Research Brief Series #9: Mixing Modes in Probability-based Multi-Purpose Panels

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Why Panels Use Mixed-Mode Designs?

Technological developments are changing the survey landscape. A decline in landline phone use coupled with increased internet penetration and smartphone ownership are driving a move toward self-administered surveys, and yet more traditional interviewer-administered modes continue to have some utility (Perrin 2021; Groves 2011). Survey participants' mode preferences changed due to the new technological developments as well (Bilgen et al. 2024). These changes in both respondents and the communication media they prefer led to an increased importance being placed on considerations of the modality or modalities chosen for both contacting sample members and collecting data from the respondents.

Currently, no single mode is adequate for most participant samples and most surveys are either already using or moving towards using a mixed mode approach due to cost and error considerations. Mixed-mode survey designs involve combining multiple modes to meet the survey needs. Accordingly, survey mode choice should be informed by research literature on survey response theory and project-specific considerations of timeline, budget, and the population being surveyed. This research brief will detail the most important literature and the considerations involved when deciding upon an optimal research design, specifically for probability-based multi-purpose panels.

Survey researchers today have a variety of modes to choose from when contacting potential participants. These include in-person, mail, telephone (including inbound and outbound calls), email, and text message. It is also important to note that the choice of modality during contact may differ from that used during survey data collection. The different modes used during data collection include self-administered modes (such as web and paper-and-pencil instruments) and interviewer-administered modes (such as face-to-face and telephone modes). Panels using mixed-mode designs seek to complement these modes in such a way that reduces potential survey error and advances data quality, as each mode has different strengths and limitations (Dillman et al. 2014; de Leeuw 2005).

With respect to survey error, it has been shown that mixed mode contacting strategies improves participation, reduces coverage, and nonresponse errors (Dillman et al. 2014; Stern, Bilgen, Dillman, 2014; Christian et al. 2024). For instance, offering more than one mode of survey completion is a key survey feature to encourage participation (Dillman et al. 2014; Groves et al. 2000). Mixed-mode designs can also help reduce potential nonresponse error (Sakshaug et al. 2019) at both the contacting phase, by giving the researcher more than one way of reaching the participant, as well as at the data collection stage, by offering the respondent a way of participating that is personally more convenient for them. Additionally, single-mode web surveys can result in less accessible surveys among certain populations based on internet access (e.g., older adults, certain racial/ethnic groups, etc.). Therefore,

adding another mode, such as phone or mail, for contacting and data collection can help reduce potential nonresponse error (Boyle et al. 2017).

Having said that, mode measurement effects (i.e., systematic measurement differences attributed to the mode of data collection) can present a challenge when using more than one mode, particularly when combining self- and interviewer-administered modes. Research has shown, for example, that survey participants may respond in more socially desirable ways when in the presence of an interviewer (Christensen et al. 2014; Buffy et al. 2005). That said, a total survey error perspective finds that typically mode effect concerns are outweighed by the decrease in overall error due to a more robust response of the full survey target population.

Types of Mixed-Mode Designs in Panels

In general, a mixed-mode approach for contacting and data collection can be concurrent, sequential, and within-mode. Sequential mixed-mode designs are those that order modes strategically, typically to achieve cost savings (da Rada 2022). In a sequential design, only one mode is used at a time. A common sequential design approach begins with a less expensive contact mode like email before incurring the printing and postage costs associated with a postcard or letter mailing (Johnson and Scott 2023). Similarly for data collection, sequential designs usually begin with less expensive modes (e.g., self-administered web) before introducing more expensive ones (e.g., interviewer-administered phone, in-person, etc.).

Concurrent mixed-mode design, in contrast, involves using and offering multiple mode options at the same time. For instance, a concurrent approach might offer a web link and a paper questionnaire. Such designs may be advantageous in short-term studies when the field period does not allow for the sequencing of contacting or data collection modes. Concurrent designs may also be offered to accommodate participants' mode preference (Olson et al. 2012).

Lastly, a within-mode strategy involves different modes for various parts of survey data collection for the same respondent. This approach is typically used for sensitive questions (e.g., switching to computer-assisted self-interviewing for sensitive sections of the questionnaire during an in-person interview).

Example Uses of Mixed-Mode Designs in Panels

Probability-based, multi-purpose panels make extensive use of mixed-mode designs to maximize survey participation while minimizing bias. In most cases, researchers tailor mixed-mode designs to optimize efforts at different stages, including initial contact during recruitment, nonresponse follow-up, panel sign-up, and survey data collection after empanelment.

Initial contacting. Panels often use sequential, mixed-mode contact strategies during initial recruitment. For example, AmeriSpeak's initial recruitment involves a series of USPS mailings followed by an outbound telephone contact (NORC 2022). The LISS Panel in the Netherlands begins recruitment with an initial mailing followed by telephone contact when a phone number is available and in-person visits when a phone number is not (Scherpenzeel 2009). Other panels use single-mode contact strategies for initial recruitment. Both KnowledgePanel and the Understanding America Study (UAS) Panel use a series of mailings during initial recruitment (Ipsos 2023; USC Dornsife Center for Economic and Social Research 2023). The American Trends Panel (ATP) originally used telephone contacting for initial recruitment but has since changed to mail for recruitment (Keeter 2019).

Nonresponse follow-up. Panels may introduce additional modes to engage participants who have not responded during the initial recruitment phase. These efforts are usually designed to help improve panel representativeness, as there are often demographic differences between those who respond during initial recruitment and those who do not (Bilgen et al. 2019). For example, AmeriSpeak uses FedEx mailings and in-person visits during nonresponse follow-up (NORC 2022). Knowledge Panel and the UAS Panel both add phone contacting to engage nonrespondents (Ipsos 2023; USC Dornsife Center for Economic and Social Research 2023). Nonresponse follow-up for the LISS Panel in

the Netherlands includes email contacting and additional in-person visits (Scherpenzeel 2009).

Sign-up and registration. Panels typically offer more than one mode for signing up for the panel. AmeriSpeak offers both web and phone modes for registering for the panel during initial recruitment with the addition of in-person registration if taking place at the nonresponse follow-up stage (NORC 2022). Similarly, the LISS Panel offers registration by web, phone, and in-person modes (Scherpenzeel 2009). The UAS Panel offers both web and paper-and-pencil (PAPI) instruments for registration. KnowledgePanel offers web, phone, and PAPI panel registration (Ipsos 2023).

Survey data collection. Empaneled respondents are invited to complete surveys routinely. Mixed-mode designs at the survey phase can vary depending on the length of the field period, available budget, and population of interest, among other factors. Surveys may integrate different modes at the survey invitation phase than at the survey data collection phase. For example, AmeriSpeak can contact panelists to participate in a survey by email, phone, SMS, and mail. During data collection, AmeriSpeak typically offers panelist web and phone modes for survey completion (NORC 2022). ATP uses text and email to notify panelists of new surveys (Keeter 2019). ATP collects data surveys by web only, offering tablets to panelists who do not have home internet access for them to participate (Keeter 2019). KnowledgePanel uses email and phone contacting for survey invitations, typically directing panelists to complete a web survey (Ipsos 2023). Similarly, UAS Panel offers web-only data collection (USC Dornsife Center for Economic and Social Research 2023).

The Center's Perspective

In a quickly changing survey landscape, probability-based multi-purpose panels mix various modes to advance data quality and decrease total survey error, all while reducing costs. Potential benefits of mix-mode designs can be gained at every stage of the panel lifecycle, including contacting for initial recruitment, nonresponse follow-up during recruitment, panel registration, and survey data collection after survey recruitment.

The Center for Panel Survey Sciences is an industry leader in mixed mode contacting and survey data collection and designs panel recruitment and studies to optimize survey design choices. Thoughtful, theoretically informed mixed-mode designs will continue to be important to achieving study goals for representativeness, data quality, and cost effectiveness in contemporary research.

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