

Video-Assisted Live Interviewing in Comparison to Other Survey Methods in Australia

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Video Interviewing saved the Census (testing could continue)

Respondent-centred design, as it is now often called, is a key part of questionnaire development at the Australian Bureau of Statistics (ABS). Formal cognitive interviewing was introduced to our social surveys in 1999, following the techniques laid out in Gordon Willis' excellent work (e.g. Willis et al, 1999, and Willis, 2005). Usability testing (or 'user-centred design') began around the same time, to support our web form development leading up to the 2001 Census. For twenty years, we conducted these tests in roughly the same way. We brought a member of the public into one of our offices, sat them down in an artificially pleasant laboratory, and filmed them while we asked questions about what they were thinking and observed their behaviour. If it was a business survey we were testing, we went to their office instead and generally didn't get to film it.

In 2020, all that changed. Covid-19 hit, lock-downs began, and we couldn't even go to the office ourselves let alone bring in visitors. But development for our 2021 Census questionnaire had only just started. We had more new content than we'd had for decades, and a brand new web form application was being built. Testing had to continue! So we started using video-conferencing, for the forms and later for the approach letters and ads as well. Video-conferencing for personal use was quickly growing more popular with the public and general capability with the technology grew accordingly. First we just used screensharing as the lowest-risk security option ('if you got to this screen, what would you do next?'). Then we ventured into allowing access to the form for the families and housemates of ABS staff via our internal network ('use my computer but please don't try to see any of my other work stuff'). Finally, secure ways to enable access to our development environment from outside were set-up. And through these interim social distancing workarounds, we discovered something very interesting.

Doing testing this way was *better* than the old way. It gave us much easier access to a broader range of test participants: people who were housebound due to health conditions or caring responsibilities; people who lived in remote areas we would never bother to visit ourselves; people who were too lazy to bother coming to us but who were happy to tell us by video why they'd throw our census letter away. It gave us insight into the real environment that respondents would complete our surveys in: what devices and assistive technology they might use and records they would check, what room they did it from and what else was going on, who else was there and if they got involved. Finally, it was much more efficient for us. No more travel, more flexibility of timing for participants and staff, testers and observers could be in different locations including teleworking, and we could add features like auto-transcription. We spread the method to all our surveys and kept doing it as our primary approach to respondent-centred testing (Radic & Jenkin 2023).

Video Interviewing supports social distancing (but is still 'face to face')

Web forms are the ABS's preferred mode of data collection due to their overall convenience and efficiency, but achieving full survey migration from other modes has been slow (Farrell & Hewett 2011). Most of the ABS business surveys have been completed online for many years, but by early 2020 most of the social surveys were only starting this development. Apart from the Census, none of these collections were achieving over 50% takeup for the web mode, so effective follow-up modes remained critical. Being able to conduct long, complicated interviews in-person with households all over the country was a key part of the ABS value proposition compared to other research agencies.

And then we couldn't do it. As with similar surveys all around the world, response rates plummeted. Surveys were paused, and then shifted to web only or telephone data collection where this was possible. Data quality suffered. And while the pandemic itself eventually became less concerning for everyone, the attitude shift of respondents seemed more enduring: they didn't want us in their homes anymore.

Video-interviewing seemed like the perfect solution. We could closely replicate the CAPI 'experience' without risking the health of respondents or interviewers. Our own experiences and other qualitative research (e.g. Howlett 2021) indicated that rapport by video could be just as good as in-person, and disclosure in sensitive surveys by video was potentially even better than in-person due to a perception of geographical separation (e.g. Mabrugaña et al 2013). But the overall cost-benefit was difficult to prove. Overcoming the technology barriers, especially identifying a video conferencing platform which was sufficiently secure *and* user-friendly enough for statistical data collection, was not an ABS priority. Isolating the genuine data quality impacts from the substitute modes we were already using from the response biases, self-selection effects and environmental change going on during Covid was very difficult (given we couldn't force particular respondents to use our web forms or call us). So the data quality benefit was not quantifiable. And while our qualitative research had been so successful, those participants were all paid incentives and they knew it was a test. Would real respondents be willing to respond that way?

The need for change became urgent in mid-2021 with a survey that had no other alternative. The Survey of Health and Wellbeing (SHWB) was a user-funded survey which incorporated a set of questions used to diagnose mental health conditions. Due to specific agreements with key stakeholders, the survey could not be conducted online or by phone, but the in-person collection was not obtaining enough responses. Lockdowns were still occurring intermittently across the country and everywhere the public was expressing strong concerns about in-person interviewing. In addition to overall low response, a survey focussing on health issues was at high risk of nonresponse bias- the respondents we wanted most were most likely to refuse. Video-Assisted Live Interviewing (VALI) development began in earnest. Schober et al's (2020) paper was very useful and inspiring for us at this time.

Live Video Interviewing needs interviewers (real ones)

The willingness or otherwise of respondents wouldn't matter if our field interviewers weren't on board with the new mode. Usability testing with a small number of interviewers to ensure the process would work at all was the first step in engaging their support. We started simple- the interviewers would use the same questionnaire they would normally use with CAPI. In a separate window, they would use the chosen video-conferencing platform (MS Teams via the Australian GovTeams platform) to interact with the respondent and screenshare a file containing the slightly adapted showcards so respondents could see these. Even without any integration of Teams and the data collection systems, there were more technical challenges than expected. This early testing identified, for example, that the mobile phone hot-spot method of internet access many of the interviewers used did not deliver sufficient bandwidth for video-conferencing.

Another interesting finding from initial exploration and consultation with the field interviewers was their concerns about privacy. Having previously spent much of their work time in the homes of strangers, they were now confronting the idea of strangers seeing into theirs. Setting up an ABS-branded background or blur option (the choice was up to the interviewer) quickly resolved that concern. Another concern raised by interviews was the increased risk of survey respondents recording them, which is normally rare but can have negative consequences for the reputation of

the ABS. Instructions to respondents and procedures for interview termination were established in response. Finally, the field interviewers normally only give their first names to respondents but the interview appointment invitation they emailed out for VALI revealed their full names. This was therefore fixed.

The skills and engagement of the interviewers was built slowly over time, until they became very enthusiastic about the benefits. The early interviewers became champions of the mode to others, and as the numbers of tests increased the various information needing to be included in VALI interviewer training was gathered and refined. For example, the process for giving respondents information on various counselling services and other help after the interview in case they were distressed, which was normally handed over on a physical card, needed to be sent by SMS. In addition to the technology and the mechanics of a video-interview, additional expert training was developed for the extra considerations involved in using the method for the extremely sensitive subject matter.

The well-being of our respondents matters more than anything (including response rates).

The SHWB contains many questions that may cause distress for respondents. It asks about current mental health conditions, lifetime experiences of trauma and assault, substance use, self-harm and suicide. It is also cognitively difficult, for example respondents are asked to report on when specific events first occurred. The survey is presented to respondents in a similar way to our (mostly compulsory) other health surveys but after the first module there is an explicit opt-out point due to the sensitivity of the topics. Most survey respondents continue through the voluntary questions.

It was critical for us to ensure that nothing about the introduction of VALI- such as the process of conducting the interview, the way the tests were managed, or the physical absence of an interviewer- led to negative consequences for the respondents. The few examples we had found of other agencies already conducting statistical data collection by video were quite different approaches to ours (e.g. Madsen & Menon, 2021). While research indicates the data quality from video was equivalent to in-person data collection (e.g. Endres 2023), the extent of changes to respondent experience was unclear. So we posed a number of research questions to investigate.

1. Would our survey respondents actually choose to do a video interview, if they were offered one?

We first looked to research into Australian use of Telehealth, which increased significantly during Covid. While overall takeup of video health consultations was very small at less than 1% of total consultations (Hardie et al 2020), the strongest take-up was for mental health consultations. These increased over time and finally overtook telephone in June 21 (Snoswell et al 2021). It was very encouraging that patients chose the video method when discussing their mental health.

We then ran a mode preference study of our own. Using a commercial web panel, we surveyed 100 people with varying demographics about their attitudes on a hypothetical ABS survey:

Imagine that you have been selected for a compulsory survey being run by the Australian Bureau of Statistics. The survey questions need to be asked by a trained interviewer. The imaginary survey would take around one hour.

Most respondents were comfortable with being interviewed by video. When asked their preferences between video, telephone and in-person, there was a very strong finding against in-person data collection. Telephone was preferred overall, but some respondent groups preferred video the most:

males and young adults (figure 1) and those with the second-highest video-conferencing use frequency (figure 2).

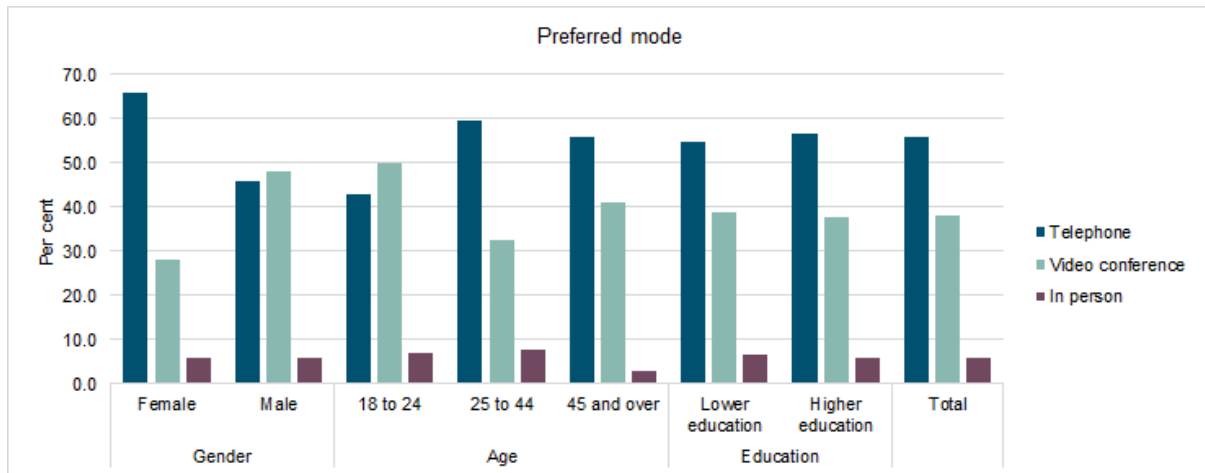


Figure 1: Mode preferences by demographic group

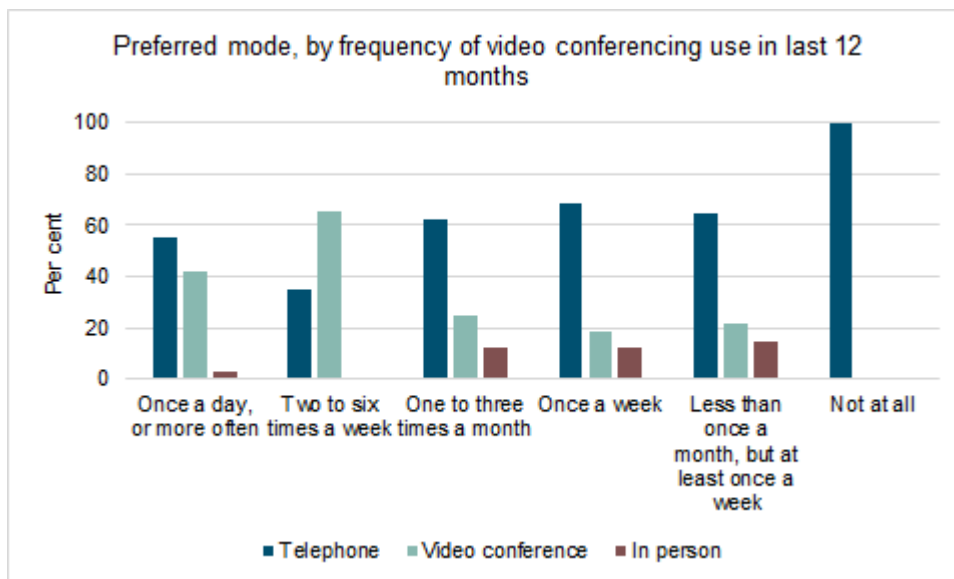


Figure 2: Mode preferences by experience

Again, this was quite encouraging so we were able to expand VALI research to ‘real’ ABS respondents.

The next investigation examined mode preferences from respondents who had actually been selected in an ABS survey. This study involved a short request for feedback sent to 1432 households following the survey enumeration period. Feedback could be given online or by mail on this question:

How would you prefer to respond to the Survey?

Responses were received from 99 households (6.9%), 93 of whom had completed the main ABS survey online. In this context, and given a broader range of mode options to choose from, the results were quite different (table 1). Note that respondents could pick more than one mode.

Mode	Total	% of total
CAWI	80	74.8
VALI	1	0.9
CATI	5	4.7
CAPI	2	1.9
Paper	19	17.8
Total	107	100.0

Table 1: Response totals for submission mode preference

The strong support for the web form by those who had just successfully completed one wasn't surprising, and this particular survey takes less than 15 minutes on average to complete and is not sensitive. Overall, the result aligned with our expectation that different data collection modes vary in their suitability depending on the content, including from the respondent's perspective.

Finally we included a quick feedback question at the end of a range of ABS in-person household survey interviews in the field at the time. Strong preference for video over in-person in this context was confirmed.

2. Is a data collection interview similar enough to a cognitive interview?

We had conducted cognitive interviews by video on quite sensitive topics before, and some of our colleagues at other agencies had been successful doing so with similar topics to the SHWB. But a cognitive interview is more of a conversation than a data collection interview, less serious perhaps. The thoughts and feelings of the respondent are explicitly measured, so it is easier to tell if the person being interviewed becomes upset. There is less imperative to finish all the questions, and for longer surveys you would not try to. Finally, the test participant has much greater autonomy than the survey respondent, having identified the opportunity themselves rather than being selected by the ABS based solely on their address.

So as an interim step we trialled conducting video data collection in a different, less sensitive survey first. A survey on adult literacy and other life skills was under development at the time and the planned field test could not be conducted due to Covid. A pilot test was run using test participants recruited by an external agency instead, using ABS office staff as interviewers. Video-conferencing was then used to replicate the other interviews as much as possible, for a subset of the pilot test group (n=18). While the survey was not expected to be traumatic, revealing low competency is socially undesirable and some of the questions required recalling aspects of the participant's childhood that were potentially sensitive (e.g. presence of parents and numbers of books owned). The test ran through the questions without any probing until the end, and then only if there was time.

The interviewers considered the test to be a success, reporting they felt connected to participants, were able to read visual and verbal cues during the session, and met their test objectives of assessing the wording and complex paths in their questionnaire. For example, interviewers indicated they were able to notice and respond to participant pauses during more personal questions.

Test participants were also positive about the process. Of the 16 asked for a preference, 13 participants stated a preference for video over in-person. They had no concerns about using the technology. Participants cited convenience and comfort as the main reasons for preferring video, and one participant also mentioned privacy and security as a consideration. Interestingly, one of the participants reported they were located in a meeting room at their office during a lunch break (all

the others were at home although some of those were also on a break from work). The participants did report the process to be very different to other tests they had participated in. They all remained engaged throughout the hour-long sessions, but observations of the 18 interviews indicated the length was more of a concern than would usually be the case in a cognitive interview. Many of the participants began visibly shifting in their chair and showing other signs of fatigue around the half-way point. While this may also be the case for the normal in-person version of the survey (which we couldn't compare to directly), the less conversational format of data collection compared to qualitative testing was potentially a problem for VALI especially if the interviews were long.

3. Will an SMHB interview be too long to conduct by video?

Our cognitive interviews and other kinds of tests by video rarely went for more than an hour, but the SMHB averaged around 90 minutes. The maximum length could be much longer if the respondent had a lot of data to report. The most vulnerable respondents could therefore have the most fatiguing interview in addition to the distress each topic may cause. To investigate this issue we needed test participants with real relevant conditions and experiences to go through a full interview, as scenario-based testing could not replicate the potential for distress. The risk to the wellbeing even of paid volunteers from the public was considered too high initially.

So we decided to recruit ABS staff volunteers with relevant conditions and experiences. Our staff had a better understanding of what would be involved in a survey interview before volunteering, and we could provide much more extensive monitoring and support after the interview if that was required. We made a callout to the staff diversity support networks, specifically to those focussed on disability and neurodiversity, and were overwhelmed by the enthusiastic response from colleagues wanting to help. Interviews were conducted by our field interviewers, with 12 staff volunteers answering for themselves as real respondents.

The results were very positive. Interviewers were able to schedule the VALI interviews themselves, send out the invitations and complete the data collection successfully. In debriefings, the interviewers were reported their confidence growing with each practice. The respondents gave very positive feedback about the interviewers' skills and engagement.

The respondents were similarly positive about the data collection mode, with 10/12 stating a preference for video over in-person given the very sensitive content (the remaining 2 had no preference). Comments included:

"I think that given the content, video interviewing was better than in person. This is because a lot of the questions dredge up memories that were long forgotten and personally I was more comfortable being a little "distant" from the interviewer for those, but definitely would want to see their face (i.e. not a phone interview for these topics)." Respondent 6

"I feel the virtual interview was much better. I wouldn't have been comfortable with someone in my home interviewing me about this topic." Respondent 7

".. it was great to be able to just say thanks/bye and hang up, rather than the extra time and mild social awkwardness of getting the interviewer out of the house so I could rush off and get food. Facing the interviewer directly and having us both be comfortable for that long also would have been difficult to achieve in person, as it would greatly limit the options for location in the house. Both of us would have to be at the table rather than the couch or desk, or somewhere else more private if anyone else was home." Respondent 4

The interviews lasted on average 110 minutes, ranging from 75 minutes to 140 minutes. The interview length seemed to not be negatively associated with VALI. Interviewers were able to offer breaks in the middle of the interview, which were appreciated but rarely taken up.

Following the success of the staff tests, we were able to run another 6 interviews with more normal test participant recruitment, again targeting people with relevant data. Unusually for paid participants, we advised them explicitly in screening calls that they were able to cease the interview at any point if they felt uncomfortable or preferred not to continue with no risk of penalty (in terms of payment or with recruitment agency). This was to replicate a normal data collection interview as much as possible. Participants all continued their interviews for the scheduled time of up to 90 minutes, with one going up to 104 minutes. The results were very similar to the previous test, with 4/6 expressing a preference for video and 2/6 neutral. One respondent reported feeling 'very drained' by the end of the interview but most stated the length was fine. Only 2 of these participants conducted their interview at home, with 2 located at work and 2 at the home of someone else, with convenience, privacy and quietness the stated reasons for the locations. It seemed that VALI was able to support the wellbeing of our respondents sufficiently to roll it out to our live SHWB.

Video Interviewing works (better than we expected)

What a huge relief that was. The ABS live pilot of VALI was rolled out in April 2022. VALI was initially only offered to SHWB respondents who contacted the ABS with covid-related concerns (in response to the standard approach letter which mentioned in-person interviewing only). In-person was still the ABS preferred mode for this survey so VALI was never mentioned upfront, but over time offers were made in other circumstances including when respondents considered stopping an in-person interview at the opt-out point. In total, 443 fully complete VALI interviews were conducted before the survey finished later in 2022. Interest from respondents was higher than could easily be managed, with allocation to sufficiently trained available interviewers becoming a challenge especially because the interviews were so long. Being able to allocate interviewers from different states around the country for a 'face to face' interview was a major advantage, as some states met their targets earlier than others.

Again, the experience of VALI was very positive. We contacted some respondents after the pilot started, conducting 15 debriefings to ensure everything was working well. Several respondents had not completed their interviews due to the length (which went up to more than 2 hours) and/or technical difficulties, and two were very negative about surveys in general. However all 15 respondents stated VALI was similar or better than an in-person interview and all gave positive feedback about their interviewers. The interviewers also gave positive feedback, and 3 out of the 5 we talked to in depth stated VALI was now their preference over in-person interviewing. Screen-sharing showcards went especially well according to both groups, and feedback included encouraging us to add question wording onto the cards in addition to the response options. A final result from the pilot was that fewer VALI respondents ceased their interview at the opt-out point (20.4%) than for the in-person interviews (25.9%). This was especially exciting because the VALI respondents were largely drawn from those contacting us with concerns about participating in the survey.

VALI data collection had been proven as a viable mode option, especially as an alternative to in-person CAPI. Although a true data quality comparison was not possible due to selection bias, no obvious issues with the data were identified. The very positive respondent experience (for those choosing to take up the mode offer) was very encouraging and aligns with ABS strategic objectives

around respondent burden reduction and improvements to the way we collect sensitive topics. The positive reaction from interviewers despite the early technology challenges enhances the large potential for efficiency gains over face to face as we remove travel time and greatly improve sample design and workload allocation flexibility. VALI to CAPI however is not the only important comparison.

Telephone data collection is cheaper than VALI, but seems less good. CATI, like VALI, requires no travel and can be quite flexible. The ABS has collected some data by CATI for decades, and for short interviews about simple topics the data quality is fine. We are now learning more about where the thresholds for length and complexity actually are. Our evaluations for SHWB demonstrated that the showcards were critical to respondents being able to comprehend and respond to the relevant questions, and our other surveys are likely to be similar. The telephone alternatives of reading out all the response options, or redesigning the questions to be open-ended and interviewer coded are not ideal but may be good enough in some circumstances. The higher socially desirable responses in telephone compared to in-person surveys (e.g. Aquilino 1994) likely applies to VALI compared to telephone as well for relevant topics. The differences in rapport and privacy and subsequent impacts on respondent effort provided by the interviewer and respondent seeing each other is difficult to assess. However our first mode-preference study gave us some hints about the likely difference- one female who preferred telephone over video gave the reason 'Questions can be answered while doing other simple tasks' and another gave 'freedom of movement'. If we want respondent's full attention, VALI is probably better.

Web forms are still preferred by the ABS, and the respondent population overlap is unclear. We saw in our second mode preference study that respondents who had successfully completed one of our short web forms had no interest in VALI. In each set of SHWB respondent debriefings we conducted, one or two respondents spontaneously raised that a web form would be better than either CAPI or VALI. There is also some requirement for technical ability for respondents to make VALI work from their end, and VALI preference/satisfaction seems to increase with familiarity with videoconferencing in general. If we offer a web form first for a longer survey, will any of the remaining non-respondents want to do VALI? Some of the respondents in our (entirely online) first mode preference study commented on the value of interpersonal rapport for some topics. How much value this adds, and for what topics, deserved more investigation. The recent rising tide of privacy breaches and scams may mean that any technique with potential to enhance trust becomes worthwhile.

Video Interviewing translates to other agencies (and other surveys)

As the National Statistical Organisation (NSO) for Australia, the ABS is appropriately reluctant to risk the quality of official statistics we produce by introducing collection design features purely for methodological research. Collaboration with another Australian research organisation to experiment with their survey instead of one of ours was ideal. The Australian Comparative Study of Survey Methods (ACCSSM) was designed by the Social Research Centre (SRC) to answer similar mode comparison questions to the ones we had. Their overarching research objectives were evaluating and improving contemporary and emerging practices for general population surveys.

The ABS joined their project to support the inclusion of VALI to the experiment. The SRC had used video interviewing for qualitative research but not statistical data collection prior to this. The ACCSSM included the following probability-based experimental groups:

- CATI recruitment and data collection, RDD Mobile frame (n=1,000)
- Push-to-Web data collection, RDD Mobile frame, SMS recruitment (n=599)
- Web data collection mode, Life in Australia™, Multi-frame probability panel (n=600)
- Video Assisted Live Interviewing (VALI), recruited from Life in Australia™, Multi-frame probability panel (n=601)

Note that non-probability based respondent panels were also included in the study, but the results of those are not included here. For more information on the study, see Neiger et al (2023).

The same data items were used for each data collection mode, with the questionnaire optimised for each in terms of instructions and question design. A key difference for VALI compared to CATI was the use of showcards which were not read out by the interviewers, with the more complex showcards also including the question wording. The criteria for selecting the data items included: comparability to high quality external benchmarks (including multiple variables sourced from the ABS), some items which were expected to perform consistently across modes and others which should be subject to mode effects (sensitive items, complex memory tasks, long response lists), and items which were of strong interest to the clients of the SRC and the ABS. The total length of the questionnaire was kept to an intended maximum of 15 minutes, with very limited sequencing.

The implementation of VALI at the SRC built on the lessons from the ABS, improving on the process in two significant ways. Firstly, the implementation of an appointment scheduler which respondents could use themselves to arrange and change their interview times and receive reminders. Secondly, improvements were made to the design of the showcards, so that for more complex questions the question stem also appeared on the card and blank cards were shown where no content was needed, to simplify showing them for the interviewers. Another difference to the ABS implementation was that the SRC interviewers never did in-person interviewing, and primarily worked from a call centre.

Video Interviewing compares with other modes (early results)

The feasibility of recruiting respondents for the VALI experimental group from the SRC online panel was confirmed in advance by asking a subset of the panel a hypothetical question to indicate their willingness to participate in a VALI survey later in the year. Of the 3,441 respondents, 1,447 (42%) were in principle willing to participate, 1,553 (45%) were unwilling and 441 (13%) were unsure.

Analysis of the responses shows neither recruitment wave nor mode of recruitment predict willingness to participate in VALI. Gender, age group, use language other than English at home and education did predict willingness to participate (p-value < .05, the base outcome was set as no):

- Women were less likely than men to agree to participate,
- 18-24 year-olds were the most likely age group to say that they would not participate.
- People who did not use a language other than English at home were more likely to agree to participate.

- Those with post-graduate degrees were the most likely to agree in principle to participate, with agreement declining in a relatively linear fashion with education.
- Uncertainty about participation increases, broad speaking, as education decreases.

The experiment was rolled out in late 2022. Overall, VALI data collection went smoothly and the following results will be built on as more analysis is conducted.

1. Length

Although the interview was already quite short compared to most ABS surveys, substantial variation was shown between modes for the time taken to complete the questions. Removing the mode-specific introductions and wrap-ups, the comparable content resulted in the times shown in table 2.

Data collection Mode	Mean time (minutes)	Median time (minutes)
Push to web, from SMS	21.88	11.18
Web, from Life in Australia™	18.67	9.34
RDD CATI, mobile frame	16.97	16.50
VALI	11.47	10.90

Table 2: Comparative times to complete questions across modes

VALI had the shortest completion times, substantially better than the next best result for CATI. This is expected to be due to the use of showcards reducing the amount of reading interviewers need to do, and improving the ease of comprehension for respondents. The high and variable times for both web respondent groups is expected to be due to respondents being distracted by other activities.

2. Representativeness

The different recruitment methods for each data collection mode stream meant that the profile of each responding group was quite different. The primary demographics included age, gender, language used at home, geographical location, size of household and education. The average overall bias of these demographics in percentage points different from the external benchmarks are shown in table 3.

Data collection Mode	Weighted	Unweighted
Push to web, from SMS	1.24	5.72
Web, from Life in Australia™	1.53	6.53
RDD CATI, mobile frame	1.09	4.56
VALI	1.32	7.12

Table 3: Comparative bias of respondent demographics

3. Data Quality differences

The secondary demographics included labour force status, pensions, marital status, number of children, country of birth, and home ownership. The substantive data items cover all the other

questions. These included the Kessler 6, items about smoking and drinking, exercise and other health items, discrimination and other sensitive items.

Bias in percentage points different from the external benchmarks are shown in table 4.

Data collection Mode	Secondary demographics	Substantive data items
Push to web, from SMS	2.91	7.13
Web, from Life in Australia™	1.66	5.62
RDD CATI, mobile frame	2.69	5.80
VALI	2.23	6.88

Table 4: Comparative bias of other data items

More details can be provided by the time of the WSC conference.

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