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Bruce Bimber

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The Internet and Citizen Communication With Government: Does the Medium Matter?

BRUCE BIMBER

The Internet offers a new means by which citizens may contact government to express their views or concerns, and it raises interesting empirical and theoretical questions about whether citizen contacts are affected by communication media. This article uses survey data to explore hypotheses about whether means of communication shape contacting activity. It compares Internet-based contacts with traditional contacts, showing statistically significant but for the most part substantively small differences. Effects of technology are of two kinds, those affecting only the likelihood of citizens being active in communicating with government and those affecting the frequency or intensity of communication among those who are active. The article discusses these findings in terms of transitional effects of technology, which arise from uneven distribution of the technology in society, and in terms of inherent effects, which attend to the technology itself. The most important inherent effects involve gender and political connectedness: The gender gap in contacting is larger on the Internet than in traditional forms of communication, and political connectedness has a weaker association with communication through the Internet.

Keywords citizen contact with government, electronic mail, Internet, political participation

The rapid evolution of the Internet as a venue for political communication presents researchers with a host of interesting problems. Perhaps the most fundamental of these concern what new technology implies for models of political behavior. The Internet offers new opportunities for citizens to engage in various political actions, such as attempting to persuade others how to vote, learning about issues or candidates, or attempting to coordinate or organize political action. How the public responds to these opportunities is potentially revealing about the factors that shape political participation in general, as well as about the specifics of political use of the Internet.

Many claims have been made regarding the Internet's effects on politics and public life. For instance, an emergent school of Internet communitarians argues that the Internet is creating new social bonds that transcend physical proximity. In this view, improvements in the state of social association and trust that arise from the Internet may provide the foundation for altered politics (Etzioni, 1997; S. G. Jones, 1995; Porter, 1997; Rheingold, 1993). A debate has also emerged about whether the Internet enhances the "public sphere" or fragments public discourse (Sassi, 1996; Schneider, 1996).

Perhaps the most common claim regarding the Internet and political behavior

Bruce Bimber is Assistant Professor of Political Science at the University of California–Santa Barbara. He thanks the anonymous reviewers for their assistance.

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Address correspondence to Bruce Bimber, Department of Political Science, University of California–Santa Barbara, Santa Barbara, CA 93106, USA. E-mail: bimber@polsci.ucsb.edu

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concerns increased levels of political participation by citizens. Internet advocates and activists argue that expanded communication capacity can lead to more political learning and more frequent acts of participation (Browning, 1996; Rheingold, 1991). A centerpiece of this expectation is the idea that citizens will become more actively expressive because of the Internet—that they will seize new opportunities to communicate wishes and interests to government officials.

This idea is theoretically interesting for several reasons. Among the many forms of political participation possible in a democratic society, the contacting of officials by citizens is uniquely capable of conveying a wide range of very specific information to government about what individual citizens want. The possibility that the Internet is enhancing the information available to the state about constituents' wishes is intriguing. Contacting officials has also long been one of the most common acts of political participation after voting, undertaken by somewhere between one quarter and one third of adults in the United States each year (Verba, Schlozman, & Brady, 1995; Zuckerman & West, 1985). Increased acts of contacting would represent the enhancement of a form of participation in which U.S. citizens already compare quite favorably to citizens of other democracies.

There is a causal claim implicit in this expectation of a connection between the Internet and expanded citizen communication with government, namely, that changes in communication technology lead to changes in political behavior. The idea is that the Internet will increase the flow of communication between citizens and government and, thereby, alter patterns of influence between elites and the mass public. This idea presents an interesting problem. Extant theories of political behavior explain the act of contacting government officials in terms of independent variables such as education, gender, skills, social or political connectedness, need for services, and the like (Rosenstone & Hansen, 1993; Thomas, 1982; Verba & Nie, 1972; Verba, Schlozman, & Brady, 1995). Conspicuously absent from these theories is *communication medium*, despite the fact that the vast bulk of contact between citizens and government is technologically mediated—by the telephone system, by fax technology, or by the techniques of letter, envelope, and mail carrier.

The Internet adds a new possibility to the mix, offering citizens a yet wider array of choices in how to undertake an act of communication with government. The theoretical problem is: Does the medium matter? Does the form of communication have an effect on contacting that is independent of other key variables such as education and gender, or are various technologies simply politically neutral means for communicating public sentiment? This article addresses that problem by examining several well-established empirical relationships involving citizen-contacting of government. I consider how these compare in the case of contacts through the Internet and the case of traditional contacts, by phone or letter.

As will be evident, my findings suggest that the devil lies in the details of on-line political behavior. I argue that claims by Internet advocates that the technology will revolutionize citizen communication with government appear quite wrong. Indeed, communication technology does affect the structure of citizen communication with government, but the connection is more incremental than revolutionary. I show that this connection takes two forms, which I call transition effects and inherent effects. Transition effects are a product of the uneven distribution of the technology among citizens and its uneven adoption by various political institutions, while inherent effects are independent of the distribution of technology. I conclude that the medium matters in this form of political communication, but not by much.

My data come from two surveys described in some detail later, one a random digit-dial telephone survey conducted in October 1996 and repeated in February 1998 and one a large-sample on-line survey that ran for 1 year at selected political and government-oriented Internet sites in 1996 and 1997. I describe the findings here first by comparing bivariate analyses of contacting through traditional means and through the Internet and then by interpreting a set of multivariate models.

Theory of Citizen Communication With Government

The act of citizen communication with government is not as well understood as voting behavior, but some of the important empirical and theoretical boundaries of the phenomenon have been established. For the most part, these are the same boundaries that define electoral participation and political behavior more generally, but some of the variables have slightly different relationships in the case of contacting. Research on citizen contact with government has its origins in models showing correlations between participation and variables such as education and age. This work has been refined to focus more closely on resources, mobilization, and factors such as social connectedness as key explanatory variables.

Descriptions of the empirical relationships that characterize citizen contact with government are available in Verba, Schlozman, and Brady (1995); Rosenstone and Hansen (1993); Hero (1986); and the classic work of Verba and Nie (1972). As a starting point for examining the Internet and political behavior, I have focused on five of these relationships, which can be summarized briefly as follows.

Socioeconomic status (SES) is of course the foundation for evaluating contacting behavior, but it is especially important to disaggregate SES. Early studies that examined SES produced contradictory findings. Some researchers found no SES relationship (Verba & Nie, 1972), some found a parabolic relationship with contacting behavior most frequent for middle SES (Coulter, 1992; Hero, 1986; B. D. Jones, Greenberg, Kaufman, & Drew, 1977), and some found a linear relationship (Sharp, 1982; Verba, Nie, & Kim, 1978). Most of these discrepancies have been explained.[1]

The first principle of citizen contact with government that falls out of SES is that the probability of communicating with government is a function of education and of age. The more education, the more the activity. And the older citizens are, the more likely they are to contact an elected official (Hero, 1986; Rosenstone & Hansen, 1993; Verba, Schlozman, & Brady, 1995; Zuckerman & West, 1985).

Verba, Schlozman, and Brady (1995) model some of the underlying causal links in terms of civic skills. Contacting an official requires knowledge of whom to write or call and how to do it, so those with more skills are more likely to be engaged in acts of political communication with elected officials. The skill threshold for contacting is higher than for many other forms of participation, such as trying to persuade others of a political position or even making the trip to the voting booth.

Another important empirical relationship is that the probability of communicating with government is a function of gender. Contacting elected officials is different from voting behavior where gender is concerned, because women are substantially less active than men. Schlozman, Burns, and Verba (1994) measure a statistically significant, 8-point difference between men and women in frequency of contacting, as compared with a nonsignificant, 3-point difference in voting. Rosenstone and Hansen (1993) estimate that gender explains about 4% of the probability that a citizen will write to Congress, and they find no gender effect for voting.[2]

It has also been shown in different ways that the probability of communicating with government increases with political connectedness. Not surprisingly, citizens' degree of involvement with political activities in other arenas is a predictor of communicating with government. Relationships between connectedness and contacting have been measured by Rosenstone and Hansen (1993), who show that those who are contacted by a political party in connection with a campaign are substantially more likely to be active in contacting government than are others. They estimate that party contact explains about 8% of the probability of citizen contacting. They also measure connectedness through citizen work on national and local problems and find that this measure explains about 36% of the probability of contacting. Zuckerman and West (1985) measure political connectedness using citizen involvement in campaign work and find a significant, positive relationship.

The last variable of concern here involves institutional proximity and the fact that the probability of communicating with government increases with localness of office. Unlike voting behavior, where turnout is characteristically higher in national elections than state or local ones, more citizens are active contacting government officials at the state and local levels than at the national level (Verba, Schlozman, & Brady, 1995). The effect may be explained by familiarity or personal bonds: Citizens may be more likely to contact officials with whom they have a connection of some kind or with whom they simply feel more familiar personally (Zuckerman & West, 1985). Such connections are likely to be greater at the local than the state level, and greater at the state than the national level. The effect may also be explained by the type of contacts made: Citizens may contact local or state offices more frequently than national offices in order to place requests for specific services or assistance, because citizens have a much greater degree of involvement at the local and state levels with a variety of educational, social service, infrastructure, and public-order agencies. Indeed, a good deal of the early literature on citizen contacting was based on studies focusing exclusively on urban or local contacting in the context of service delivery.

The question raised by the Internet is whether *means of communication* has any independent effect on these relationships. Does the Internet alter the importance of education, age, gender, political connectedness, or proximity, or are these well established relationships invariant across different forms of communication? I hypothesize that these variables do take on somewhat different relationships in the case of electronic communication. There are several reasons to suspect altered relationships. One is straightforward and is more interesting normatively than theoretically, namely, that awareness and familiarity with the Internet vary across socioeconomic and demographic groups. It is widely believed that younger generations are more familiar with the Internet than are older ones. If this is true, one would anticipate that aggregate measures of age and contacting would show an altered relationship, in the direction of an attenuation of the traditional positive correlation between increasing age and increasing participation through contacting. Other variables may have similar effects in the aggregate, as a function of socioeconomic differences between those with and without access to the Internet. These differences should disappear when one controls for access or familiarity with the technology.

The more theoretically interesting reasons to suspect that contacting through the Internet is different from contacting traditionally concern cost and affective aspects of communication. For those with access, the Internet reduces quite dramatically the time and inconvenience involved in contacting a government office, because an e-mail message can typically be composed and sent in much less time and with less effort than is

required to prepare and mail a letter. Electronic mail is much less costly in terms of time and convenience, and it is also somewhat less costly financially, although the marginal cost of a single letter is not great. These cost reductions over traditional media are magnified substantially in the case of contacts with multiple offices (e.g., in the United States, sending copies of a letter to both of one's senators, one's Congressional representative, and the White House). Time and cost considerations can be thought of as barriers to contacting. The citizens who surmount these barriers are those with sufficient political interest and concern to judge the value of doing so to be worth the effort. The Internet appears to lower barriers of time and cost and so could lead to contacting behavior by those with commensurately lower levels of political interest and concern. One would expect to see a weaker relationship on the Internet between political connectedness and contacting.

Research on gender and the Internet provides another reason to hypothesize different models for contacting on-line than contacting through traditional means. This reason entails affective attributes of communication—the emotional and psychological experience of using particular forms of communication. In survey research on Internet use, Ford and Miller (1996) used a detailed battery of attitudinal questions about the Internet, along with a cognitive styles assessment. They report a comprehensive connection between gender and attitudes about Internet use. Women in their study revealed higher levels of disorientation and disenchantment with the Internet than did men. They found that women are less likely than men to "browse" the Internet, preferring purposeful and direct searches for information.[3] And nationwide surveys of Internet demographics have historically—in the sense of the brief "history" of the Internet—reported lower levels of access and use of the Internet by women than men (GVU, 1999; Pew Research Center for the People and the Press, 1996; Times Mirror Center for the People and the Press, 1995). The implication is unattractive: Various means of political communication may appeal differently to people on the basis of attributes beyond the typical demographic or socioeconomic characteristics that political scientists associate with political behavior, and this variation may be associated with gender. If so, one should expect gender to have a stronger effect on citizen contacts with government through the Internet than through traditional means. That is, one should hypothesize that the gender gap in contacting is even larger on-line.

Data and Method

A discussion of data is appropriate before moving on to the analysis, because study of the Internet is fraught by the absence of good, systematic data sets. There are several contributors to the problems with data. The first is that few standard definitions of fundamental variables such as "Internet user" have emerged. For instance, one set of studies identifies Internet users by asking survey respondents whether they ever "go on-line" from their home, workplace, or school (Pew Research Center for the People and the Press, 1996). Another study defines as Internet users only those people who use both electronic mail and at least one other feature of the Internet, such as the World Wide Web—a more restrictive definition (Find/SVP, 1996). Another differentiates between those with direct access to the Internet (not a dial-up connection) and who have used the Internet at least once in the previous 3 months, those with dial-up access, and those with no access at all, including both the United States and Canada in the sample (Nielsen, 1996). Still other studies examine strictly Web users (e.g., GVU, 1999). The National Election Studies program, which included Internet items for the first time in

1996, uses a variation on the access definition, asking respondents "Do you have access to the Internet or the World Wide Web?"[4] The lack of consistent definitions has limited researchers' ability to make comparisons across studies.

Another obstacle to Internet research has been sample design. At present, about half of the adults in the United States have access to the Internet.[5] About 1 in 4 adults can be considered regular users, and less than 1 in 5 have used the Internet for any political purpose. The fraction that has used the Internet to contact an elected official is in the neighborhood of 1 in 20. For this reason, obtaining a workable sample of Internet users for use in making many kinds of statistical inference requires a design that successfully reaches a very large pool, especially for questions concerning subgroups, such as women who have contacted government through the Internet. Standard samples of 1,000 to 1,500 adults allow estimation of the size of the Internet-using population within reasonable error margins but do not support much further analysis of the political behavior of that population.

Very large samples are easily obtainable at low cost via on-line survey techniques, but these methods typically are subject to self-selection. For instance, researchers at Georgia Tech have been conducting two such large-scale surveys of Web users every year since 1993 and have amassed an enormous data set; each round returns in excess of 10,000 cases. While certain inferences from self-selected on-line surveys are possible, such samples are clearly not useful for many kinds of statistical estimation.[6]

These problems have constrained Internet research so far: Well constructed random samples have been limited by nonstandard definitions of variables and small sample size, while large-scale studies are limited by self-selection effects. My study is designed with these two constraints in mind. I do not claim to have solved these problems; indeed, it will probably be some time before these obstacles are overcome and thorough longitudinal data sets become available. Instead, I have attempted to exploit what is useful in different methodologies.

My approach employs both a standard size, random digit dial (RDD) sampling technique and a self-selected on-line survey. I conducted an RDD telephone survey in fall 1996 and again in early 1998, through the omnibus survey program of the University of Maryland Survey Research Center. The survey contained questions about access to the Internet, frequency of use, and types of political use of the Internet. Surveys were limited by cost in number of questions and sample size. The surveys produced a pooled sample of 2,021 cases, about 730 of which are adults with access to the Internet. These data are weighted for design effects and response bias across region, gender, age, and education.[7] I use this data set for estimation of the population of Internet users and for modeling the variables that affect frequency of use and likelihood of political use of the Internet. I refer to this data set as "the RDD survey."

My second technique is a large-scale, on-line survey that I conducted between July 1996 and August 1997, on the World Wide Web. I refer to this survey as "the on-line survey." I solicited visitors to a sample of 15 government- and politics-oriented sites on the Web to participate. The sponsors of these sites—including the U.S. Congress, the U.S. League of Women Voters, the government and public affairs cable television service C-SPAN, and the governments of nine states—agreed to display the survey link in their sites.[8] This technique produced a final, cleaned sample of 13,122 cases.[9] Among these are 6,233 respondents who have sent a message to a government official through the Internet, 5,498 respondents who receive news through the Internet on most days or every day, and 1,326 who have been contacted through the Internet by an interest group, political party, or other mobilizing organization. Because the on-line sample is not random,

I do not use it for making estimates of the population of all Internet users or all users of government- and politics-oriented Web sites. Instead, I make a number of comparisons within that sample in ways that I contend are strongly suggestive of general effects.

Comparison of the results of the on-line and RDD surveys supports an assumption of my research design: that the on-line survey would probably oversample politically interested, frequent users of the Internet.[10] It also produced about 10% fewer responses from women than did the RDD survey. While it is not possible to estimate the magnitude of all dimensions of response bias in the on-line survey, it is possible to constrain the error somewhat with a weighting technique. I used logistic regression analysis on the results of the RDD survey to identify the three most important variables influencing Internet use: age, education, and gender. I then relied on the RDD data to produce estimates of population values for these three variables for Internet users generally. From these estimates, I created a three-variable matrix for weighting the on-line survey to match the population of Internet users. This technique does not correct all of the response bias, but it does adjust the on-line survey to match the population of all Internet users on three important characteristics. What selection effects remain almost surely include bias in the direction of politically interested respondents, since those taking the survey were likely to be more interested in politics than those who did not. The result is a large sample of politically interested Internet users with self-selection effects but a reasonable approximation of randomness on age, education, and gender.

My analysis is based on comparisons within the on-line sample and not on generalizations from that sample to the larger population from which it is drawn. For instance, I compare the behavior of women in the sample when using traditional communication means and when using the Internet, but I do not attempt to estimate population parameters about women from this on-line sample. My technique provides a portrait of the behavior of an avant garde of political Internet users, not a representative sample of everyone on the Internet. I assume that if changes in political behavior are indeed produced by changes in technology, evidence for those changes is likely to appear in a sample such as this one before being apparent among the larger population of all Internet users.

Figures from the RDD survey show that the percentage of adults in the United States with Internet access was 46% in early 1998, up from 26% in late 1996. The percentage of adults who use the Internet at least two or three times per week was 25% for early 1998.[11]

Bivariate Findings

It is worthwhile considering the shape of bivariate relationships in my data before turning to multivariate analysis. Correlations between contacting and independent variables for education, age, gender, institutional proximity, and political connectedness illustrate my measures, and they show quantitatively the main empirical relationships described in the literature on citizen contacts with government. They are also a starting point for considering the magnitude of differences between traditional means of communication and Internet-based communication. Education is a good place to begin the evaluation of data, because its relationship to political participation is so important generally.

Education

The on-line survey data exhibit the traditional bivariate relationship between education and contacting for both traditional means of contacting (telephone and letter) and

electronic mail; there is little difference between them. Respondents with more education are more likely to be active in contacting government officials, regardless of communication means. Figure 1 shows these relationships. The Internet presents little substantive departure here from traditional contacts.

Age

The relationship between age and contacting government for both electronic mail and traditional contacts by phone and letter is consistent with expectations. Increasing age is positively correlated with likelihood of contacting an official, for both electronic mail and traditional means. The Internet has a larger effect on this relationship than it does on education; the age correlation with e-mail contacting is less than half that with letter and phone contacting, although neither correlation is strong. As Figure 2 shows, the variations between the oldest, most active group and the youngest, least active group are about 36% for traditional means of contacting (Kendall's tau-b measure of correlation = .18) and 14% for electronic mail (tau-b = .07).

Gender

The relationship between gender and communication with government is an intriguing one. Verba, Schlozman, and Brady (1995) found that 38% of men and 30% of women in the United States were active in contacting a government office.[12] Respondents in my on-line sample also exhibit a gender gap. For traditional contacts, the size of this gap is about 3 points: 56% of men report contacting the White House or Congress in the prior

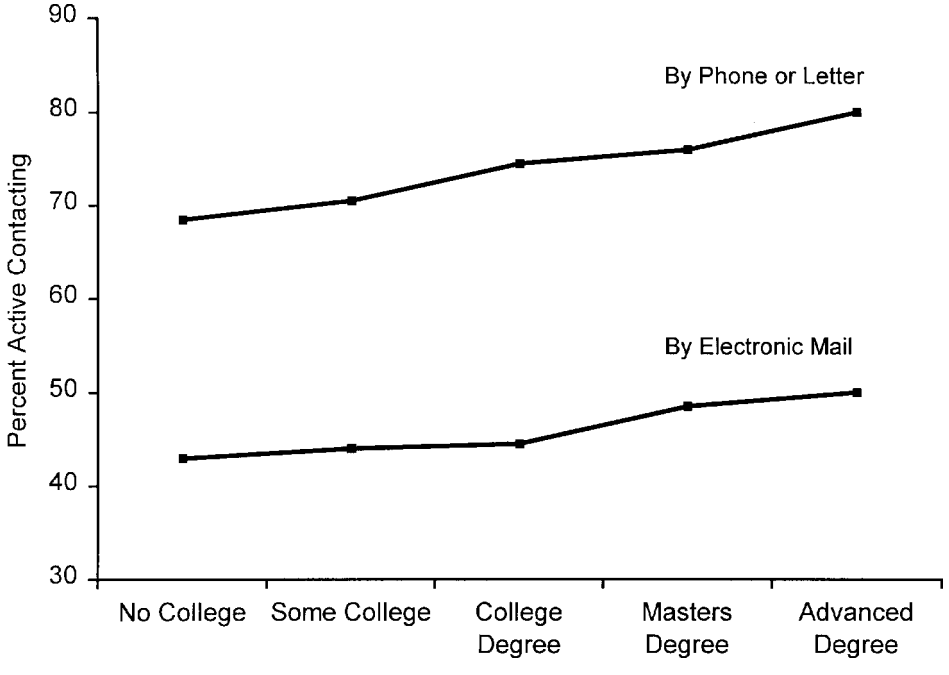

Figure 1. Education and contacting government: Percentage of sample who contacted government in the last year, by medium and education level. N = 13,122.

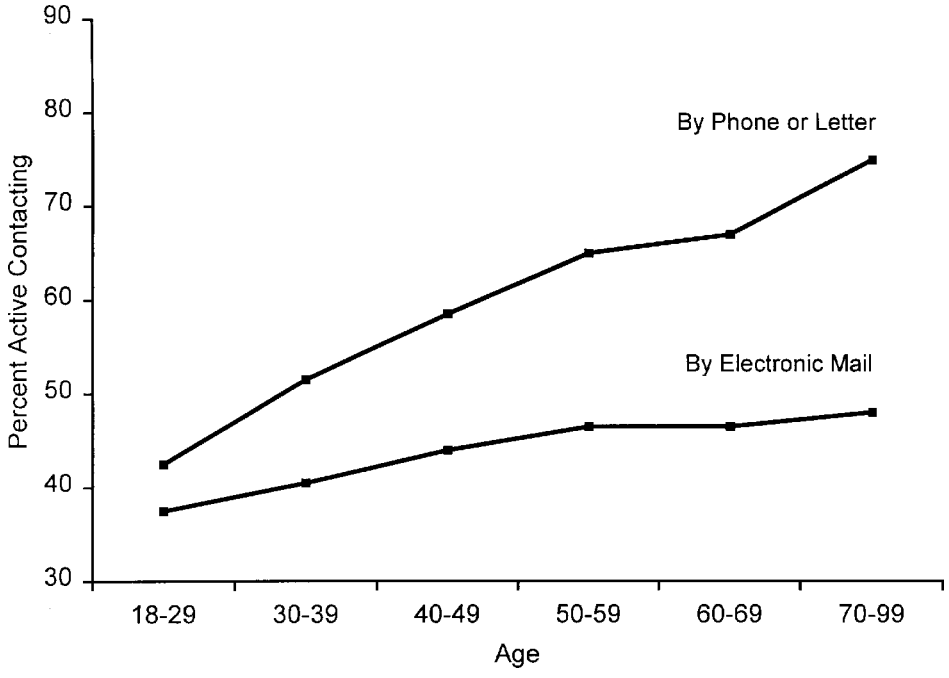

Figure 2. Age and contacting government: Percentage of sample who contacted government at least once in the last year, by medium and age. N = 13,122.

year, as compared with 53% of women. For Internet-based contacts, the gap grows to 11 points: 48% percent of men contacted, as compared with 37% of women.[13]

The gender gap in the on-line sample shows up in several other measures as well. I calculated the mean number of contacts for men and women among those active. For contacts with Congress only, I found no gender difference for contacting using letters and phone but a small and statistically significant difference ($p < .001$) for contacts by electronic mail: 3.7 contacts per year for men and 3.4 for women. The results are similar for contacts with the White House. I also measured whether respondents report having *ever* contacted any elected official at any level. For traditional means of contacting, the gender gap is tiny and not statistically significant, while for electronic mail, the gender gap is 13 points and significant. In measures that distinguish the White House from Congress, the pattern is similar, as Table 1 shows: Small gender differences in traditional methods of contacting grow larger for on-line contacting.[14]

The on-line survey also asked about news consumption, measuring use of various news media relevant to politics and public affairs: watching television news, reading newspapers, listening to political talk radio, and obtaining news on-line. As Table 2 shows, women are less likely than men to be daily consumers of news from all four sources, but the gender gap is greater for the Internet than for the other sources. About 50% of men report watching television news daily, as compared with 47% of women. For daily Internet news, the difference is between 25% of men and 16% of women—even larger than the gap in talk radio. Gender appears to affect the choice of the Internet as a medium for receipt of information, as well as its use as a medium for expressing views or concerns to government.

Table 1
Gender and contacting, by institution

	Ever contacted any public official		Contacted Congress in last year		Contacted White House in last year	
	By any means	By e-mail	By phone or letter	By e-mail	By phone or letter	By e-mail
Men (%)	74	51	55	43	14	26
Women (%)	72	38	52	31	16	22
χ^2	1.5 ($p = .23$)	99 ($p < .01$)	18 ($p < .01$)	184 ($p < .01$)	5.4 ($p = .02$)	39 ($p < .01$)

Note. $N = 12{,}866$.

Political Connectedness

Political connectedness as a correlate of contacting behavior is an aggregate variable that is measured in several ways. Mobilization influences; association with social, professional, or workplace organizations; and possibly efficacy and other psychopolitical variables contribute to the general phenomenon that can be called political connectedness. In the on-line survey, I used two measures of connectedness; degree of involvement by the respondent in other political activities and breadth of mobilization efforts by organizations that have reached the respondent. For the first of these, I constructed an index of political involvement from questions about attending political meetings, rallies, speeches, or dinners; wearing a campaign button or displaying a sign or sticker; working for a candidate or party during a campaign; and donating money. The index thus measures breadth of involvement in political activities by counting the number of categories of political participation in which the respondent reports having been engaged.[15] The second index measures the number of categories of mobilizing organizations that have contacted the respondent in the last year regarding an election. I assume that people receiving solicitations from a broader array of organizations have a higher degree of connection to politics and public life than those receiving fewer solicitations. I measured nine categories: candidates' campaign organizations, political parties, national

Table 2
Gender and news sources

	Men (%)	Women (%)	Gender gap (%)	χ^2
Daily televison news	51	47	3	15*
Daily newspaper	48	41	7	64*
Daily Internet news	25	16	10	174*
Daily talk radio	15	8	7	151*

Note. $N = 12{,}866$.
*$p < .01$.

organizations with political activities, professional associations, community organizations, employers, unions, churches or religious organizations, and "other" organizations. Correlations between these indices and contacts by Internet and traditional means are shown in Table 3. In each case, the relationships are weak but statistically significant, with consistently smaller values for contacts by electronic mail than by phone or letter.

Proximity

The last bivariate relationship of interest here concerns the institutional targets of citizen contacts. In the on-line survey, respondents exhibit the expected relationship in traditional contacts: More have contacted state government by phone or letter than Congress or the president, although the effect is not pronounced. The more proximate the institution to the local level, the greater the extent of contacts by phone or letter. In a quite striking way, this pattern disappears for contact by electronic mail. More respondents have contacted Congress than the states, and the gap between the president and Congress narrows considerably. More interesting yet is the fact that more respondents have used electronic mail to contact the president than have used the phone or a letter—the only institution for which this is true. In the on-line sample, the Internet has distorted the traditional relationship between proximity and contacting, as Figure 3 shows.[16]

The simplest explanation for these differences across institutions between electronic mail and traditional means is familiarity. More respondents are probably familiar with the White House Internet presence than with that of other institutions, and because of the attention paid publicly to the Internet by the Clinton administration, more citizens may be under the impression that the White House is attentive to electronic mail. It seems clear that respondents' choices about how to contact government offices are a function of the office in question.

The results presented in Figure 4 show that this interdependency between institution and communication method disappears in a measure of how frequently active respondents make contacts with government offices. Among active contacters, the traditional proximity relationship appears. Active respondents in the sample contact state offices more frequently than Congress, and Congress more frequently than the White House, regardless of communication medium.

Table 3
Political connectedness and contacting

	Correlation: breadth of participation and percentage active in contacting		Correlation: mobilization and percentage active in contacting	
	By e-mail	By phone or letter	By e-mail	By phone or letter
Contacting Congress	.19*	.29*	.10*	.18*
Contacting the White House	.12*	.18*	.06*	.12*

Note. Figures are Kendall's tau-b. N = 12,866.
*$p < .01$.

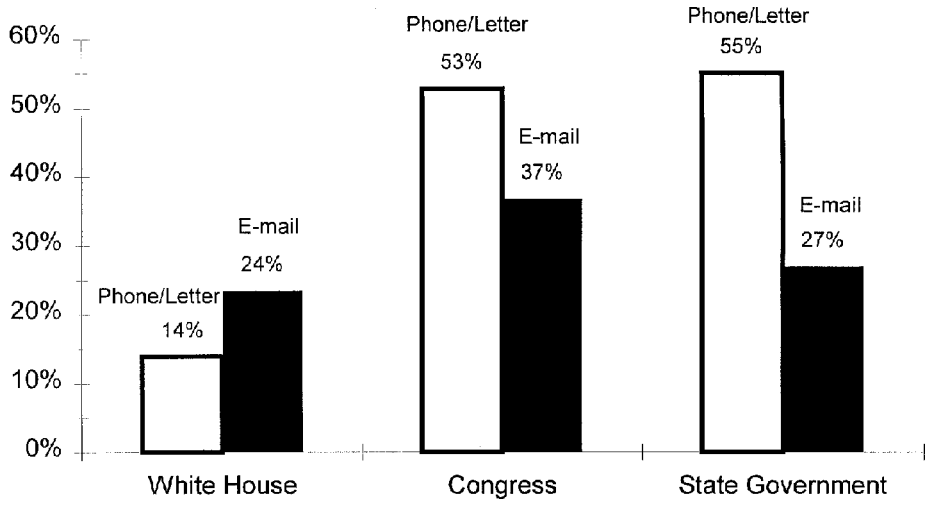

Figure 3. Proximity and contacting government: Percentage of sample who contacted government at least once in the last year, by medium and institution. N = 13,122.

This relationship has implications for the proposition that the Internet facilitates citizen communication across distance. Among those who are active, the availability of the Internet may not induce any more frequent contact with a distant national institution, although the Internet may induce more people to become active. If the Internet introduces any interesting effects into the proximity relationship, it does so by altering the threshold of participation.

Multivariate Findings

The bivariate relationships described so far suggest that on-line contacting works quite similarly in demographic terms to traditional contacting, with the possibility of a few

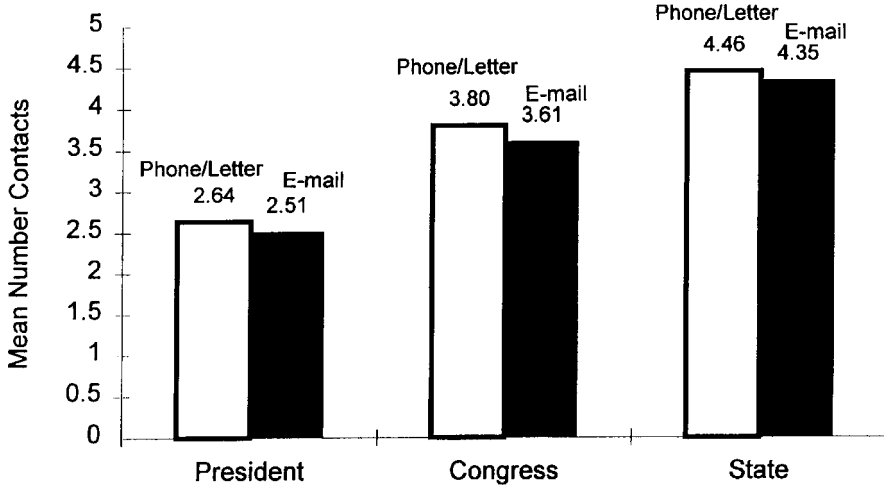

Figure 4. Proximity and frequency of contacts: Mean number of contacts among those who contacted government at least once in the last year, by institution and medium. N = 13,122.

twists. I explore these issues in a multivariate context using two forms of regression. To model the threshold of contacting—which respondents are or are not active in contacting at least once—I treat contacting as a dichotomous dependent variable in logistic regression. To model intensity of contacting among those who are above the threshold, I treat frequency of contacting as a continuous dependent variable in an ordinary least squares regression. For each type of analysis, I construct two models, one for traditional contacting via phone or letter and one for contacting via the Internet. For independent variables, I use measures for education, age, gender, and political connectedness. The result is four regressions: one modeling the threshold of traditional contacting, one modeling the threshold of Internet-based contacting, one for frequency of traditional contacting, and one for frequency of Internet-based contacting.

Consider first the comparison between traditional and Internet-based contacting in the threshold models, shown in Table 4. In Model 1, which describes contacting government by traditional means, the only statistically significant predictors are political connectedness and age. Not surprisingly, the more engaged a respondent is in other kinds of political activities, such as attending a meeting or rally, the more likely he or she is to have contacted government at least once in the last year. The same is true for respondents who have themselves been the target of communication from various political organizations: The wider the array of organizations communicating with the respondent, the more likely he or she is to have communicated with government. Age has the expected effect, with contacting likelihood increasing with age. The strengths of these relationships are all quite modest, as an interpretation of the standardized regression coefficients shows. For instance, an increase in age of one standard deviation, which is about 14 years, produces an increase in the likelihood of contacting government of 0.16 standard deviations, which is about 2%. A 65-year-old retiree in this sample is therefore about 6% more likely to have contacted government at least once than a 21-year-old recent college graduate, all else being equal. Note that the small bivariate relationships

Table 4
The threshold of participation: Logistic regression on whether respondents have contacted government

	Model 1: Contact by traditional means		Model 2: Contact by e-mail	
Variable	*B*	*SE*	*B*	*SE*
Education	–.013	.027	–.016	.026
Age	.16*	.003	–.06*	.002
Gender	.01	.06	–.11*	.06
Political connectedness				
Number of actions	.28*	.03	.18*	.02
Number of mobilizing organizations	.12*	.02	.05*	.02
Constant	–1.70*	0.11	–1.11*	0.11

Note. Coefficients are standardized. Model 1: $\chi^2 = 780$, 5 *df*, $p = .00$; Model 2: $\chi^2 = 307$, 5 *df*, $p = .00$. $N = 12{,}866$.
*$p < .01$.

with contacting identified earlier for education and gender wash out in the multivariate analysis of traditional contacting. This effect is probably due to sample bias toward politically interested respondents, as well as the effect of political connectedness. Among frequent Internet users with sufficient interest in politics to have completed the survey, education does not have an effect independent of political connectedness.

The model for contacting by Internet (Model 2) shows marginal differences between traditional contacting and e-mail contacting. Age exerts a small negative effect on e-mail contacting rather than the modest positive effect it has on traditional contacting. This finding clarifies the relationship underlying the curves in Figure 2. All else being equal, older respondents are actually less likely to contact by electronic mail than younger ones. The slightly positive correlation in the bivariate relationship is probably produced by political connectedness. Older respondents are more likely to have higher political connectedness, and the positive effects of that connectedness overcome the tendency of age alone to diminish slightly on-line contacting. For traditional contacting, then, age and political connectedness work together to increase participation, while for electronic contacting, they work in opposite directions.

The effect of political connectedness is diminished slightly for Internet-based contacting. The number of other political activities in which a respondent has engaged is about one third less influential on e-mail contacting, while the extent of communication from political organizations is less than half as influential as in the case of traditional contacting. Gender is the other variable that exhibits a difference. Whereas gender has no statistically significant effect on traditional contacts among these respondents, women are less likely to be active in contacting electronically by a small but statistically significant margin. So the bivariate gender correlation stands up in the multivariate model. The regression coefficient shows that women are about 7% less likely than men to be active in contacting.

Consider next the behavior of respondents who have contacted government at least once. I look to this subgroup for clues about how communication medium affects the behavior patterns of respondents who are familiar with the process of contacting government by electronic mail. The question is, Once respondents are above the threshold of participation, how does the Internet affect patterns of communication, if at all? The bivariate analyses suggested that age effects, but not gender effects, may disappear among this subgroup. The picture that emerges from the multivariate analysis is indeed consistent with the bivariate inferences, as shown in Models 3 and 4 in Table 5. The first observation that stands out is the weak predictive power of these two models overall. The R^2 values are very small, meaning that among respondents in this sample who are active in contacting government, education, age, gender, and political connectedness do not explain much variance in contacting frequency. This effect is greater for electronic contacting than traditional contacting: Frequency of electronic contacting is even less predictable on the basis of these variables than is traditional contacting. This effect is also visible in the coefficients for political connectedness, which are again diminished in the case of electronic contacting. Those who contact more frequently are indeed more politically connected in both traditional and electronic cases but are comparatively less so in the latter case.

The variable for age reveals an interesting effect. In the threshold model of electronic mail contacting (Model 2), age exerted a negative influence on participating. In the frequency model (Model 4), on the other hand, age exerts a positive influence, similar in magnitude across media. Older respondents are slightly less likely to have tried electronic mail as a means of contacting government in the last year, but among

Table 5
Frequency of participation: Ordinary least squares regression for total number of contacts with government

Variable	Model 1: Contact by traditional means		Model 2: Contact by e-mail	
	B	*SE*	*B*	*SE*
Education	.0004	.03	–.03	.04
Age	.02*	.003	.01*	.004
Gender	.04	.07	–.28*	.09
Political connectedness				
Number of actions	.49*	.03	.29*	.03
Number of mobilizing organizations	.16*	.02	.08*	.03
Constant	4.41*	0.14	5.08*	0.17

Note. Model 3: $R^2 = .15$, $F = 117$, $p < .001$; Model 4: $R^2 = .06$, $F = 29$, $p < .001$. $N = 3{,}629$.
*$p < .01$.

those respondents who *have* tried it, older people contact slightly more frequently than younger ones. Electronic mail poses a threshold barrier for older citizens in this sample, keeping some from participating. But once older respondents are over that threshold, frequency of electronic mail contacts looks similar to that of traditional contacts with respect to age.

The situation is different with gender. As Models 3 and 4 show, gender has no effect on frequency of contacting by traditional means but exerts a statistically significant, negative effect on electronic contacting. Just as women in this sample are less likely than men to try electronic mail as a means for contacting government, those who do try it go on to use electronic mail less frequently than men. The effect of technology on the gender-contacting relationship that appears in the bivariate correlations persists in the multivariate models.

Discussion

Do changes in technology lead to changes in aggregate political behavior, where citizens' efforts to communicate with government are concerned? These findings suggest that the answer may be yes, but the effects are small and quite subtle. Overall patterns of citizen communication with government among respondents in the on-line survey do not differ much between Internet-based contacts and contacts by phone or letter. This fact means that traditional models explaining contacting in terms of education, age, gender, political connectedness, and proximity appear to be reasonably robust across communication technologies and can be extended to new media with only a few modifications.

The Internet can affect whether particular citizens are active in contacting, even without boosting the overall frequency of communication among those active. Theoretically, this fact suggests that more than one causal process may be at work involving technology and political communication. At least one process affects the distribution of

participation, and another its intensity or frequency. The age and proximity effects that appear in my data are almost surely distortions in communication patterns resulting from the fact that not all people are equally familiar with the Internet and how to use it politically, and from the fact that government offices are themselves unevenly adept with technology. This finding is best thought of as a transition effect, because these patterns arise from the transition of the Internet from an exclusive and limited technology to a mass medium. Transition effects distort the aggregate distribution of political communication, because of the differential availability of the technology, but they do not appear to entail any novel underlying phenomena at the individual level.

Transition effects are therefore apparent at the aggregate level only and may indeed exert a small influence on politics. The corpus of citizens who are active in communicating with government on-line looks somewhat different than it would if familiarity with on-line political communication were similar to that of traditional communication. Government officials who attempt to gauge public concerns by paying attention to citizens through e-mail will draw slightly different conclusions than they would from paying attention to traditional contacts through letters and phone. They are likely to conclude that older citizens are less concerned about public issues, and state and local governments might underestimate the size of their attentive constituencies.

Of course, the demographics of Internet use are changing. The growth in Internet access, from 26% in late 1996 to 46% in early 1998, has been accompanied by demographic diversification. As this trend continues, and as more people gain familiarity with how to use the Internet for political purposes, it is likely that the age and proximity distortions will diminish. The more widely the Internet is used, the less transition effects will shape the distribution of citizen contacts with government.

The second set of causal processes concern the intensity of citizen contacts, and these are qualitatively different. These effects are best thought of as inherent: They are associated with the ways that people interact with technology that is available to them. The gender gap is one case. This gap does not appear to be the product of differential familiarity, in the way that age and proximity are. Women in my sample simply find the Internet less appealing as a tool of political communication than do men, regardless of whether they have experience using it. A good deal of research by other scholars posits the existence of general gender effects associated with technology. Some argue that, in comparison with men, women tend to be alienated from technology because of male domination of the process of designing and implementing technology, especially where computers are concerned (Coyle, 1996; Green, Owen, & Pain, 1993; Webster, 1995). Some point to stereotyping as the underlying mechanism (Comber, Colley, Hargreaves, & Dorn, 1997; Janssen Reinen & Plomp, 1993, 1997; Wajcman, 1991), while others have suggested inherent gender differences in social and technological interaction as the explanation of differential skills and attitudes toward computers (Turkle, 1984). My finding of a broadened gender gap in on-line political communication is broadly consistent with the presumption of much scholarship on gender and technology. One promising avenue for further exploration involves analysis of just how gender affects choice of media for all types of political communication and how, in turn, choices by political organizations and institutions about what means to use when "listening" to the public voice may affect how men's and women's political interests are perceived.

The other intriguing case of an inherent effect of technology on communication concerns political connectedness. The fact that political connectedness may be slightly less important for electronic mail contacts than traditional contacts is consistent with a broadly rational theory of political behavior, as well as with much popular speculation

about the Internet's ability to mobilize citizen participation. Where political behavior is understood to be rationally structured, lowered costs of communication should induce people with a lowered stake in politics to make the calculation that action is worthwhile. In my sample of highly engaged, politically interested Internet users, this effect is present but small. In the population of all Internet users, the effect is likely to be larger, because overall variation in political connectedness is greater among the entire population of Internet users. It is plausible, therefore, to hypothesize on the basis of my findings a larger and more important gap in political connectedness between Internet-based and traditional contacts among the larger population. The implication is that the mix of voices reaching government offices from citizens may change in measurable and noticeable ways as Internet use grows from half of the population toward three quarters or more. Citizens who are outside of traditional political networks and less engaged in other arenas of public life are likely to be more expressive on-line, at least by a little. Information technology may entice somewhat less politically connected citizens across the threshold of communication and may also induce those over to express themselves more often.

A change in the extent of political connectedness among citizens who express themselves to government suggests another important possibility: changed content of messages. The extent to which the Internet alters what citizens say to government may even exceed changes in who contacts government. My survey instruments did not include measures of message content or the objectives of citizens who contact, so I am unable to evaluate this question. Anecdotal evidence from Congress and other institutions, however, suggests that changes in message content are occurring and may not always be welcome (Weisman, 1997). Many members of Congress report that messages they receive through electronic mail are less thoughtful and less meaningful than messages received through other means. The fact that the Internet induces—slightly—people with less political connectedness to write to government offices surely accounts for a good deal of this apparent phenomenon.

One cannot help but observe the normative implications of the political connectedness effect. These implications run in more than one direction, of course. From a populist perspective, the Internet may be broadening the democratic base of those who express themselves to government, and that fact is to be applauded. If the Internet could entice even a few citizens who otherwise remain on the political sidelines into expressing themselves, then the goal of increasing the universality and perhaps equality of participation would be served. From this perspective, at least some of the Internet's effects on political communication are salutary. From a more Madisonian perspective, on the other hand, this trend confronts limits on the value of raw public sentiment. The deliberative value of communication may be undermined if talk through the Internet is increasingly cheap and divorced from other forms of political engagement. Floods of e-mail from citizens acting without lasting convictions about public problems or lasting interest do not add to democratic discourse or provide much of a guide to elected officials. From that perspective, at least some of the effects of the Internet on political communication are unwelcome. This study suggests that expanding communication capacity may have both kinds of consequences for American democracy.

Notes

1. Several other variables have also been examined in the literature, but they are beyond the scope of the present analysis: efficacy, need and perceived need for government services, stakeholding, identification with political parties, race, and resources. See Verba, Schlozman, and

Brady (1995); Coulter (1992); Hero (1986); Zuckerman and West (1985); Vedlitz, Dyer, and Durand (1980). Differences between particularized contacting and issue-based contacting that were first suggested by Verba and Nie (1972) have also been explored. For instance, Zuckerman and West (1985) find in a cross-national study that the SES-contacting relationship is much stronger for issue-based contacting than for particularized contacting in most countries. Sharp (1982) finds issue-based contacting to be no more strongly correlated with SES than particularized contacting in a one-city study of local government contacts.

2. For a discussion of the causes of this gap, see Verba, Schlozman, and Brady (1995) and Schlozman, Burns, and Verba (1994).

3. This study relied on a comparatively small sample of college students. While the relationships reach statistical significance, the size and construction of the sample present limitations.

4. National Election Studies, 1996. Two questions were asked: Do you have access to the Internet or the World Wide Web ("the Web")? (Variable V961160) and, for those who answered affirmatively, Have you seen any information about this campaign on the (Internet/the Web)? (Variable V961161).

5. These figures are from my own random-digit-dial survey conducted in 1998. See subsequent discussion for an explanation of the method.

6. A hybrid design may be found to be useful in the future, using standard random-digit-dial telephoning to solicit respondents who report having Internet access and then directing them to an on-line survey form or sending them a form via electronic mail. This technique has the advantage of good sample design and the advantage of lower labor costs than traditional RDD techniques but probably would encounter compliance problems that decrease response rate and magnify response bias problems.

7. Design-effect weights account for number of telephones per household and number of adults per household.

8. My criteria for selecting the sites involved the following: only those sponsored by established organizations; only nonideological, nonpartisan sites; and only sites with broad government- and politics-oriented content rather than issue-specific or event-specific sites. I also sought a mix of national and state-level sites, a mix of public and private nonprofit sites, and a sample of states balanced for diversity of region and urbanness. The result was the following list of sites: U.S. Congress THOMAS, the U.S. League of Women Voters, C-SPAN, the Jefferson Project, the California Voter Foundation, the City of Los Angeles, the City of Santa Monica, and the executive branches of the states of Alabama, California, Colorado, Idaho, Maine, Nebraska, Pennsylvania, Washington, and Wisconsin.

9. I received 15,006 responses to the survey and used a cleaning protocol involving a half-dozen criteria for dropping cases, including empty forms, forms from respondents reporting a birth date indicating they were under 18 years of age, duplicate responses from the same computer host (of which there were remarkably few), those from users who had bookmarked the survey in their web browser or who had reached the survey form from any site other than participating survey hosts, and respondents who filled out the survey in less than 3.5 minutes. These criteria resulted in the elimination of about 13% of the cases.

10. Similar results were found by Nielsen (1996), who analyzed response bias in an on-line survey by comparing results of two concurrent surveys, one using RDD phone sampling and one an on-line technique. In this study, the on-line technique appeared to be skewed heavily in the direction of frequent Internet users and more skilled Internet users.

11. The 95% confidence intervals for these figures are about ±3.7%.

12. They asked a multipart question that differentiated between contacts with the offices of elected officials and nonelective offices and between contacts at the federal level and at the state or local level. Their figures are aggregate figures for all contacts.

13. Both gaps are significant at the .01 level.

14. See Coulter (1992) for a comparison of survey techniques in studies of contacting behavior and for a discussion of validity and other measurement issues concerning respondent recall and question specificity.

15. The index measures the number of categories of activity in which each respondent was active at least once during the 1996 general election. A respondent who was active in none of these activities scores zero, while one who attended at least one political meeting and made one political donation scores two. The index therefore measures breadth of political involvement, not depth.

16. This pattern is independent of the site at which respondents took the survey. For instance, those respondents who were using Congress's THOMAS system when they took the survey—and were therefore, by definition, aware of Congress's on-line presence—were much more likely to have contacted a member of Congress by traditional means than by electronic mail. And likewise for state government Web sites: Visitors to those sites on-line are still much more likely to have contacted a state government official using a traditional means than using the Internet.

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