

## A Randomized Experiment Evaluating Survey Mode Effects for Video Interviewing

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Rising costs and challenges of in-person interviewing have prompted major surveys to consider moving online and conducting live web-based video interviews. In this paper, we evaluate video mode effects using a two-wave experimental design in which respondents were randomized to either an interviewer-administered video or interviewer-administered in-person survey wave *after* completing a self-administered online survey wave. This design permits testing of both within- and between-subject differences across survey modes. Our findings suggest that video interviewing is more comparable to in-person interviewing than online interviewing across multiple measures of satisficing, social desirability, and respondent satisfaction.

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Although in-person, face-to-face interviewing has long been considered the “gold standard” survey interviewing mode, the logistical and financial challenges are well-documented. Declining survey cooperation in recent decades has dramatically increased the labor and travel costs for in-person surveys (Couper 2011), prompting even major government and academic surveys to consider alternative survey modes. For example, the American National Election Studies (ANES) now routinely supplement their in-person surveys with an additional sample of self-administered online interviews, combining modes in their data releases. Recent comparisons of these different ANES samples have raised concerns about data comparability between the self-administered online mode and the interviewer-administered in-person mode (e.g., Guay et al. 2019; Valentino et al. 2020; Atkeson, Adams, and Alvarez 2014; Homola, Jackson, and Gill 2016; Atkeson and Adams 2018).

Improvements in internet speed and access in recent years have prompted interest in the feasibility of a video interviewing mode—live, interviewer-administered surveys over an online platform such as Skype, Zoom, and WebEx (e.g., West et al. 2021)—as a lower cost alternative to in-person interviews.<sup>1</sup> After the COVID-19 pandemic halted in-person interviewing, the ANES and the European Social Survey (ESS) incorporated a video mode without a clear understanding of the implications for data quality and comparability, highlighting the need for research assessing video interviewing mode effects.

Scholars have speculated about the promise of video interviewing (Jeannis et al. 2013; Couper 2011; Anderson 2008; Hanson 2021; West et al. 2021), but the field lacks sufficient

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<sup>1</sup> We do not include in our definition self-administered surveys using pre-recorded interviewers, although others have referred to such designs as “video interviews” (e.g., Haan et al. 2017).

evidence about the advantages and disadvantages of video interviewing for large-scale survey research. Such an evaluation will necessarily require both an assessment of the operational hurdles for this mode of interviewing (e.g., Schober et al. 2020; Okon et al. 2021; Conrad et al. 2020) *and* an understanding of any mode effects that could impact data quality or research findings.<sup>2</sup> The latter goal is the focus of this manuscript.

Unfortunately, the vast majority of mode studies in the field cannot precisely isolate mode effects because interview mode is typically conflated with other survey design features, such as sample selection or non-response (see discussion in Gooch and Vavreck 2019).<sup>3</sup> We thus conduct a small, but carefully-designed, two-wave experiment in which respondents were randomly assigned to either an in-person or video survey wave *after* recruitment, consent, and completion of a self-administered online survey wave. The questionnaires include identical questions, thus allowing both a within subject and a between subject estimate of video mode effects. The between-subject comparison tests for any differences between video and in-person interviewing. Across multiple measures of satisficing, social desirability, and respondent satisfaction, we find no significant differences between the two interviewer-administered modes. In contrast, the within-subject comparison across waves consistently finds lower levels of satisficing in the interviewer-administered (video or in-person) wave than in the self-administered online wave. The within-subject comparison also finds some evidence that the

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<sup>2</sup> A handful of previous studies have examined various aspects of video interviews. For example, Sun (2014) and Sun, Conrad, and Kreuter (2020) compare interviewer rapport and information disclosure for in-person versus video interviews.

<sup>3</sup> To our knowledge, the only studies to have randomized survey mode post-acceptance are Gooch and Vavreck (2019), who compare self-administered online mode and interviewer-administered in-person mode, and Chang and Krosnick (2010), who compare self-administered online mode and interviewer-administered telephone (via intercom) mode. A number of studies have randomized mode prior to recruitment, but doing so cannot eliminate the possibility of differential response rates confounding observed mode differences.

interviewer-administered modes have higher levels of social desirability bias, but these effects are small and, more importantly, comparable for the video and in-person modes.

### **Background & Expectations**

The public's familiarity and use of video technology has markedly increased during the COVID-19 pandemic. Social distancing guidelines and public health mandates have meant that everything from work meetings to medical visits, happy hours, and holiday celebrations have moved online to video platforms like Skype, Zoom, or WebEx. Zoom, for instance, averaged more than 300 million daily meeting participants in December 2020, a 2900% increase over the previous year.<sup>4</sup> The integration of online video into work and social life for many across the globe raises the possibility of live video interviewing as a replacement or supplement for the in-person interviewing mode. A sizeable part of the data collection costs of in-person surveys accrues from interviewer travel, housing, and salary while in the field; reducing or eliminating interviewer household visits can result in significant cost savings.

Video technologies have been in use for a number of years now in qualitative research. Focus groups (Forrestal et al. 2015), in-depth interviews (Janghorban, Roudsari, and Taghipour 2014), college admissions (Ballejos, Oglesbee, and Hetteema 2018; Pasadhika et al. 2012), and hiring (Blacksmith, Willford, and Behrend 2016) are just a few areas in which video interviews have sometimes replaced in-person interviews with equivalency in the observed outcomes. The successful use of video interviews in these diverse settings suggests that incorporating video into the data collection process could be a promising avenue for conducting survey interviews, especially when considering the reduced financial, geographic, and time barriers associated

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<sup>4</sup> <https://backlinko.com/zoom-users>.

with video compared to in-person interviews (Janghorban, Roudsari, and Taghipour 2014; Sullivan 2012). Video interviewing is not yet a routine interviewing mode for the survey industry, but survey methodologists have started to evaluate the operational and methodological considerations of relevance for video interviewing (Conrad, Schober, Hupp, West, Larsen, et al. 2020; Schober, Conrad, Hupp, Larsen, Ong, et al. 2020; West et al. 2021). Effective incorporation of live video interviewing into large-scale survey research will require evaluation of both the logistical challenges to implementing video interviews as well as any potential mode effects that could impact data quality or comparability, especially for time series projects like the ANES and ESS.

The evaluation of video mode effects presented here builds on and contributes to a broad literature on survey mode effects. The growth in online surveys, in particular, spawned an extensive body of research comparing online surveys to alternative data collection modes (See Baker et al. 2010 for a review). This research sometimes finds mode differences (Yeager et al., 2011) and sometimes does not (Revilla and Saris 2013; Ansolabehere and Schaffner 2018). For example, a series of mode studies in the ESS identified significant differences between the self-administered online mode and interviewer-administered in-person mode for 70% of the questions on the instrument (Villar and Fitzgerald 2017). By contrast, a mode study in the Netherlands found only modest differences between a self-administered online mode and interviewer-administered in-person mode (Revilla and Saris 2013). Generally, then, previous research suggests that large survey mode effects are possible, but not inevitable—highlighting the need to evaluate any potential video mode effects.

In assessing mode effects, comparisons often focus on outcomes related to data quality, including indicators of satisficing and social desirability bias (e.g., Atkeson and Adams 2018; Holbrook, Green, Krosnick 2003). *Satisficing* occurs when respondents exert less cognitive effort than needed to generate a thoughtful survey response from the survey answering process—interpreting the meaning and intent of each question, retrieving relevant information from memory, integrating that information into a summary judgment, and reporting that judgment accurately (Krosnick 1991). Satisficing impacts the integrity of survey estimates by introducing random or systematic error into the survey response. Common metrics of satisficing include speeding, item non-response, and a lack of differentiation in responses (also known as “straightlining”). *Social desirability bias*, another focus of mode studies, refers to the tendency of some respondents to deliberately underreport socially undesirable attitudes and behaviors or overreport outcomes that are more desirable. It is thought that some respondents will intentionally lie to comply with social norms. In political surveys, social desirability bias is commonly associated with the measurement of racial attitudes, voter turnout, and news consumption.

Although the field lacks a comprehensive understanding of video mode effects, the broader literature on mode effects points to expected similarities and differences with other survey interviewing modes. Prior research suggests that the presence or absence of a human interviewer is one of the most important characteristics of the survey experience (Klausch et al. 2013; Atkeson and Adams 2018).<sup>5</sup> A survey interview can be conceptualized as a conversation—

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<sup>5</sup> We are aware of one experiment that documents similar levels of rapport between interviewers and respondents in live-video and in-person interviewing (Sun, Conrad, and Kreuter 2020; Sun 2014).

an interaction between an interviewer and respondent—and the presence of the interviewer fundamentally shapes the nature and context of that conversation and ensuing survey responses. As Atkeson and Adams (2018, 65) explain, “contextual cues present in a survey differ depending on their presentation and the presence or absence of an interviewer. In this way, whether the survey is administered by the interviewer or by the respondent may influence respondent answers, potentially creating mode biases that can lead to problems of inference if not handled correctly.” As just one example, research has documented the impact of interviewer race on reported racial attitudes (e.g., Davis 1997; Liu and Wang 2016).

Given the important role of the interviewer, we might expect the interviewer-administered video mode to more closely mimic an interviewer-administered in-person mode than a self-administered online mode. That is, video interviewing should show similar levels of satisficing to in-person interviews and less satisficing than self-administered online interviews. Respondents should take fewer “mental shortcuts” when answering questions from an interviewer, even if the interview is happening through a video platform. At the same time, the presence of the interviewer could also activate social norms, thereby increasing social desirability bias in the video mode compared to the self-administered online mode.

While the previous literature offers strong theoretical claims about these potential mode differences, the existing empirical evidence is less clear than one might expect. For example, research finds differences in satisficing and social desirability across telephone and in-person modes, even though both are interviewer administered (Holbrook et al. 2003). There is also considerable variation across and even within different surveys. Some work finds more item non-response (Lesser et al. 2012) or more straightlining (Conrad et al. 2020) in self-

administered than interviewer-administered modes, while others find no differences (Vavreck 2014). Examinations of the 2012 ANES documented mode differences in non-response, but with item nonresponse patterns varying across substantive topics; the in-person sample had lower non-response rates on abortion questions, but higher non-response on the gay rights questions compared to the online sample (Liu 2018; Liu and Wang 2016). And while several studies have found higher levels of socially stigmatized attitudes and behaviors in self-administered surveys compared to interviewer-administered surveys (for a summary of this work, see Baker et al. 2010), others detect minimal differences (Haan et al. 2017). Some argue that the greater trust and rapport between the interviewer and respondent in an in-person interview can actually reduce social desirability bias (Holbrook et al. 2003).

Part of this inconsistency in the mode effects literature no doubt comes from the wide variation across study designs—in the population studied, outcomes evaluated, data collection implementation, and so on—which makes it difficult to synthesize the empirical patterns. More notably, very few previous studies cleanly isolate mode effects. The survey interview mode is rarely the only design feature that varies across contrasted samples. A survey mode switch is almost always accompanied by a change in the sample frame, making it difficult to distinguish what exactly is driving any observed differences. For example, the ANES online and in-person samples that have been the subject of multiple mode comparisons (e.g., Liu and Wang 2015) differ not only in interview mode, but also in sample frame, response rates, respondent survey experience, respondent incentives, and so on.<sup>6</sup> A number of studies have randomized mode

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<sup>6</sup> The online sample was drawn from the probability-based Knowledge Network's KnowledgePanel and had a response rate of 2%; the in-person sample was drawn using an address-based, stratified, multi-stage cluster sample in 125 census tracts and had a response rate of 38%. For more information see ANES (2014). User's Guide



prior to recruitment, but such a design does not eliminate the possibility of differential nonresponse confounding observed mode differences. An extensive review of the literature finds only two previous studies that randomized survey mode *after* respondents consented to cooperate. Gooch and Vavreck (2019) compare self-administered online mode to interviewer-administered in-person mode and Chang and Krosnick (2010) compare self-administered online mode with interviewer-administered telephone (via intercom) mode. As such, there remains considerable uncertainty about the nature and extent of video mode effects compared to alternative interviewing modes. In this paper, we report the results of a lab experiment that randomized respondents onsite to either an interviewer-administered video survey wave or an interviewer-administered in-person survey wave after recruitment, consent, and completion of a self-administered online survey wave.

### **Experimental Design**

We recruited study respondents from a community research pool, which includes residents of the local geographic area, including some students and university employees, who are periodically invited to participate in online and onsite studies.<sup>7</sup> Respondents were compensated \$15 cash after completing both waves of the survey. Data collection began on October 11, 2018 and continued through December 13, 2018, and was approved by our home university's Institutional Review Board (protocol #2019-0071). After consenting to participate,

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and Codebook to the ANES 2012 Time Series Study. Ann Arbor MI and Palo Alto CA: University of Michigan and Stanford University.

<sup>7</sup> According to an email with the lab manager, participants in the community pool are limited to 15 studies per year, the vast majority of which are self-administered on a computer. While the participants aren't professional respondents to the same degree as panelists in an opt-in online panel, we would expect this population to be more receptive to video interviewing than a general population, especially because the lab environment ensured access to and assistance with the necessary technology.

respondents were provided a web link to a self-administered online survey, which they were required to complete in advance of their onsite interview, which had the mode randomized to be either an interviewer-administered video or interviewer-administered in-person survey.<sup>8</sup> To randomize respondents into the wave 2 survey mode, we used block randomization, by scheduled interviewer and date, since both observed and un-observed interviewer characteristics can influence responses and data quality (Schaeffer, Dykema, and Maynard 2010).<sup>9</sup> As shown in Table A1 in the appendix, attributes across conditions were balanced.<sup>10</sup>

We conducted the in-person and video interviews in the *same* room in the *same* office located in an off-campus building. Aside from the location of the interviewer (either on video or in-person), the interviewer-administered protocols were otherwise identical across conditions. The question wording, response options, and question order were identical between the in-person and video interviewer-administered modes and they repeated many of the questions asked in the online survey wave. The questions were primarily drawn from the ANES, including several questions that have been asked for many decades and thus are especially relevant for thinking about implications of mode shifts for comparability over time. Moreover, we have included items that have been scrutinized in previous research comparing ANES self-administered online samples and interviewer-administered in-person samples (e.g., Abrajano and Alvarez 2018, Liu and Wang 2015).

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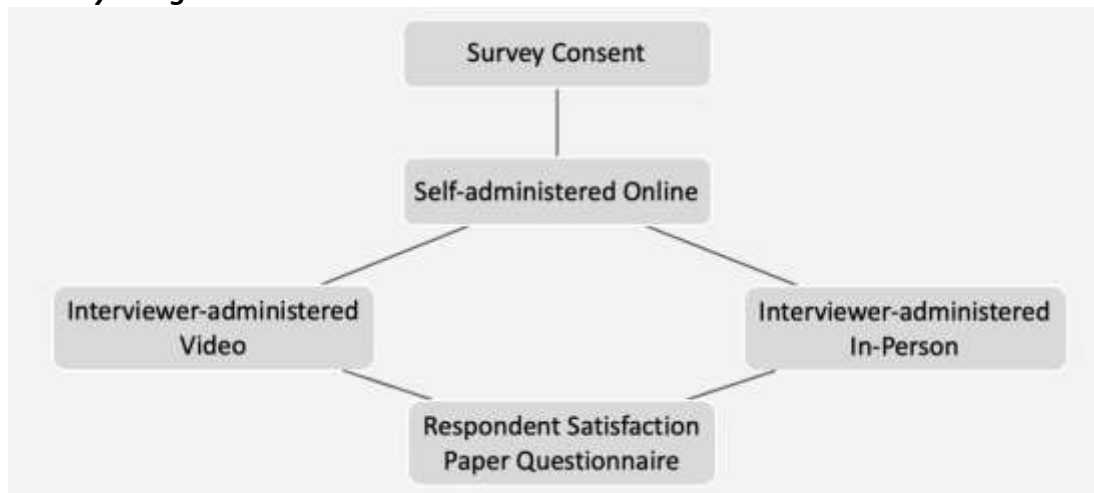
<sup>8</sup> The mean time between the completion of the online survey and the onsite interview was 92 hours, the median was 26 hours, the maximum was 858 hours, and the minimum was less than an hour. Results segmented by median time duration are shown in Table A6.

<sup>9</sup> Four interviewers (3 males, 1 female) conducted all interviews. Interview sessions were offered from 10AM to 7PM Monday through Saturday. Interviewers were not blinded to the study goals – indeed, they were trained to avoid verbal nudges so that any observed differences should be due to the presence or absence of the interviewer.

<sup>10</sup> Nineteen individuals completed the self-administered survey but did not complete the second wave interview.

Video and audio from the in-person and video interviews were recorded, unless the subject opted out.<sup>11</sup> Immediately following the interviewer-administered survey wave, respondents were given a paper questionnaire about their survey experience, which was completed in private. We included this component of the study based on the well-documented relationship between a positive interview experience and data quality (see Frankel and Hillygus 2014). In total, 157 individuals participated, with 78 randomly assigned to the video condition and 79 to the in-person condition. Figure 1 shows the study sequence.

**Figure 1: Study design**



The strength of the lab design is that the experimental randomization offers internal validity to isolate mode effects. We randomly assign interview mode after respondents have been recruited and consented, thereby distinguishing the effect of mode from non-response or sample differences. The two-wave panel design allows for both between- and within-subject

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<sup>11</sup> Two respondents declined being recorded, one in the video condition and one in the in-person condition. Results do not change if they are excluded. All respondents were recorded using a webcam that was positioned directly behind the interviewer or behind the video monitor. We also positioned a flat microphone between the interviewer and interviewee for the in-person condition and between the video monitor and interviewee for the video condition.

comparisons. The between-subject comparison tests for any differences between video and in-person interviewing. The within-subject compares responses to the same questions across survey waves, allowing comparison of the self-administered online mode with the interview-administered modes.

While the experimental design strengthens our ability to isolate mode effects, it has only limited ability to address the potential operational hurdles to implementing video interviews at scale, and some initial video experiences suggest that these hurdles are substantial (e.g., Schober et al. 2020; Guggenheim et al. 2021; Okon 2021). Video surveys involve significant scheduling and technological barriers, requiring troubleshooting of connectivity issues with the web-video software, the camera/video feed, and audio level among respondents with varying levels of technological sophistication and using an array of different devices. Depending on the survey population of interest, these logistical issues could compromise the feasibility of video interviewing. The on-the-ground experiences of pandemic-era researchers collecting data via video interviews provide initial insight into some of these operational issues (Guggenheim et al. 2021; Hanson 2021; Larsen et al. 2021), but the field lacks a systematic evaluation of potential mode effects. In our study, we minimize these operational hurdles by having respondents use university-provided technology and equipment and utilizing a research pool of willing participants, with the goal of precisely isolating mode effects.

Our study outcomes are several data quality metrics, including indicators of satisficing behaviors, social desirability, and participant satisfaction—all commonly used in previous mode studies (Chang and Krosnick 2009, 2010; Heerwegh and Loosveldt 2008). The exact question wording and relevant coding decisions are reported in the appendix. Across these various

indicators, we compare means between the interviewer-administered video mode and the interviewer-administered in-person mode.<sup>12</sup> As a robustness check for this between subject comparison, we leverage the two-wave design to more precisely detect mode differences (see Clifford, Sheagley, and Piston 2021) by estimating a regression controlling for wave 1 responses in the self-administered online condition, the particular interviewer, and respondent demographics (age, gender, education, race/ethnicity). The within-in subject analysis compares means for the self-administered online mode to the in-person mode, the video mode, and the combined (in-person + video) cases.

### **Results: Satisficing**

We begin by evaluating mode differences in indicators of survey satisficing—the extent to which respondents are thoughtfully engaging in the survey answering process. One measure of respondent engagement is the response length to an open-ended question, where longer answers are taken as an indication of a participants’ engagement (Wenz 2021).<sup>13</sup> We compare responses to the open-ended question, “What do you think are the most important problems facing this country?” Respondents volunteered an average of 2.5 issues in the online mode, compared to 2.8 in the video mode and 2.9 in the in-person mode.<sup>14</sup> As shown in Figure 2, the

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<sup>12</sup> For comparability across all figures, we consistently report estimates from a t-test for the difference in means, with two-tailed p-values. Substantive conclusions are unchanged with a difference in proportions test for relevant outcomes.

<sup>13</sup> Survey duration is a common metric of speeding or satisficing in the data quality literature (Malhotra 2008), but we don’t report here because self-administered and interviewer-administered surveys are not directly comparable—it is faster to read questions than to speak them. Comparing the two interviewer-administered surveys does find that they had approximately equivalent durations, with video an average of 20.2 minutes and in-person an average of 19.2 minutes.

<sup>14</sup> Looking at it in another way, 66% of respondents in the online mode volunteered more than one issue, compared to 86% in the video mode and 91% in the in-person mode.

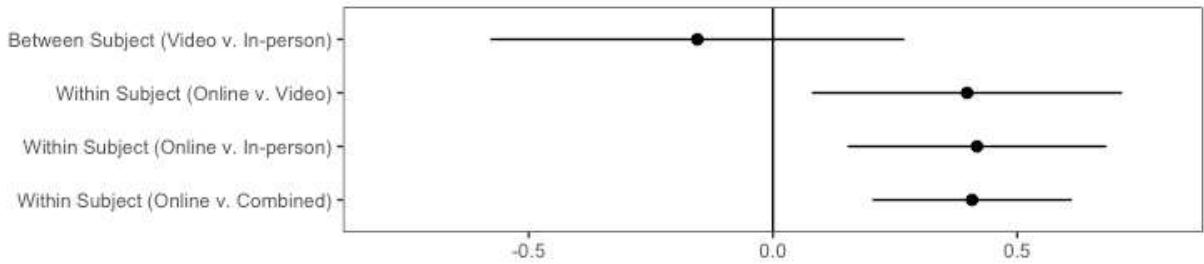
between-subjects difference in the average number of issues (0.15,  $p=.472$ ) is not statistically significant. As reported in the appendix (Table A3), we find similar results with a robustness check that leverages the two-wave design to more precisely detect differences across the video and in-person interviews (see Clifford, Sheagley, and Piston 2021) by estimating a regression controlling for wave 1 responses in the self-administered online condition as well as interviewer and demographics. In sum, the video and in-person modes show similar levels of respondent engagement based on the length of responses to an open-ended question.

In contrast, the within-subject comparison across survey waves finds wordier responses on average in the interviewer-administered survey wave compared to the self-administered online wave. Overall, the average number of issues mentioned increased by nearly half an issue in the interview-administered surveys compared to the self-administered online survey ( $p=.015$  for video mode,  $p=.002$  for in-person mode,  $p<.001$  for combined). Looking at the data another way, 41% of respondents increased the number of issues mentioned (whereas 20% mentioned fewer issues) in the interviewer-administered survey wave compared to the self-administered online wave. Thus, respondents give more thorough responses in response to an interviewer in either the video or in-person mode compared to answering the same question in a self-administered online mode.<sup>15</sup>

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<sup>15</sup> Because the self-administered online survey was always completed first, we cannot rule out the possibility that the observed increase reflects panel conditioning; that is, being asked the question in wave 1 could impact responses in the subsequent wave. For example, one might be concerned that being asked the question previously would have increased political thinking. On the other hand, most previous research tends to find minimal panel conditioning effects, except on items such as political knowledge and engagement (for review, see Hillygus and Snell 2015). Offering some reassurance in this study is the observed consistency in patterns across all satisficing measures, including those—like straightlining—for which there is not a clear mechanism by which panel conditioning might matter. Likewise, we do not find any clear pattern when comparing results based on time duration between survey waves (see appendix Table A6). To be sure, future research would benefit from either randomizing mode order or adding a second self-administered online wave.

**Figure 2: Mode Differences in Mean Number of Issues Mentioned**



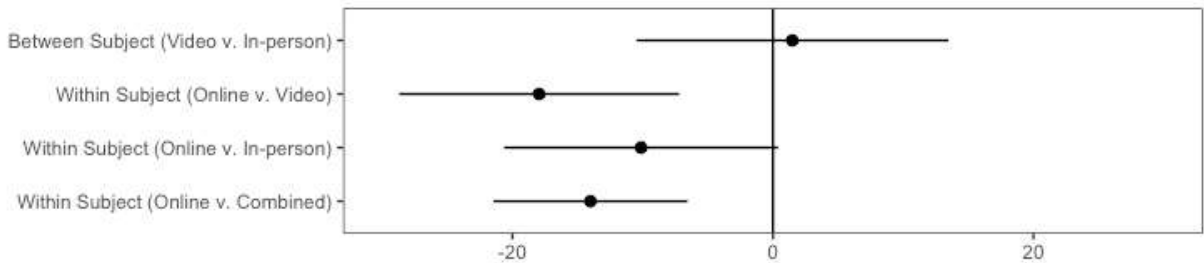
*Note: Reported are the differences in the mean number of issues mentioned with 95% confidence intervals. Sample sizes for each condition are online=156, video=78, in-person=79.*

We next look at item non-response rates as another common metric of respondent engagement (Roberts et al. 2019). We test for item non-response differences using 44 questions that were included in all of the questionnaires.<sup>16</sup> Respondents were flagged for item nonresponse if they skipped an item, gave a “don’t know” response, or selected “haven’t thought much about this” to one of the items that included this response option. Here again, the between-subject comparison finds comparable levels of item nonresponse between the video and in-person modes (17.9% in video; 16.5% in in-person;  $p=.806$ ), as seen in Figure 3. As reported in Table A2, item non-response rates between these two interviewer-administered modes remain similar even when we improve the precision of our estimates in a regression controlling for an individual’s item non-response rate in the self-administered online survey and other controls. The within-subject comparison, in contrast, finds significant differences between the self-administered online wave and the interviewer-administered wave. More respondents failed to answer one or more questions in the self-administered mode than the

<sup>16</sup> We exclude any items that were not asked of the entire sample. To be conservative, we also excluded feeling thermometers from this summary measure because respondents were explicitly instructed to skip an item if they did not recognize the listed person or group (the same instructions provided in the ANES), which could be viewed as encouraging item nonresponse. The pattern is consistent with the broader summary measure: 13% skipped at least one feeling thermometer in the self-administered online mode, compared to 10% in the interviewer-administered video mode and 9% in the interviewer-administered in-person mode.

interviewer-administered modes (31.2% compared to 17.2%;  $p < .001$ ). On this measure of satisficing, the interviewer-administered video mode again more closely approximates the interviewer-administered in-person mode than the self-administered online mode.

**Figure 3: Mode Differences in Percentage Flagged for Item Nonresponse**



*Note: Reported are the differences in means across indicated modes with 95% confidence intervals. Samples sizes for each condition are online=156, video=78, in-person=79.*

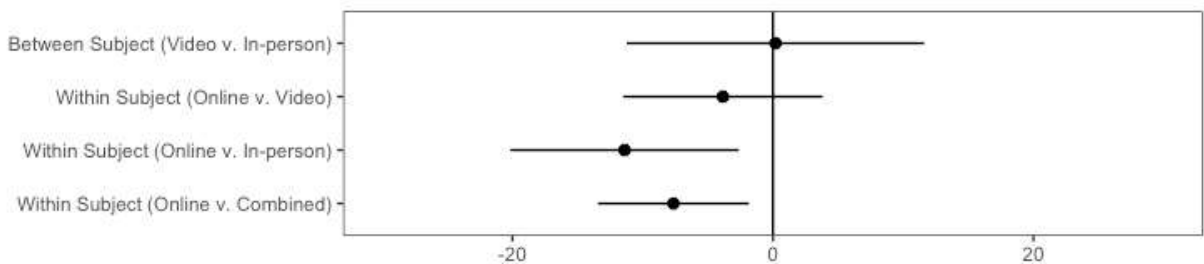
Our final measure of satisficing is non-differentiation or “straightlining,” in which respondents give identical responses on multiple, successive items, such as responding, “agree strongly” to back-to-back items in a series (Reuning and Plutzer 2020). All questionnaires included four question batteries in which selecting the same response for all items could be viewed as incongruous or illogical—an American identity battery (four questions with four response options), an immigrant battery (three questions with five response options), a racial resentment battery (four questions with five response options), and feeling thermometers (six questions with a response scale from 0 to 100).<sup>17</sup> A between-subjects comparison of straightlining rates finds nearly identical levels of straightlining in the in-person (15.2%) and

<sup>17</sup> See appendix for question wording. Only the American identity battery was formatted as a grid in the online questionnaire. On that set of items, 18.5% of the participants straightlined in the self-administered survey compared to 12.1% during the interviewer-administered survey ( $p = .007$ ), with difference between the video mode (10.3%) and the in-person mode (13.9%) not statistically different from one another. Thus, the within subject comparison finds a decline in straightlining of 6.4 percentage points ( $p = .058$ ) for those in the video condition and a 6.3 percentage point ( $p = .058$ ) decline for those in the in-person condition.



video (15.4%) modes, as shown in Figure 4. As with our other measures of satisficing, the straightlining rates between these two interviewer-administered modes remain comparable even when we improve the precision of our estimates in a regression controlling for an individual’s item non-response rate in the self-administered online survey and other controls (reported in Table A2). As with our other measures, the within-subjects comparison finds significantly less straightlining in the interviewer-administered wave than the self-administered wave. Overall, 22.9% of respondents straightlined on at least one set of questions during the self-administered online wave, compared to 15.3% in the interviewer-administered modes, a difference that is statistically significant ( $p=.01$ ).

**Figure 4: Mode Differences in Percentage Flagged for Straightlining**



*Note: Reported are the differences in means across indicated modes with 95% confidence intervals. Sample sizes for each condition are online=156, video=78, in-person=79.*

To summarize, across multiple measures of satisficing we find that the interviewer-administered video mode shares many of the data quality advantages associated with the interviewer-administered in-person mode compared to the self-administered online mode. We next evaluate the extent to which video interviewing might be impacted by one notable disadvantage of in-person interviewing—social desirability bias.

### **Results: Social Desirability Bias**

Our mode comparison focuses on items that have previously been shown to be susceptible to socially desirable responding: attitudes toward immigrants and immigration, racial resentment, and feeling thermometers (Abrajano and Alvarez 2018; Carmines and Nassar 2021; Liu and Wang 2015).<sup>18</sup>

Prior research has documented different estimates using the exact ANES wording that we use in this study between the self-administered online and in-person samples in one or both years that the ANES collected data both online and through in-person interviews. Abrajano and Alvarez (2018) have previously documented significant differences in racial resentment between the online and in-person samples on the 2012 and 2016 ANES. They find higher levels of racial resentment on the self-administered online ANES sample compared to the in-person sample. While those analyses are suggestive of mode effects, they cannot rule out other factors such as sampling differences and unit non-response as contributors to the observed differences. We again do a between- and within- subject analysis to scrutinize possible model differences.

Responses were recoded from zero to one, where zero represents the lowest level of racial resentment and one represents the highest level, and then averaged to create an index ranging from zero to one. As shown in Figure 5, the between-subject comparison finds statistically insignificant differences in the levels of racial resentment between the video and in-person modes. This conclusion is robust to controlling for racial resentment responses in wave

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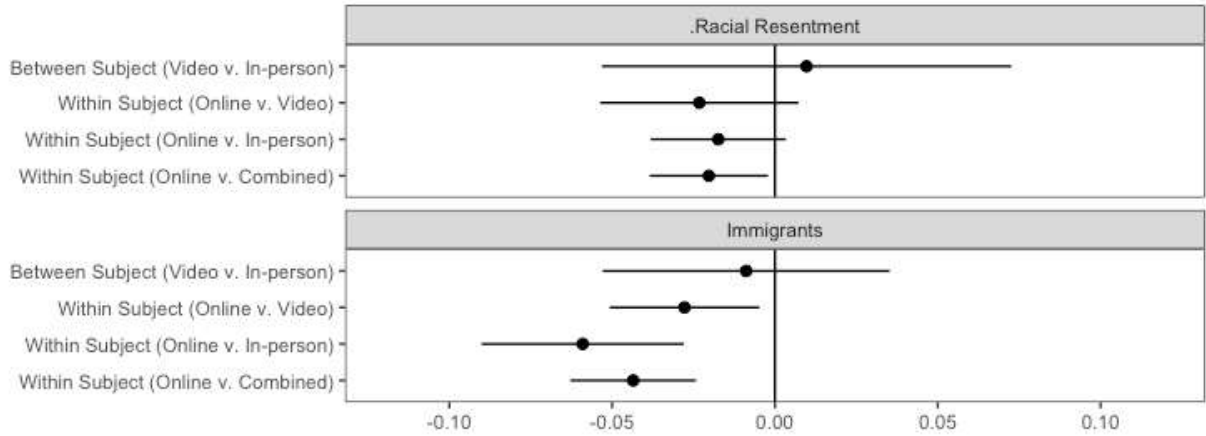
<sup>18</sup> The response options for the racial resentment and immigration questions were listed in the respondent booklet during the video and in-person interviews. Respondent booklets or question cards have long been used for in-person interviews for visually complex, long, or sensitive questions (to help reduce socially desirable responding), and were used for those same items that rely on a booklet in the ANES. Respondents were handed the paper booklet by the check-in person who walked them to the interview room.

1, demographics, and the assigned interviewer (full results in Appendix Table A4). The within subject analysis, by contrast, finds lower levels of racial resentment in the interviewer-administered modes compared to the self-administered online mode, the same pattern observed by Abrajano and Alvarez (2018). These with-in subject differences are substantively small and statistically significant only when combining the video and in-person samples ( $-.020$ ,  $p=.029$ ), although each of the interviewer-administered modes are in the expected direction. Looking at the data in another way, 39% of respondents gave a more socially-desirable response in the interviewer administered wave compared to 22% moving in the other direction (and 39% remaining stable).

We next look at responses to a 3-item battery about immigrants in the United States, which instructed respondents to indicate their level of agreement or disagreement with three statements about immigrants. We recoded the responses from 0 to 1, where 0 represents the pro-immigrant response and 1 represents the anti-immigrant response. On immigration attitudes, the between-subject comparison finds similar immigration attitudes in the video and in-person modes; Differences remain statistically insignificant when controlling for wave 1 responses, demographics, and the assigned interviewer (full results in Appendix Table A4). In the within-subject comparison, we find that respondents report more negative immigration attitudes in the self-administered online mode than in either of the interviewer-administered modes, differences that a statistically significant for both the video and in-person modes, although they are again substantively small. Across both interviewer-administered modes, 36% changed their attitudes on immigration in the socially-desirable direction between the self-

administered online wave and the interviewer-administered wave, compared to 15% moving in the opposite direction (and 49% remaining stable).

**Figure 5: Mode Differences in Social Desirability Effects**



*Note: Reported is the difference in means with 95% confidence intervals. Questions are recoded to range from 0 to 1, with larger values indicating more hostility towards the group. Samples sizes for each condition are online=156, video=78, in-person=79.*

A final social desirability check is a comparison of feeling thermometers towards various groups. Previous comparisons of the ANES online and in-person samples have found more favorable evaluations in the interviewer-administered in-person mode compared to the online mode, but again these samples differ in ways other than mode alone (Liu and Wang 2015). Our experiment asked participants to rate the Democratic Party, the Republican Party, Evangelicals, Muslims, Blacks, and “gay men and lesbians” using the feeling thermometer ranging from 0 (unfavorable) to 100 (favorable) degrees.<sup>19</sup> These six groups were presented in the same order on both the self-administered and interviewer-administered modes.

<sup>19</sup> All of these groups were found to have warmer feeling thermometer ratings in the in-person compared to 2012 ANES (Liu and Wang 2015). As with most other social desirability studies, we do not have a way to validate attitudinal measures so we must assume that that lower reports of socially desirable behaviors reflect more accurate answers.

As with the other measures, the between-subject comparison between the video and in-person models finds no statistically significant differences in thermometer ratings for any of the evaluated groups, as seen in Figure 6. By contrast, the within-subject analysis finds that feeling thermometer ratings were higher (warmer) during the interviewer-administered modes than they were in self-administered online mode.<sup>20</sup> The differences are not always statistically significant—the average individual change in thermometer rating is significantly warmer for four of the six groups in the video condition, and all but one group in the combined interviewer-administered conditions.

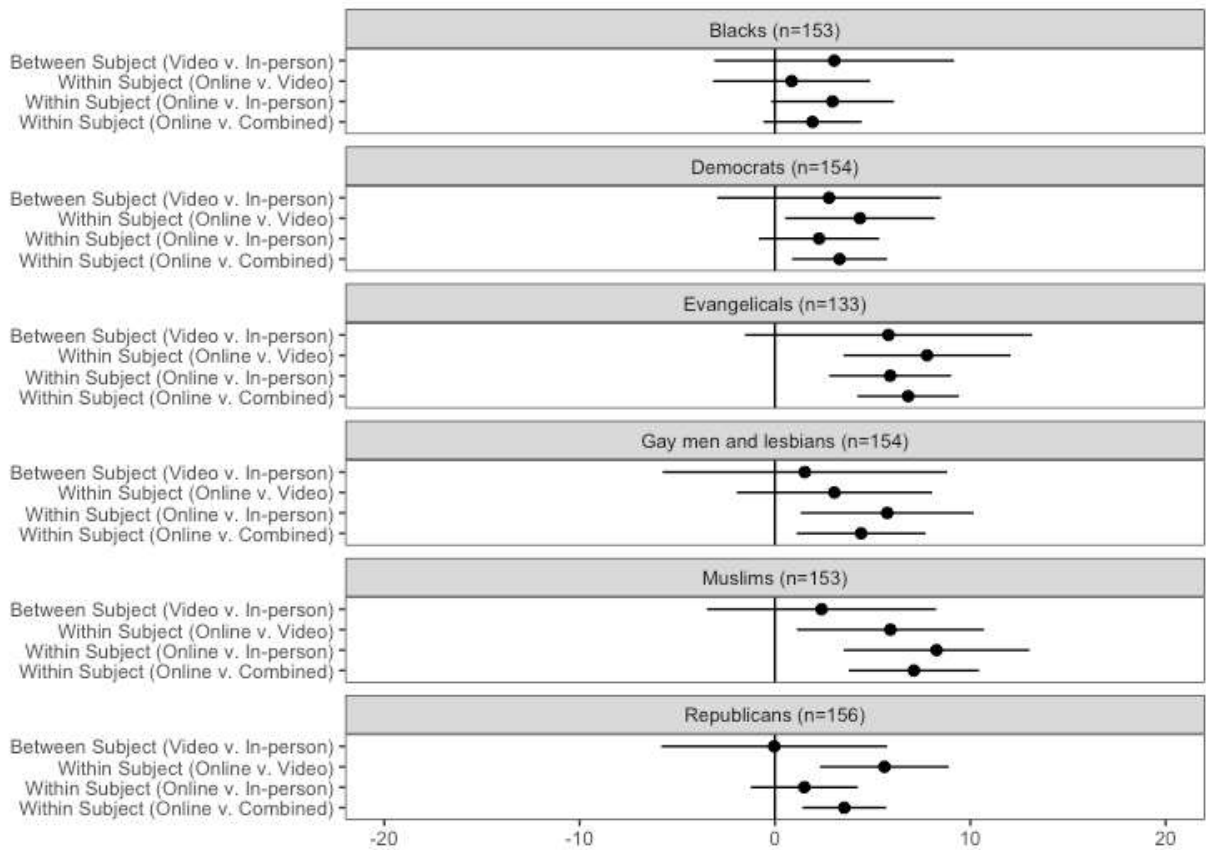
In sum, our results suggest that interviewer-administered video interviews can suffer from higher levels of social desirability bias than self-administered online surveys. The differences between the interviewer-administered modes and the self-administered modes are not always substantively large or statistically significant, but they are in a consistent direction across all measures evaluated.<sup>21</sup> While this is a potential downside of video interviewing that deserves further research, at the same time, these results yet again point to the comparability of video and in-person interviewing, so should be reassuring to those looking to transition an in-person time series project.

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<sup>20</sup> We see a similar pattern when we look at the percentage who moved in a socially-desirable (warmer) direction between survey waves, compared to moving in a cooler direction: 42% became warmer towards Democrats (24% cooler); 47% warmer towards Republicans (23% cooler), 50% warmer towards evangelicals (21% cooler), 39% warmer towards Muslims (22% cooler), 31% warmer towards African-Americans (23% cooler), and 35% warmer towards Gays & Lesbians (24% cooler).

<sup>21</sup> We find a similar pattern on non-attitudinal items that have been previously shown to be susceptible to socially desirable responding. Compared to their self-administered online response, 28% of respondents report a higher income in their interviewer-administered survey wave, while just 13% reported a lower income (59% reported the same income). Likewise, when asked news consumption in a typical week, 21% reported a larger number of days in their interviewer-administered survey wave compared to their self-administered online response, whereas only 11% reported a smaller number of days.

**Figure 6: Mode Differences in Feeling Thermometer Scores**



*Note: Reported is the difference in means with 95% confidence intervals.*

**Results: Participant Satisfaction**

Finally, in evaluating the comparability of video and in-person interviewing, we consider the survey experience across the modes. Survey methodology researchers consistently find that survey experience affects the quality of the responses given (e.g., Groves and Couper 1998). Equivalent experiences and satisfaction are important for both the quality of the data collected and participants’ willingness to participate in future surveys. This might be especially important for panel designs, such the ANES, in which cooperation with future re-interviews is needed. Participants in our study completed a paper questionnaire at the end of the study and each of

our interviewers also answered a handful questions about their experience with the respondent as well.

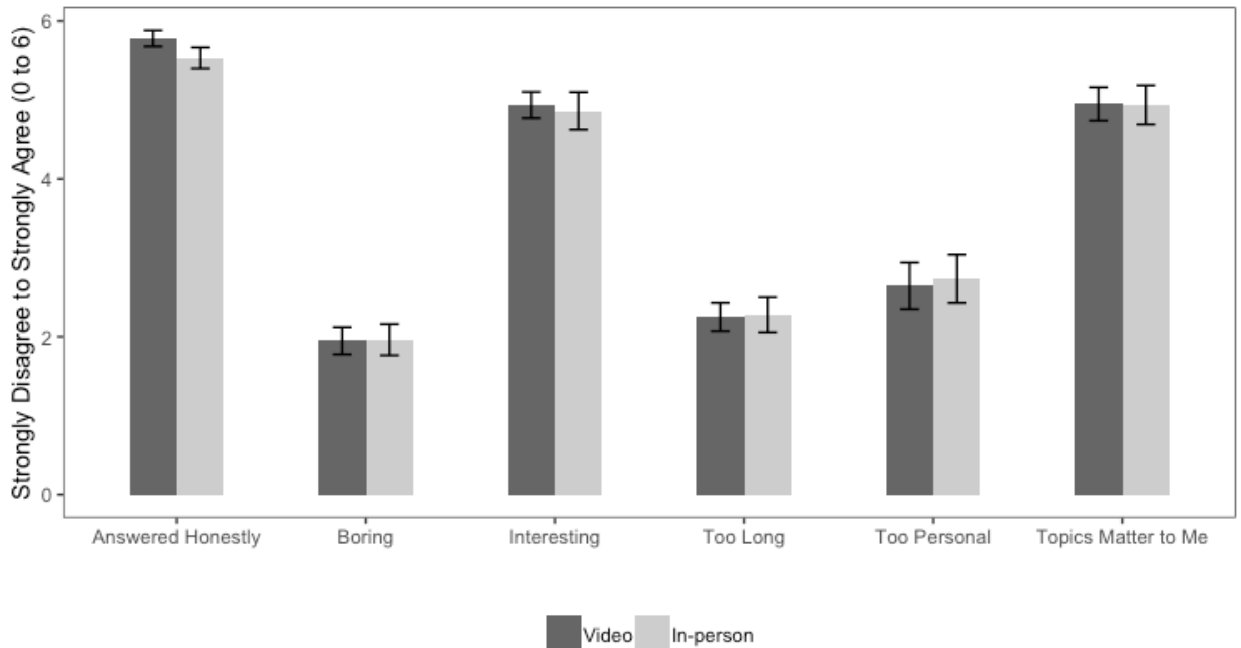
The first question inquired about participant satisfaction with the interview experience. Overall, participants were quite satisfied with the interview experience and exhibited similar mean ratings of 2.6 for the video mode and 2.5 for the in-person mode on a 0 to 3-point scale, where 0 represents “not at all satisfied” and 3 represents “very satisfied.” A slightly higher percentage of respondents in the video mode (15.4%) reported they found themselves distracted during the video interview than during the in-person mode (11.4%); but the difference is not statistically significant ( $p=.466$ ).

A Likert-type grid with six statements and six response options ranging from “strongly disagree” to “strongly agree” asked about length of the survey, interest in the subject matter, if particular questions were too personal, if the survey covered topics that matter to the participant, and if they answered the survey questions honestly. We display the mean responses to each of these items by survey mode in Figure 7. The only notable difference between conditions is on self-reported honesty, with respondents in the video condition expressing stronger agreement with the statement, “I answered the questions on this survey honestly.” The mean score for the video condition is 5.8 and the mean for the in-person condition is 5.5; the difference in means is statistically significant ( $p=.04$ ).

The interviewers also answered a few questions immediately after each interview. They rated how distracted, informed, and honest each participant seemed to them on four-point scales coded from “not at all” (1) to “very” (4). We find no meaningful differences between the interviewers’ scores of respondents in the video and in-person interviews. The modal response

was “not at all” distracted with equivalent means (1.2) in each condition. The interviewers also assessed similar levels of political knowledge among the participants in each mode (2.9 in each condition). Finally, the interviewers perceived participants in both the video and in-person conditions as providing honest responses (3.9 in video, and 3.8 in-person;  $p=.648$ ).

**Figure 7: Mean Evaluation of Interview Experience**



Note: Responses are from a paper questionnaire completed by participants following their interviewer-administered interview. Sample size for each condition is video=78, in-person=79.<sup>22</sup>

## Discussion

Large-scale in-person survey research has long been considered the “gold standard,” but has been facing dramatically increasing costs in recent years. Declining response rates

<sup>22</sup> Participants were asked, “Do you agree or disagree with each of the following?” Response options ranged from strongly disagree (1) to strongly agree (6). Statements include: This survey was too long. This survey was interesting. The questions in this survey were too personal. This survey was boring. This survey asked about topics that matter to me. I answered the questions on this survey honestly.



necessitate more extensive fieldwork, increased respondent contacts, enhanced interviewer training, and higher incentive payments. These developments erode the cost effectiveness of in-person surveys. The COVID-19 pandemic represents a further threat to in-person interviewing. The mandated reductions in interpersonal contact and widespread fears of contamination have further challenged in-person interviews. As it becomes imperative for survey researchers to consider alternative approaches, it remains critical to evaluate data comparability and quality.

The results of our randomized mode experiment finds promising similarities between video interviews and in-person interviews. Across multiple data quality metrics—non-differentiation, item non-response, and the depth of responses to open-ended questions—both interviewer-administered modes elicited higher quality data than self-administered online surveys from the same respondents and we observed minimal differences between video and in-person interviews, though confidence intervals for differences between video and in-person results were typically large. The consistency of these findings across multiple metrics affords greater confidence in the substantive conclusion that video resembles in-person interviewing more than it resembles self-administered online questionnaires. At the same time, video interviews do appear to share similar social desirability biases resulting from the presence of an interviewer, although the observed differences are sometimes substantively small or statistically insignificant.

Many of the differences we observed between in-person interviews and self-administered, online surveys are consistent with findings from earlier mode studies (for example, see Hillygus et al. 2017). These prior observational studies, however, were not able to

isolate the effect of mode in the presence of sampling and non-response differences. Neither sampling differences nor non-response are plausible alternative explanations in this study since randomization occurred after recruitment to the study and no participants withdrew after assignment to the video or in-person mode.

While our results suggest that video interviews offer promise as an alternative to in-person surveys, we emphasize that our study represents only one piece of the necessary research to evaluate the potential of this mode. To maximize internal validity, we conducted this study in a controlled environment, with respondents in both the video condition and the in-person condition participating at a central, on-site location, which ensures that any possible differences between these modes reflects random assignment. Implementing video interviews at scale requires consideration of a large number of operational and logistical issues that could impact viability for some populations and projects (Schober et al. 2020). For example, video interviews will likely encounter connectivity and other technological hiccups when the onus of establishing communication between the interviewer and interviewee shifts from the research team (as was the case in this study) to each respective party. Experience and comfort with web-video technologies is not uniform (Schober 2018), which could impact which populations might be best suited to video interviewing. Additionally, video interviews must contend with distractions, scheduling issues, and coordination mishaps. These and other logistical demands require more extensive testing and research to identify best practices and to determine when and how video interviewing might be integrated into survey research.

It is also the case that any transition to a new mode also requires quantification of the quality and costs of the mode relative to alternatives (Ansolabehere and Schaffner 2018). Our

study is not able to directly speak to cost differentials, unfortunately. The cost savings of video interviewing should come from the reduction of interviewer travel, housing, and salary while in the field (as well as the potential to reduce design effects by elimination of clusters typically used in in-person samples), but our study had fixed costs since the respondents traveled to the interview site. There are, of course, many other cost elements that remain unchanged: cost of sampling, programming, project management, staffing a help desk. Cost implications also require consideration of potential differences in response propensities—the experience of the 2020 ANES was that video interview requests yield lower response rates than in-person interviews (Guggenheim et al. 2021). Given this, video interviewing could require larger respondent incentives to promote cooperation or more contact attempts. All of these are additional considerations that must be evaluated with future studies. Based on the experiences in the field thus far, it may be the case that the quality-cost trade-offs will be optimized in using video interviews in a mixed mode study that allows reduce costs for respondents with the ability and motivation to complete video interviewing. Given a population with access to high-speed Internet, video interviews could be used to collect as much data as possible, reducing the number of more expensive household visits that need to be made.

While there is a clear need for additional research, our analysis points to the potential of video interviews as an interviewer-administered mode with comparability to in-person interviewing on multiple data quality metrics, measures of social desirability, and participant satisfaction. The shared pros and cons between video and in-person interviews, along with the stark differences between self-administered, online surveys and both interviewer-administered

modes, are important considerations for researchers evaluating a possible mode switch in a long-running time series.

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## Appendix

**Table A1: Balance between Interviewer-administered Conditions**

	<b>Video</b>	<b>In-Person</b>	<b><i>p</i></b>
Interviewer 1 (White female)	.37 (.06)	.33 (.05)	.58
Interviewer 2 (Asian male)	.33 (.05)	.34 (.05)	.91
Interviewer 3 (White male)	.05 (.03)	.08 (.03)	.53
Interviewer 4 (White male)	.22 (.05)	.24 (.05)	.74
Age	33 (1.48)	31 (1.33)	.30
Age (18-25)	.37 (.06)	.37 (.05)	.95
Age (26-39)	.35 (.05)	.47 (.06)	.12
Age (40+)	.28 (.05)	.16 (.04)	.08
Registered voter (self-report)	.91 (.03)	.87 (.04)	.46
Democrat (includes leaners)	.78 (.05)	.78 (.05)	.97
Republican (includes leaners)	.09 (.03)	.10 (.03)	.81
Female	.64 (.05)	.63 (.05)	.92
Education: 4-year degree	.31 (.05)	.29 (.05)	.82
Education: Grad/Prof degree	.35 (.05)	.37 (.05)	.79
Race: White	.54 (.06)	.56 (.06)	.82
Race: Black	.26 (.05)	.25 (.05)	.96
Race: Asian	.15 (.04)	.11 (.04)	.47

Note: Table displays means and standard errors. All variables were collected pre-treatment during the self-administered, online survey. p-values are two-tailed.

**Table A2: Data Quality Differences between Modes**

	Within Subjects									Between Subjects		
	Video Condition			In-person condition			Combined			In-		
	Video	Online	Diff	person	Online	Diff	person	Online	Diff	Video	person	Diff
<b>Mean issues mentioned</b>	2.78	2.38	.40* (.16)	2.94	2.52	.42* (.13)	2.86	2.45	.41* (.10)	2.78	2.94	-.15 (.21)
<b>Percent flagged for Item Nonresponse</b>	17.95	35.90	-17.95* (5.40)	16.46	26.58	-10.13 (5.28)	17.20	31.21	-14.01* (3.78)	17.95	16.46	1.49 (6.06)
<b>Percent "straightlining"</b>	15.38	19.23	-3.85 (3.85)	15.19	26.58	-11.39* (4.41)	15.29	22.93	-7.64* (2.93)	15.38	15.18	0.19 (5.78)

Note: Standard errors and significance levels are shown for difference estimates. \*<.05. *Samples sizes for each condition are online=156, video=78, in-person=79.*

**Table A3: Multivariate Regression models for Data Quality Metrics**

	<b>Problems mentioned</b>	<b>Item nonresponse</b>	<b>Straightlining</b>
<b>Video Mode (0-1)</b>	-.04 (.10)	-.02 (.06)	.03 (.05)
<b>Wave 1 DV(0-1)</b>	.19* (.03)	.28* (.06)	.49* (.06)
<b>Male (0-1)</b>	.06 (.10)	.06 (.06)	-.06 (.05)
<b>Education (1-4)</b>	-.03 (.05)	-.04 (.03)	.00 (.03)
<b>Age (18-73)</b>	.00 (.00)	-.00 (.00)	.00 (.00)
<b>African American (0-1)</b>	.06 (.12)	.11 (.07)	-.01 (.06)
<b>Asian (0-1)</b>	.28* (.14)	.05 (.09)	.08 (.08)
<b>Hispanic / Latino/a (0-1)</b>	-.31 (.29)	-.09 (.14)	.21 (.12)
<b>Interviewer 1 (0-1)</b>	-.03 (.12)	-.02 (.07)	-.07 (.06)
<b>Interviewer 2 (0-1)</b>	.06 (.21)	-.05 (.12)	-.04 (.11)
<b>Interviewer 3 (0-1)</b>	-.01 (.12)	-.06 (.07)	-.05 (.06)
<b>Constant</b>	.56 (.25)	.24 (.12)	-.01 (.11)
<b>n</b>	156	156	156
<b>R<sup>2</sup></b>	.07	.19	.36

Note: \*=p<.05. Samples sizes for each condition are online=156, video=78, in-person=79.

**Table A4: Multivariate Regression models for Social Desirability**

	<b>Racial Resentment</b>	<b>Immigrants</b>
<b>Video condition (0-1)</b>	-.01 (.02)	.02 (.02)
<b>Time 1 behavior (0-1)</b>	.80* (.04)	.57* (.05)
<b>Male (0-1)</b>	.01 (.02)	.02 (.02)
<b>Education (1-4)</b>	-.01 (.01)	.00 (.01)
<b>Age (18-73)</b>	.00 (.00)	-.00 (.00)
<b>African American (0-1)</b>	.06* (.02)	.01 (.02)
<b>Asian (0-1)</b>	.00 (.03)	.04 (.02)
<b>Hispanic / Latino/a (0-1)</b>	-.04 (.04)	.02 (.04)
<b>Interviewer 1 (0-1)</b>	-.03 (.02)	-.03 (.02)
<b>Interviewer 2 (0-1)</b>	.03 (.04)	-.02 (.03)
<b>Interviewer 3 (0-1)</b>	.02 (.02)	.02 (.02)
<b>Constant</b>	.03 (.04)	.04 (.04)
<b>n</b>	156	156
<b>R<sup>2</sup></b>	.74	.56

Note: \*= $p < .05$ . Sample sizes for each condition are online=156, video=78, in-person=79.

**Table A5: Multivariate Regression models for Feeling Thermometers**

	<b>Blacks</b>	<b>Evangelicals</b>	<b>Gay men and lesbians</b>	<b>Muslims</b>	<b>Democrats</b>	<b>Republicans</b>
<b>Video condition (0-1)</b>	.16 (2.25)	2.59 (2.29)	-.63 (2.65)	.69 (2.56)	1.67 (2.12)	2.29 (1.99)
<b>Time 1 Rating (0-100)</b>	.61* (.05)	.67* (.05)	.57* (.05)	.43* (.05)	.58* (.05)	.70* (.05)
<b>Male (0-1)</b>	-.65 (2.41)	-6.63* (2.43)	-3.51 (2.86)	-2.96 (2.73)	-6.02* (2.29)	-3.87 (2.14)
<b>Education (1-4)</b>	.15 (1.25)	-1.42 (1.34)	-.57 (1.48)	-.92 (1.42)	1.32 (1.19)	-.21 (1.13)
<b>Age (18-73)</b>	-.02 (.10)	-.23* (.10)	.05 (.11)	.11 (.11)	.06 (.09)	.01 (.09)
<b>African American (0-1)</b>	2.00 (2.73)	3.07 (2.84)	4.80 (3.29)	2.10 (3.10)	5.71* (2.58)	2.57 (2.41)
<b>Asian (0-1)</b>	-3.67 (3.48)	4.45 (4.05)	-6.31 (4.14)	-5.04 (3.99)	-.03 (3.29)	5.19 (3.15)
<b>Hispanic / Latino/a (0-1)</b>	-.42 (5.40)	-3.62 (5.08)	-1.83 (6.40)	-2.26 (6.15)	-.69 (5.09)	-.52 (4.81)
<b>Interviewer 1 (0-1)</b>	2.36 (2.68)	3.40 (2.73)	6.18 (3.16)	.09 (3.06)	1.78 (2.53)	3.42 (2.37)
<b>Interviewer 2 (0-1)</b>	-.32 (5.07)	-2.21 (4.62)	-2.88 (5.72)	2.16 (5.56)	-1.73 (4.58)	-.35 (4.31)
<b>Interviewer 3 (0-1)</b>	1.65 (2.93)	6.76* (3.06)	.99 (3.49)	-2.07 (3.39)	-.64 (2.77)	3.96 (2.61)
<b>Constant</b>	31.16* (6.13)	24.26* (5.26)	34.77* (6.82)	42.75* (6.94)	22.81* (5.76)	7.65 (4.86)
<b>N</b>	153	132	154	153	153	155
<b>R<sup>2</sup></b>	.55	.70	.54	.35	.53	.59

Note: \*= $p < .05$ .

**Table A6: Results Segmented by Time Duration Between Waves**

	Below Median (n=78)		At or above Median (n=79)	
	Interviewer-administered	Online-administered	Interviewer-administered	Online-administered
<b>Racial Resentment</b>	0.20	0.23	0.20	0.20
<b>Immigrant</b>	0.16	0.19	0.11	0.18
<b>FT: Blacks</b>	79.22	76.97	77.43	75.84
<b>FT: Democrats</b>	65.21	62.28	65.19	61.53
<b>FT: Evangelicals</b>	32.15	26.97	29.65	21.26
<b>FT: Gay men and lesbians</b>	75.90	70.40	77.21	73.88
<b>FT: Muslims</b>	68.63	61.96	68.57	61.03
<b>FT: Republicans</b>	26.45	22.55	28.13	24.92
<b>Mean issues mentioned</b>	2.88	2.32	2.84	2.58
<b>% flagged Item Nonresponse</b>	16.67	28.21	17.72	34.18
<b>% flagged Straightlining</b>	15.38	17.95	15.19	27.85

*Note: Median time duration was 26 hours.*

**Question Wording (items referenced in the text):**

*Racial Resentment Statements:*

- 1) Irish, Italians, Jewish and many other minorities overcame prejudice and worked their way up. Blacks should do the same without any special favors.
- 2) Generations of slavery and discrimination have created conditions that make it difficult for blacks to work their way out of the lower class.
- 3) Over the past few years, blacks have gotten less than they deserve.
- 4) It's really a matter of some people not trying hard enough; if blacks would only try harder they could be just as well off as whites.

*Immigration Statements:*

- 1) Immigrants are generally good for America's economy.
- 2) America's culture is generally harmed by immigrants.
- 3) Immigrants increase crime rates in the United States.

*Birthright Citizenship:*

Question 1: Some people have proposed that the U.S. Constitution should be changed so that the children of unauthorized immigrants do not automatically get citizenship if they are born in this country. Do you favor, oppose, or neither favor nor oppose this proposal?

Question 2 (for respondents who indicated they favor or oppose the proposal in Question 1): Do you [favor/oppose] that a little, a moderate amount, or a great deal?

*Policy toward unauthorized immigrants* (the response options were not read aloud during the interviewer-administered interviews, instead the interviewer directed the participant to page 2 of their respondent booklet and stated “You can just tell me the number of your choice” after reading the question.):

Which comes closest to your view about what government policy should be toward unauthorized immigrants now living in the United States?

- (1) Make all unauthorized immigrants felons and send them back to their home country.
- (2) Have a guest worker program that allows unauthorized immigrants to remain in the United States in order to work, but only for a limited amount of time.
- (3) Allow unauthorized immigrants to remain in the United States and eventually qualify for U.S. citizenship, but only if they meet certain requirements like paying back taxes and fines, learning English, and passing background checks.
- (4) Allow unauthorized immigrants to remain in the United States and eventually qualify for U.S. citizenship, without penalties.

*Participant Satisfaction:*

How satisfied, if at all, are you with your interview experience?

- (0) Not at all satisfied
- (1) Not that satisfied
- (2) Somewhat satisfied
- (3) very satisfied

*Interview Experience:*

Do you agree or disagree with each of the following?

- 1) This survey was too long.
- 2) This survey was interesting.
- 3) The questions in this survey were too personal.
- 4) This survey was boring.
- 5) This survey asked about topics that matter to me.
- 6) I answered the questions on this survey honestly.