# LORE methodological note 2014:17

## When to send e-mail survey invitations during the day

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**ABSTRACT**

This note examines how six different dispatch times affect participation rates. The results show that e-mail survey invitation dispatch time during the day only affects participation rates in the short run, within the first 24 hours. Effects are also only found among pensioners, a group which is still responding much quicker than working and unemployed respondents. In the longer run, within 6 days, all differences have disappeared.

## Introduction and hypotheses

Time of day is one of many possible factors that might affect participation rates in web surveys. This note aims to examine whether this is something survey practitioners need to take into consideration or not. The main hypothesis is that time of day matter in the short run, within the first 24 hours, but the effect should even out in the long run. What time is most effective could be dependent on factors such as when respondents tend to have time available for responding, which might be linked to for example their labor market situation. Gainfully employed respondents could for example be less flexible than pensioners and unemployed respondents.

## Data and results

The data was collected between November 27 and December 5, 2014. Respondents were randomly assigned to one of six different times of the day. The rationale of the chosen times was the following; the day was split into 7 periods, each representing a distinct part of the 24-hour cycle; early morning (06–09), late morning (09–12), lunchtime (12–13), afternoon (13–17), early evening (17–20), late evening (20–23) and nighttime (23–06). One third into each of these periods was decided as the dispatch time for that experiment group (e.g. a third into the first period 06–09 is one hour, i.e. 07:00). The nighttime was exempted since it was decided that it was too late to send out emails at 01:20 (a third into the nighttime period 23-06).

Table 1 shows net participation rates (NPR) split by the time respondents received the invitation email. The first column shows the participation rate after 24 hours and the

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second the participation rate after 6 days. Only 1 of 15 group comparisons differs significantly from zero at the 95% confidence level. The 21:00 group had a 2.3 percentage points lower participation rate than the 12:20 group. No differences are found after 6 days.

## Table 1. Net participation rates (NPR) by time experiment groups

| | NPR, 24 hours | NPR, 6 days | N |
|---|---|---|---|
| 07:00 | 33 | 46 | 7,838 |
| 10:00 | 33 | 46 | 7,807 |
| 12:20 | 34 | 46 | 7,919 |
| 14:20 | 33 | 46 | 7,889 |
| 18:00 | 33 | 46 | 7,866 |
| 21:00 | 32 | 47 | 7,960 |
| Total | 33 | 46 | 47,279 |

***Comment*: Here, participation is counted as those that have started the survey within a given time frame, which should be a better proxy for when respondents notices the e-mail than only measuring those who complete their survey. Bounces are excluded from the analysis.**

A one-way ANOVA comparing the groups after 24 hours shows that between group differences are only barely significant at the 95% confidence level ($F(5, 47{,}273) = 2.21$, $p = 0.05$). Another ANOVA comparing participation rates after 6 days is on the other hand very far from significant ($F(5, 47{,}273) = 0.61$, $p = 0.69$). The main hypothesis is largely borne out, though differences are very small despite the large group sizes.

A closer look at participation rates in different labor market groups shows that there is indeed a group which is less "flexible" than others, but it is not the gainful workers, the hypothesized group. It is instead pensioners that are less likely to respond quickly, that is within the first 24 hours, to e-mails they receive in the evening than to e-mails they receive in the morning. ANOVAs in Table 2 also confirm this. It should be noted though that the participation rate is generally much higher in this group than among working and unemployed respondents (between about 15 and 30 percent points higher).

## Table 2. ANOVAs of NPR by time experiment group within labor market status group

| | Labor market status | F-value | Prob > F | obs |
|---|---|---|---|---|
| *After 24 hours* | Unemployed/student | 0.50 | 0.77 | 7,651 |
| | Working | 1.08 | 0.37 | 28,465 |
| | Pensioner | 2.91 | 0.01 | 8,657 |
| *After 6 days* | Unemployed/student | 0.45 | 0.81 | 7,651 |
| | Working | 0.99 | 0.42 | 28,465 |
| | Pensioner | 1.62 | 0.15 | 8,657 |

To summarize, participation rates are only affected by which time of day respondents receive e-mails in the short term. Significant effects are also only found among pensioners, a group which is still generally responding much quicker than working and unemployed respondents. In the longer term, within 6 days, all differences depending on time of day for dispatch have disappeared. More detailed information regarding the working situation, for example whether respondents are blue- or white-collar workers, could potentially uncover differences not examined in this analysis. But such a hypothesis relies on blue-collar respondents not having constant access to a computer during the working day, which is perhaps an unlikely assumption give the in Sweden ubiquitous smartphone usage.

The Laboratory of Opinion Research (LORE) is an academic web survey center located at the Department of Political Science at the University of Gothenburg. LORE was established in 2010 as part of an initiative to strengthen multidisciplinary research on opinion and democracy. The objective of the Laboratory of Opinion Research is to facilitate for social scientists to conduct web survey experiments, collect panel data, and to contribute to methodological development. For more information, please contact us at:

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