns with state roads and highways. The agency was committed to continuing those surveys using a landline sampling frame as they had done in previous years. We discussed whether the systematic decline in response rates that had been occurring in recent years was acceptable to the agency. An agency representative pointed to research showing that response rates are not necessarily correlated with nonresponse error, and suggested that the declining response rates were not a problem. It was also noted that one of the successful aspects of their past surveys was that the results showed respondents' concerns were changing over time. The agency did not want to make changes in survey mode, question wording, or other features of the survey that might disrupt the trend lines. The response to this situation began with a description of the rapid decline in use of landline phones (according to the latest estimates from the National Health Interview Survey in 2013, only 58% of households in the United States have landline phones [Blumberg & Luke, 2013]), and how this could result in a substantial number of households not being covered by their frame. The trend lines were perhaps more a reflection of the fact that the sample frame was becoming less and less representative of the desired statewide population of households than a result of true change.

In considering alternative methods, we discussed the possibility of including cell phones, and the related concern that a significant number of cell phones (and some landlines) would belong to people who no longer lived in the state, and that the frame would miss many new residents who kept their area codes from the state they previously lived in. It was also noted that other ways in which calling cell phones can be more expensive (as discussed in Chapter 8), thus increasing the overall costs of conducting the survey. Ultimately, the suggestion to the agency was to consider sampling postal addresses and sending a survey request with a token cash incentive by mail. With the postal request, they could either ask sample members to respond to a paper questionnaire, or ask them initially to respond by web and then in a later reminder provide nonrespondents with a paper questionnaire as an alternative response mode. The expectation was that the change to address-based sampling would significantly improve household coverage as well as the response rate, compared to that obtained by using landline RDD procedures alone.

The third discussion was with a business that periodically conducted client surveys over the Internet on a variety of topics. This group reported having e-mail addresses for nearly 90% of their clients. Their standard practice was to send the initial e-mail contact followed by one reminder a few days later. To compensate for the low number of returns (less than 10%), they increased their sample size so that many clients were being approached with a request once a month. However, response rates had declined over time, a possible result of being surveyed so frequently. In addition, it was noted that those who responded tended to report either a negative experience or positive one, so that the response distributions were becoming somewhat bimodal, causing them to wonder if the results were representative of all clients, or only those at the two extremes. After some discussion, we learned that this organization had mail and telephone contact information for most of their clients in addition to the e-mail addresses they were using.

The discussion with this group focused on how they might survey individuals less frequently. This required increasing response rates so that smaller samples could be drawn for each survey. The suggested approach involved encouraging

people to respond over the Internet by using a postal letter to bring attention to the e-mail request that they were about to receive, which included an electronic link for the survey, and by using a telephone reminder call. The possibility of using a design that would include an invitation to provide answers over the telephone in the follow-up phone calls was also introduced. However, inasmuch as many of the questions asked in some of the surveys focused on client opinions (e.g., very satisfied, somewhat satisfied, etc.), collecting some responses by telephone raised the likelihood that answers would be different than those collected over the Internet simply because of the change in modes, a topic to which we return to in Guideline 11.8 (Christian, Dillman, & Smyth, 2008).

Conversations like these have become increasingly common over the last few years, as many surveyors try to repeat or emulate single-mode methods they have successfully used in the past, and others try to use new technologies to reduce costs or overcome some of the response and coverage challenges associated with only using the Internet to contact and survey respondents. In each of these cases, it appeared as if a multiple-mode survey might be a better, and sometimes perhaps the only, way to accomplish the goals of each study.

Prior to the beginning of the 21st century, mixed-mode survey designs were used, but generally were uncommon as most surveys were conducting by a single mode (Dillman, 2000; Dillman & Tarnai, 1988). The generally good quality of single-mode survey designs, and the huge time-consuming challenge of coordinating data collection across multiple modes in a noncomputerized and less connected environment, made their use infrequent. But as technology was developed that made coordination across modes easier, and response rates to single-mode surveys declined, researchers began exploring in detail the ways in which survey modes could be mixed and the consequences of mixing them (de Leeuw, 2005; Dillman & Christian, 2005).

In Chapter 2, we advised readers to use multiple modes of communication (Guideline 2.4) and multiple modes of response (Guideline 2.5) to affect the benefits, costs, and trust balance in ways that would encourage response. But, as these conversations illustrate, undertaking a mixed-mode survey in these ways is likely to be significantly more challenging than designing a single-mode survey. It requires understanding not only the intricacies of questionnaire construction, contacts, and implementation procedures appropriate for each of the survey modes (as discussed in Chapters 8, 9, and 10), but also coordinating when and how those modes are to be used. Thus, the methodological knowledge requirements are greater, as are the organizational efforts needed for success. Yet despite all these complications and challenges, the reasons for considering mixed-mode designs have become more and more compelling in recent years.

WHY CONSIDER A MIXED-MODE SURVEY DESIGN

Surveyors often turn to mixed-mode survey designs when it is difficult to achieve the desired results using a single mode alone. As mentioned in the earlier chapters, individual modes may have limitations that prevent surveyors from using a single mode to achieve the high-quality data results they need. When this happens, mixed-mode surveys may be the answer. The following are common reasons

surveyors might be motivated to use a mixed-mode design (for more detail, see de Leeuw, 2005).

Lower Costs

One of the most compelling reasons for considering the use of multiple survey modes is to lower costs. Many mixed-mode survey designs begin with less expensive modes and then move to more costly modes for those who do not respond initially. An example of using multiple modes to reduce survey costs is the U.S. 2010 Decennial Census, for which questionnaires are mailed to all U.S. households to get initial responses (nearly 70%), and then more costly personal enumeration is used to collect the remaining responses. Additional examples of using mixed-mode designs to lower costs are discussed in Guideline 11.18.

Improve Timeliness

Mixed-mode surveys may also allow surveyors to collect responses more quickly. For example, a longitudinal survey of doctoral degree recipients conducted by the National Science Foundation (NSF) asked which mode (web, paper, or telephone) respondents preferred in a 2003 data collection and then offered the preferred method in 2006. This significantly shortened the length of time needed to complete the follow-up (Hoffer, Grigorian, & Fesco, 2007).

As another example, the Current Employment Statistics (CES) survey, conducted each month by the Bureau of Labor Statistics, uses six different modes (mail, computer-assisted telephone interviewing, fax, touchtone data entry, electronic data exchange, and web) to collect employment data from businesses. Businesses are matched with the mode that is most convenient for them to respond by in an effort to improve the speed of response because a 14-day turnaround is critical for reporting the national employment data collected by this survey (Rosen, 2007).

Reduce Coverage Error

In addition to reducing survey costs and improving timeliness, mixed-mode surveys are also used to improve coverage when a single mode cannot adequately cover the population of interest, or when contact information is not available for the desired mode of data collection. For example, a number of studies we will discuss in this chapter use postal mail to contact sample members and ask them to respond to a web survey because e-mail addresses are not available. To improve coverage, paper questionnaires are also mailed to respondents who are unable to respond via the web. As another example, a number of web panels have been built by using an alternative mode, such as in-person or telephone interviews, to enroll members so that all households, including those who do not have Internet access, can be covered. Those without the Internet are typically either provided with web access or surveyed via another mode, such as paper.

Another example is a series of WSU Student Experience Surveys conducted via the web almost annually from 2002 to 2011. In the earlier years of these studies, e-mail addresses were only available for about two thirds of the students.

Therefore, building the sample frame from this list would have resulted in serious undercoverage. Instead, the sample frame was built using postal addresses, which were available for almost all students. E-mail addresses were then appended to it. This allowed us to contact all respondents by postal mail and follow up by e-mail with those for whom an e-mail address was available.

Improve Response Rates and Reduce Nonresponse Error

One of the core reasons for using mixed-mode surveys is to improve response rates and reduce nonresponse error. One of the most effective ways of improving response rates in surveys, as discussed in Chapters 2 and 10, is to provide token cash incentives of a few dollars at the time of the survey request. Postal mail can be an effective way to provide small cash incentives for modes where cash incentives cannot otherwise be easily delivered (e.g., for telephone or web data collection), as discussed in Guideline 11.12. But there are other ways in which multiple modes can be used to improve response. For example, assigning respondents to one mode ahead of time based on their preference, if it is known, can be useful for improving responses.

Offering people the mode they prefer increases the speed by which they respond and has been shown to increase response rates in some modes. We discuss the issue of mode preference in greater detail in Guideline 11.14. Likewise, offering a second or even third mode to nonrespondents can improve response rates and reduce error by encouraging responses from people who are difficult to reach or unable or unwilling to respond via the initial mode. Often the second or third mode also adds a new and different contact to the survey request, increasing the likelihood that even those who may have missed a previous contact will notice this one.

However, achieving high response rates does not always mean that nonresponse error is reduced (Dillman et al., 2009; Groves, 2006). Thus, it is important that the use of multiple modes actually help to improve the representativeness of the responses received such that nonrespondents are not different in significant ways from those who do respond. For example, if people included in a particular survey population are unskilled computer users or are uncomfortable with responding to web surveys, offering a second mode such as mail or telephone may serve as an important way of reducing nonresponse error, as we discuss further in Guideline 11.16.

Reduce Measurement Error

Using mixed-mode surveys to reduce measurement error may be one of the oldest and most generally recognized reasons for conducting mixed-mode surveys. When in-person interviews were the primary means of collecting data, respondents often had to provide answers aloud, in the presence of other household members, in addition to the interviewer, which often led to more socially desirable responses for sensitive questions (e.g., sexual behaviors or the use of drugs and alcohol). The need to ask sensitive questions in ways that were not embarrassing led to the practice of handing people a brief paper questionnaire for them to record their responses without saying their answers aloud. A modern version of this practice is to simply offer respondents the same computer or tablet used by the interviewer to record their answers so they have the opportunity to read and

answer the questions themselves (i.e., mixing computer-assisted personal interviewing with computer-assisted self-administration). In a more advanced version, respondents can be provided with earphones to listen to questions, and can answer them by marking answers on a screen where no one, including the respondent, can see the questions (Tourangeau & Smith, 1996). This practice is particularly common in health interview surveys.

Combined Effects

In general, it would be a mistake to attribute the trend toward using multiple modes to only one of these reasons. More often, a combination of concerns leads to the decision to use a mixed-mode survey design. The substantial increase in the use of mixed-mode surveys throughout the world has been fueled by surveyors balancing the often competing demands of budget and time while striving to improve data quality by reducing coverage, sampling, nonresponse, and measurement errors.

What error source(s) are minimized and whether costs and field time are reduced depends heavily on how the modes are mixed. For example, using one mode to contact sample members and encourage a response by a different mode can improve coverage and response rates with no negative effect on measurement, but will likely increase costs. In comparison, using alternative modes for different respondents in the same survey may minimize coverage and nonresponse error and can also decrease survey costs, but, depending on how it is done, may also increase measurement error because respondents answering in the different modes may experience the survey differently. Having interview respondents answer sensitive questions in a self-administered mode will not impact coverage error, but has real potential to decrease measurement error. Thus, the way modes are mixed should be determined based on consideration of the ultimate survey goal and why using multiple modes was seen as the best solution. Creating the best survey design involves choosing the optimal mode or combination of modes, and utilizing them in ways that minimize overall total survey error.

The wide variety of ways that modes can be mixed for surveys can be categorized into three overarching strategies:

1. Use of multiple *contact* modes to encourage response for data to be collected by a single response mode.
2. Use of multiple *response* modes to collect respondent answers, while using only one mode of contact.
3. Use of multiple *contact and response* modes for the same study.

Within these three strategies, there are many options for how to mix modes, as initially discussed in Chapter 2. For example, all three of the main survey modes—telephone, mail, and Internet (or e-mail) may be used either as a contact mode or a response mode, which opens up an enormous number of potential combinations that can include mixing some or all of these modes at the contact, response, or both contact and response stages. This chapter builds upon the foundation provided in Chapters 8, 9, and 10 for telephone, web, and mail surveys and provides specific guidelines for designing questionnaires and implementation procedures for mixed-mode surveys that involve more than one mode of contact and/or response.