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Socially Mediated Internet Surveys : Recruiting Participants for Online Experiments

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The Socially Mediated Internet Survey (SMIS) method is a cost-effective technique to obtain web-based, adult samples for experimental research in political science. SMIS engages central figures in online social networks to help recruit participants among visitors to these websites, yielding sizable samples for experimental research. We present data from six samples collected using SMIS and compare them to those gathered by other sampling approaches such as Amazon's Mechanical Turk. While not representative of the general adult population, our SMIS samples are significantly more diverse than undergraduate convenience samples, not just demographically but also politically. We discuss the applicability of the method to experimental research and its usefulness for obtaining samples of special, politically relevant subpopulations such as political sophisticates and activists. We argue that the diversity of SMIS samples, along with the ability to capture highly engaged citizens, can circumvent questions about the artificiality of political behavior experiments entirely based on student samples and help to document sources of heterogeneous experimental treatment effects.

Political scientists interested in a wide array of topics, such as voting behavior, public opinion, political communication, decision making, and biopolitics, have increasingly turned to experimentation as a methodological tool (Druckman et al. 2006). To appeal to this growing interest, APSA organized a new section with its own journal, *Journal of Experimental Political Science* devoted to experimental research.¹ The popularity of the experimental method can be traced to its ability to identify and explicate the causal processes underlying political phenomena (Druckman et al. 2011; Morton and Williams 2010). However, as experiments become more widely used, researchers increasingly face the vexing problem of obtaining diverse, yet affordable, samples.

In the past, political scientists have recruited participants for their experiments by following the standard practice in psychology: drawing convenience samples from the undergraduate student body. The problems inherent in these subject pools are well known—they contain samples that are relatively homogenous with respect to factors such as age, education, life experiences, and political engagement (Henry 2008; Kam, Wilking, and Zechmeister 2007; Sears 1986). As a result, the use of these samples has raised questions about the ability to generalize from such experiments to the electorate as a whole. Given these concerns, nationally representative adult samples have emerged as the “gold standard” for experimental research in political science (Kam, Wilking and Zechmeister 2007). Unfortunately, for many researchers, obtaining this kind of sample can be prohibitively expensive.²

Because of the high cost of obtaining representative samples and the limitations of student subject pools, scholars have resorted to using nonprobability samples that move away from the “narrow database” of college students (Sears 1986) but are relatively inexpensive and easy to acquire. For instance, Berinsky and colleagues (2012) have evaluated the viability of recruiting participants from Amazon’s Mechanical Turk (MTurk), which allows researchers to pay participants small amounts of money for completing surveys. Researchers find that relative to other convenience

samples, MTurk participants are generally more diverse and seem to respond to experimental stimuli in a manner consistent with the results of prior research. Like MTurk, our approach uses the Internet to recruit participants; however, our method differs: it takes advantage of social networks organized around Web 2.0 platforms. More specifically, we identify central figures in these networks—for example, bloggers and discussion forum moderators—to assist with participant recruitment among their readers and associates. We call this approach the Socially Mediated Internet Survey (SMIS) method.

The SMIS approach has several important advantages over other methods of participant recruitment. First, by using preexisting social networks, researchers can rapidly collect data at a low cost. Second, SMIS can yield large samples that are more demographically diverse than the typical student convenience sample. Third, this method provides access to interesting subpopulations that are worthy of study in their own right. That is, SMIS allows researchers to target networks organized around specific political themes, thus providing access to low-incidence populations that may be relevant to experimental studies focused on less common political behaviors, such as activism. In these respects, SMIS offers scholars a useful alternative for recruiting nonprobability samples for experimental research.

The Importance of Sampling for Experimentation

The average student sample tends to be geographically bound and homogeneous with respect to key sociodemographic characteristics such as age, education, and life experiences, as well as particularly important factors such as political engagement and knowledge (Birnbaum 2004; Henry 2008; Reips 2000). For instance, Sears (1986) argues that students have less crystallized political attitudes on average than does the rest of the electorate, and Wattenberg (2011) reports lower levels of political knowledge, engagement, and activity among college-age Americans relative to older citizens. The omission of politically engaged individuals from political science experiments

raises questions about the degree to which observed effects are contingent on college students' limited political experience and involvement.

Diversity and Heterogeneous Treatment Effects

Samples that lack diversity restrict researchers' ability to uncover heterogeneous treatment effects, which occur when stimulus materials from one experimental condition resonate differently among particular demographic or political subpopulations (see Imai et al. 2011). To the extent that they are homogeneous, student subject pools lack variation on key individual-level covariates that might condition reactions to experimental stimuli (Krupnikov and Levine 2013). Although representative samples are *required* for experimental research, random assignment of participants to treatment and control conditions ensures observed treatment effects are because of the experimental manipulation rather than unobserved, systematic differences between groups of participants (Druckman et al. 2011; Kinder and Palfrey 1993; Morton and Williams 2010). Nonetheless, diversity adds value by allowing researchers to explore and verify factors that moderate treatment effects. Consider, for example, an economic threat manipulation involving home values, interest rates, or property taxes. Such threats should resonate more with homeowners and more affluent Americans than with average college students. Researchers who rely solely on an undergraduate sample may underestimate the effects of economic threat on political attitudes because of the limited range of income and financial independence observed in a typical student sample. In this fashion, student samples can mask heterogeneity in response to experimental treatments, further complicating efforts to understand the causal mechanisms underlying political attitudes and behavior.

Diversity and External Validity

Another concern for researchers interested in accurately estimating treatment effects is that citizens tend to self-select into political treatments in "real world" settings. For example, politically engaged participants are more likely than average citizens to be exposed to the kinds of

communications manipulated within political experiments given their elevated rates of media consumption (Kinder 2007). These self-selection mechanisms can produce estimates of average treatment effects in experimental research that fail to generalize to applied settings because the treatment does not have the same degree of external validity for all participants. Gaines and Kuklinski (2011) illustrate this point in their research on the effects of negative campaign ads on political mobilization. They demonstrate that the effects of negative advertisements on evaluations of Obama and McCain were stronger among those who *elected* to view the ads than for those who were *assigned* to view them, which suggests the underestimation of treatment effects in a classic experimental design. This research highlights the fairly well-established claim that the opinions and behaviors of highly engaged, or “sophisticated,” citizens do not always mirror those of the mass public (e.g., Zaller 1992; Gomez and Wilson 2001; Taber and Lodge 2006).

Concerns that a lack of diversity among college student samples leads to muted treatment effects and weakened external validity can be circumvented through diverse nonprobability samples obtained on the Internet. Numerous organizations, such as SurveySavvy, Harris Poll Online, and Survey Spot, sell access to their online volunteer panels, which have been used in political research (Malhotra and Krosnick 2007) and tend to vary in their composition and quality (Berrens et al. 2003). Web users are not representative of the public as a whole, but Internet survey firms use a variety of approaches to reduce bias.³ For instance, YouGov/Polimetrix has an online panel of paid volunteers and uses propensity scores to weight the panel to the approximate characteristics of the population, thus attaining a sample that looks demographically similar to the nation. YouGov’s online panel has been frequently used in political science research in studies such as the Cooperative Congressional Election Survey (CCES). Online volunteer panels, coupled with⁴ probability-based web samples collected by Knowledge Networks (KN), are among the most common web-based samples used in political research.⁵ For obtaining truly representative samples, KN has emerged as

the gold standard for online research. However, KN's high cost means it is out of reach for many researchers, who must rely instead on alternative low-cost nonprobability samples. Even volunteer online panels, such as the YouGov panel, are financially out of reach for underfunded researchers.

Instead, many researchers have turned to alternatives like Amazon's MTurk, which is cheaper than KN or the other commercial opt-in web panels. Berinsky, Huber, and Lenz (2012; see also Buhrmeister, Kwang and Gosling 2011; Mason and Suri 2012; Paolacci, Chandler and Ipeirotis 2010) have used MTurk effectively to recruit subjects to participate in online experiments by contracting "workers" in exchange for a token payment. In a second approach, Nosek, Banaji, and Greenwald's "Project Implicit"⁶ relies on unpaid web-based volunteers to conduct psychological studies of implicit attitudes. Participants are passively recruited via media coverage of the researchers' studies, word-of-mouth, or simple chance browsing. Surprisingly, this passive method has successfully recruited millions of participants from across the United States and many different countries.

The SMIS Approach

To this existing mix of online recruitment approaches for convenience sampling, we add SMIS. This technique relies on the potential of Web 2.0 platforms not only for *expressing* political opinion—through blogs, forums, and social networking sites—but also for *capturing* it. SMIS identifies and recruits individuals who are at the center of rich social networks, or "central nodes." Given their critical role in the recruitment process, we refer to them as *social mediators*. We appeal to these social mediators (e.g., bloggers and discussion forum moderators) to endorse a study and then solicit participation among their readers and friends. Thus, the request for participation comes from a known opinion leader—the social mediator—rather than an unknown researcher. This personal connection increases the likelihood of participation (e.g., Green and Gerber 2004). By selecting

highly visible and richly linked sites, researchers can ensure widespread exposure to the survey request.

The SMIS approach adds value to experimental research by providing scholars with cost-effective access to a relatively diverse subject pool. Researchers can capture a sample with variance on theoretically relevant covariates and empirically evaluate the existence of heterogeneous treatment effects. In this respect, SMIS provides an efficient and inexpensive way for researchers to move beyond the “narrow database” and to target and study special populations. Online social networks tend to be homophylic, reflecting concentrations of people with shared interests, issue attitudes, beliefs, and values (Singla and Richardson 2008). These virtual networks of like-minded individuals can provide access to poorly defined or low-incidence populations.

For instance, scholars have used online chat rooms to study the factors that trigger aggression among hate group members. By experimentally manipulating the content of potentially threatening messages, researchers demonstrated that cultural threats to white identity were more likely to induce aggression among hate group members than threats to material resources (Glaser, Dixit, and Green 2002). This insight would not be possible through the use of nationally representative probability samples, conventional student samples, or other online opt-in methods such as MTurk. The SMIS approach could be useful in this type of targeted research, as well as extended to recruit specific populations of interest to political scientists who study, for example, the dynamics of collective action or opinion among members of issue publics focused on the environment, gay marriage, or legalized abortion (Klar and Kasser 2009; Mathy et al. 2002; Miller and Krosnick 2004; Simon and Klandermans 2001; Thomas, McGarty, and Mavor 2009).

For experimental research focused on political communication, the use of targeted samples of politically knowledgeable, engaged, and active citizens may strengthen external validity and provide more accurate estimates of treatment effects. While sophisticates are not present in large

numbers in national probability samples, because of their low numbers, the content developed and shared on Web 2.0 platforms can readily identify social mediators in networks comprised of politically knowledgeable, attentive, and active citizens. This recruitment strategy captures the kinds of participants who are most likely to be exposed—through self-selection—to political communications like campaign ads, appeals urging voter turnout, and the views of candidates and public officials. Highly controlled lab-based communications experiments have their virtues but they “obliterate” the distinction between the supply of information, on one hand, and its consumption, on the other (Kinder 2007,157).” When every participant receives a message and the propensity to be “treated” is held constant across each participant, the selection pressures underlying political communication effects is ignored and the true causal process may be misidentified. Alternatively, reactions to political communications in a natural setting do not suffer from this selection bias problem because they do not artificially expose respondents to political communications that they would not otherwise receive (Gaines and Kuklinski 2011; Kinder 2007).

Evaluation of the SMIS Approach

We used the SMIS approach to recruit participants for six political experiments investigating various facets of American public opinion and political behavior. Participants in each experiment were exposed to experimentally altered blog posts, news stories, or political ads.⁷ Five of the six studies recruited bloggers and discussion forum moderators as social mediators, and the sixth study employed research assistants embedded within Facebook networks (see table 1).⁸ The recruitment strategies for these studies varied to capture different types of samples: Studies 1, 2, and 3 targeted politically active and engaged citizens, whereas Studies 4, 5, and 6 were designed to reach heterogeneous adult samples. Together, the six studies underscore the flexibility of the SMIS method.

<*** INSERT TABLE 1 ABOUT HERE ***>

Approximately one out of every eight bloggers we contacted agreed to serve as a social mediator.⁹ Even with relatively modest participation rates, we easily secured hundreds of respondents for each of our political experiments—considerably more than could be obtained through typical undergraduate subject pools. In terms of participant yield, each social mediator averaged 104 respondents, ranging from a low of 50 participants per mediator to a high of 158. More importantly, the mean sample size for the SMIS studies was 1,569 participants, with a range of 297 to 3,219 participants.¹⁰ These figures underscore the effectiveness of the SMIS technique for obtaining research participants.

Diversity in SMIS Samples

The demographic profiles of all six SMIS samples illustrate the diversity that can be obtained using this recruitment method (see table 2). For comparison, we also include the average profile of nine samples that Berinsky and colleagues (2012) obtained via MTurk (from tables 1 and 2), an undergraduate convenience student sample,¹¹ and the 2008 ANES time series panel (conducted in person).¹² As expected, our SMIS samples contain biases common to other convenience sampling methods in terms of age, race, and educational attainment (e.g., see Berinsky, Huber, and Lenz 2012; Kam, Wilking, and Zechmeister 2007;). Although the volunteer samples obtained via SMIS are not designed to be representative of the general population and should not be presented as such, they are considerably more diverse than the average college student sample. Student samples generally consist of participants from a limited age-range and geographic area, restricting variance in both of these factors. In contrast, the average age of our SMIS respondents was just over 40 years old, compared to 20- and 32-year-olds for the student sample and MTurk studies, respectively. Variability in age is important because it reflects different life experiences such as having a family, becoming financially independent, or entering retirement, as well as different levels of political experience and

engagement. For instance, the typical college student sample is likely to contain a substantial number of individuals who have never voted in a presidential election.

SMIS samples can also reflect considerable geographic diversity, an important determinant of social and political attitudes (e.g. Brace et al. 2004). Our social mediator recruitment targeted blogs with a national focus; thus, the SMIS samples contain participants drawn from across the United States. When compared to the ANES, the SMIS samples slightly underrepresented the South (24% on average vs. 40% in the ANES) and overrepresented the West (36% on average vs. 21% in the ANES).¹³ Berinsky and colleagues' MTurk samples demonstrate a similar bias in underrepresenting the South and overrepresenting the Northeast (although not the West). Obviously, the geographic diversity of SMIS samples depends on the social mediators that are targeted; however, this potential for geographic diversity is a benefit when compared to both undergraduate and college-personnel samples (e.g., see Kam, Wilking and Zechmeister 2007), which are typically drawn from a single location. In fact, many research-focused higher education institutions are located in liberal college towns, which can be very different from a typical urban or suburban American setting.

In terms of race and ethnicity, both SMIS and MTurk yielded samples that are disproportionately white (SMIS average = 87.5%, MTurk average = 83.5%). The student sample, by contrast, was racially diverse (53% of respondents identified themselves as white, and roughly 31% as Asian) and in line with the demographic profile of the university, but not the region or country more broadly, further reflecting the idiosyncrasies of college-student samples. In terms of education, few differences are noted across any of the online samples. Volunteer and student participants are, for the most part, well educated. By definition, all student participants have some college education; yet, the same is true of our SMIS participants. Only 6% of SMIS respondents had completed only a high school education (or less), whereas 93% indicated they had some college education. The mean

years of schooling observed in Berinsky and colleagues' (2012) MTurk studies was 14.9, which indicates that the average participant had some college experience. In contrast, 43% of ANES respondents report having no more than a high school education. Ultimately, many of the observed demographic differences in age, race, and education between volunteer web samples and the ANES reflect the digital divide created by disparities in Internet access and usage (Warschauer 2003).

On average, the SMIS samples were balanced in terms of participant gender, with 56% identifying themselves as female (table 2). There is, however, striking variance in the average proportion of women in the SMIS studies, ranging from 22% to 82% of the sample. This variance is both a strength and weakness of the SMIS technique. On one hand, studies with a surfeit of female respondents were drawn from blogs that disproportionately attracted women such as BitchPhD, a feminist blog. Of course, this type of sample could be a real strength for research on politics and gender, especially research focused on politically engaged women or politicized gender identity. On the other hand, care must be taken to approach blogs that attract an even mix of men and women for broad experimental research. Yet, gender imbalance arises for other volunteer samples as well. The college personnel sample collected by Kam and colleagues (2007) was 75.7% female. Women tend to be overrepresented in MTurk samples, too. Paolacci and colleagues' (2010) MTurk sample was 75.0% female, compared with Berinsky and colleagues (2012) who report a better gender balance with samples that were, on average, 60% female. The student sample is mostly balanced with 48% female participants, although gender imbalance is widely noted when using psychology rather than political science undergraduate subject pools given the disproportionate number of women enrolled in that major.

<*** INSERT TABLE 2 ABOUT HERE ***>

When it comes to political characteristics, the SMIS, MTurk, and student samples tend to be more liberal and Democratic than the ANES sample (table 2).¹³ When averaged across the SMIS

studies, 48% of respondents identified themselves as Democrats, 30% as Independents, and roughly 18% as Republicans. A comparable skew is evident in Berinsky and colleagues' (2012) MTurk samples, which are on average 42% Democratic, 23% Independent, and 25% Republican. In the 2008 ANES, roughly a third of all respondents are Democrats and 25% are Republicans. A similar pattern is evident for self-reported ideology. In the SMIS studies, 55% are liberal compared to 48% in the MTurk studies, and 13% in the ANES. The college student sample included in table 2 is also far more liberal than conservative, but the nature of student samples greatly varies with the institution and its location. A similar pattern is also observed for Project Implicit samples, which also consist of online volunteers. Averaged across nine published Project Implicit studies, 51% of respondents identify as liberal, 26% moderate, and 21% conservative. Interestingly, the SMIS samples vary in the degree to which liberals dominate the sample, depending on the blogs targeted for participation. Thus, compared to MTurk, SMIS also offers an opportunity to adjust ideological imbalance through the selective recruitment of conservative bloggers when samples are skewed too heavily to the Left. This prospect is not readily available with other techniques for obtaining volunteer participants.

The heterogeneity among the six samples obtained using this approach—both in terms of political predispositions and sociodemographic characteristics—provides a sense of the variability surrounding SMIS samples. Any two SMIS samples will likely differ more than any two conventional student samples, which are drawn from a significantly more homogeneous population. Indeed, this is the primary concern surrounding student samples and the motivating force behind efforts to find alternatives such as SMIS. The information provided in table 2 should encourage researchers interested in using this approach to think carefully and systematically about social mediator selection, how it will affect the characteristics of the resulting sample, and the degree to which a sample will contain the kind of diversity likely to uncover heterogeneous reactions to the experimental

treatment. The SMIS samples obtained in the six studies reflect considerable demographic and political diversity, but they are convenience samples and, as for any nonprobability sample, descriptive sample statistics cannot be generalized to a broader population.

Targeting Special Populations

Social mediator selection is important when targeting special populations. A distinctive feature of the SMIS approach, relative to MTurk and others, is its ability to “infiltrate” specific political communities. Online networks of politically engaged and active citizens, including those focused on a single issue (Converse 1964), are comprised of Americans who are deeply entrenched in emotionally charged political debate. These highly engaged Americans, who maintain strong political views, are thought by many to disproportionately affect political outcomes (e.g., Abramowitz 2010). Experiments conducted among these respondents are particularly illuminating when it comes to electoral dynamics and the origins of political attitudes and candidate judgments. By taking advantage of the preexisting level of social organization provided by Web 2.0 platforms, researchers can reach these diffuse populations (Mathy et al. 2002; Skitka and Sargis 2006).

For SMIS Studies 1, 2, and 3, we were specifically interested in the psychological origins of political engagement, identity, and emotion. In these studies, we sought highly engaged, Americans with strong political identities to participate in several online experiments. As seen in table 3, this approach proved fruitful—levels of political engagement are far higher among SMIS activist than ANES respondents. In SMIS Study 1, for example, participants had been actively engaged in the 2004 presidential election: almost four in 10 had attended political meetings or rallies (38% vs. 8% in the 2008 ANES), nearly half (49%) had worn a button or displayed a campaign sticker (compared to 16% in the 2008 ANES), more than three in four had tried to persuade another voter, (compared to 45% in the ANES), 40% had donated money to a candidate (compared to 11% in the ANES), and a third had donated to a political party (compared to 8% in the ANES). In addition, SMIS activists in

all three studies proved to be very knowledgeable about politics. As seen in table 2, SMIS participants recruited from politically active blogs were correct on 90% of the political knowledge items on average, compared to roughly 67% correct in the other SMIS studies (Studies 5 and 6), 71% in the MTurk sample, and only 42.5% in the ANES sample.¹⁴

<*** INSERT TABLE 3 ABOUT HERE ***>

Our findings underscore the ease with which highly engaged and knowledgeable partisans can be targeted for recruitment by using SMIS. In addition to greater political engagement and knowledge, targeted SMIS respondents also demonstrated high levels of constraint among their political beliefs, including party identification, ideological self-placement, religious beliefs, and political behavior. For instance, the average correlation between partisanship and ideology is 0.76 in the three SMIS studies, whereas it is only 0.56 in the 2008 ANES.¹⁵ In addition, ideology, church attendance, and views on biblical orthodoxy were more strongly correlated with vote choice in the SMIS studies than in the ANES. Overall, the political views of the targeted SMIS samples are far more constrained than those of ANES participants, and their vote choice is more partisan and ideological and more polarized on religious-secular grounds.

This glimpse into belief systems of SMIS participants underscores the technique's ability to attract engaged partisans and ideologues, individuals who strongly connect religious and political beliefs, and those who act (and act frequently) in accordance with their beliefs and values. The potential to capture politically engaged, knowledgeable, and active Americans is a strength of the SMIS technique and could lend insight into the opinion and behavior of political sophisticates, which does not always mirror that of the mass public, as in the case of economic voting (Gomez and Wilson 2001), political information processing (Taber and Lodge 2006), emotion and political cognition (Miller 2011), and framing (Druckman and Nelson 2003). Moreover, actively engaged citizens have a disproportionate influence on American politics through regular voting, political

actions (e.g., contacting their members of Congress), and campaign donations. Thus, the flexible nature of the SMIS sampling technique is an asset for conducting experimental research on these citizens to better understand the factors that condition their political participation and shed light on the dynamics of election and issue-based campaigns.

General Procedures for Conducting SMIS Studies

Recruiting richly networked and influential social mediators is central to the SMIS method and provides access to participants at little or no cost to researchers except for their time. Technorati (www.technorati.com) can identify blogs and forums for both general adult samples and specific target populations. Content is organized topically using categories such as entertainment, business, sports, technology, and politics, and a researcher seeking a generic adult convenience sample can select and contact potential mediators across these content domains. When seeking a targeted sample, as in our case with political sophisticates, the content posted on blogs and discussion forums offers useful insights into the characteristics of the social mediator's network. For example, we located strong partisans on blogs that had a clear, consistent partisan stance and focused exclusively on political content. We also determined the ideological orientation of blogs from the "about" or "contributor bio" sections of the site. "Blogrolls," a blogger's list of additional blogs that may be of interest to readers, can identify other relevant social mediators and allow broader access to the online social network.

Social networking websites like Facebook and Google+ offer an alternative venue to blogs and discussion forums for acquiring participants. To recruit participants for general convenience samples on these websites, first locate a team of research assistants who are willing to solicit participants from their social circles to serve as social mediators. In addition, research assistants may identify other central figures within their own networks (e.g., individuals with many "friends") and encourage these contacts to assist with recruitment, thus widening access to a broader base of

potential participants. Using this strategy successfully depends on the number of research assistants, as well as the number of people in their social circles. Facebook can also potentially be used to identify and target specific populations. Research assistants can make targeted appeals by combing their contact profiles for criteria related to specific activities, interests, and political and religious views.

This social media platform can also be used to recruit targeted samples using Facebook or Google+ groups organized around a central theme. Thus, rather than relying on diffuse networks and more individualized contact, researchers can locate a group page dedicated to political discussion or particular political causes to recruit participants who are, for example, engaged citizens, strong partisans, or citizens active on a specific political issue. This approach allows for focused recruitment, but also has the added advantage of breaking up any geographic dependence in the research assistants' social networks. Facebook hosts pages for many politically relevant groups such as "Stand with Arizona (and Against Illegal Immigration)." This group is currently "liked" or followed by approximately 600,000 Facebook users. Other pages are linked to campaign rather than issue-specific mobilization. The page "Dogs against Romney," for example, was created to raise awareness during the 2012 presidential campaign about Mitt and Ann Romney's alleged animal rights abuses. The settings on these pages vary—some allow any user to post content to the main page, whereas others require permission from the page administrator(s).

Second, regardless of the settings, maximize cooperation by contacting the Facebook page administrator (the social mediator in this case) prior to posting a recruitment message to obtain permission, provide clear instructions, and assuage potential concerns about the project itself. Dillman and colleagues (2009) provide sound advice on how to craft the initial request to potential mediators, as well as plan follow-up communications (see also Kam, Wilking, and Zechmeister 2007; Orr 2005). The first institutional review board (IRB) approved correspondence with potential

mediators should contain the following three components: (1) a mediator recruitment script, which introduces the researcher, details the purpose of the study, and explains the mediator's role in obtaining participants; (2) a brief participant recruitment script that mediators can post verbatim for their readers; and (3) a working hyperlink to the survey or task used in the study. Examples used in our own studies are provided in the online Appendix. Third, prior to making any contact with mediators, researchers should thoroughly test the survey (or tasks) to ensure that it is error-free, and that any resulting data will be properly collected. In addition, correspondences should originate from a university-assigned e-mail address to reassure potential mediators of the study's legitimacy. Finally, encourage mediators to test the study materials to determine whether it would be well-suited to their particular readers.¹⁶

In our experience, although some mediators immediately agreed to assist with recruitment, this was not the norm. Time, effort, and patience are needed to cultivate relationships and gain the genuine cooperation and trust of the mediators. This is important. Bloggers and discussion forum moderators are more likely to assist with a study if they forge a relationship with a member of the research team than if communications are terse and impersonal. To personalize each mediator request, read recent blog posts or forum discussion threads to better understand the website's purpose, as well as reference a specific post or thread in the initial correspondence (a strategy that must be approved by the researcher's IRB). Another effective strategy for securing mediator participation is to make a simple request for assistance with a graduate student's research project (if appropriate). If special populations, which may be suspicious of participating in academic research (e.g., strong conservatives) are sought, informing mediators that their readers are important to provide balance and ensure the study reflects a diversity of viewpoints. Once again, such content must be approved in advance by the researcher's IRB.

Bloggers and forum moderators are wary of exposing their readers and contributors to scams or push polls designed to alter rather than collect public opinion, and scholars should expect mediators to investigate the research team. Researchers should scrutinize their online profiles as reflected in content on their academic or personal websites, including photos, links to other websites, endorsements, or anything else that may discourage mediators from agreeing to participate. In addition, researchers should remove lengthy or detailed study information from their website during data collection, as some mediators will post links to the researchers' websites along with the participant recruitment script. Maintaining a professional web presence helps instill confidence in both mediators and study participants that the project is legitimate and worth their time.

Conclusions

We have used the SMIS technique to secure nonstudent samples for experimental political science research, as well as to gain access to highly involved and politically sophisticated individuals efficiently and at a minimum cost. In these respects, the SMIS method works well. Evidence from our six studies demonstrates how social media affords access to a large and diverse pool of participants for experimental research. In doing so, it obviates some of the limitations of commonly used undergraduate and community-based sampling methods. While the samples reflect deviations from population characteristics common to those observed in other web-based convenience samples obtained from MTurk and Project Implicit, SMIS samples are more diverse in terms of age, region, and political experience than the typical student-based sample. By introducing diversity, especially in terms of political engagement, SMIS studies extend the reach of political experimentation to demographically varied samples. Moreover, the ability to target highly politically engaged individuals most likely to be exposed to tailored political communications allows researchers to evaluate any possible heterogeneous treatment effects and self-selection processes that complicate experimental research—potentially resulting in more accurate estimated treatment

effects. Reactions to political communications from people who are inclined to seek them out has higher ecological validity than a study that artificially exposes respondents to political communications that they would not otherwise see or hear (Gaines and Kuklinski 2011; Kinder 2007).

All of the online sampling approaches mentioned in this article vary in their relative strengths and weaknesses. Approaches such as the SMIS or MTurk provide low-cost options for data collection that circumvents some of the limitations of student samples. Of course, these approaches have their own problems. Krupnikov and Levine (2013) note that MTurk respondents reported participating in an average of 37.2 studies. This raises concerns about the savvy or skeptical nature of participants. Indeed, the authors show that experienced MTurk respondents are more likely to disregard experimental instructions than are participants in YouGov's panels. SMIS samples do not suffer from this "expertise" problem. And, unlike MTurk, they do not require a token payment for participants.

SMIS samples are not without limitations. The samples obtained this way can be highly variable, and researchers must take care when selecting a potential pool of mediators to ensure participants fit the desired demographic and political profile. Ultimately, researchers bear the burden of justifying their choice of sample —SMIS or otherwise. On this point, researchers using SMIS should avoid describing marginal frequencies or other descriptive statistics as if they were representative of a general population. Of course, it is critical for researchers to think carefully about whether *any* nonprobability sample will have characteristics relevant to the causal relationship being studied. If a sample is highly educated, sophisticated, or partisan (as SMIS and MTurk samples tend to be, on average), researchers must interpret their experimental results in light of existing knowledge about opinion dynamics among political sophisticates (i.e., Zaller 1992). Ultimately, one's confidence in the results of any particular experiment will rely on the exercise of good research

practices and depend on replication across samples. Although the results of any given experiment using the SMIS approach may not conclusively establish “real world” causation, this research can be suggestive and insightful in pointing to potentially complex causal relationships to be explored and verified in subsequent studies.

Based on our experiences with SMIS, political researchers have much to gain by turning to the web to recruit research participants rather than relying solely on undergraduate student samples for experimental research. The SMIS approach is flexible and inexpensive, which places it within reach of all researchers who can invest the time necessary to develop relationships with social mediators. While our studies are focused on the American political context, the utility of the SMIS approach is not geographically bound given the widespread adoption of Web 2.0 technologies. For example, SMIS could be used to study international political behavior i by tapping into blogs read by citizens of different countries. We hope others will use the SMIS technique for their experimental work and take advantage of its ability to access highly engaged and politically active citizens, among other low-incidence populations, who reflect important and often understudied segments of the public.

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Table 1: Mediator and Participant Recruitment Details, SMIS Studies

	<i>1</i> <i>Culture Wars</i> <i>(2006)</i>	<i>2</i> <i>Partisan Identity</i> <i>(2007)</i>	<i>3</i> <i>Partisan Identity</i> <i>(2008)</i>	<i>4</i> <i>Campaign Ads</i> <i>(2007)</i>	<i>5</i> <i>Political Metaphors</i> <i>(2007)</i>	<i>Blog/ Forum Average</i>	<i>6</i> <i>Political Metaphors</i> <i>(2008)</i>
Mediator Type	Blogs/ Forums	Blogs/ Forums	Blogs/ Forums	Blogs/ Forums	Blogs/ Forums	Blogs/ Forums	Research Assistants ²
Mediators Contacted	100	100	178	---	50	107	4
Mediators Participated	24	4	23	18	6	15	4
Mediator Response Rate	24%	4%	13%	---	12%	13.3%	100%
Participants (N)	2248	630	3219	1452	297	1569.2	141
Yield: # Participants / # Mediators	93.7	157.5	140.0	80.7	49.5	104.3	35.3

Notes: Cell entries are frequencies or percentage. Social mediators for Study 6 were researcher assistants who used Facebook to recruit participants among their networks of friends. For more information about Studies 5 and 6, see Hartman 2012.

Table 2: Demographic Characteristics of SMIS Respondents

	<i>1</i> <i>Culture</i> <i>Wars</i> <i>(2006)</i>	<i>2</i> <i>Partisan</i> <i>Identity</i> <i>(2007)</i>	<i>3</i> <i>Partisan</i> <i>Identity</i> <i>(2008)</i>	<i>4</i> <i>Campaign</i> <i>Ads</i> <i>(2007)</i>	<i>5</i> <i>Political</i> <i>Metaphors</i> <i>(2007)</i>	<i>6</i> <i>Political</i> <i>Metaphors</i> <i>(2008)</i>	<i>SMIS</i> <i>Average</i>	<i>Mechanical</i> <i>Turk</i> <i>(2012)</i>	<i>Student</i> <i>Sample</i> <i>(2008)</i>	<i>ANES</i> <i>(2008)</i>
Age										
Years	38.2	41.5	47.0	39.1	33.8	43.7	40.6	32.3	20.1	46.6
Region										
Northeast	22.1	20.9	---	26.6	20.9	15.6	21.2	22.4	100	14.6
Midwest	20.9	20.8	---	25.2	11.4	2.8	16.2	26.8	0	21.2
South	26.7	27.8	---	24.3	31.7	5.6	23.2	30.4	0	42.9
West	28.2	22.9	---	23.9	29.1	75.9	36.0	20.4	0	21.4
Race/Ethnicity										
White	85.4	93.8	90.2	91.0	82.3	82.0	87.5	83.5	52.7	74.2
African-Am.	1.2	0.2	1.8	0.8	3.2	2.1	1.6	4.4	6.1	12.0
Hispanic	1.6	0.2	2.6	1.2	5.7	3.6	2.5	6.7	9.9	7.8
Other	11.8	5.8	5.4	7.0	8.8	12.3	8.4	5.4	31.3	6.0
Education										
≤ High School	3.6	2.2	5.5	2.2	5.7	18.4	6.3	*	0	43.0
Some Coll./AA	19.6	14.4	26.3	20.3	35.4	11.4	21.2	*	100	28.7
B.A./B.S.	31.8	25.1	28.4	34.0	34.2	37.6	31.9	*	0	18.3
Graduate Degree	41.3	57.8	39.1	43.4	22.8	31.9	39.4	*	0	9.5

	<i>Culture Wars</i>	<i>Partisan Identity 1</i>	<i>Partisan Identity 2</i>	<i>Campaign Ads</i>	<i>Metaphors 1</i>	<i>Metaphors 2</i>	<i>Average</i>	<i>MTurk</i>	<i>Student</i>	<i>ANES</i>
Gender										
Female	58.2	56.5	22.3	49.0	81.7	66.7	55.7	60.1	48	54.9
Party ID										
Democrat	43.5	38.7	59.5	46.0	50.6	48.2	47.8	41.9	41.2	33.6
Independent	38.5	26.7	35.8	29.5	30.4	21.3	30.4	23.1	30.5	38.7
Republican	8.9	33.8	4.8	16.3	13.3	27.7	17.5	24.9	19.9	25.4
Other / None	9.1	0.8	0	8.3	5.7	2.8	4.5	10.1	8.4	2.3
Ideology										
Liberal	68.2	50.3	77.9	57.4	44.6	33.3	55.3	47.9	30.5	12.5
Moderate	19.0	5.2	6.6	16.0	43.9	44.0	22.5	30.5	58.0	64.0
Conservative	10.5	36.8	5.5	21.3	11.5	22.7	18.1	21.7	11.5	19.8
None	2.3	7.7	10.0	5.4	0	0	4.2	3.2	0	3.7
Pol. Knowledge										
Correct	91.8	94.2	97.1	---	65.3	68.3	83.3	71.3	61.7	42.5
<i>N</i>	2248	630	3219	1452	158	141	1308	587	131	2322

Note: Cell entries are percentages, except for age (mean years). See text for details on the MTurk, Student and ANES studies. Region is based on ANES codes: North East (CT, MA, ME, NH, NJ, NY, PA, RI, VT), North Central (IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI), South (AL, AK, DE, Washington DC, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV), West (AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY). “Leaning” Independents and moderates are included in the Independent and Moderate categories, respectively. Percentages do not add to 100 due to rounding and missing values. Item wording is available in the Appendix.

Table 3: Electoral Participation and Belief Constraint in Activist SMIS and ANES Samples

	1 <i>Culture Wars</i> (2006)	2 <i>Partisan Identity</i> (2007)	3 <i>Partisan Identity</i> (2008)	<i>ANES</i> (2008)
Electoral Participation (%)				
Attend political meetings, rallies etc.	37.7	---	---	7.8
Display campaign button, sticker	49.3	---	---	16.2
Persuade other voters	76.5	---	---	41.2
Donate to a political candidate	40.1	39.9	54.7	10.3
Donate to a political party	33.4	35.6	37.3	7.2
Volunteer for a presidential candidate	---	29.7	30.8	3.7
Vote in a Presidential Election	91.7	96.5	98.3	70.6
Belief Constraint (Bivariate Correlations)				
Party ID & Ideology	.74**	.90**	.65**	.56**
Party ID & Democratic Vote Choice	.78**	.92**	.66**	.75**
Ideology & Democratic Vote Choice	.83**	.92**	.65**	.58**
Church Attendance & Democratic Vote	-.45**	-.35**	-.25**	-.16**
Biblical Orthodoxy & Democratic Vote	-.61**	-.58**	-.35**	-.18**

Notes: Election participation measures for the Partisan Identity studies are based on self-reported intentions because these studies occurred before the 2008 Presidential Election. Party ID and Ideology range from 1 to 7, where high values indicate Democrats and liberals. Church Attendance is measured on a scale, where “1” means “Never” and “6” means “More than once a week” (from 1 to 8 in the Partisan Identities Studies). Biblical Orthodoxy is coded from 1 to 3, where “1” means “the Bible was written by men,” and “3” means that it is the “actual word of God.” Democratic Vote Choice is dummy coded such that a 1 indicates a vote (or vote intention) for the Democratic presidential candidate. Precise item wordings are provided in the appendix. ** $p < .01$.

APPENDIX

Sample Recruitment Scripts

Blogs

Below are samples of emails that were sent to Bloggers in an effort to recruit social mediators.

E-mail #1

I came across your blog and was wondering if you would be willing to help a team of researchers at BLANK University. We are conducting a national study of how people make sense of the information they encounter on the Internet. We think that your readership would make for an interesting and important group to be included in this project.

The survey takes roughly 10 minutes or so to complete, and responses are completely anonymous. In addition, participants will be eligible to enter a raffle for a \$50 Gift Certificate to Amazon.com.

Please take a few moments to take (and test) the survey yourself, and then we would really appreciate it if you could post the link for your readers (To avoid biasing potential respondents, we ask that you not discuss the details of the study if you do decide to help us and post the link.).

[LINK TO SURVEY]

Thanks so much for your consideration.

Best Regards,

NAME

ACADEMIC TITLE AND ADDRESS

Email #2

I am a graduate student in Political Science at BLANK University. I'm hoping you can help me out. Political scientists are doing a fairly bad job at examining what I think is a very important development in American politics: the emergence of political blogs. It is an area that is begging for further research. I am attempting to investigate the political significance of blogs and online political discourse. Any results I find will likely be presented at national and international political science conferences and hopefully published in national political science journals. In addition, and more importantly, I plan to use this data as part of my dissertation.

I have created a survey designed to examine who visits political blogs and how these people think about the 2008 election and respond to online political discussions. All survey responses will be completely confidential, and all identifying information will be stripped by the survey collection software.

I would appreciate it very much if you could post the link to this survey on your site and encourage your readers to participate. I am very happy to send you the results of the data I collect.

I have contacted 200 other blogs—liberal, conservative, and nonpartisan—and hope to receive a wide range of responses.

Any suggestions you may have for me would also be very welcome. Bloggers are far ahead of political scientists in thinking about this information.

The link to the survey is:

[LINK TO SURVEY]

If you choose to post it, please let me know, and please discourage your readers from discussing it (disabling the comments section would be ideal). It could bias my results if people go into it with specific expectations.

Many thanks and best regards,

NAME

ACADEMIC TITLE AND ADDRESS

Email #3

I recently discovered BLOG and have read several of your posts. In particular, I just finished reading your post, "TITLE," and found it fascinating and very informative. I especially like your emphasis on the need for clear, coherent objectives in the War on Terror, as well as establishing limits at which we will stop pursuing them. Anyway, my point is that I especially enjoyed your recent posts.

I am a graduate student in Political Science, and I am currently working on a research project concerning emotions and politics for my dissertation. I was wondering if you would be willing to help me collect data for my project by posting a link to a very short survey (it should take less than 5 minutes to complete). It would benefit me greatly to have politically active people such as your readers take my survey. Of course, I would be more than happy to share my results with you (and your readers), once they are available.

In addition, if you agree to post the link, you will be entered into a raffle to win two \$20 gift cards to Amazon.com—one for the winning blogger and the other intended for a reader of the blogger's choosing.

If you have any reservations, I encourage you to take the survey yourself before posting it to your blog. I think you will find that it is quick, easy to complete, and interesting. If you do decide to publish the link, here is an example of what you might want to post directly to your blog:

* * *

A team of researchers from BLANK University have asked us to help them study the role that emotion plays in politics. I have completed the survey myself, and it only took me a few minutes to

finish. The survey is completely anonymous. I encourage you to take a few minutes to help these researchers out.

Click the link below to begin the survey:

[LINK TO SURVEY]

* * *

Thanks so much for your consideration!

Best Regards,

NAME

ACADEMIC TITLE AND ADDRESS

Note: This study has been approved by Blank University's Institutional Review Board protecting research involving human subjects.

Facebook

Below is an example of the type of message that could be posted on social media website like Facebook to solicit participants.

Hi Everyone! I am working with a team of researchers at BLANK University, and we really need help recruiting participants for our online survey about religion and politics. The survey is completely anonymous and should take less than 10 minutes to complete.

We recognize that there are many different opinions on the issue. For example, some people think that this country is becoming too secular and want to see more people in government who share their values. In contrast, others think that religious groups have too much influence in politics and would rather keep religion and politics separate. We are very interested in your thoughts on this matter. What do you think about religion and politics in the U.S.?

Here is the link to the survey: If you have any questions about this survey, please contact NAME at EMAIL.

Question Wording for Survey Items in Tables 2 and 3

Party Identification and Political Ideology: standard 7-point Likert scales coded with high scores correspond to a strong Democratic Party or liberal identification.

Political Participation: measures vary across studies. All are additive indices, but the component items vary.

Culture Wars Study (0 to 6 participatory acts):

- In talking to people about elections we often find that a lot of people were not able to vote because they weren't registered, they were sick, or they just didn't have time. How about you, did you vote in the 2004 elections?
- During the campaign, did you talk to any people and try to show them why they should vote for or against one of the parties or candidates?
- Did you go to any political meetings, rallies, speeches, dinners, or things like that in support for a particular candidate?
- Did you wear a campaign button, put a campaign sticker on your car, or place a sign in your window or in front of your house?
- Did you give money to an individual candidate running for public office?
- Did you give money to a political party during this election year?

Partisan Identity Studies (0 to 6 participatory acts):

- Have you ever worked for a political candidate, political party, or any other organization that supports candidates?
- Have you ever participated in a political protest, march, or demonstration?
- Have you ever written a letter to your Congressman (or Congresswoman) or any other public official?
- Have you ever contributed money to a political party or candidate?
- Did you vote in 2004?
- Did you vote in 2006?

American National Election Study, 2008 Time Series: (0 to 8 participatory acts):

- Did you vote in 2008?
- During the campaign, did you talk to any people and try to show them why they should vote for or against one of the parties or candidates?
- Did you wear a campaign button, put a campaign sticker on your car, or place a sign in your window or in front of your house?
- Did you go to any political meetings, rallies, speeches, dinners, or things like that in support of a particular candidate?
- Did you do any (other) work for one of the parties or candidates?
- Did you give money to an INDIVIDUAL CANDIDATE running for public office?
- Did you give money to a POLITICAL PARTY during this election year?
- Did you give any money to ANY OTHER GROUP that supported or opposed candidates?

Religiosity is captured by two items, which are analyzed separately. Both are coded such that high scores correspond to greater levels of religiosity.

Interpretation of the Bible is the standard NES item that asks which of the following comes closer to the respondent's view: (1) The Bible is a book written by men and is not the word of god, (2) The Bible is the word of God but not everything in it should be taken literally, word for word, (3) The Bible is the actual word of god and is to be taken literally, word for word.

Religious Service Attendance: the wording of items varies across studies. For the culture wars and NES studies, the options are: (1) Never, (2) once or twice a year, (3) once or twice a month, (4) almost once a week, (5) once a week, (6) more than once a week. In the partisan identity studies, options included Never (1), once every few years (2), once a year (3), a few times a year (4), once a month (5), a few times a month (6), once a week (7), and more than once a week (8).

Vote choice. In the Culture Wars study, respondents were asked whether they intended to vote for Kerry (1) or Bush (0) in 2004. In the Partisan Identity studies, respondents were asked whom they intended to vote for in 2008 (Clinton, Obama, Edwards, McCain, Guiliani, Romney in 2007, and McCain vs Obama in 2008) and a dummy variable created for Democratic vote for president.

Political Sophistication/Knowledge

Culture Wars (5 items)

- **What job or political office does Dick Cheney now hold?** (Secretary of State, President, Attorney General, Don't Know)
- **What job or political office does Tony Blair now hold?** (British Prime Minister, Israeli Prime Minister, Supreme Court Justice, Attorney General, Don't Know)
- **What are the first 10 amendments of the US constitution called?** (Bill of Rights, Articles of Confederation, States' Right, Declaration of Independence, Don't Know)
- **Whose responsibility is it to determine if a law is constitutional or not . . . is it the President, the Congress, or the Supreme Court?** (President, Congress, Supreme Court, Don't Know)
- **How long is the term of a United States Senator?** (2 years, 4 years, 6 years, 8 years, don't know)

Partisan Identity Studies (5 items)

- **What job or political office does Dick Cheney now hold?** (Secretary of State/President of the United States/Presidential Chief of Staff/Vice President of the United States)
- **What job or political office does Harry Reid now hold?** (Secretary of State/Senate Minority Leader/Speaker of the House of Representatives/Senate Majority Leader)
- **What job or political office does John Roberts now hold?** (Vice President of the United States/Chief Justice of the United States/Senate Minority Leader/Presidential Chief of Staff)
- **What job or political office does Nancy Pelosi now hold?** (Senate Minority Leader/Speaker of the House of Representatives/Presidential Chief of Staff/Secretary of State)
- **Which party controls a majority of seats in the U.S. House of Representatives?** (Democrats/Republicans)

Political Metaphors, 2007 (8 items)

- **Is one of the parties more conservative than the other at the national level? Which party is more conservative?** (Democratic party; **Republican party**; Neither party; Don't Know)

- **What job or political office is now held by Dick Cheney?** (open-ended; **Vice President**)
- **Whose responsibility is it to determine if a law is constitutional or not?** (President; Congress; **Supreme Court**; Don't Know)
- **Which party currently has the most members in the U.S. House of Representatives?** (**Democratic party**; Republican party; Neither party; Don't Know)
- **What is the name of the current U.S. Secretary of State?** (open-ended; **Condoleezza Rice**)
- **How many judges are on the U.S. Supreme Court?** (choose a number between 1 and 30; **9**)
- **How much of a majority is required for the U.S. Senate and House of Representatives to override a presidential veto?** (open-ended; **2/3**)
- **Which branch of government does the U.S. Constitution give the sole authority to declare war?** (Executive branch; Judicial branch; **Legislative branch**; Don't Know)

Political Metaphors, 2008 (8 items)

- **Which one of the parties is more conservative than the other at the national level?** (Democratic party; **Republican party**; Neither party; Don't Know)
- **Whose responsibility is it to determine if a law is constitutional or not?** (President; Congress; **Supreme Court**; Don't Know)
- **What job does Condoleezza Rice currently hold?** (**Secretary of State**; National Security Advisor; Secretary of Defense; Director of the Central Intelligence Agency; Don't Know)
- **Which party currently has the most elected members in the U.S. House of Representatives?** (**Democratic party**; Republican party; Neither party; Don't Know)
- **How much of a majority of the both the House of Representatives and Senate are required to override a presidential veto?** (1/2; 1/2 plus 1; 3/5; **2/3**; 3/4; All members of Congress; Congress cannot override a presidential veto; Don't Know)
- **How many justices are there on the U.S. Supreme Court?** (open-ended; **9**)
- **Which branch of government does the U.S. Constitution give the sole authority to declare war?** (Executive branch; Judicial branch; **Legislative branch**; Don't Know)
- **What job does Harry Reid currently hold?** (Attorney General; Speaker of the House; Secretary of Defense; **Senate Majority Leader**; Don't Know)

ANES 2008 Time Series (3 items)

- Do you happen to know which party had the most members in the House of Representatives in Washington BEFORE the election (this/last) month?
- Do you happen to know which party had the most members in the U.S. Senate BEFORE the election (this/last) month?
- Which party is more conservative?