TIMING OF MAILINGS AND RESPONSE RATES: A NATIONAL STUDY OF COLLEGE STUDENTS

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Introduction

One of the major challenges in survey research is to determine factors that increase or decrease response rates in an effort to maximize them. When it is not possible to experimentally control these factors, it is interesting to take a post-hoc look and try to discern what factors may have led to differing response rates. When a sampling plan provides various subgroups in which to evaluate response rates, this exercise can be particularly interesting and fruitful. This poster evaluated the difference in response rates among sub-groups of the College Alcohol Study conducted by the Center for Survey Research at the University of Massachusetts Boston (for the Harvard School of Public Health and funded by the Robert Wood Johnson Foundation).

Study and Protocol

The College Alcohol Study (CAS) has been conducted by the Center for Survey Research in 1993, 1997, 1999, and 2001, each time under contract to the Harvard School of Public Health. The response rate data for this study comes form the 2001 edition of the CAS, and included 120 colleges from across the contiguous United States. 110 schools had sample sizes of 245 students each, and 10 schools had samples of 675 each, for a total of 30,100 students.

The survey consisted of 3 mailings conducted over the course of the spring 2001 semester. All mailings were conducted in immediate sequence if they did not conflict with the school's semester schedule (see below). The first mailing was conducted as soon as sample was received and processed from each member school. A reminder postcard was mailed 1 week after the first mailing. A second copy of the questionnaire was mailed 2 weeks after the reminder postcard.

Mailing schedules were established for each school, and took into account the beginning of the semester, spring break, and the end of the semester. Because questions in the survey asked about drinking behavior "in the past 2 weeks", it was important that students were reporting "in-school" drinking during this time frame. For this reason, respondents could not receive the survey for 2 weeks after the beginning of the semester or spring break. Additionally, considering transit time via United States Postal Service, surveys needed to be mailed at least 7 to 10 days before spring break or the end of the semester, if not earlier.

Statistical Analysis

Three independent variables were analyzed. These included mailing schedule, region of the country in which the school was located, and the size of the school. The dependent variable for each analysis was response rate from each school, calculated as INTERVIEWS/(TOTAL ELIGIBLE SCHOOL SAMPLE). To be eligible, a student must have been confirmed as being enrolled during the semester and have a mailing address that was deliverable.

The response rates were then contrasted among different sub-groups of the sample. Three independent variables were analyzed for their predictive effect on response rates. It is important to remember that no variables were experimentally manipulated, so other influencing factors may be confounded with the independent variables of interest.

Mailing Schedule

Mailing schedules were coded into three categories (see Table 1). Schedules were classified as either "all mailings before spring break", "all mailings after spring break", or "split" (with first mailing and reminder card before spring break, and second mailing after). Six schools had unique scenarios (multiple breaks, no second mailing) and were not included.

Table 1

	Mean	Number of
Mailing Schedule	Response Rate	<u>Schools</u>
Both before spring break	52.32%	8
Both after spring break	49.33%	76
Split	48.37%	30

Analysis by mailing schedule revealed that the highest response rate was in schools who got all their mailings before spring break (52.32%), followed by both after spring break (49.33%), and finally those with a split schedule (48.37%). It is noteworthy that there were only 8 schools in the first group, and thus mean response rates did not differ statistically. Also, assuming the difference between group 1 and the others is real, there may be other factors that are correlated with "early responding schools" that also effect response rate. It is interesting to see that splitting the mailing did not adversely affect response rates. The response rate for schools with a split schedule (48%) was only about one percentage point lower than schools with the standard mailing schedule (49%).

Region

Ten regions of the country were established, and schools were assigned to one based on their location (see Table 2). Response rates by region ranged from 45.36 (Region 7) to 57.06 (Region 5). No obvious substantive explanation immediately lends itself to the interesting distribution of response rates across the country. However, there maybe be cultural characteristics about different regions that may influence response rates. Since schools were not sampled representatively by region, and we did not take into account which or how many schools are in each of the regions, it is hard to make sense of this analysis. It is worth noting that this particular breakdown by state was readily available in the data, and provided an easily accessible proxy for region of the country. However, it may not be the most intuitive breakdown, and perhaps a different coding scheme would reveal more interesting and applicable results.

Table 2

		Response Rate
Region	<u>State</u>	(ascending)
7	AR, LA, OK, TX	45.36%
3	AL, FL, GA, TN	45.64%
0	CT, MA, NH, NJ, RI, VT	46.38%
1	DE, NY, PA	47.85%
6	IL, KS, MO, NE	49.90%
4	IN, KY, MI, OH	50.63%
9	CA, OR, WA	51.58%
2	DC, MD, NC, VA	53.64%
8	AZ, CO, NM, UT	55.63%
5	IA. MN. WI	57.06%

Size of School

School sizes ranged from 575 to over 45,000 fulltime undergraduate students. Five size categories were created (0-5000, 5001-10000, 10001-15000, 15001-20000, and >20000; See Table 3).

Table 3

Mean	Number of schools
46.02%	35
48.42%	24
47.08%	15
52.85%	17
53.63%	29
	<u>Mean</u> 46.02% 48.42% 47.08% 52.85% 53.63%

Analysis by school size showed that response rates ranged from 46.02% to 53.63%, with larger schools responding at a higher rate. The relationship is almost linear, except for groups 2 and 3.¹ There are several explanations for this variability in response rates. First, smaller schools may have become "saturated" with this study, which has been conducted 4 times since 1993. In smaller schools, it is much more likely that students have encountered the study previously in their time in college (either through friends or personally). We know anecdotally that some students have received the CAS survey more than once. Similarly in any one year of the study, students in these schools would be more likely to know other people who are doing the survey, perhaps discouraging them from doing it also ("If Jane is sending in hers, I don't really need to send in mine"). Other speculative explanations include motivation of students at larger schools, levels of involvement of larger schools (the 10 special oversample schools have had a closer connection with the CAS over the years than the other schools, and they are all larger schools).

Conclusion

In short we can see that various design and sample characteristics can affect response rates. Of the three factors analyzed here, mailing schedule is the only one that can be actively controlled by the researcher. Our main finding, based on this basic analysis, is that splitting the mailing schedule does not adversely affect response rates.²

The other factors analyzed here, school size and region of the country, are relatively immutable. That is, if the study sample calls for a representative distribution of different size schools and states, there is not much the researcher can do to reduce the response rate effects produced by these two factors. However, it may be simply interesting to note these effects when considering the overall response rates of any national study of college students.

Of course, the major qualification of these analyses is that none of our independent variables were experimentally manipulated. Therefore, any effect they have on response rates could be mediated through other confounding variables that we did not analyze. For example, size of school could be correlated with public v. private schools (public schools being larger). Due to the non-experimental nature of this study, the results should be considered carefully. In the future, it would be interesting to see an experimental manipulation of mailing schedules to analyze the true impact of timing of mailings on response rates. Also, there may be other independent variables of interest worth analyzing. Certainly additional studies of response rates and their causes will further the field of survey research.

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¹ When a correlation was run with school size as a continuous variable, the correlation was significant at the .05 level.

 $^{^2}$ Although the raw response rates indicate that mailing before spring break with an intact protocol produces a higher response rate (52.32%), the number of schools in this cell (n=8) is not large enough to make that average statistically meaningful.