Text Messaging as a Youth Mobilization Tool: An Experiment with a Post-Treatment Survey[1]

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Abstract

Young voters are underrepresented in the American electorate; they are also more likely than older voters to rely exclusively on mobile technology as a primary means of communication. This study uses a field experiment and mobile phone survey in the 2006 election to determine how mobile technology can be used to encourage young people to vote. The research design consists of a nation-wide field experiment (n=8,529) that tests the basic effectiveness of text messaging as a mobilization tool. Matching the records to nationwide voter files indicates that a text message reminder to voter produces a strongly positive, and statistically significant, effect on the likelihood of voting. A follow-up mobile phone survey of those in the treatment group indicates that the small backlash to the text messaging treatment is minor relative to the positive reaction from participants.

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Introduction

Young people are under-represented in the American electorate, and traditional campaign mobilization techniques are not designed with today's mobile youth in mind. This study explores one new potential technique of youth turnout: mobile phone text messaging. We designed a large-scale, nationwide field study in two parts. First, we measure the effectiveness of sending a text message reminder to vote through a large-n field experiment. Second, we use a post-treatment survey to test for a backlash from the use of this potentially intrusive technology.

The results from 38 states demonstrate a strongly positive and statistically significant effect of reminding young people to vote through text messaging. The intent-to-treat effect for the experiment is 3.1%, with an estimated treatment-on-treated effect of 4.2%. The survey responses are consistent with the experimental findings—they demonstrate that the backlash generated by text messaging is small. Additionally, they show that young Hispanic voters are more likely to react positively to the mobilization technique than other groups. We also find that young voters prefer passive forms of political communication, such as e-mail and text messaging, to more interactive and traditional avenues of communication (e.g., landline phone calling or door-to-door canvassing).

Background on Voter Participation

The heterogeneity of voter participation in the United States has been well-documented in the field of political science. Some scholars concerned about low levels of voting have looked to demographic variables to understand why some groups of citizens vote at higher rates than others. Wolfinger and Rosenstone argue that education

and age are the best predictors of voter participation (1980). Brady et al. find that time, money and civic skills are resources that positively impact a citizen's likelihood to vote (1995) while Rosenstone argues that economic adversity decreases turnout (1982).

Another branch of research in voter behavior has worked to broaden these resource models by integrating a consideration for life-cycle effects on voter turnout. Plutzer finds that resources such as political knowledge, parental voting habits, and parental education significantly affect initial turnout. However, he finds that these parental factors have less of an impact on a voter over time (2002). Highton and Wolfinger demonstrate that young adults vote at varying levels, contrary to the universally low youth turnout predicted by "adult roles theory" (2001). Gerber et al. show that the act of voting or nonvoting can create behavioral patterns that become habit-forming over time (2003), a finding that reinforces the importance of encouraging turnout among young and newly registered voters.

Finally, a third perspective looks at institutional factors that can affect voter turnout. Powell finds that voter registration laws put Americans at a disadvantage in terms of the costs associated with turnout compared to other countries (1986). Squire et al. argue that high levels of residential mobility translate into low levels of voting participation. They argue that registration is a low priority for people that have recently moved (1987). Campaign mobilization, which could be looked at from this institutional perspective, can also increase voter turnout. Several studies have found that personal mobilization messages can significantly increase voter turnout (Eldersveld 1956; Gerber and Green 2000; Green and Gerber 2001; Patterson and Caldeira 1983).

Our study on text messaging is situated within these last two areas of research in voter behavior. We build upon previous research by starting with the assumption that political campaigns can make a difference by targeting and mobilizing groups of people to vote. We believe that young people are particularly constrained by their high mobility and reliance upon mobile technology. Finally, we believe that mobilizing young voters is important if this group is to develop long-term habits of voting participation.

Constraints Facing Young Voters

The 2006 election was a striking success for those wishing to see young people (those 29 years old and younger) vote at the same rate as their parents' generation. By some estimates, youth vote turnout increased by three percentage points between the 2002 and 2006 elections (CIRCLE, 2006). However, young voters are still underrepresented in the electorate, a fact that scholars have long noted (Wolfinger and Rosestone, 1980; Highton and Wolfinger 2001). Working from an institutional perspective that assumes that campaigns can affect voter turnout, we believe that the approaches used in mobilizing voters may explain disparities among different age cohorts. Previous studies show that the youth population is particularly responsive to voter mobilization efforts (Green and Gerber, 2001). This study seeks to extend such findings by showing that the type of mobilization effort used by a campaign matters in mobilizing young voters. Specifically, this study seeks to determine if new technology can help to bridge the gap between young people and the voting booth.

Political campaigns have traditionally delivered persuasion and mobilization messages to voters via U.S. mail and landline phone canvassing, both of which frequently overlook young and new voters. As a mobile population, young voters are less likely than

older generations to have a stable address and phone number. Furthermore, a growing percentage of this population no longer uses a landline at all, relying exclusively on their cell phone. A quarter of Americans under the age of 25 were mobile-only in the first half of 2006 (Blumberg and Luke, 2007). A study by In-Stat/MDR (2004) predicts that the mobile-only population will reach nearly 30 percent of the *entire American public* by the 2008 presidential election. An even larger barrier to promoting campaign-to-voter communication is the fact that many young voters register to vote in the months before an election and are therefore absent from campaign mobilization lists of previously-registered voters.[4]

This study uses a national field experiment and mobile-only phone survey to test the hypothesis that text messaging is an effective tool for driving young voters to the ballot box. The experiment examines the differences in turnout rates among participants in the treatment group and those in the control group. Treatment group participants received one text message reminding them to vote in the 2006 general election, the control group participants did not receive a message. Because participants may not appreciate being contacted on their personal cell phone by a political group, a post-treatment survey seeks to detect the presence and magnitude of any backlash against the treatment. These findings will allow voter mobilization organizations to better assess and implement text messaging campaigns in future elections.

[4] To ensure that our list was as updated as possible, the data used in this study includes individuals that registered up until two weeks before the November 2006 election.

Experimental Design

Field experiments have become increasingly popular in recent years among political scientists seeking to measure the actual and direct effects of voter mobilization techniques (e.g. Gerber and Green, 2000 and Michelson, 2004). In general, these studies have tested conventional mail, landline phone and canvassing tactics and have found that personal mobilization methods increased turnout more than impersonal methods. As technology has changed, studies have shifted to examine the efficiency of techniques that utilize new technology. For instance, recent field experiments have demonstrated that e-mail is not an effective voter mobilization tool, even when the subject population is restricted to young people (Phillips, 2001; Gerber and Green, 2004).

One pilot study on the use of text messaging in get-out-the-vote efforts found statistically insignificant effects (Freidrichs, 2006). We hope that our study improves upon that project in several ways. First, we broadened the subject universe to include a sample of about 8,500 people in our experiment, whereas the Freidrichs study consisted of less than 500 participants. Second, participants in our study are young, mostly first-time voters who are not very likely to vote in a midterm election. This creates a more fertile environment for a significant effect to be found from a mobilization effort like text messaging. Third, when possible, we targeted individuals who were less likely to receive targeted mobilization messages from our partner organizations.

The field experiment component of this study consists of a large experiment that tests the basic effectiveness of text messaging. The experiment began with a potential sample size of 12,572 participants. Although all participant phone numbers were verified

as cell phone numbers,[5] there was some drop-off in the size of the population due to unsuccessful registration.[6] The final experimental sample comprised 8,529 participants.

Participant Recruitment

In order to identify a sample for this field survey, we partnered with three voter registration organizations that had registered approximately 84,000 newly registered individuals in the 2006 election. Our sample was drawn from this universe of registered voters according to the following parameters:

- Working Assets: Working Assets is a company that donates a portion of the charges related to their phone and credit card services to liberal causes. Since 2005, over 60,000 individuals have registered with govote.org, a website affiliated with Working Assets and Mobile Voter (see below). The majority of visitors to the website were directed there through Google keyword searches; the remaining traffic was directed to the website through blast emails sent by several liberal organizations to their customer or membership lists. Of these new registrants, over 5,317 provided a working cell phone number to the company and gave permission for Working Assets to contact them via text messaging. These individuals were assigned to the main experiment.

- Student PIRG: Working through local affiliates in 24 states, Student PIRG registered young people to vote on college campuses across the country in the 2006 election. The group captured cell phone numbers from new registrants by requesting that students fill out a PIRG information card in addition to the voter registration form. Participants residing in low-priority GOTV target states for Student PIRG (states without a top-targeted race) are included in our main experiment, approximately 7,255 people.[7]

[5] Phone numbers were determined to be valid by examining their numerical properties. With help from Survey Sampling International, a company that specializes in producing random-digit dialing samples, we analyzed each phone number's area code, exchange and "1000-block" (7th digit of a 10-digit number). This allowed us to determine if the number was a mobile number, a residential landline, or a business. Only those numbers designated as mobile were kept in our universe. Due to typos, some of these phone numbers might still be invalid, though the results from our survey indicate that the vast majority of numbers did connect to cell phones.

[6] The phone numbers used in this experiment were collected when an individual registered to vote with one of our partner organizations. Some of the participants in the study may not have been registered successfully due to administrative error or because of duplicate registrations. After checking a near-nationwide voter registration database after the election, the registration rate is 74%.

[7] PIRG submitted over 14,000 low-target records for use in the main experiment, about 11,500 of which included phone numbers. Of this potential pool, 7,255 unique records had valid cell phone numbers and adequate address information. A similar process in high-target area resulted in 1,214 complete records for the pilot experiment.

- Mobile Voter: Mobile Voter is a non-partisan voter enrollment organization that registered voters for the 2006 election via text messaging and the internet. Mobile Voter registers voters via text messaging. An individual can register to vote with Mobile Voter by sending a text message to a 5-digit number to request a registration card. Throughout the 2006 campaign, Mobile Voter registered about 500 individuals through text messaging (numbers that are unique from those collected on govote.org). Of these potential participants, 353 had addresses that could be matched to a specific polling location and were included in the pilot experiment. Mobile Voter was also responsible for sending out a portion of the text messages to the broader treatment group on the day of the experiment.

Treatment Text Messages

The experiment tests the overall effect of text message reminders to vote, in addition to two treatment dimensions: the addition of a polling place information hotline and a variation in the type of appeal to vote. All messages were sent between 11:00 am and 7:00 pm local time on the day before election (Monday, November 6th). Each message began with the text "A friendly reminder that TOMORROW is Election Day" and ended with the name of the organization who initially registered the individual, as well as the name of the organization responsible for sending the text message.[8]

The organization People for the American Way operated a "National Voter Assistance Hotline" in the days leading up to the election. One of the primary purposes of this call center was to help individuals determine their polling location. Half of the treated participants received a clause in their text message that directed them to this hotline. Those messages read: "Polling place info @ 866-687-8683."

We tested two different types of appeals to examine if variations in the content of the message have a different impact on young voters. The first type of message was a civic duty appeal which read, "Democracy depends on citizens like you—so please

[8] Mobile Voter sent the text messages to their participants and PIRG's participants. Working Assets sent the messages to their own participants.

vote!" The second appeal consisted of a "close elections" message that read: "Elections often come down to few votes—so please vote!"[9] These messages are short because most mobile carriers limit text messages to 160 characters. The message content, and the number of recipients, can be found in Table 1.

Table 1: Message Content Sent to Each Treatment Group

Group	**No. of original recipients / No. matched to voter file**	**Message Text (followed by group signature)**
Civic Duty without hotline	1,575 / 1,065	"A friendly reminder that TOMORROW is Election Day. Democracy depends on citizens like you-so please vote! –PIRG/TxtVoter.org"
Civic Duty with hotline	1,567 / 1,074	"A friendly reminder that TOMORROW is Election Day. Democracy depends on citizens like you-so please vote! Polling place info @ 866-687-8683 –PIRG/TxtVoter.org"
Close election without hotline	1,571 / 1,033	"A friendly reminder that TOMORROW is Election Day. Elections often come down to few votes—so please vote! –GoVote.org"
Close election with hotline	1,583 / 1,064	"A friendly reminder that TOMORROW is Election Day. Elections often come down to few votes—so please vote! Polling place info @ 866-687-8683 –GoVote.org"

The participant population was divided into equally-sized treatment and control groups based on a stratified-random procedure, stratifying across states. A second set of random numbers was generated to divide the treated population into message groups. Differences in group sizes are only due to lack of divisibility of the overall population size. The determination of which groups received the extra participant was also random. Sample text messages can also be found in Appendix A.

[9] Gerber and Green (2000) found that, of the mobilization messages they tested, the "close election" appeal had the most effect, followed by a "civic duty" appeal. Our message wordings are shorter versions of their paragraph-length appeals.

Results of the Field Experiment

The field experiment demonstrates that text messaging is a powerful tool for mobilizing voters. The overall intent-to-treat effect was 3.1%: the turnout rate for the control group was 53.2% while those in the treatment group voted at a rate of 56.3% (Table 2). Using data from the post-treatment survey results, we establish our contact rate at 80% and the percent of participants who voted before Election Day to be 14.5%. Accordingly, we estimate the implied treatment-on-treated effect to be 4.2%.[10]

A smaller, "pilot" experiment, which tested the technology and effect of including personalized polling location in the reminder text message, does not demonstrate statistically significant results.[11]

Table 2: Basic Voter Turnout Statistics for the Treatment Groups

Group	Turnout Rate	Turnout Difference (S.E)	Implied Treatment Effect (S.E.)	N-size after matching
Control	53.2%	--	--	4,293
Entire treatment group	**56.3%**	**3.1% (1.1%)**	**4.2% (1.5%)**	4,236
Civic duty message	**56.9%**	**3.7% (1.3%)**	**5.0% (1.8%)**	2,139
Close election message	55.7%	2.5% (1.3%)	3.4% (1.8%)	2,097
Hotline included	55.9%	2.7% (1.3%)	3.6% (1.8%)	2,138
Hotline not included	**56.8%**	**3.5% (1.3%)**	**4.8% (1.8%)**	2,098

Turnout rates that differ from the control group rate at a statistically significant level (99%, one-tailed) are in ***bold.***

[10] Of the 4,236 matched participants in the treatment group, 2,386 voted. Using the percent of the control group who voted (53.2%), we estimate that 2,255 participants in the treatment group would have voted without the treatment. We can infer from these results that the treatment caused 131 participants to vote. The survey indicates that 14.5% of voters in the universe voted early and 80% of the treatment group received a text message; thus, about 3,127 could have possibly been affected by the treatment. Thus, the treatment-on-treated effect is 131 / 3,127 = 4.2%.

[11] For the pilot experiment (n=1,320), the control group comprised half of the total universe; these participants received a generic text message reminder (see Appendix A). The individuals in the treatment group received a text message reminder that included their specific place to vote (e.g., First Presbyterian Church) and that location's address (e.g., 57 State St.). The turnout rate of those who received the name and address of their polling location (52%) was similar to those in the control group that received a generic text message (53%). The sample is too small to make any inferences with reasonable certainty. However, the study does demonstrate the feasibility of this technology: 75% of participant addresses were matched to a specific polling location for inclusion in the text message.

Comparing these results to past experiments (Gerber and Green, 2000), the overall effects for text messaging are on par with a canvassing mobilization treatment when intent-to-treat is considered. Canvassing is more effective than text messaging on a person-by-person basis, but the contact rate during canvassing is much lower than those exhibited in this experiment. When considering the treatment-on-treated effect, text messaging is about as effective as three physical mailings (Gerber and Green, 2000).

Results indicate no significant difference between the two message appeals, though the point estimate for the effect of the civic duty message is somewhat higher than for the close election message. Gerber and Green (2000) also found no significant effect between these two messages, though the close election appeal worked slightly better in their experiment. Interestingly, adding a polling place hotline number in the text message does not induce individuals to vote—in fact, those who received the hotline information voted at a lower rate than even the control group. This negative finding, while not statistically significant, is corroborated by the survey results (see next section).

The regression analyses presented in Table 3 demonstrates the effect of text messages when controlling for demographic variables. Using the OLS coefficients as a guide, recipients of the "civic duty" text message were more likely to turnout by four percentage points. As the control variables show, college-aged (22 years old and younger) and women participants were less likely vote regardless of treatment. Additionally, those who registered to vote through PIRG were slightly more likely to vote. Of these findings, only the age result is statistically significant. A probit analysis—which is more appropriate for dichotomous dependent variables, though produces coefficients that are harder to interpret—is presented on the right-side of Table 3.

Table 3: Effect of Treatment Type and Demographics on Turnout

Variable	OLS Coefficient (S.E.)	Probit Coefficient (S.E.)
Received treatment	**0.034 (0.016)**	**0.087 (0.042)**
Civic duty message	0.006 (0.016)	0.016 (0.042)
Polling place hotline	-0.006 (0.016)	-0.017 (0.042)
Female	-0.016 (0.012)	-0.400 (0.029)
College-aged	**-0.102 (0.016)**	**-0.257 (0.039)**
PIRG	0.010 (0.016)	0.026 (0.039)
Urbanity (log[pop. / sq. mi.])	-.0047 (.0040)	**-0.012 (0.010)**
Constant	**0.594 (0.030)**	**0.238 (0.075)**

Dependent variable is whether participant voted (1=voted, 0=not voted). All independent variables are dichotomous. Values significant at the 95%-level (two-tailed) are in ***bold.*** *(n=7,396)*

The treatment has an approximately constant effect across age, gender, and urbanity. When interaction terms for these three variables (crossed with whether the participant is in the treatment group) are added to the regression, either separately or concurrently, the resulting coefficients do not reach statistical significance. Limited personal information is available from registration data (e.g., the ethnicity of participants is unknown), but this basic analysis indicates that text messages serve as a useful reminder to vote across the entire population of new registrants.

Post-Treatment Survey

Background

Field experiments in political science frequently do not include a post-treatment survey. However, the possibility of a backlash in this study compels us to ask participants how they reacted to the treatment. Cell phones are personal devices, and many treatment recipients may feel that a generic voter mobilization message violates their sense of privacy. A Pew Research study (2005) of a related technology, e-mail, finds that many

computer users are uncomfortable with campaign communications in their inboxes. In the case of text messaging, a post-treatment survey complements the quantitative analysis of voting outcomes with a more qualitative examination of participants' attitudes toward the treatment.

Cell phone surveys are a relatively new phenomenon. The Pew Research Center has been a pioneer in the area of cell phone opinion research (2006b). Pew provides a monetary incentive to potential respondents to increase their response rate among mobile phone users who may be disinclined to converse with a caller from an unknown number. They also leave messages in mobile phone voice mail with a response number to call. We follow Pew's lead in adopting several of these procedures.

Gerber and Green (2004) note that post-experiment surveys are subject to considerable non-response bias: those who answer the survey are the same people who were amenable to the treatment. Two exceptional field experiments that *do* include post-treatment surveys (Phillips, 2001; Green and Gerber, 2001) do not measure backlash and do not correct for non-response bias. We alleviate this bias by recording the initial disposition of every potential respondent who answers their cell phone and then weight the survey results by the measure of disposition (Fuller, 1974).

Survey Sample Design

The survey was conducted on the two weekends immediately following the election (November 11-12, and 18-19) via McGuire Research Services (as the calling house) and The Mellman Group (as the survey firm intermediary). Calls were not made on weekdays to reduce the possibility that respondents had to pay for cell phone minutes.

The length of the interview was kept to between five and six minutes (on average) to minimize any calling costs to the respondent.

The "target population" of the survey was comprised of all participants who received a text message in the experimental phase of this study. Participants in the control group were not surveyed because a backlash to a text message they did not receive could not plausibly exist.

We consider survey respondents to be those who were both (1) willing to complete the survey and (2) recalled that they received the treatment text message. To induce annoyed participants to take the survey, a $5 Amazon.com gift certificate was offered to those individuals that initially declined to complete the survey. This offer was also extended to those whose cell phone package did not include unlimited weekend calling.[12] To account for the pernicious non-response bias of participants unwilling to take a survey on their cell phone, the initial "disposition" (e.g., annoyed or pleasant) of every person who answered their cell phone was recorded. This information is used when weighting the survey. In total, 300 respondents were fully interviewed.[13]

Survey Instrument Design

The primary goal of the survey instrument is to detect a backlash among participants who received the treatment text message. Accordingly, the survey instrument simply asked an individual how they reacted to receiving a text message. If the respondent was confused by the question, they were asked how "did they FEEL"

[12] Of the 477 unweighted participants who answered the question about their cell phone plan, 83% reported that they had a plan with unlimited weekend calling. In general, the Amazon.com offer was not an effective incentive.

[13] 707 participants answered their phone; a subset of this group either did not recall receiving the treatment or declined to take the survey.

about receiving the text. These responses are then grouped into categories. (For exact question wording and categorization of responses, see the Appendix.)

In addition to the open-ended question, we asked respondents to categorize their reaction as either positive or negative. Specifically, we inquire as to whether the text message was “helpful” or whether the respondent was “bothered” by it. We also ask how the text message affected the respondent’s likelihood to vote. While we do not expect respondents to accurately report their own behavior, this measure is still informative on the extent of the backlash. We order the open-ended question before the close-ended questions so as not to bias the open-ended responses (Babbie, 2004).

In measuring initial disposition, interviewers were given a scale to place the respondent on, from “very pleasant” through “indifferent” to “very annoyed.” The option “immediate hang-up” is available if the period of interviewer contact is too short to discern a disposition.

Weighting the Survey

The survey is weighted on several dimensions to adjust for sampling error, randomness, and non-response bias. The distribution of participant voter registration organization, treatment group, age, and sex is known for the entire population. Weighting on these dimensions is straightforward. In addition, differences in recall-rate compel us to weight based on the weekend the participant was interviewed (i.e., either November, 11-12 or 18-19). To alleviate non-response bias, we weight the disposition of respondents who completed the survey to the disposition of everyone who answered their mobile phone.

To compare the weighting schemes, we present the results from the close-ended question asking whether the text message reminder was helpful or annoying. Three approaches are compared: unweighted, combining the bottom four disposition categories, and combining the bottom five disposition categories. As displayed in Table 4, weighting makes a considerable difference, but the results of the two weighting schemes are still similar. Slightly more polarization occurs in the more granular weighting scheme that combines four categories. Because this coarse approach yields such similar results (note the similar "helpful - bothered" margin), and is less prone to random variance since it pools more respondents, we employ the 5-category scheme to weight the survey.

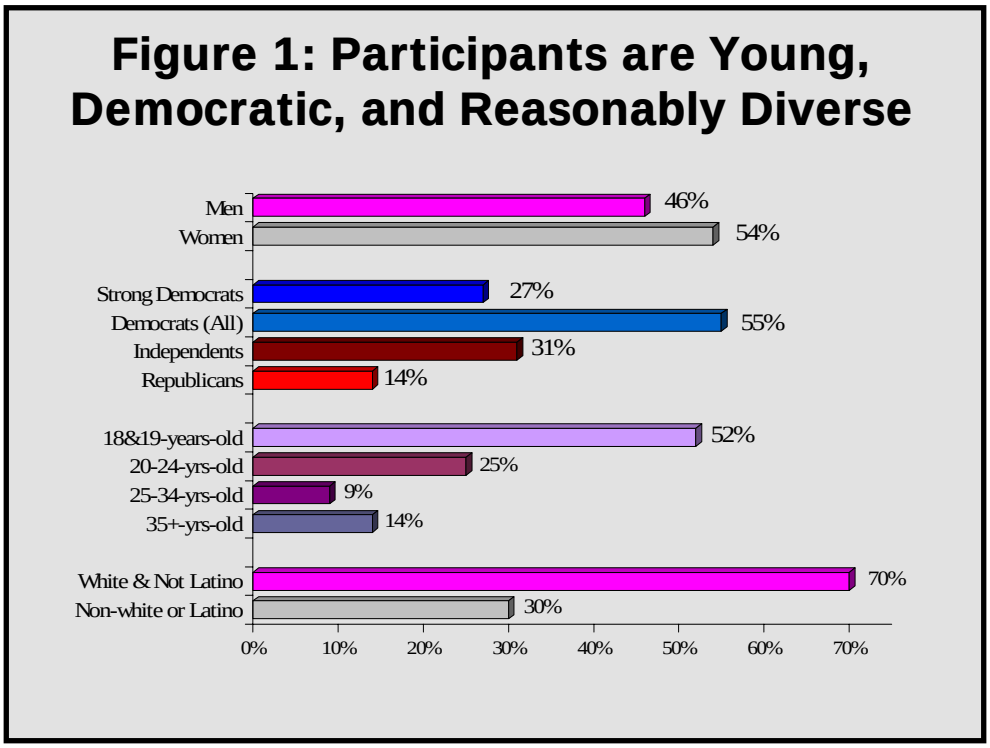
Table 4: Effect of Weighting Schemes on Helpful/Bothered Question

	Weighting Scheme		
Response to Q6	**Unweighted**	**Combine 4 Categories**	**Combine 5 Categories**
Helpful, strongly	29.0	26.7	25.4
Helpful, not so strongly	34.0	32.6	33.3
No effect/[DK]	17.7	17.8	18.5
Bothered, not so strongly	9.0	9.2	9.8
Bothered, strongly	10.3	13.7	12.9
Total helpful	63.0	59.3	58.7
Total bothered	19.3	22.9	22.7
Total: helpful – bothered	43.7	36.4	36.0
Total	100	100	100

Survey Results

One benefit of the survey is that respondent information provides a view of the demographic profile of the overall population. As can be seen in Figure 1, the weighted survey population has a higher distribution of women than men, is generally very young, reasonably diverse, and overwhelming affiliated with the Democratic Party. While respondents were not asked their age on the survey, dates of births were available from

the registration information associated with each participant's mobile phone number. Over half of the population is either 18 or 19 years old. Almost a third (31%) of the



respondents are non-white or Latino, a percentage that falls only slightly below the nationwide average (33% according to the 2005 Census Bureau estimate). Many more respondents identified with the Democratic Party (57%) than the Republican Party (13%).

The survey provides evidence of a small backlash to receiving a text message. This backlash is dwarfed, however, by the size of the positive reaction from participants. When respondents are asked, without any prompting, the open-ended "reaction" question, a sizable plurality (43%) reports a positive feeling. In fact, a quarter (25%) of respondents indicate that the treatment helped remind them to vote. In contrast, only a tenth of the respondents report a negative reaction (e.g., annoyance). A third cluster of respondents (21%) report being confused or surprised by the text message, a percentage that would undoubtedly shrink if more campaigns employed this technology.

When asked to think about the treatment in terms of their likelihood to vote, about one quarter (26%) of the respondents report an increased chance in voting. A vanishingly small proportion (1%) believes that the text message suppressed their desire to cast a ballot. Thus, unless those who were dissuaded from voting are reporting *much* more accurately than their positively-influenced counterparts, the positive effects of text reminders quantified above are not significantly dampened by voter backlash. In regards to the treatment being helpful or annoying, there is again a large margin between a positive response (59% total helpful) and a negative answer (23% total bothered).

Since the helpful/bothered question is the instrument that best discriminates between positive and negative reactions to the treatment, we use that measurement as the dependent variable for two regression analyses. Such an analysis allows us to identify factors that make a participant more or less likely to find a text message helpful. This dependent variable is coded on a 5-point scale from -2 to +2, with higher values corresponding to a more positive reaction ("don't know" is re-coded as 0). Each independent variable is described in such a way as to make it readily apparent whether it is an indicator variable (e.g., male, attends college, Working Assets), an artificially-scaled variable (e.g., party), or a naturally-scaled variable (e.g., age). Artificially-scaled variables have neutral and "don't know" responses set at zero and each available category is set a unit step apart from the others.[14]

An ordinal regression analysis (Table 5, model 1) reveals that the only demographic characteristic (broadly defined as anything but the treatment assignments and survey responses) that is statistically significant besides "initial disposition" is

[14] Party: Strong Democrat +3, Strong Republican -3; Disposition: Very pleasant +2; ver annoyed -2; other is coded as missing

"Hispanic." While the other variables are insignificant, many of them take on the expected sign. For example, displeasure with the treatment increases with age, while positive reactions are more prevalent among undergraduate students, Working Assets participants, and Hispanics.[15] Democrats are slightly more likely to have a positive reaction and non-whites a negative reaction. Though, again, only the effect among Hispanics is significant at the 90% level.

Table 5: Effects (Estimated By Ordinal Regression) of Demographic and Treatment Variables on Response to Bothered/Helpful Question

	(1) Demographic Variables Only		**(2) Demos + Treatment**	
Independent Variable	**Coefficient**	**Std. Err.**	**Coefficient**	**Std. Err.**
Length of Treatment			**-0.0133**	**0.0066**
Pilot Study			0.110	0.39
Initial Disposition	**0.743**	**0.12**	**0.789**	**0.13**
Male	-0.185	0.24	-0.165	0.24
Age	-0.0133	0.014	-0.0148	.014
Party	0.0523	0.068	0.0644	0.068
Working Assets	0.409	0.33	0.464	0.35
Undergraduate	0.119	0.38	0.097	0.38
Graduate Student	-0.329	0.53	-0.222	0.537
Non-white	-0.399	0.27	-0.400	0.27
Hispanic	**0.882**	**0.47**	**0.877**	**0.47**
Log County Pop. Density	0.0984	0.079	.0925	0.079

*Effects significant at the 90% confidence level are in **bold.** (Weighted n=253)*

An expanded regression analysis that includes treatment type (Table 5, model 2) yields results consistent with the findings of the field experiment. We do not find any positive effects of including polling place information in the text message. In fact, participants who demonstrate the least amount of backlash are those who receive the *shortest, most direct* text message. Also, though not displayed in Table 5, no significant differences were found between the use of either the "civic duty" or "close election"

[15] See Pew (2006a) for evidence that Hispanics use text messaging more often than other segments of the population.

appeals. The key to effective text messaging mobilization appears to be the inclusion of a simple reminder; the content matters little and too much information can distract or annoy the respondent.

Survey responses also shed light on how young voter mobilization techniques could be improved. A near-majority (44%) of the non-voters (n=72) proffer "lack of time" as their excuse for not voting. In contrast, only 5% of the non-voting respondents answered that lack of information kept them from the polls. It appears as though it is more important to remind young people to make time for voting in advance of an upcoming election than it is to provide polling location information. Alternately, the question of whether the "lack of time" response reflects a low prioritization of voting among young people could be explored in future research.

Young voters also indicate a preference for passive communication, whereby a voting reminder is received without needing a personal response from the voter. When asked to choose their preferred method of get-out-the-vote contact, respondents ranked all three passive forms of communication—text message (31%), e-mail (30%), and USPS mail (17%)—above all interactive forms. Perhaps surprisingly, only 6% of individuals listed a personal visit as their favorite contact, despite the proven effectiveness of personal methods of mobilization in prior research.

Discussion, Future Work and Conclusion

Our motivation for conducting this study was to identify new methods for political campaigns to communicate with the next generation of voters. Specifically, we wanted to test whether or not mobile technology could be used to mitigate institutional constraints faced by younger voters in receiving political messages. Our results indicate

that text messaging is a powerful tool to reach new voters and drive them to the polls. Minimal backlash exists for short, direct messages.

In contrast to e-mail communication, for which prior research (Pew, 2006a) finds that a majority of respondents respond unfavorably, our study indicates that only 10% of text message recipients had a negative reaction. This lower level of backlash, combined with the large overall intent-to-treat (3.1%) and treatment-on-treated (4.2%), reveals the potential of mobilization text messaging to change the outcome of close elections. Further, a strong plurality (43%) of survey respondents reacted favorably to the text message treatment and a quarter (25%) of respondents indicated that the treatment helped remind them to vote. Importantly, a miniscule fraction of the treatment group reported a decreased chance of voting. Taken as a whole, these results indicate that the boost in turnout provided by text messaging is not dampened by backlash.

The survey respondents' professed preference for text messaging and e-mail, however, seem to be at odds with the research that shows interactive mobilization to be most effective (Green and Gerber 2001). In spite of the demonstrated advantages of interactive forms of political communication, this study demonstrates that passive forms of communication, when used wisely, can be effective. An advantage of text messaging over face-to-face communication is the low cost of delivering the treatment. The cost of sending text messages is, at most, 10 cents per recipient. Based on the results of this study, this yields a cost per vote of only $3.23.[16] Nevertheless, future studies should evaluate the ways in which the effects of text messaging could be made more powerful through the addition of interactive components.

[16] Green and Gerber (2001) find the effect of door-to-door canvassing on turnout to be 8.5 percentage points. Nickerson (2007) estimates the cost per canvassing contact to be about $2.50, resulting in a cost per vote of around $30.

In an example of this approach, future work could focus on the peer-to-peer or "viral" effects of text messaging. Peer-to-peer text communication relies upon personal networks to communicate messages through this ordinarily passive technology. This type of mobilization can be very politically powerful, as evidenced through several cases outside of the United States. In the 2004 general election in Spain, a viral text messaging campaign is thought to have mobilized young and urban voters in such a way that may have contributed to giving an unexpected victory to the Spanish Socialist Labour Party (Suarez, 2005). In Korea and China, peer-to-peer text messaging is used to organize flash mobs and large protest rallies on short notice (Hong, 2005).

Another puzzle that this study begins to address, and can be explored further, relates to how mid-term elections yield lower turnout levels among young voters than presidential elections. Achen (2005) finds that young, educated voters are the demographic group that are both theoretically and empirically most likely to vote in a presidential election, but not a midterm election. Many of the participants in this experiment are college students, and thus fit into the young, educated demographic. This study creates a baseline analysis of text messaging in a midterm election. A replication of this study in the 2008 presidential election can provide a contrast to examine whether mobilization tactics can account for the disparity in turnout between the two types of elections.

Increased youth turnout in 2006 clearly demonstrates that young people can be motivated to go to the polls. Mobilization research, as well as related work on voting registration, continues to shed light on effective techniques to motivate young people for political action. This research demonstrates that young voters want to use technology to

communicate with political organizations, and that these new forms of communication are powerful tools for increasing turnout. In sum, this area of research can help encourage young people to develop habits of voting that can strengthen their engagement with the political process for years to come.

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Appendix A: Example Text Messages

Main Field Experiment

Civic duty appeal with hotline:

A friendly reminder that TOMORROW is Election Day. Democracy depends on citizens like you-so please vote! Polling place info @ 866-687-8683 –PIRG/TxtVoter.org

Close elections appeal without hotline:

A friendly reminder that TOMORROW is Election Day. Elections often come down to few votes—so please vote! –GoVote.org

Pilot Experiment

Treatment group:

Hi Michael! Just a reminder that TOMORROW is Election Day. Please vote @ Meadowbrook Elementary, 29200 Meadowbrook Road. –TxtVoter.org

Control group:

Hi Anne! Just a reminder that TOMORROW is Election Day. Please vote. –TxtVoter.org

Appendix B: Post-Treatment Survey (n=300, weighted)
November 11-12 & 18-19, 2006

Hello **_[NAME ON LIST]_**, my name is **_[FIRST NAME ONLY]_.** I realize that I am calling you on your cell phone. We at **_[Calling House]__** are conducting a five-minute opinion survey of mobile phone users, we're not selling anything and I would like to ask you some questions.

[IF VOICEMAIL, GO TO SCRIPT AT END OF SURVEY.]
[IF UNCOOPERATIVE, SKIP TO Q.B. FOR ANY REFUSAL, SKIP TO Q.13]

A. Before we begin, most cell phone users have unlimited calling time on the weekend. Is that true for your plan?

Yes, weekend calling unlimited	87
No, weekends are not free	4
Don't know **[VOL]**	7
Refuses survey **[VOL]**	3

[ASK Q.B IF Q.A = WEEKENDS ARE NOT FREE, OR REFUSE, Q.A=2 OR 4]

B. We are offering you a five-dollar amazon.com gift certificate if you complete the five-minute survey. We will send you the coupon code in a text message within a week. Would you like to continue?

Would like the gift certificate	73
Will take survey, but declines offer	27
Refuses to take survey	0

[RESUME ASKING ALL RESPONDENTS]

1. Earlier this month there was an election for offices such as US Congress. Some non-partisan voter mobilization groups in your state used text messaging to remind people to vote. Did you receive a text message from one of these groups?

Yes	100
No	0
Don't remember **[VOL]**	0

2. Thinking of this recent election for US Congress, while 80 million people voted, many people lead busy lives and could not vote. Did things come up that kept you from voting, or did you happen to vote?
[IF VOTED:] Did you vote in person on Election Day, before Election Day by mail, or before Election Day in person?

Voted in person, Election Day	65
Voted, before Election Day by mail	8
Voted, before Election Day in person	3
Did not vote	24
Don't remember **[VOL]**	0
Refused **[VOL]**	0

[ASK Q.3 IF Q.2 = 4 (DID NOT VOTE)]

3. What would you say is the main reason that you did not vote earlier this month? **[Open-ended]** _____

Lack Of Time	44
Not Registered	15
Not Informed Enough To Make Good Decisions	10
Didn't Receive Absentee Ballot	9
Didn't Vote At All	4
Lost I.D.	1
Wasn't old enough	1
Didn't know where to vote	5
No transportation	2
Out of town	5
Didn’t want to	3
Forgot to mail ballot	1
Refused/Don’t Know	0

[RESUME ASKING EVERYONE]

4. Thinking about the text message you received in the days leading up to the election, what was your reaction to receiving it? **[Open-ended; if confused by question ask:]** How DID YOU FEEL about receiving the text message? _____

Reminded Me To Vote / It Helped	25
General Positive / Good Idea / Liked It	18
Neutral / No Effect	15
Disregarded Message	6
Received After Voting	3
Surprised	14
Confusion	2
Didn't Know They Did That/Could Be Done	1
How Did They Get My Number?	3
Annoyance	4
General Negative / Didn't Like It	4
Unhappy / Upset	3
Refused/Don’t Know	2
Total Positive	**43**
Total Neutral	**26**
Total Surprised/Confused	**21**
Total Negative	**10**

5. Did receiving the text message make you more or less likely to vote in the election, or did it have no effect on your decision whether to vote? **[If MORE/LESS ASK:]** Would you say the text message made you much (more/less) likely or only somewhat (more/less) likely to vote?

Much more likely	8	24
Somewhat more likely	16	
No effect	75	
Somewhat less likely	1	
Much less likely	0	1
Don't know **[VOL]**	0	

6. With which of the following statements do you agree with more:

[ROTATE]
__The text message I received was helpful.
OR
__It bothered me that someone sent me a text message.

[If Helpful/Bothered] Do you feel that way strongly, or not so strongly?

Helpful, strongly	25	59
Helpful, not so strongly	33	
Bothered, not so strongly	10	
Bothered, strongly	13	23
Neither **[VOL]**	17	
Both, equally **[VOL]**	1	
Don't know **[VOL]**	1	

7. Imagine that a political organization wanted to remind you to vote just before Election Day. How would you prefer that they contact you? By…

[READ & ROTATE]

__ Mail	17
__ E-mail	30
__ Cell phone call	3
__ Cell phone text message	31
__ Landline phone call	3
__ Talk in-person	6
[DO NOT READ]	
Other **[VOL]**	8
Don't know **[VOL]**	3

THANK YOU. NOW, JUST A FEW QUESTIONS FOR STATISTICAL PURPOSES ONLY.

8. In politics TODAY, do you consider yourself a Republican, Democrat, or Independent? **[IF REPUBLICAN OR DEMOCRAT ASK:]** Do you consider yourself a strong (Republican/Democrat) or a not so strong (Republican/Democrat)? **[IF INDEPENDENT ASK:]** As of today do you lean more to the Republican Party or more to the Democratic Party?

strong Republican	6	13
not so strong Republican	4	
Independent leans Republican	3	
Independent	18	
Independent leans Democratic	12	
not so strong Democrat	15	
strong Democrat	30	57
Other party **[VOL]**	4	
Don't know/refused **[VOL]**	8	

9. Are you currently enrolled in a college or a university? **[IF YES, ASK:]** Is that as an undergraduate student or as a graduate student?

Attend, undergraduate	59	
Attend, graduate student	9	
Attend, don't know **[VOL]**	12	80
Does not attend	16	
Ref **[VOL]**	5	

10. Are you of Hispanic origin or background?

Yes	8
No	89
dk/ref **[VOL]**	4

11. Would you describe yourself as black, white, Asian, some other race, or mixed race?

Black	8
White	71
Asian	8
Other/mixed	8
ref **[VOL]**	5

12. What is your current zip code? _____

Thank you for your time and for answering these questions. Have a nice day/evening.

[INTERVIEWER INFORMATION ONLY – DO NOT READ]

13. **[RECORD, BUT DO NOT ASK, SEX]**

Male	46
Female	54

14. **[RECORD, BUT DO NOT ASK: JUDGE RESPONDENTS' INITIAL REACTION]**

Very pleasant	41
Somewhat pleasant	16
Indifferent	24
Somewhat annoyed	6
Very annoyed	0
Immediate hang-up; mood not available	0
Other	11

[IF VOICEMAIL – SAY THE FOLLOWING:]

Hello **___[NAME ON LIST]_____**, we're conducting a quick, 5-minute survey of cell phone users over the next two weekends. We aren't selling anything or asking for a contribution, so please answer your phone even if you see an unlisted or blocked number. We look forward to hearing your opinions. Thank you and have a nice day.