Survey Completion Speed of Online Panellists – The Role of Demographics and Experience

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Abstract

This paper uses Ordinary Least Square to examine the survey response times of 1,067 individuals over their career with one online panel to identify whether demographic factors or survey experience influenced their relative survey completion speed. We found that as people got older, their relative completion time increased, and that those who were employed completed surveys more quickly. We also found that as respondents completed additional surveys, their relative completion time decreased, suggesting the existence of a 'learning' effect.

Keywords: Online Panels, Response behaviour, Survey Participation

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Introduction

Marketers are increasingly using online panels to examine a range of research questions (Deutskens, de Ruyter, Wetzels and Oosterveld, 2004). While researchers are interested in how survey design features influence response behaviour (Couper, Traugott and Lamias, 2001), other researchers have focused on whether respondent characteristics impact on response behaviour. For example, do respondents who have experience completing online surveys behave differently to those who have not previously completed online surveys (Toepoel, Das and Van Soest, 2008; Yan and Tourangeau, 2008), or do general personality characteristics affect individuals' response behaviour to online surveys (Han, Albaum, Wiley and Thirkell, 2009; Larson and Sachau, 2009).

Looking at respondent behaviour in commercial online panels is slightly more complicated, as respondents are completing multiple unrelated surveys, which is one suggested limitation of commercial panels (Nancarrow, Pallister and Brace, 2001). Thus, tracking behaviours across surveys is problematic, as few measures are transferable across unrelated completed surveys. While authors have proposed metrics for looking at panels generally (Callegaro and DiSogra, 2008), there is limited research that looks at longitudinal online panel behaviour. One metric that might be useful is change in survey completion time, which would identify whether respondents are increasing the speed at which they complete surveys relative to the sample.

Longitudinal online behaviour research is further limited as the data gathered belong to the clients of the online panel provider and researchers would generally not have access to the longitudinal behavioural data. The panel operators do, however, have this data as they need to manage their pool of online panellists, and completing surveys too quickly is one issue they seek to control (Courtright and Brien, 2009). The research within this paper looks at such proprietary data covering multiple respondents over their career with one online panel. It seeks to identify whether respondent demographics (age, gender, education, employment level) or the level of participation in additional surveys impact on response behaviour and relative response speed.

Response Speed

One of the biggest challenges when examining respondent behaviour is to identify an appropriate measure of performance (Callegaro and DiSogra, 2008). Given that panel participants complete multiple unrelated surveys, it is difficult to identify measures that evaluate changes in response behaviour over time. Overall completion rates are often used as a measure of data quality for individual surveys. For individuals, however, it has been suggested that response speed might be an individual measure of performance, and panel operators exclude respondents who continually complete surveys 'too quickly' (Courtright and Brien, 2009). Malhotra (2008, p. 930) examined overall completion time, which he suggested reflected the respondent's 'attention' to the survey. Yan and Tourangeau (2008) also investigated item response times to see what factors (individual and design features) affected item completion times. In both studies, it was suggested that

responding too quickly might mean that people had not given the questions due consideration, whereas responding too slowly might mean people are indecisive.

Comparing response times for individual items enables a comparison of individuals' behaviour across a range of item characteristics, which would be important for survey design (Yan and Tourangeau, 2008). Unfortunately, when exploring response times across completed surveys, the level of analysis becomes more complicated. Survey length (i.e., number of items), topic of the survey and complexity of questioning (e.g., a conjoint analysis study compared to an attitudinal survey) all might vary, as well as there being multiple respondents involved. An added complication in regard to looking at respondent response times across surveys is that a new metric allowing for comparisons across surveys is also needed.

Factors Affecting Response Speed

The research looking at response speed to surveys and items is not extensive, with much of it focusing on whether there are differences in variations between types of items (Yan and Tourangeau, 2008). Lenzner, Kaczmirek and Lenzner (forthcoming) suggest that more complicated items take longer to evaluate and respond to, whereas Galesic and Bosnjak (2009) suggest that questions later in surveys are answered more quickly, that is, people give them less consideration. Yan and Tourangeau (2008) and Malhotra (2008) have investigated whether demographic factors influence response times (to items and overall surveys, respectively). It has been proposed that older respondents would take more time to complete survey items, as they process information more slowly (Yan and Tourangeau, 2008). Malhotra (2008) proposed that education would also possibly increase response times, as people who have completed more education might be more likely to consider questions in more detail.

Gender has generally not been explored in regard to response times. Anecdotal evidence from online panels suggests that the population of respondents is skewed towards males and that they tend to join online panels for the monetary rewards (Courtright and Brien, 2009). Further, they would possibly be more likely to try and complete more surveys and be faster completers. Within this research we have also included employment status as a form of time constraint, as it is expected that people who work will have less free time and, thus, are likely to complete surveys more quickly.

The final variable included in the analysis was an ordinal number for each survey completed in regard to each respondent (i.e., was it their first, second, etc.) Several researchers have suggested that those with more experience at completing surveys will complete surveys more quickly (Shropshire, Hawdon and Witte, 2009; Yan and Tourangeau, 2008). In this study we used the specific survey number (i.e., relative completion time of *X* on Survey *Y*), which enables us to identify whether there is a learning effect, rather than simply an experience effect.

Data

The data obtained were for 1,067 online participants who responded to an unrelated survey. Data on the number of invitations distributed to generate these responses were not provided, which is

a problem with online panel research (Callegaro and DiSogra, 2008). The panel provider recruits their participants using a range of advertising methods (Göritz, 2004) including online, print, word of mouth and targeted marketing. While the panel providers do track recruitment methods, this information is not communicated to the researchers using their services.

The online panel owner provided us with data in regard to the completion times for *all* surveys that each of the respondents had completed, as well as the overall sample average response time for that survey. Each respondent had completed a different number of surveys with the online panel provider. The individual's relative completion time for each survey was calculated by dividing their completion time by the overall average completion time for that survey. If the individual was slower (or faster) than the average respondent to that survey, they would have a relative time greater (or less) than 1. Survey lengths vary and one of the potential issues is that brief pre-screening surveys are also included as completed surveys (i.e., real response times would be less than a minute). Given that we are looking at relative times this is less of an issue (i.e., all respondents' completion times would be fast). The relative time variable, therefore, allows us to compare behaviours across different surveys, as relative time takes into consideration the specifics of each survey within the sample. Relative time is continuous and is used as our criterion variable in our analysis.

As part of the data set we were also provided with a survey Id for each survey. The Id's are chronologically numbered, which enabled us to identify the survey ranking order. A time variable was created for each survey for each individual, whereby the first was T1, the second was T2, the third was T3, etc. Time is, therefore, continuous and is used as a predictor to assess whether there was a learning effect.

We were also provided with a range of demographic data. This included data related to respondents: (a) actual age, which is a continuous predictor variable; (b) gender, which we used as a dummy variable - 0 male; 1 female; (c) age in years, which was a continuous variable; (d) education, which was a categorical variable and which we transformed into a dummy reflecting - 1 completed some post-high school education (completed TAFE, University or a Postgraduate degree), and 0 - did not complete post-high school education (did not finish high school, finished high school or some University/TAFE); and (e) employment status, which was also a categorical variable and was transformed into a dummy variable – 1 for some paid employment (full or part time), and 0 - no paid employment (student, homemaker or retired).

Sample

The sample comprised 1,026 people who completed an unrelated attitudinal survey. In total, the respondents had completed 1,779 different surveys, or 29,439 observations. On average, each respondent had completed 29.32 surveys, ranging from 1 to 187 surveys. The criterion variable was individuals' relative response time, and ranged from 0 to 20.79. In this instance, 0 is an acceptable relative response time as some surveys were, in fact, short (one or two item) pre-screening surveys. The average relative survey completion time across all surveys was 0.858 (std = 0.552), that is, our sample was generally faster than the overall respondent completing the average survey.

In terms of demographic characteristics the sample comprised 49.2% males. The education distribution of the sample comprised 54.9% who had completed post-high school education. In terms of employment, the sample comprised 66.4% who were in paid employment. The average age of respondents was 43.19 years. Proprietary data identified that over 60% of online panellists in Australia are members of multiple panels. A question about participation on other panels was included in the unrelated survey, and indicated that 57.5% were members of other panels. As such, we believe that the sample is representative of all online panels in Australia.

Analytical Techniques

Given that the data were structured in the form of repeated measures, we used OLS multiple regression analysis with robust sandwich-type Taylor linearised variance estimation for standard errors, as the assumption that the observations are independent and identically distributed (i.i.d.) does not hold (Kish, 1965). While the relative response time and survey number vary across each respondent's set of observations, the demographic factors are repeated for each individual. This requires that we control for individually-based variation. Two variables (the criterion variable, "Relative time of survey completion", and the predicting variable, "Time") were normalised using Blom's (1958) rank-based inverse normal transformation.

Results

In regard to demographic results, we found that gender does not have a statistically significant impact on response speed (see Table 1). It was anticipated that if there were to be a difference, males would be faster, but no such relationship was found. This is consistent with Malhotra (2008) who found that gender did not impact on survey response speed. Malhotra (2008) and Yan and Tourangeau (2008) found that those who had only completed high school were faster at completing surveys ($\beta = -0.098$; $p = 0.027$). However, in our study, we found that completing post-high school education did not significantly impact on survey completion times.

Table 1: OLS Multiple Regression Results

	Coef.	Linearised Std. Err.	t	P>t	[95% Conf.	Interval]
Age	0.013	0.001	9.75	0.000	0.011	0.016
Gender	0.020	0.043	0.47	0.636	-0.064	0.105
Education	-0.016	0.041	-0.40	0.691	-0.098	0.065
Employment	-0.098	0.044	-2.21	0.027	-0.185	-0.011
Time	-0.115	0.012	-9.52	0.000	-0.139	-0.091
_cons	-0.488	0.107	-4.55	0.000	-0.698	-0.277

Note: Criterion Variable is Relative time of survey completion; N = 29,439, Number of PSUs = 1,026, design DF = 1,025, F(5, 1021) = 49.46, Prob >F = 0.000, R-squared = 0.062. Coefficients are completely standardized.

In regard to age, as anticipated, older respondents did take statistically significantly longer to complete surveys ($\beta = 0.013$; $p = 0.000$). This is consistent with Malhotra (2008) and Yan and

Tourangeau (2008) who found that older respondents take longer and that it is possibly due to slower mental processing. We explored this further and found no interaction between age and number of surveys, although future research could explore whether differences occurred for specific age cohorts (say, over 65). The final demographic variable to be examined was employment, which we included as a time constraint, that is, working people would have less discretionary time and, thus, complete surveys more quickly. As was predicted, people who were employed also took less time to complete surveys ($\beta = -0.098$; $p = 0.001$).

In regard to a learning effect, the β coefficient, -0.115, for time is statistically significant ($p = 0.000$), thereby indicating that as people complete additional surveys they decrease their relative response time (i.e., they get faster). This is consistent with the research of Toepoel et al. (2008) and Yan and Tourangeau (2008), who found that those who had completed more surveys in the past, were faster than others. Thus, there does appear to be a learning effect.

Conclusions

The results advance our understanding of online panel behaviour and respondent-based factors that might impact on response rates. Research using longitudinal behavioural data from online panellists completing a range of varied surveys has not previously been undertaken. The results identify that some demographic factors do indeed impact on individual response times, which is consistent with previous research using data examining response times for items and cross-sectional data.

What is, however, unclear is whether increased or decreased response speed due to demographic factors affects data quality. Some researchers, such as Malhotra (2008), do caution that having people complete surveys too quickly is problematic as they may not have considered the questions thoughtfully. This is supported by Galesic and Basnjak (2009) who found that questions located later in surveys took less time to complete, no matter which questions they were. Thus, as people worked through a survey they decreased their response times to the items.

If excessive speed is a problem, these results are worrisome, as we found that those who complete additional surveys reduce their response times (i.e., get faster over time), which is consistent with Yan and Tourangeau (2008) and Toepoel et al. (2008). Again, increased response speed is not an issue if it simply means people become more efficient at completing surveys, but, if it suggests that people give each question less consideration (Galesic and Bosnjak, 2009; Malhotra, 2008), it is clearly an issue. Evaluating individual data quality across multiple surveys is something that requires additional future research which was, unfortunately, not possible with the data available. It is also unclear how one assesses the data quality of individual responses to divergent surveys. From a managerial perspective, respondents' relative response times may be a characteristic that should be monitored by panel providers (Malhotra, 2008). Researchers could then request that samples include a 'mix' of respondents, based on the number of surveys they have completed or their changes in relative response times. If completing multiple unrelated surveys is an issue, the operators would need to refresh the panel, that is, turn over the panel membership. Such actions would, potentially, make managing panels and sampling for clients more complicated, as response rates are frequently much lower than for other data collection methods.

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