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Response burden and survey participation. Experimental evidence on the effect of interview length on non-response conversion

Alessandra Gaia [a], Matt Brown [a], Tugba Adali [a], Stella Fleetwood[b] and Christy Lai[b]

[a]Centre for Longitudinal Studies, UCL Social Research Institute, London; [b]Ipsos

ABSTRACT

In a context of declining response rates, identifying best practices for non-response conversion is of key importance. Adopting experimental data from a large-scale web-first mixed mode longitudinal study (the Next Steps Age 32 survey), we examine whether recontacting non-respondents after completing face-to-face fieldwork and inviting them to participate in a web-based non-response conversion survey can increase participation. Furthermore, we examine whether reducing interview length (from 60 to 20 minutes) at this final stage can further boost response. The interview length is reduced by both decreasing the number of questions and excluding additional elements, i.e. a cognitive assessment, requests for consent for administrative data linkage and an invitation to provide a biological (saliva) sample. The shorter non-response survey led to higher response rates, particularly for previous wave non-respondents, suggesting this is a promising practice for obtaining at least some information from individuals who are hard to convince to take part otherwise.

Introduction

Survey response rates are declining over time (De Leeuw & De Heer, 2002; Lugtig et al., 2023; Luiten et al., 2020). This phenomenon is problematic for two main reasons: first, if respondents differ from non-respondents in key variables of interest non-response bias may arise. Second, non-response leads to reduction in the sample size available for analysis, with negative consequences on the precision of survey estimates.

In longitudinal studies maximising response rates is particularly important both to maintain representativity over time as well as to maximise the value of information collected at previous and subsequent waves of data collection. This is because lack of information at any time point reduces the potential of data collected before and after.

When survey researchers attempt to improve response rates, classifying the various types of unit non-response can help in identifying optimal strategies to maximise response rates. Unit non-response is often categorised into three main subcategories: failure to contact sample members ('non-contact'), unwillingness to take part in the study ('refusal') or inability to participate ('not-able to answer'), which may, for example, be due to illness or inability to understand the language in which the survey is administered (Bethlehem et al., 2011).

Survey refusal may be motivated by a number of different factors (or combinations of factors). These include, for example, individuals not having time to fill in the survey, not being interested in the survey topic, not believing in the importance of surveys, having privacy concerns, not trusting the survey institution, or not enjoying the process of participating in survey data collection (Stoop, 2017).

In many cases, survey refusals are circumstantial and result from survey invitations being made at a non-optimal time. For example, the survey request may reach people while they are busy or temporary ill. Individuals may not react immediately to the invitation request and subsequently forget about it. If this is the case, a successful strategy to secure cooperation might be to re-approach (later in the fieldwork period) cases who initially refused participation to ask them to participate again. This practice is usually referred to as 'refusal conversion' (Stoop, 2017).

Refusal conversion strategies have been mainly adopted in cross-sectional surveys, and, to a lesser extent in panel studies (Burton et al., 2006), and most commonly in interviewer administered surveys (Lewis et al., 2019) where those who initially refuse are often reapproached and asked to reconsider their decision, usually, but not always, by a more experienced interviewer (Calderwood et al., 2017). Refusal conversion strategies have, in general, been found to be successful in reducing refusal rates in interviewer administered longitudinal surveys and also seem to have had some effect in minimising attrition and (to some extent) non-response bias (Burton et al., 2006; Calderwood et al., 2017; Dangubic & Voorpostel, 2017; Lipps, 2011). Refusal conversion strategies however have been less frequently adopted in self-administered surveys and little evidence is available on the effectiveness of the use of web mop-up surveys embedded in mixed mode studies.

Clearly, survey refusals are not only due to circumstantial reasons. Another possible reason for survey refusal is the burden associated with participating in the survey. There is much evidence that suggests that shorter interviews lead to higher response rates than longer interviews, and this also applies to web surveys (e.g. Crawford et al., 2001; Galesic & Bosnjak, 2009). This idea is consistent both with social exchange theory (Dillman et al., 2014) and leverage saliency theory (Groves et al., 2000). Social exchange theory (Dillman et al., 2014) posits that individuals decide whether to participate in surveys based on an evaluation of the cost of participating in the study versus the perceived rewards. Leverage salience theory suggests that someone's likelihood of participation depends on the (subjective) *saliency* of survey attributes (e.g. duration, topic interest, etc.). In both frameworks, survey duration is one of the factors that may enter into the potential respondent's cost-benefit evaluation when deciding whether to participate in the survey. By lowering survey duration and reducing the number of tasks that the respondent is requested to perform (e.g. provision of biological samples, data

linkage consent requests), – hence, ultimately, lowering survey burden – the costs to participation reduce, while the benefits that respondents may gain from survey participation (e.g. contribution to science, monetary incentive, etc.) remain equal. The perception of burden is also a function of the volume of survey requests received. Indeed, some authors (e.Loosveldt & Joye, 2016) have mentioned the role of 'survey climate', i.e. public attitudes towards surveys and science and the perceived overabundance of surveys – in fostering a general feeling of unwarranted volume of survey requests, which results in a perception of excessive burden.

Non-response follow-up surveys in a mixed mode context can also secure participation from individuals who have not participated for reasons other than refusal. In longitudinal studies, where email addresses and phone numbers are available for study participants before fieldwork, survey invitations and reminders are often sent by post, email and text message. Sometimes, the addresses held by studies may be out of date or sample members may be away or ill during fieldwork. In these circumstances email invitations may still reach study participants so an additional email invitation to complete the survey, after some months from initial contact, might reduce non-response in cases classified by interviewers as non-contact, uncertain eligibility, or 'other' non-response. This approach might be particularly effective for interviewing young adults (e.g. those aged 18–35 years old), who might change addresses frequently due to life circumstances.

In this paper we use novel experimental data to examine whether re-contacting non-respondents in a longitudinal study, several months after completion of fieldwork and re-inviting them to participate can improve response rates and representativeness. In addition, we examine whether reducing respondent burden by shortening the interview and removing requests to perform supplementary tasks (which may be considered sensitive or particularly burdensome) can result in greater increases in response and representativeness.

Specifically, the experiment took place in the 9th wave of the Next Steps age 32 study, a longitudinal study in England. The study used a sequential mixed mode approach where participants were first invited to take part online with non-respondents after 3 weeks being issued to face-to-face interviewers. The survey takes around 60 minutes to complete online and includes a cognitive assessment, a request for consent to link administrative data, and a request to provide a saliva sample for DNA extraction. Three months after all face-to-face interview fieldwork was complete, non-respondents were re-invited to participate online, with half randomly allocated to complete the standard 60-minute survey – including all additional elements – and the remainder allocated to a 'short' 20-minute version (with fewer survey questions and no cognitive assessment, data linkage consent requests nor collection of a saliva sample). This experimental design allows us to evaluate the effectiveness of a follow-up interview (versus no follow-up interview) as well as whether offering a follow-up interview of shorter duration and with fewer additional tasks (lower burden) is more effective in securing participation compared to the 'full' interview. Specifically, the experiment aims at answering four research questions.

The first research question (RQ1) is: is there a significant difference in response rates between those assigned to the 'short' questionnaire and those assigned to the 'full' questionnaire in the non-response survey?

We hypothesize that the 'short' questionnaire will lead to a higher response rate, consistent with survey participation theory which posits that the lower the response burden the higher the probability that sample members will agree to participate in the study.

The second research question (RQ2) is: is the 'short' questionnaire particularly effective among sample members with specific unproductive outcomes (non-contact, refusal, uncertain eligibility, or other non-response) at the end of the face-to-face field-work period?

We hypothesise that the non-response conversion survey will be particularly effective in securing participation from sample members who refused to take part in the survey and, among them, we expect higher gains from the 'short' versus the 'full' non-response follow-up survey. Firstly, among those who refused in earlier stages of fieldwork, the non-response conversion survey may provide an opportunity to re-evaluate the decision not to participate, especially if the refusal was for circumstantial reasons; secondly, the reduction in survey burden achieved through the 'shorter' survey may be particularly appealing for those who initially refused participation. However, we also expect to improve response rates for sample members who are categorised at the end of the face-to-face fieldwork period as non-contacts or other non-response, as the additional contact may lead to participation amongst those not contacted or unavailable for interview in earlier stages of fieldwork.

The third research question (RQ3) is: to what extent does the non-response conversion survey improve overall response rates?

We hypothesize that response rates will significantly increase thanks to the non-response conversion phase included at the end of fieldwork; this hypothesis reflects the recognition that the decision to participate in the study may be circumstantial (for example motivated by sample members being approached at an inconvenient time).

The fourth research question (RQ4) is: is the 'short' version particularly effective at securing participation from particular subgroups?

Our hypothesis is that the 'short' version might be particularly effective among previous wave non-respondents, and among those, specifically respondents who refused participation at the previous wave. The rationale behind this hypothesis is that decreasing the survey burden might be particularly important for these respondents, as survey burden might contribute to refusal, especially for less engaged sample members. We also hypothesize that the short version will increase participation from typically under-represented groups such as males, ethnic minorities and respondents with low socio-economic status.

The fifth research question (RQ5) is: what is the impact of the non-response follow-up interview on response bias? Consistently with our hypothesis for research question four, we expect to observe a reduction in bias in the distribution of sex, ethnicity and socio-economic status.

We hypothesise that the non-response follow-up would reduce non-response bias and that this effect will be greater amongst the group allocated to the 'short' version. Subgroups of sample members who are harder to convince to take part will be under-represented after completion of face-to-face fieldwork. Providing a further opportunity to participate and reducing the burden of doing so is expected to increase participation amongst these sub-groups, ultimately reducing non-response bias. This hypothesis is

consistent with the notion that 'early' and 'late' survey respondents are significantly different in a number of socio-demographic characteristics – for a review see Gummer and Struminskaya (2023). In other words, by providing an additional opportunity to participate and by shortening the questionnaire length, we expect to attract respondents who differ in terms of socio-demographic characteristics from respondents who participated during earlier phases of fieldwork and as such, response bias (in socio-demographic factors) is expected to reduce.

In the following we describe the data used in analysis and the experimental design; we then move to the study results and conclude with a discussion and conclusion, where we also discuss the trade-off between number of interviews achieved and volume of information collected on each respondent.

Data

Next Steps is a longitudinal study following approximately 16,000 participants in England, born in 1989–90. The study began in 2004, when participants were aged 14, and it was known as the Longitudinal Study of Young People in England (LSYPE). The target population was young people who were in Year 9 in English state and independent schools and pupil referral units in February 2004. After the first wave of data collection, participants were interviewed yearly until age 20 (wave 7, in 2010), and then again at age 25 in 2015 (wave 8) and at age 32 in 2023 (wave 9). Waves 1 to 7 were run by the Department for Education. During this period, only participants who took part in the prior wave were issued in the following survey wave. The study was then paused for five years until the Age 25 Survey in 2015 when the study was re-launched by the Centre for Longitudinal Studies, University College London (wave 8, in 2015). During the Age 25 Survey, efforts were made to trace and contact everyone who ever took part in the study (Bailey et al., 2017; Calderwood et al., 2021). At the Age 32 survey (wave 9 in 2023), all (living) original cohort members were issued to the field unless they had permanently opted out, become permanently untraced or were known to be in prison or on probation.

The Age 32 Survey fieldwork was carried out in four main batches, and the non-response conversion experiment analysed in this study was implemented in the first. The issued sample for the Age 32 Survey was stratified by three variables to allocate the issued sample to batches: i. when the cohort member has last taken part (wave 8, wave 7 or waves 1–6), ii. region of residence (South, London, North, and Midlands), and iii. sex. These stratification variables were based on analysis of the Age 25 survey data, which indicated that they were the most significant predictors of cooperation/refusal rates. A stratified random sub-sample consisting of 25% of all cases to be issued (n = 3,113) was selected for issue to the first batch of fieldwork in which the non-response conversion experiment was conducted.[1] The survey used a sequential mixed mode approach where sample members were first invited to complete the survey online. After a three week online only period interviewers started attempting contact with sample members, either by telephone or face-to-face (for unproductive sample members at the prior wave or sample members who did not provide a telephone number). In addition to offering face-to-face interviews, interviewers were also able to offer self-completion of the survey on a tablet handed over to them by interviewers and collected at a later agreed time, video interviews (using Microsoft Teams) and, in exceptional circumstances a personal

Table 1. Incentive group allocation and allocation to 'short' versus 'standard' survey.

	Incentive amounts		
	"Early-bird" incentive + standard incentive (£)	standard incentive (£)	
		"short" survey	full survey
Not-targeted	30	20	
Targeted approach			
Prior wave respondents	25	15	
Prior wave non-respondents	35	25	

"early-bird" incentive applies only to respondents who complete the survey in the first three weeks of fieldwork. Sample members allocated to the non-response conversion survey were offered the "early-bird" incentive conditional on survey completion within the first three weeks, but none of them was eligible to redeem it as they are not early-bird participants.

communication. The web-survey also remained open during the interviewer-lead field-work period.

To maximise response rates monetary incentives were offered to sample members, in the form of vouchers. In the first batch, an incentive experiment was implemented. Half of sample members were randomly assigned to a targeted incentive group and half to a non-targeted incentive group. In the targeted incentive group, prior wave respondents were offered a £15 conditional incentive while prior wave non-respondents were offered a £25 conditional incentive. In the non-targeted group, sample members were offered a £20 incentive regardless of prior wave participation. In addition, all sample members who completed the survey online within the first three weeks of fieldwork received an additional £10 'early-bird' conditional incentive. Allocation to the non-response conver-sion experiment is independent of allocation to the incentive experiment.

The offer of the monetary incentive was retained in the non-response conversion phase. Hence, the incentive amount offered did not depend on allocation to the 'short' or 'full' non-response conversion survey (Table 1). Clearly, sample members allocated to the non-response conversion survey are not early-bird respondents and hence, while they were all offered the 'early-bird' incentive conditional on survey completion within 3 weeks of fieldwork, none of them were eligible to receive it.

Topics covered in the Age 32 survey included family and relationships, housing, employment and income, education, health and wellbeing, identity and attitudes, child-hood and other life events. The median survey duration online (or on a tablet provided by interviewers) was 55 minutes, and 87 minutes for in-person interviews.

In addition to the main questionnaire, sample members were invited to complete a cognitive assessment; they were also requested to provide a saliva sample for DNA extraction, to consent to linkage of administrative records held by various government departments and agencies, and to consent for the study to contact their live-in partner to ask them to consent to linkage of their administrative records.

Experimental design

The experiment was conducted amongst sample members assigned to the first batch of the Next Steps Age 32 Survey. On completion of face-to-face fieldwork sample members who had not started the survey were randomly allocated to two equally sized groups. The first group were re-invited to complete the standard 60-minute survey ('full' version),

which included the cognitive assessment, the data linkage consent requests, and the request for consent to provide a biological (saliva) sample. The second group were invited to complete a 'short' 20-minute version of the survey (which did not include any of the additional elements). Those who at the end of the face-to-face fieldwork had started the interview but not completed it were also invited to complete the 'short' version of the survey but these cases are excluded from the analysis sample as they were not part of the experiment. In order to ensure that the two groups were balanced a series of chi-square tests were conducted, using observable baseline socio-demographic characteristics (sex, ethnicity and parental socio-economic status). No significant differences between the groups were observed.

In both the 'full' and 'short' groups, sample members received invitation mailings by post and email (where email addresses were held). A leaflet was included which provided full information about taking part. The invitation sent to those in the 'short' group emphasized the shortened survey duration. The invitation sent to the 'full' group provided information about two of the additional elements (data linkage and the collection of saliva samples). These elements were not included in the 'short' version and so were not described in the invitation. Two reminders were sent by email, two by SMS, and one by post. The scheduling of reminders was the same for both groups. Letters for both groups are available in the supplementary materials.

The non-response conversion phase started on 5 December 2022. The reminders were sent throughout December but the possibility to complete the survey remained open until the end of fieldwork on later batches (end of August 2023). For this analysis we focus on response up to 20 February 2023.

Methods

We compare response rates across the two experimental groups ('full' and 'short') to answer RQ1 – i.e. is there a significant difference in response rates between those assigned to the 'short' questionnaire and those assigned to the 'full' questionnaire?

To answer RQ2 – i.e. whether the 'short' questionnaire is particularly effective among unproductive sample members with specific outcomes (non-contact, refusal, uncertain eligibility, or other non-response) at the end of the face-to-face fieldwork period – we compute response rates across the two experimental groups ('short' and 'full') by outcome at the end of the face-to-face fieldwork period.

To answer RQ3 – i.e. to what extent does the follow-up phase improve response rates? – we compute response rates before and after the mop up phase.

To answer RQ4 – is the 'short' version particularly effective among specific subgroups of sample members (e.g. previous wave non-respondents)? – we run a logistic regression, with survey participation ('full' response) as dependent variable. Explanatory variables are: experimental allocation into the 'short' or 'full' version of fieldwork, and the interaction between the experimental allocation, socio-demographic characteristics observed at baseline and in earlier waves (sex, ethnicity, and parental socio-economic status) and prior wave outcome (i.e. productive versus unproductive).

To answer research question five (RQ5) – what is the impact of the non-response follow-up interview on response bias? – we compare the distribution of sex, parental socio-economic status and ethnicity (white or not-white) in the issued sample, among

respondents before the non-response conversion phase, and among respondents after the non-response conversion. We first look at the combined impact of the 'full' and 'short' surveys combined and then repeat the analysis separately for each. It should be noted that we use socio-demographic characteristics (sex, parental socio-economic status and ethnicity) collected at baseline (and, where not available at baseline, at prior survey waves). Using measures collected at baseline allows us to disentangle differences in representativity and measurement. Survey duration may impact on the accuracy of survey responses, so if we were to use socio-demographic characteristics collected during the Age 32 survey, we may confound measurement bias (due to measurement difference in the 'short' versus 'full' survey) and non-response bias (due to variability in response propensity between the 'short' and 'full' surveys).

Throughout, response rates are calculated adopting the 'Response Rate 2' as defined in the standard definitions of the American Association for Public Opinion Research (AAPOR, 2023). This is the number of interviews (complete or usable partial) divided by interviews (complete or partial) plus non-interviews (refusal, non-contact, other non-interview) and cases of unknown eligibility.

Results

In Table 2 we compare response rates across experimental groups ('short' versus 'full' questionnaire). The 'short' non-response conversion survey has a higher response rate (11.8%) than the 'full' interview (7.6%) ($p = 0.010$). The 'short' questionnaire was particularly effective in boosting participation among prior wave non-respondents, 11.3% compared with 5.2% amongst those offered the 'full' version ($p = 0.002$). No significant difference is observed for prior wave-respondents.

Overall, we find support for our hypothesis that the 'short' questionnaire would lead to higher response rates.

In Table 2, we also compare the effectiveness of the 'short'/'full' refusal conversion survey by response outcome after the face-to-face fieldwork period, answering research question two. In line with our hypothesis, we find a higher (and marginally significant)

Table 2. Response rates in the 'full' and 'short' non-response conversion survey.

	Non-response conversion survey response rates (%)				
	"full" survey	"short" survey	total	P	χ^2
Total sample	7.6	11.8	9.6	0.010	9.21
n	*662*	*602*	*1,264*		
Prior wave					
respondents	11.7	12.6	12.2	0.768	0.09
n	*239*	*222*	*461*		
non-respondents	5.2	11.3	8.1	0.002	10.06
n	*423*	*380*	*803*		
Face-to-face outcome					
Refusal	6.0	10.4	8.2	0.083	3.01
n	*233*	*230*	*463*		
Non-contact	7.6	4.7	6.2	0.264	1.25
n	*184*	*169*	*353*		
Other non-interview	9.0	18.8	13.4	0.002	9.21
n	*245*	*202*	*447*		

P-value from a Pearson chi-square test.

Table 3. Response rates before and after the non-response conversion survey.

| | N | Response rate before non-response conversion survey | | | Response rate after non-response conversion survey | | | |
| | | % | 95% C.I. | | overall | | "full"° | "short"° |
					%	95% C.I.	%	%
Prior wave respondents	1,771	70.4	[68.3–72.5]		73.6	[71.5–75.6]	73.9	74.1
non respondents	1,205	25.0	[22.5–27.4]		30.3	[27.7–32.9]	28.9	33.5
Total	2,976	52.0	[50.2–53.8]		56.0	[54.3–57.8]	55.6	57.7

°projected figures as if all non-respondents were issued to same treatment.

response rate among sample members who refused participation in the face-to-face phase and are allocated to the 'short' (versus 'full') non-response conversion survey (10.4% *vs*. 6.0%, $p = 0.083$). We also observe that the short non-response conversion survey is significantly more effective than the 'full' non-response conversion survey for sample members who were categorised as 'other non-interview' at the end of the fieldwork period. No significant difference is detected for sample members for whom contact was not established at the end of the face-to-face fieldwork period.

As shown in Table 3, the non-response conversion phase overall led to an increase in response rates of 4 percentage points from 52% to 56%. The increase for prior wave non-respondents was particularly significant, a 5.3% rise from 25% to 30.3%. The increase for prior wave respondents was 3.2% (from 70.4% to 73.6%) which was not statistically significant. If all non-respondents had been allocated to the 'short' follow-up survey we would project that the overall response rate would have reached 57.7%, compared to a projected overall response rate of 55.6% if all had been allocated to the 'full' version. The difference is driven by prior-wave non-respondents (33.5% versus 28.9% from a pre non-response conversion response rate of 25.0%).

To understand whether the 'short' questionnaire is particularly effective at securing survey participation among specific subgroups of sample members we compare response rates among sample members allocated to the 'short' (versus 'full') questionnaire by

Table 4. Response rates in the 'full' and 'short' non-response conversion survey.

| | Non-response conversion survey response rates (%) | | | | |
	"full" survey	"short" survey	total	P	χ^2
Socio-demographic variable					
Sex: Male	6.3	9.3	7.7	0.137	2.22
n	366	322	688		
Sex: Female	9.3	15.2	12.1	0.036	4.38
n	291	273	564		
White ethnicity	8.5	12.2	10.3	0.091	2.85
n	400	360	760		
Ethnic minority	6.0	11.6	8.7	0.027	4.87
n	251	232	483		
Parental Socio-economic status:					
High	5.5	10.2	7.9	0.099	2.72
n	181	187	368		
Intermediate	9.9	12.0	10.9	0.620	0.25
n	121	100	221		
Low	7.7	13.2	10.3	0.022	5.28
n	339	295	634		

Table 5. Sample composition in the issued sample, before and after the non-response conversion survey ('short' and 'full').

| | Issued sample | | Before the n.r. survey | | After the n.r. survey | | | | | |
| | | | | | including "full" n.r. survey only | | including "short" n.r. survey only | | including "short" and "full" n.r. survey | |
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Male	49.5	[47.7–51.3]	44.0	[41.5–46.5]	44.0	[41.6–46.5]	43.9	[41.5–46.3]	43.9	[41.6–46.3]
Non-white	33.8	[32.1–35.5]	29.6	[27.4–31.9]	29.7	[27.4–31.9]	30.0	[27.8–32.3]	30.0	[27.8–32.3]
Higher SES	36.2	[34.5–38.0]	41.7	[39.2–44.2]	41.1	[38.7–43.5]	41.1	[38.7–43.5]	40.5	[38.1–42.9]
Intermediate SES	18.8	[17.4–20.2]	19.0	[17.0–21.0]	19.1	[17.2–21.1]	18.9	[17.0–20.8]	19.1	[17.2–21.0]
Routine SES	45.0	[43.2–46.8]	39.3	[36.8–41.7]	39.8	[37.3–42.2]	40.0	[37.6–42.4]	40.4	[38.1–42.8]

socio-demographic characteristic, i.e.: sex, ethnicity (white/non-white), and socio-economic status (Table 4). The 'short' non-response conversion survey leads to a significantly higher response rate, as opposed to the 'full' non-response conversion survey, for ethnic minorities (6.0% versus 11.6%, $p = 0.027$) and for sample members from 'low' parental socio-economic status (7.1% versus 13.2%, $p = 0.022$).

P-value from a Pearson chi-square test.

To understand whether the follow-up has any impact on response bias, we compare the distribution of the issued sample, with the distribution before and after the non-response conversion survey (Table 5). The achieved sample before the non-response conversion survey phase underrepresents males, ethnic minorities and respondents with low parental socio-economic status; also, it over-represents respondents with high socio-economic status. Following-up non respondents in the non-response conversion survey does not lead to major improvements in representativeness in any of the variables considered, however, we do observe some indication of a reduction in the underrepresentation of respondents from ethnic minorities and from low parental socio-economic status. The impact on non-response bias did not differ between the 'short' and 'full' non-response surveys.

Discussion and conclusion

This study analyses the potential of a non-response conversion web survey implemented in the last phase of fieldwork of a large-scale cohort study: the Next Steps Age 32 Survey. Specifically, we test the effectiveness of the non-response conversion survey and compare the impact on response rates of offering sample members the possibility to participate in a survey of shorter duration (versus the 'full' survey instrument). The 'short' version of the survey omitted some of the questions included in the 'full' survey and excluded additional survey tasks (i.e. the consent to data linkage, the cognitive assessment and the collection of a saliva sample for genotyping).

We find that the non-response conversion survey improved response rates. A reasonable conversion rate was achieved amongst those re-invited to complete the 'full' survey. Initial reasons for refusal were not well-recorded, but this finding implies that circumstantial factors may be important and that simply providing a further opportunity to participate can be an effective strategy in itself. However,

shorter (20 minutes) non-response conversion survey was more effective at boosting response than the 'full' 60 minute version which suggests that the perceived burden of taking part in the 'full' survey was a bigger barrier than circumstantial factors.

It is important to note that the 'short' version was not only shorter but also excluded specific tasks, such as cognitive assessments, data linkage requests, and biological sample collection. Data linkage and the wish to collect a saliva sample for genetic research were described in the invitation materials received by those in the 'full' group but not those in the 'short' group. These elements may have been viewed by some as particularly sensitive or burdensome. We cannot be certain of whether the higher response rate achieved by the 'short' survey was driven purely by its reduced length, by the removal of these potentially sensitive tasks or a combination of both. The 'short' version was found to be particularly effective at boosting response amongst those who had not taken part in the previous wave, ethnic minorities and those from lower-social class backgrounds, although overall we found only very minor impacts on overall non-response bias.

Overall, our findings indicate that offering a shortened online non-response conversion survey could be an effective strategy to boost response rates. However, there are obviously a number of trade-offs that need to be considered. Firstly, although the approach could result in additional participants being interviewed, the data collected from these participants will inevitably be incomplete, which poses a challenge for analysts using the data. Careful consideration must be given to the selection of measures included in the 'short' version. In this case, the measures chosen for inclusion in the 'short' survey were those considered to be of maximum utility to the widest range of potential users of the data. Refusal conversion can also lead to higher measurement error due to lower quality answers from reluctant respondents (Cannell & Fowler, 1963; Olson, 2006). However, recent research suggests that measurement differences might be due to sample composition (i.e. differences between 'early' versus 'late' respondents) and recall errors, rather than unwillingness to provide accurate answers (Kreuter et al., 2014).

Furthermore, in longitudinal settings, further research may consider the long-term effects of offering non-response conversion surveys of shorter duration at the end of the fieldwork period. There could be a concern that participants could learn that they can refuse to take part in a 'full' survey as they will then be offered the opportunity to take part in a shorter version, and potentially receive the same incentive (or even a larger incentive!). In the specific case of the Next Steps cohort study, which typically has an approximately 5 year interval between waves, any detrimental effect on subsequent wave participation may be less pronounced, as opposed to longitudinal studies with shorter time intervals between waves.

There are a number of ethical issues that require consideration. Indeed, researchers should reflect on the difference between politely offering a second opportunity to participate in the survey and harassing participants (Stoop, 2017). However, surveys that implement non-response or refusal conversion phases typically target these efforts only at sample members who have not adamantly declined participation. This was the case in the Next Steps Age 32 survey, where adamant refusals were excluded from the follow-up phase. No complaints were received from those re-contacted. Thought should also be given to the ethical implications of offering sample members incentives of the same value for surveys of varying durations. This issue fits within the broader discussion

on the fairness of differential incentives (see Nicolaas et al., 2019), which remains a promising area for further research.

In this particular case the study team were firmly of the view that offering non-respondents a further opportunity to participate in a shortened online version of the survey was successful and the approach was rolled out for the remaining batches of fieldwork. The approach has in fact become standard practice across all the cohort studies run by the Centre for Longitudinal Studies. The opportunity to collect core information from those who would otherwise not have taken part at all is extremely beneficial. It is known that lack of participation in one wave of a longitudinal study can significantly reduce the likelihood of participation at the next, so by securing participation, albeit at a reduced level, it is also hoped that this will have a positive impact on long-term attrition.

Finally, while not collecting the full range of information of the entire questionnaire, and regardless of the omission of additional tasks, we consider the short survey to add significant value to the study by unlocking research opportunities and supporting post-survey adjustments to minimize bias. Furthermore, in the context of longitudinal studies, a short survey has the potential to keep respondents engaged with the study and reduce future tracing efforts by updating contact details.

Note

1. 3,206 cases were initially assigned to wave 1, however a small share of cases (3%, $n = 93$) were reallocated to the mainstage data collection due to difficulties in assigning interviewers to some areas. The final sample issued to the soft launch was composed of 3,113 cohort members.

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Notes on contributors

Alessandra Gaia is Senior Research Fellow at the UCL Centre for Longitudinal Studies, where she contributes to the Applied Survey Methods research programme, focusing on approaches to maximising survey response, measurement of sensitive topics, innovations in data collection, collection of consents for record linkage and of biological samples in social surveys. She is General Secretary of the European Survey Research Association, associate editor of Survey Research Methods and Research Associate of the Institute for Social and Economic Research (ISER, University of Essex).

Matt Brown is Senior Survey Manager at the UCL Centre for Longitudinal Studies (CLS) and member of the CLS senior leadership team. His role involves overseeing the management of the CLS cohort studies, supervising the team of researchers involved in the design and development of data collection strategies and questionnaires, and the collaboration with fieldwork contractors to ensure successful delivery of the projects. His research interests are in survey methodology, particularly in relation to the design and implementation of longitudinal surveys.

Tugba Adali is Senior Research Fellow (Survey Manager) at the UCL Centre for Longitudinal Studies, where she is involved in the running of the CLS cohort studies. Tugba holds a PhD in demography from the Hacettepe University Institute of Population Studies in Turkey. She worked there as survey methodologist on the Turkey Demographic and Health Surveys.

Stella Fleetwood (Ipsos) is an Associate Director at Ipsos. Stella brings expertise in survey methodology to her work on longitudinal studies including the Next Steps Age 32 Survey and the Generation New Era surveys. Her research interests are in survey methodology, with a focus on longitudinal survey design and implementation. She holds an MSc in Clinical Medicine (Paediatrics) from the University of the Witwatersrand, Johannesburg, South Africa, where she contributed to the Birth to Forty Longitudinal Study.

Christy Lai (Ipsos) is a Research Manager at Ipsos UK. Since joining the company in 2020, after completing her Master's in Clinical Psychology, she contributed to several intricate and large-scale research projects, including the Next Steps Age 32 survey. As a dedicated member of the Hong Kong BN(O) Migrants Panel Survey team and the Growing Up in the 2020s study team, she continually enhances her experience in complex longitudinal research projects.

ORCID

Alessandra Gaia 🔟 http://orcid.org/0000-0003-4478-7629
Matt Brown 🔟 http://orcid.org/0009-0000-7622-8552
Tugba Adali 🔟 http://orcid.org/0000-0002-1135-5638

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