Variation in Motivational Appeals to Survey Completion: Lessons from a Randomized Experiment with Teachers

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Background: Adequate survey response rates are of major importance in conducting high quality research (Fowler 1993; Rea and Parker 1992). Response rates have implications for both a study’s statistical conclusion and external validity. In the extreme, inadequate response rates can invalidate a study’s findings.

There are several commonly-used approaches to induce participant response. One approach is to encourage participation through repeated reminders (Dijkstra and Smit 2002; Martin and Marker 2007). Monetary incentives are also increasingly used to help motivate survey participation (Singer and Bossarte 2006). There are also several approaches to motivate human action drawn from the psychology literature. McClelland et al. (1953) developed needs theory, which posited that people were motivated by the needs for achievement, affiliation, and power. Cialdini (1984) proposed six psychological factors underlying persuasion, including norms of reciprocity, social validation, authority, scarcity, liking, and consistency in behavior and attitudes. Researchers are beginning to experiment with such motivational approaches. For example, in an experimental study Wenemark et al. (2011) found that intrinsic motivation improved response rate on a health survey.

Purpose and Research Questions: The purpose of this study was to test the effects of different motivational approaches on survey response rates. We ask how variation in motivational approaches influence response rates at the onset of a survey (first appeal) and throughout the entirety of a study (follow-up appeals), as well as elicit a quick behavioral response (e.g. opening the survey email) and a full response (completing the survey).

Setting: The randomization of motivational approaches to induce survey completion was part of a study of a mathematics reform initiative being conducted with grades 3-5 teachers in the School District of Philadelphia in the Spring of 2017.

Subjects: The randomization experiment was conducted as part of the follow-up survey of teachers who had received either mathematics or literacy professional development in the summer of 2016. In the spring of 2017, the 405 teachers in our sampling frame, independent of the condition of their summer professional development, were randomly assigned to receive one of six motivational emails, which contained a link to a program survey and a unique survey code to access the assessment.

Research Design: The survey randomization utilized six distinct motivational appeals. Four appeals were informed directly by the theoretical work of McCelland and Cialdini, Need for
Achievement, Need for Affiliation, Reciprocity, and Commitment and Consistency. The study also included a direct extrinsic reward appeal to examine the influence of financial incentives on teacher response. A purely altruistic appeal was included as a counterfactual, the absence of a motivational appeal. For reproducibility of the survey randomization, a seed number in Stata was randomly selected from the serial number of a U.S. treasury bill.

Each appeal included relevant messaging in the subject line and body of the email, as well as a relevant image. The only difference in messaging between teachers who did and did not participate in the mathematics treatment program was a more generic framing of the request on behalf of the National Science Foundation for teachers who did not participate in the mathematics treatment. Every survey participant received $25 for completing the survey, though the extrinsic reward was the only one which included the financial reward in the subject line, in the first line of the email text (it was in the last line for all other appeals), and in the associated image.

Intervention/Program: The survey randomization occurred over a six-week span with a maximum of twelve emails per teacher. The survey began on Thursday May 4\textsuperscript{th}, 2017 and concluded on Tuesday June 13\textsuperscript{th}. All emails were sent via Constant Contact. The survey was administered by a professional survey firm. We count the beginning of each week as Thursday mornings, as the first email was sent on a Thursday. If a teacher did not respond by the following Monday afternoon they were sent a 2\textsuperscript{nd} email under the same motivation appeal on Tuesday morning. Email were sent at approximately 6:05 am. If a teacher had not completed their survey by the end of the week (i.e. the afternoon of the Wednesday, they were randomly assigned to receive a different motivational email for the next week, starting Thursday morning. This process was repeated for each week of the study (for a potential of six randomizations per teacher). A teacher stopped receiving emails after completing the survey.

Data Collection and Analysis: The study includes four sequential binary outcome measures – whether the teacher (1) opened the email; (2) clicked on the link in the email to the survey; (3) started the survey; and (4) completed the survey (0 no, 1 yes for each outcome). Email opens and survey clicks were observed through Constant Contact while survey starts and completions were observed from survey logs.

Findings/Results: During the first week, nearly 60\% of teachers opened an email. There were no significant differences in the likelihood of opening an email across appeals. Teachers who received an extrinsic reward appeal were, however, more likely to click on and complete the survey than teachers receiving the altruistic appeal, after controlling for day of the week and treatment (odds ratio of 5.6 and 3.2, respectively).

Across the entire survey timeframe, both reciprocity (‘Help us help you’) and the extrinsic reward appeals induced greater response. Teachers that received the reciprocity appeal had odds ratios of 1.42 (p<.05), 1.76 (p<.05), and 1.87 (p<.1) for opening an email, clicking and starting the survey, respectively, as compared to teachers that received an altruism appeal (after including relevant controls). The extrinsic appeal also outperformed the altruism appeal, with odds ratios of 2.85, 6.13, 7.79, and 4.80 (all p<.001) for each of the four outcomes, respectively.
Of teachers who completed the survey, 43% did so after receiving an extrinsic reward appeal. Figure 1 describes the cumulative survey completion by theme by week.

**Conclusions:** Our findings suggest that a relatively modest incentive can dramatically increase survey participation. In the absence of a monetary reward, appeals steeped in the terminology of assistance or aid can also induce greater survey response.

**References**
Figure 1. Cumulative survey completion by theme.