

Increasing your n (sample size)

By Marilyn K. Simon and Jim Goes

Includes excerpts from Simon (2011), *Dissertation and Scholarly Research: Recipes for Success*. Seattle, WA: Dissertation Success LLC

Find this and many other dissertation guides and resources at www.dissertationrecipes.com

The response rate for a survey (also known as completion rate or return rate) refers to the ratio of the number of people who answered the survey divided by the number of people who were sent the survey. It is usually expressed in the form of a percentage. For example, if 1,000 surveys were sent by mail, and 257 were successfully completed and returned, then the response rate would be 25.7 %. Obtaining a high response rate can bolster statistical power, reduce sampling error, and enhance the generalizability of the results to the population being studied. It is well worth your efforts to achieve the highest response rate you can.

Common techniques to increase your n

Some general ways to increase your **n** include: a) ensuring that the survey topics and questions are of interest, concern and value to the participants; b) informing potential participants about how the survey will benefit them or their profession or organization; c) alerting potential respondents that the survey is coming so they will not be surprised by it; d) making participation voluntary, anonymous and confidential; e) keeping your survey as simple and user friendly as possible; f) keeping the number of questions to the minimum necessary to obtain the data you need; g) making sure the survey is visually attractive; h) allowing participants the opportunity to provide open-ended responses instead of answering just “other” [For report writing, these open-ended responses can be used to confirm, articulate and triangulate a finding]; i) personalize the survey whenever possible; and j) send frequent and friendly reminders to non-respondents (Heller, 1996; Simon, 2011).

Other ways to increase your **n** are to ensure that the survey is written to an appropriate level (i.e. the average reading level is equivalent to grade 5), that the survey is not too long, and that the survey can be completed at the convenience of the participant (Neuman, 2003).

A technique that some doctoral students have found effective to increase the **n** in dissertations dependent on survey data is to present the survey when a targeted sample of the population is gathered in one place (Simon, 2011). This could be at professional or in-service meetings. If you plan to be at a meeting that potential participants are likely to attend, you can contact planners of the meeting and request a small booth where your survey could be distributed. Those who complete the survey could be provided with a button, pen, or some other small nominal gift of appreciation. A raffle ticket could also be given for a completed survey and the raffle held at the end of the meeting.

Teachers could request permission to distribute surveys prior to an in-service or professional development meeting. Providing donuts or pizza in exchange for being allowed to distribute your survey will likely increase your **n** significantly, at a minimal cost. Health professionals have used similar techniques at CEU conferences.

Other students have found it useful to develop a website dedicated to the survey, particularly if seeking responses from business or academic leaders such as CEOs. A little effort devoted to presenting a professional “face” to the survey and to your research can go a long way in establishing your credibility and boosting your response.

Using Incentives

Maximizing the response rate to surveys involves thoughtful choices about survey design, sampling and collection methods. One method that has been effectively used by businesses involves using a questionnaire printed as checks on security (anti-fraud) paper with questions and responses separated using a perforated tear off section. Once a participant completes the survey, the response area is detached from the questions, which protects the

confidentiality of the participants. The check is returned via the banking system.

A small prepaid monetary incentive (\$1) was also found to improve the response rates among nurses from 37% to 55% (Oden & Price, 1999) and physicians from 45% to 63% (Everett, Price, Bedell & Tellijohann, 1997). Hopkins and Gullickson (1992) conducted a meta-analysis of 85 studies, and found that the median response rate from initial mailing increased from 34.8% to 53.3% with a monetary incentive. Another meta-analysis study of 38 studies using a monetary incentive to increase response rates found an average response rate of 49% with a range from 12% to 86.5% (Church, 1993).

In an analysis of incentives used among hard to reach populations of Latino and Anglo parents of school-age children in a low socio-economic area, Martinez-Ebers (1997) found a 47% return rate with no incentive and a 64% return rate with incentive. While prepaid (i.e. cash sent with blank survey) monetary incentives can reinforce response behavior for mailed surveys, prepaid methodologies may be too costly for most researchers.

Dennis (2003) researched 16,000 small businesses in an attempt to understand why the response rates of small business owners are usually low. Dennis found repeated contacts, financial incentives, university sponsorship, and stamped return envelopes appeared to help increase the n. However, based on the results of the study, only slight increases in response rates were seen with the aforementioned tactics. Dennis found that pre-notification that a survey was going to be sent, seemed to have the most significant increase in response rate.

Evans, Peterson, and Demark-Wahenfried (2004) conducted a study to determine whether response rate to a mailed survey differed with provision of immediate versus delayed incentives. The researchers sent a six-page mailed survey to ascertain dietary supplement to 1402 men who had been diagnosed with prostate cancer. Participants were block randomized into two groups based on age (≤ 65 years versus > 65 years), race (white versus nonwhite), and disease status (local or regional versus distant). One group received a 30

minute prepaid phone card concurrently with their blank survey (an unconditional incentive), whereas the other group received the incentive only on receipt of their completed survey (a conditional incentive). A 60% overall response rate was achieved, and no differences were found in response rates between conditional and unconditional incentive groups (overall, as well as within defined age, race, and disease-defined strata). Nonwhites, however, were significantly less likely to respond than whites ($P < 0.0001$) to either incentive plan. The conclusion was that acceptable response rates to a mailed survey can be achieved in a general population of cancer survivors using modest incentives. Given no significant differences in response rates using conditional versus unconditional incentives, the decision to provide immediate versus delayed incentives is one that should be considered on a study-specific basis, and a decision could be based primarily on cost.

Low Response Rates and Data Accuracy

Studies have been conducted to determine if low response rates actually affect the outcome of a study. Curtin, Stanley and Eleanor (2000) tested the effect of lower response rates on estimates of the Index of Consumer Sentiment (ICS). They assessed the impact of excluding respondents who initially refused to cooperate (which reduced the response rate 5 percentage points), respondents who required more than five calls to complete the interview (reducing the response rate about 25 percentage points), and those who required more than two calls (a reduction of about 50 percentage points). They found no effect of excluding these respondent groups on estimates of the ICS using monthly samples of hundreds of respondents. For yearly estimates, based on thousands of respondents, the exclusion of people who required more calls (though not of initial *refusers*) had a small impact.

Holbrook, Krosnick, Pfent, et al. (2005) also assessed whether lower response rates are associated with less *unweighted* demographic representativeness of a sample. By examining the results of 81 national surveys with response rates varying from 5 percent to 54 percent, they found that surveys with much lower response rates were only minimally less

accurate. Thus a low response rate did *not* guarantee lower survey accuracy and instead simply indicates a *risk* of lower accuracy. Consumers of survey results are therefore cautioned to view response rates as informative but to recognize that these rates do not necessarily differentiate reliably between accurate and inaccurate data.

Electronic Surveys

In the 21st century, electronic or web-based surveys offer the most potential with the least cost for increasing your **n**. Online surveys are cheap, fast, and easy to administer. However, due to the frequent misuse of online surveys, for example in advertising or promotional purposes, they have a comparatively bad reputation to other types of survey administration, and may get low response rates as a result.

In addition, is often difficult to draw random samples from an online survey, and response rates are difficult to compute since it not always possible to know who is actually receiving the survey. Online surveys are sometimes mistrusted for privacy and security reasons as well as the widespread fear of viruses or spam-mails.

Despite these drawbacks, electronic surveys continue to be used widely in commercial and scholarly research studies. Using social networking, professional organizations, e-bulletin boards at organizations, and target audiences are effective means of increasing your **n** and obtaining adequate and accurate responses to electronic surveys. Once a participant agrees to take the e-survey, informing participants up front about how long the survey should take, minimizing the amount of scrolling that is needed, and using a progress bar so respondents can see how they are doing, can help insure completion of the survey and increase your **n**.

Regardless of the means of delivery, the better the visual design of your survey, and the easier it is for your respondents to complete your survey, the greater likelihood you will have of increasing your **n**.

References

- Church Allan, H. Estimating the Effect of Incentives On Mail Survey Response Rates: A Meta-Analysis. *Public Opinion Quarterly*. 1993;57(1):62–79.
- Curtin, R., Stanley P Eleanor, E.. 2000. "The Effects of Response Rate Changes on the Index of Consumer Sentiment." *Public Opinion Quarterly* 64(4): 413-428.
- Dennis W. (2003). Raising response rates in mail surveys of small business owners: Results of an experiment [Electronic version]. *Journal of Small Business Management*, 41(3), 278-295.
- Evans,R., Peterson, B, Demark-Wahenfried, W. (2004). *Cancer Epidemiol Biomarkers Prev* February 1, 2004 13; 27. doi: 10.1158/1055-9965.EPI-03-0065.
- Everett, S.; Price, J; Bedell, A; & Telljohann (1997). The effect of monetary incentive in increasing the return rate of a survey to family physicians. *Evaluations and the Health Professions*. 1997;20 (2):207–214.
- Heller, H. (1996). "Best Practices: A Contrary View." In *CASRO Journal 1996*: "Best Practices: "What Is It and How Do We Get There?", pp. 65-67. Port Jefferson, NY: The Council of American Survey Research Organizations
- Holbrook, A., Krosnick, J.& Pfent,A. 2007. "The Causes and Consequences of Response Rates in Surveys by the News Media and Government Contractor Survey Research Firms." In *Advances in telephone survey methodology*, ed.
- Hopkins Kenneth, D; Gullickson, Arlen R. Response Rates in Survey Research: A Meta-Analysis of the Effects of Monetary Gratuities. *Journal of Experimental Education*. 1992; 61(1):52–62.

Martinez-Ebers, V. Using Monetary Incentives with Hard to Reach Populations in Panel Surveys. *International Journal of Public Opinion Research*. 1997;9(1):77–86.

Neuman, W. L. (2003). *Social research methods: Qualitative and quantitative approaches*. Toronto: Allyn & Bacon.

Oden, L; Price, JH. Effects of a small monetary incentive and follow-up mailings on return rates of a survey to nurse practitioners. *Psychological Reports*. 1999; 85(3 pt2):1154–1156. [PubMed]

Simon, M. K. (2011). *Dissertation and scholarly research: Recipes for success* (2011 ed.). Seattle, WA: Dissertation Success, LLC.
<http://dissertationrecipes.com/>