**Better to push than to beat around the bush: An argument for higher initial frequency in contact attempts**

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Introduction

High response rates in surveys are regarded as important in order to produce representative statistics of high quality. In recent years the focus upon reducing the non-response rate in surveys has gained more and more attention. The central question all survey administrators should ask is which model provides contact with as many respondents as possible and still manages to maintain high quality in the data and keeps costs down. We search for a model that gives as many successful contacts as possible, without ending up with a biased sample. In the search for such a model, we debate the role of communication frequency. In other words, is it better to “wait the respondent out” or should one contact the respondent with fierce and fury?

Background

When speaking of communication frequency we refer to the number of contacts attempts within a limited time period. Theories in survey-research provide limited insight into the importance of frequency of contact attempts. Current models emphasize that the number of contacts combined with the timing of contacts (Groves, 2004) matters, but they seldom go into detail on frequency.

When collecting survey data, the communication with interview participants has traditionally been paper based and delivered by mail service. This communication is slow and there are therefore limits on how many letters to send and how fast they can be received. In addition it is not possible to specify accurate delivery times. This may vary considerably, and we exert little control over the timing. It has also been thought that participants should not be pressured too much, so they would withdraw from the study. They should be given time and space. In these modern times, we argue for the opposite.

New technological communication techniques such as e-mail and text-messages are now more frequently used when communicating with participants in surveys. This allows more control over frequency and timing. Messages can be sent in an instant, without any delays. The respondent receives and reads the message almost immediately. This provides new opportunities in terms of combining numbers of contacts and time of contact. Messages can be sent with a high frequency and the timing can be varied to fit the respondents’ accessibility-pattern down to the minute. However, leading scholars in the survey field has warned against too frequent reminders (Dillman, Smyth, & Christian, 2014).

Likelihood of contact is also influenced by other factors such as physical impediments, social environmental- attributes, socio-demographic (lifestyle) attributes, and characteristics of the interviewer. These factors are of importance, but increased mobility means we no longer must reach participants at home, so mapping their at-home-patterns are of less importance. Still, in a world where time is a scarce resource and people are constantly on the run, it would be important to make sure we reach people when they are most likely to be available for interview. It is therefore still important to predict respondents’ behavior patterns. Characteristics of the interviewer are important regardless of which contact strategy is used, in order to obtain an interview.

Method

In the search for a model that reduces the non-response, we hypothesize that a communication strategy based on high initial contact frequency yields a higher response rate in surveys.

To test this hypothesis we have studied communication strategies and response rates in four different surveys that are either web based (CAWI) or telephone based (CATI). The first survey (LMU) is a web based survey where we did an experiment on different types of communications strategies that varied in frequency and contact-mode, to see the effect on response rate. The second survey (Eurostudent) is a web based survey where we applied a high-frequency model based on the experience with LMU . The two surveys EHIS and EU-SILC are CATI-surveys where respondents were divided into groups in order to achieve a high initial frequency in calls. EHIS was originally not meant as an experiment in communication frequency. However, we made the observation that the groups differed in response rate, and that this may be due to an inadvertence in communication strategies for different groups. We therefore implemented the system more systematically in EU-SILC.

Results

**CAWI-administered surveys**

In the yearly rental survey, LMU, 37 000 respondents are asked to report online about their rental dwellings and rent. We wanted to find out if we would get a higher response rate by sending more email and text messages within a shorter time span measured in days. This is the complete opposite of advised practice from leading scholars (Dillman et al., 2014, p. 331). A total of 10 different groups were created, all with different contact strategies, all with a bit less than 2 500 respondents. We also had a comparison group, not presented here, of more than 12 000 respondents receiving letters.

For the experiment we decided to use the same message within each modus in the same sequence in all groups. First message 1, then 2 and so on, for text messages and for emails. We decided to send messages at 10.00 in the morning, with only one exception, one group received also messages at 14.00 the first three days.

To communicate the strategies within the statistical organization the word intensity was used. Intensity refers to frequent contact with a response group within a limited time using one or more communication channels. Intensity indicates strength in the communication with the respondent. Increased intensity is to give faster and larger response rate.

Table 1 in the appendix shows the results. The groups marked Ses received text messages (sms) and emails several times the first week. Groups marked See received a text message and then only emails the first week. Looking at the results, it is evident that the groups which received a high number of contacts the first week gained a higher response rate in the end. In the groups where the contact was evenly spread throughout the data collection period, the response rate was lower. We argue this is about the frequency of contacts that two modes provide.

Group SesD received the most reminders in the first three days. The respondents in SesD received text and email in the morning and then again after noon the first three days. After three days the response in group SesD rate was already 38.1 per cent. This can be compared to the end results of other groups; no group is above 38 per cent with 10 messages in four weeks. At the end of the first week at Friday, group SesD had a response rate of 39.5 per cent as answers tick in just slightly. This is in line with previous findings, there are diminishing results to reminders (Couper, 2008). Only one group has a higher end result than SesD’s first week result, SesA. **SesA was the baseline group** and was sent a text message and an email from Monday till Friday the first week. This particular baseline strategy is repeated in a later project.

Looking at the See groups, more messages in the first week does result in a higher response rate in the end. All groups have received 10 messages; SeeA received 6 the first week and ended on 37.7; SeeD received 4 messages the first week and ended on 35.8; SeeC, SeeE and SeeB received 3 messages the first week and ended on 33.4, 33.4 and 31.3.

This shows that high frequency in contacts at the beginning of data-collection results in a higher response rate after the first week, and that this is regardless of communication mode.

From LMU we learned that sending out 10 messages in the first week does increase the response rate compared to spreading it out over time. In Eurostudent 2013 the response rate was about 48 per cent (44 per cent online and 4 per cent on paper). In Eurostudent 2016 we applied the baseline strategy (one text message and one email from Monday to Friday, like SesA in LMU), with some variations in time due to server issues, and the end result was about 50 per cent in one week, and an end result of 56 per cent response rate. No letters, and no paper forms, all online response. We argue that this improved response was due to the high-frequency reminders of the baseline strategy compared to slower alternatives.

## CATI-administered surveys

Based on experiences from the European Health Interview Survey (EHIS) in 2015, it seems that the same mechanisms apply to CATI-administered surveys. The Norwegian version of EHIS is comprised of 14 000 respondents and was conducted over 4 months. Average interview length was 36 minutes. In order to administer the data collection more efficiently the sample was divided into 30 groups which were distributed more or less evenly throughout the data collection period. During this period it was discovered that the groups which had higher initial calling frequency the first week gained a high response rate fast, and that the response rate stayed higher throughout the data collection period. In particular, group 7 had a higher initial calling frequency compared to the other groups. This resulted in a higher interview response rate the first week compared to the other groups (see figure 1 in appendix).

The calling system (“batch”) was initially set up to treat every respondent equally in terms of calling frequency regardless of group. At the time of collection of paradata (week 9 in data collection), the respondents in the groups should have received more or less an equal number of dials. The difference between group 7 and the others is therefore initial frequency of calls, not number of overall calls. Group 7 reached an interview response rate of 40 per cent the first week. After two weeks in data collection group 7 reached an interview response rate of 53 per cent. Overall response rate at the end of data collection was 67 per cent for the respondents in Group 7. The total response rate of the survey was 59 per cent. Table 2 in the appendix shows these results.

Keeping initial call-intensity-levels high can be challenging in a survey with a large sample and long interview time. One way to do this is to arrange the dialing batch into groups with priorities according to “freshness” of respondents. This was trialed during the last two months of data collection in EHIS. By dividing the batch into three groups; 1) “Fresh” respondents (stays fresh until dials have been made on 10 different days x number of times) 2) Refusal 3) Others, one can manage interview resources to have a higher dial frequency when respondents are fresh. The trial gave some promising results, albeit it did not end in an interview response rate of 67 per cent for the remaining groups.

In the somewhat similar EU-SILC-survey this system was implemented full scale. With a sample size of 11 675, the sample was divided into 40 groups. The dialing system was set up similar to that of EHIS. The results were promising. For the first time in this decade the interview response rate was 60 per cent, and although one cannot conclude that this is merely because of the group setup, it seems to have made an impact. Similar to the findings in CAWI-surveys, there seems to be a link between initial calling frequency and interview response rate.

Furthermore we looked into the possibility that the new set-up further increases the regular pattern in non-response bias, namely that we are more likely to obtain interview from highly educated, urban and middle-aged people. When comparing the socio-demographic traits of respondents and non-respondents in the 2013wave of the survey to the 2016 edition, there is no difference in non-response pattern. It seems that the new batch-system-setup does not further increase non-response bias, but it doesn’t decrease it either.

Discussion

The choice of communication strategy can have a significant impact on the final response rate. Developing an effective communication strategy is therefore an important factor in creating a model that will decrease the non-response rate. In this paper we have argued that a communication strategy based on high initial frequency, defined as a high number of messages in the beginning of the data collection period, is an effective mean to reduce non-response.

There are several positive outcomes of using this strategy. It is easier to get in contact with participants and the risk of non-response decreases. With new technology participants are available to receive electronic massages at all times. The time-frame for contacting participants is clearly defined and limited to a short period which is (often) positive for data quality. Earlier the contact-period was stretched out in time. Now it is much more concentrated. This is also beneficial in terms of saving resources and administering the various ongoing survey projects. Available resources can easier be administered and allocated better.

The next step in survey administration could be to implement further standardization in contact strategies. This includes standard time between first initial contact via mail, text-messages, e-mail and calls, a full multi-mode reminder set-up. This might yield even higher response rates, secures even amount of work for interviewers, and eases pressure on the organization as tasks are routine and relatively small compared to doing follow-ups in spurts where you would have bottlenecks of technical and administrative tasks for each follow-up chosen. Furthermore, small routine task may with time be automated, given that proper administrative systems are in place.

In the future, with further technological development, it could also be possible to incorporate machine learning into the communication process. Computers could register all information about contact with the respondent, and use this information to calculate and predict when respondents are most accessible and how many contact attempts should be made within a certain time-frame. Such automatizing of frequency and timing would maximize the likelihood of contact and interviews.

This high frequency-strategy might also cause problems. By using a contact strategy based on high initial frequency we risk to obtain a biased sample. We need to ask ourselves what kind of respondents we attract with this strategy. Do they differ from the rest of the population? In other words, does the net sample differ from the gross sample? Perhaps more young people and less elderly will respond by using this strategy, or perhaps more people living in urban areas respond to the strategy. The quality of data will be compromised. We will get more responses, but we do not know if these people are similar to the respondents we already got, or if they differ. To know more about this we need to investigate the data, too see if there are differences between the gross and net sample. Attrition in a panel-based sample is also something which must be further considered. Are contact-strategies with several contacts with different modes a day/week something respondents will accept in the long run?

General survey fatigue in the population is also an issue. If one increases the sample size (which is often done in self-administered surveys) and increase the frequency in reminders, survey fatigue might be even higher in the years to come.

Conclusion

The results of our experiments show that a communication strategy based on high intensity can increase the response rate in surveys. The effect on response rate is greater if the intensity is high in the first week(s). This effect is prevalent both in CAWI and CATI-surveys. Based the results we believe that using a contact strategy based on high initial frequency can reduce non-response.

A model that emphasizes high initial frequency could be valuable not only in terms of reducing the non-response itself, but also in terms of saving resources and operate a survey department. Making the contact-process more automatized in the future may be even more beneficial and would minimize the chances of non-response.

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Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys : the tailored design method* (4th ed. ed.). Hoboken, N.J: Wiley.

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## AppendixTable 1.

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|  | Messages per week and the response |
|  | First week | Second week | Third week | Fourth week | Number of messages sent | End result |
| SesA | 5 sms, 5 email | 1 email | 1 sms | *No messages sent* | 12 (6 sms, 6 email) | 42,1 |
| SesB | 3 sms, 2 email | 1 sms, 2 email | 1 sms | 2 sms, 2 email | 13 (7 sms, 6 email) | 39,2 |
| SesC | 2 sms, 1 email | 1 sms, 1 email | 1 sms | 3 sms, 3 email | 12 (7 sms, 5 email) | 37,7 |
| SesD | 6 sms, 3 email  | 1 email | 1 sms | *No messages sent* | 11 (7 sms, 4 email) | 42,0 |
| SesE | 3 sms, 3 email | 1 email | 1 sms | 2 sms, 2 email | 12 (6 sms, 6 email) | 39,0 |
| SeeA | 1 sms, 5 email | 1 email | 1 email | 2 email | 10 (1 sms, 9 email) | 37,7 |
| SeeB | 1 sms, 2 email | 2 email | 1 email | 2 sms, 2 email | 10 (3 sms, 7 email) | 31,3 |
| SeeC | 1 sms, 2 email | 2 email | 1 email | 2 sms, 2 email | 10 (3 sms, 7 email) | 33,4 |
| SeeD | 1 sms, 3 email | 1 email | 1 email | 2 sms, 2 email | 10 (3 sms, 7 email) | 35,8 |
| SeeE | 1 sms, 2 email | 2 email | 1 email | 2 sms, 2 email | 10 (3 sms, 7 email) | 33,4 |

Table 1 : End results in LMU per cent, based on messages intensity and mode.

## Table 2.



Table 2 : Interview response rate by the number of weeks in data collection, paradata from week 6 - per cent

## Figure 1.

Figure 1 : Response rate by group and weeks in data collection – numbers from week 9 of data collection