

Research Brief Series #6: Summarizing Literature Review of IMCs in Probability-based Web Panels

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On the Use of Instructional Manipulation Checks (i.e., trap questions, red herrings, validation questions) in Probability-based Web Panels

To increase survey data quality, survey researchers seek to design web instruments that identify and minimize suboptimal responses and inattentive respondents. Various strategies have been developed by survey researchers to do so, including the use of instructional manipulation checks (IMCs) that are also referred to as “trap” questions, red herrings, attention checks, validation questions, and instructed response items.¹ The use of IMCs makes sense on its face (who wouldn’t want to catch people not paying sufficient attention to the survey of which they are responding), and thus have been recommended by a number of researchers (Gummer et al. 2021; Liu and Wronski, 2018; Jones, House, and Gao, 2015; Hauser and Schwarz, 2015; Berinsky et al., 2014; Miller and Baker-Prewitt, 2009). However, the efficacy of using IMCs to identify and remove inattentive respondents is mixed in the literature, with many raising concern that

the practice does more harm than good, especially in the context of probability panels. The Center for Panel Survey Sciences recommends using IMCs with extreme caution in probability panels and for their use to be limited to studies with a content-driven justification for their inclusion.

What Are IMCs and How are they Used?

Survey researchers suggest that the use of IMCs may compromise the trust between panelists and panel managers necessary for maintaining a healthy panel. Various studies have found that respondents find IMCs confusing and at times may be perceived as offensive (Barlas et al., 2022; Oppenheimer et al., 2009; Miller and Baker-Prewitt 2009). Given declining response rates across survey modes (Czajka and Beyer, 2016; Dutwin and Lavrakas, 2016; Plewes and Tourangeau, 2013), survey administrators should exercise caution to not jeopardize the relationship with participants who are increasingly challenging to recruit. This is particularly important in probability-based web panels where recruitment costs are high and panel managers seek a long-term relationship with participants.

Additionally, the use of IMCs to exclude respondents from the final cleaned dataset may exacerbate systematic bias. Oppenheimer et al. warned that “if the population that failed the IMC differed substantively from those who

¹ Examples of IMCs include “For quality assurance purposes, please select ‘strongly agree’” (Downes-Le Guin et al. 2012) and “Please verify where you are in the survey by marking ‘2’ for this item” (Miller and Baker-Prewitt, 2009).

passed the IMC it could lead to issues regarding generalizability of the findings” (2009). Further, Anduiza and Galais found that respondents most likely to fail IMCs are also part of communities with historical patterns of survey nonresponse, such as younger populations, people who are less politically engaged, and people with lower educational attainment (2017). They conclude that, “if those who pass IMCs are different than those who do not pass them—in terms of characteristics that are related to outcomes of interest—then inclusion or exclusion of these respondents may have consequences for our estimators both when describing the characteristics of [a] sample and when analyzing relationships” (2017). The potential of introducing systematic bias is especially salient for probability-based web panels designed to produce nationally representative estimates that are inclusive of historically hard-to-survey groups.

The IMCs are most commonly deployed to detect bad actors in nonprobability-based surveys and panels: Given a wide range of recruiting techniques, many essentially fully automated, such panels need to be vigilant for fraudulent respondents, self-selected panelists, and automated bots. Even in nonprobability panels, researchers find that automated bots can be trained to pass IMCs (Tworek et al. 2019) and/or the IMCs responses can be still guessed correctly (Jones, House, and Gao, 2015). In probability-based panels, the use of IMCs is less relevant given the probability-based sampling design (by definition) prevents the inclusion of self-selected panelists, automated bots, and fraudulent respondents.

The Center’s Perspective

Panelists should be the most valued resource of any panel. Accordingly, maintaining protocols such as a panel loyalty program involving continuous communication via a panel member web portal, point rewards, birthday well wishes, newsletters, engagement surveys, and thank you communications can all help in protecting this resource. Panels must always be vigilant in identifying panelists that do not provide optimal data based on the pattern, speed, and completeness of their responses. Panels should communicate with panelists when they observe unacceptable response behavior, notifying them of what was seen and encouraging best practices in survey participation.

Our overall recommendation is that IMCs do not result in a reduction of total survey error in the probability panel contexts. Panel researchers should work collaboratively

with their client partners to find ways to address any potential data quality concerns by other means. We recommend that their use be limited to studies with specific concerns based on survey content and questionnaire design.

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