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Citizen-Government Interaction and the Internet: Expectations and Accomplishments in Contact, Quality, and Trust

Ramona McNeal [a], Kathleen Hale [b] & Lisa Dotterweich [c]
[a] University of Northern Iowa,
[b] Auburn University,
[c] Briar Cliff University, Sioux City, Iowa

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Citizen–Government Interaction and the Internet: Expectations and Accomplishments in Contact, Quality, and Trust

Ramona McNeal
Kathleen Hale
Lisa Dotterweich

ABSTRACT. In addition to improving efficiency and transparency of government services, e-government may increase the frequency of interaction between citizens and government as well as improve perceptions of quality and trust in government more broadly. Analyses of citizen-initiated contact with government using Pew Internet and American Life Project survey data indicate that e-government has motivated citizen-initiated contact with government among some demographic groups and magnified existing gaps for others. Online citizen-initiated contact improves the quality of interactions with government; however, the findings here do not support the argument that e-government increases trust among its users. Findings are consistent with the goals of the American government in adopting and promoting e-government.

KEYWORDS. E-government, digital divide, citizen-initiated government contact, trust in government, government quality

Arguably, one of the most recent significant innovations in information technology has been the creation and ongoing development of the Internet. Over the last decade, Internet usage among American adults has grown appreciably from about 15% in 1995 to about 63% today. The Internet has changed many domains in contemporary America. It has transformed the way we educate and entertain ourselves, work, communicate, and complete transactions (Pew Internet & American Life Project, 2005). It has also changed the way that many interact with government.

Over the last several years, federal, state, and local governments have moved increasingly toward government adoption of electronic

Ramona McNeal, Ph.D., is assistant professor of Political Science, University of Northern Iowa, where she teaches courses in quantitative methods, state politics, and public policy. Ramona's research focuses on e-government and communications policy. She is the co-author of several journal articles on the diffusion of e-government policies and is the co-author of *Digital Citizenship: The Internet, Society and Participation*, a 2007 book on the impact of the Internet on society from MIT Press.

Kathleen Hale, J.D., Ph.D., is assistant professor of Political Science, Auburn University, where she teaches graduate and undergraduate courses in intergovernmental relations, public policy, and public administration. Kathleen's research focuses on information networks in intergovernmental systems, policy diffusion, and the influence of information on policy change. She is the co-author of several journal articles on the influence of information and networks in public administration environments.

Lisa Dotterweich is an instructor of Political Science at Briar Cliff University in Sioux City, Iowa. She is completing her Ph.D. at Kent State University. Her research interests include education policy and e-government.

Address correspondence to: Kathleen Hale, Department of Political Science, Auburn University, 8030 Haley Center, Auburn, AL 36849 (E-mail: halekat@auburn.edu).

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government (e-government) practices that "refer to the delivery of information and services via the Internet or other digital means" (West, 2004, p. 2). Each of the 50 states has implemented some type of e-government, and the federal government has created a central portal for federal services (West, 2003). Norris, Fletcher, and Holden (2001) found that nearly 80% of all local governments maintain a Web site. The types of services offered through the Internet range from information provision to online transactions. The service most widely available on government Web sites is the posting of information; nevertheless, the use of the Internet for online transactions with units of government is flourishing (West, 2003).

Some of the transactional services that states are offering their residents online include the renewal of vehicle registration, hunting licenses, the filing of tax forms, voting, and other services (Edmiston, 2003). States such as Alaska have installed small business and occupational licensing systems online to offer their citizens more convenience than before (Center for Digital Government, 2001). Local governments are also offering online interactive communication and services for their constituents (Swope, 2004).

Contemporaneously, Americans are taking advantage of the proliferation in e-government by turning to the Internet in greater numbers to acquire government information or obtain government services. A simple description of the traffic on two federal Web sites illustrates this point. The Justice Department's Office of Information and Privacy reported in August 2005 that "federal agencies received a record 3.26 million requests under the Freedom of Information Act in fiscal year 2003" (McCutcheon, 2005). This level represents an increase of more than one-third (36%) over the previous year. According to a Nielsen/NetRatings Internet measurement poll, this trend has continued, as many government Web sites are experiencing higher levels of traffic in 2005 than in 2004. One of the most popular federal government Web sites was the Department of Health and Human Services, which received almost 12 million hits—a 24% increase from 2004 to 2005. Other government Web sites that are experiencing increased levels of online traffic include the departments of Veterans Affairs, Homeland Security, Agriculture, and Housing and Urban Development (McCutcheon, 2005).

This proliferation of e-government use raises some important questions: Is the Internet changing the interaction between the citizenry and government, and if so, how? Are people contacting government more often? Has the Internet changed the demographic context of those who contact government? Does trust in government influence whether a citizen utilizes e-government? Does greater access to government as result of e-government increase trust in government?

The questions regarding trust and e-government are important ones. Contemporary research shows that public confidence in more traditional forms of citizen engagement is low (Norris, 1999; Putnam, 2000), and has been decreasing over the last 30 years (Putnam, 2000). The decline in trust in government has worried scholars and pundits alike. It has been argued that those who trust government should be expected to participate in government to a greater extent than the distrusting, at least in conventional civic activities such as voting and campaign involvement (Almond & Verba, 1963; Finifter, 1970). In fact, declining trust has been associated with lower levels of citizen engagement (Abramson, 1983; Norris, 1999). However, public confidence could be enhanced by the ability of citizens to access their government on a virtually constant basis—24 hours a day, seven days a week. Can the Internet turn current attitudes towards government around?

In answering these questions, this article first examines the literature on the promise of e-government, focusing on its potential to increase trust among citizens and to increase access to government services and information. Next, barriers to the promise of e-government are explored with a focus on the digital divide. Multivariate models are used to empirically test the impact of e-government on trust in government and citizen-initiated government contact. Our analysis and conclusion follow, along with recommendations and suggestions

for further research in this rapidly changing digital landscape.

THE POSSIBILITIES OF E-GOVERNMENT

E-government holds potential for citizens and government units alike. It has the capacity to increase the availability of government information and services by making them accessible at all times. The potential effect of e-government is far-reaching and has been theorized in a variety of contexts. This technology could make government more efficient and transparent to the public (Ho, 2002; Norris et al., 2001; West, 2003). E-government may make government more responsive to the public through communication options that operate more quickly and that are more convenient for users (Thomas & Streib, 2003). The transparency of e-government could serve to make units of government more accountable to the people that they serve (Tolbert & Mossberger, 2006). An online presence reduces distribution costs for government agencies, removes the delay between production of and access to information, and allows the timely update of materials more quickly than in traditional distribution methods (Pardo, 2000). Additionally, Fountain (1999, 2001) argues that information technology has significant potential to reorder power, responsibilities, and control within and across government agencies and between the public and private sectors. She suggests that e-government offers hope of change in public sector administration by encouraging government employees to work together and develop cross-agency portals that combine information and service offerings.

Others (Jaeger & Thompson, 2004, p. 96) argue that e-government has the ability to increase political engagement "across economic, educational, geographic, and cultural boundaries" because, theoretically, the Internet could be available to every citizen. E-government also has the potential to create a more participatory democracy (Pardo, 2000). For example, it may provide additional avenues through which citizens can initiate contact with government by such means as electronic bulletin boards and online forums (Jaeger & Thompson, 2004). Finally, e-government has the capacity to increase citizen confidence in government (Gore, 1993; Tolbert & Mossberger, 2006; West, 2003).

While there has been considerable debate about the relationship between the Internet and trust, a limited number of empirical studies has tested these underlying propositions. West (2004) analyzed national survey data (Hart-Teeter, 2000) and found that e-government has not lived up to its potential to change government service delivery or enhance citizen trust in government. His analyses indicate that half to two-thirds of adults do not participate in e-government activities. Additionally, he found no relationship between visiting federal government Web sites and citizen trust, confidence, or views about government efficiency. However, West's findings also indicated that those who use government Web sites were more likely to form positive beliefs about government's ability to solve problems (West, 2004, p. 24). This suggests that e-government does have the potential to increase citizen confidence in government; however, this also suggests that more citizens need to use e-government before an appreciable impact can be demonstrated.

Mossberger and Tolbert (2006) advanced West's (2004) research by exploring how trust and confidence in government are affected by proximity to government. Using survey data of 815 individuals who use government sites drawn from the 2001 Pew Internet and American Life Project, they examine the connection between e-government use and attitudes about government while controlling for levels of government. Relevant to this article, they concluded that proximity matters in terms of perceptions of trust and transparency: Trust was found to be significantly and positively related to visiting Web sites at the local government level, and citizen perceptions of increased government transparency were linked with visiting federal Web sites. The authors also found that visiting a government Web site was significantly linked with improved citizen perceptions of government responsiveness across all levels of government.

Differences in perception based on proximity may be related to variation in Web sites at the different levels of government. The literature on traditional citizen-initiated contact suggests a different explanation. Zuckerman and West (1985) found that individuals are more likely to contact government officials at the local and state levels than at the federal level and attributed this to the purpose of contact. At the local and state levels, individuals were more likely to initiate contact with government to obtain specific assistance or services. This finding suggests that the purpose of contact with government (seeking information versus seeking services) may be a factor that impacts the relationship between e-government and trust. At the moment, posting of information is still the most widely available service available on government Web sites (West, 2003). This may explain, in part, the limited findings linking use of e-government to increased trust in government.

THE REALITIES OF E-GOVERNMENT

As suggested by the literature on trust, e-government has not lived up to its possibilities. One reason is the cleavages that exist between those who have and do not have access to this technology. These differences in access, also known as the "digital divide," have been found to be related to socioeconomic factors (Mossberger, Tolbert, & Standsbury, 2003; Neu, Anderson, & Bikson, 1999; Pew Internet & American Life Project, 2003; U.S. Department of Commerce, 2002; Wilhelm, 2000).

Gaps based on income, education, age, and race/ethnicity remain, although progress toward digital inclusion has been made. Mossberger et al. (2003) found that income, education, age, and race/ethnicity mattered. They found that Asian Americans had the highest predicted probability of access, followed by Whites, with Latinos and African Americans significantly trailing behind. Consistent with other studies, they found that Internet access has not been adopted equally across regions and geography. Internet access in rural areas has been constrained by state policies that protect monopolies of rural telephone companies and also by lack of corporate investment in infrastructure for sparsely populated regions (Nicholas, 2003; Strover, 1999). Further, southern states have been found to have lower levels of Internet connectivity (Jaeger & Thompson, 2004).

Another barrier to the widespread usage of e-government is lack of technological skill. In order to engage in e-government opportunities, individuals must possess specific skills, including the ability to use a keyboard and mouse, basic computer operating skills, and basic search skills for seeking and reviewing information on the Internet. Nearly half (46%) of respondents to the survey "Ever-Shifting Internet Population" indicated that they did not use the Internet because the "Internet is too complicated and hard to understand" (Pew Internet & American Life Project, 2003). Not surprisingly, younger individuals are more likely to have these skills because of exposure to the Internet in school.

This idea of Internet "ability" has become more fully developed through several studies. Mossberger et al. (2003, p. 38) found that technology skills can be summarized into technical competencies and information literacy. Technical competency includes the necessary skills to use hardware and software such as typing and using a mouse. Information literacy concerns the ability to select information obtained from the Internet for specific tasks and is related to basic literacy. They find that socioeconomic factors are predictors of the skill divide. Technology skills necessary to use the Internet were lacking among individuals who are older, less educated, Latino, African American, or less affluent. Because these factors are the same as those associated with the digital divide, these factors may also work to exacerbate the gaps in Internet usage that are based on access.

The ability to develop technological skill is also impacted by psychosocial variables. Age, gender, and literacy have been found to be strong predictors of digital skills (van Dijk & Hacker, 2003). Relatedly, motivation may be more relevant than formal educational attainment (Stanley, 2003, pp. 410–413; van Dijk & Hacker, 2003, p. 319).

As with the literature on trust, the empirical studies about the factors that impact citizen-initiated contact with government using the Internet are limited. Further, the literature on the impact of e-government (both its relation to trust in government and the demographic profile of those who contact government) is more speculative than empirical. The predictability of some of this research has been limited by small samples, samples based on one state, or the use of online surveys.

Despite these limitations, the findings from two relatively recent studies provide support for the approach taken in this study. Bimber (1999) examined the relationship between online government contact and factors such as age, gender, and income that are associated with traditional means of government contact. He found clear differences in the impact of proximity and gender. The importance of proximity was weakened in the case of online contact; as a result of the Internet, citizen contact with federal government agencies has increased. Second, the Internet added to the gender gap observed in traditional means of contact and expanded the lead that males had over females in initiating contact with government.

Thomas and Streib (2003) also explored the factors that influence use of the Internet to contact government. They found that citizen visits to government Web sites are becoming increasingly commonplace, and that the purpose of these visits was primarily to seek information. Visitors to government Web sites appear to be satisfied with their experiences, but the demographics of those accessing these sites suggest that the digital divide is wider between those who log onto these sites and typical Internet users. Those who visited government Web sites were more affluent, better educated, and more likely to be White than other members of the online population.

Thus, the literature points to several interesting questions. Has the Internet changed the demographics of who contacts government? Or instead, have the barriers to the Internet, including the access divide and the skill divide, served to magnify the gaps that already exist in citizen–government interactions? Does the purpose of the contact with government reflect a difference in trust in government? Is contact initiated with government to obtain a service more likely to be associated with increased trust than contact merely to look for information? Finally, does online contact translate into a perception that government services are of higher quality?

DATA AND METHODS

To address these questions, we utilize The Internet and American Life Daily Tracking Survey, July 2003, conducted for the Pew Internet and American Life Project by the Princeton Survey Research Associates. The Pew survey is a random-digit-dialed national telephone survey conducted in July 2003 and has a sample size of 2,925. We construct three analyses from the survey data. The first is an analysis of the determinants of citizen-initiated online contacts with government. The second is an analysis of the impact of citizen-initiated online contacts on trust in government. Finally, we examine the impact of such contacts on perceptions of the quality of government.

Determinates of Citizen-Initiated Online Contacts

We hypothesize that e-government impacts the relationship between citizens and government by altering the patterns related to who contacts government. To examine this aspect of the process we look at the reasons for contact with government and control for individual attitudinal and demographic factors. We estimate three separate multivariate models related to citizen-initiated contact, based on three different reasons for contacting government online. The dependent variable in the first is "e-mailed government official." It is a dummy variable coded 1 for "has contacted government official in the last year using e-mail" and 0 otherwise. The dependent variable in the second model is "looked for information on government Web sites." It is a dummy variable coded 1 for "has looked for information on government Web sites in the last year" and 0 otherwise. The final dependent variable is "apply for benefits

online." This variable measures whether an individual used the Internet to apply for government benefits online. It is measured using a dummy variable coded 1 for yes and 0 otherwise. Factors related to contacting government and Internet usage such as education and income are included in all three of the models.

Individual level attitudinal and demographic variables are added to reflect socioeconomic factors that influence citizen-initiated contact with government. Following previous research (e.g., Rosenstone & Hansen, 1993; Verba & Nie, 1972; Verba, Schlozman, & Brady, 1995) we control for age, education, and income. Age is measured in years. Education is measured using a seven-point scale ranging from eighth-grade education or less to Ph.D. To control for income, an ordinal scale included in the surveys was incorporated. Income is measured on an eight-point scale where 1 indicates that family income ranges from $0 to $10,000 and 8 signifies a family income of $100,000 or more.

Studies (e.g., Rosenstone & Hansen, 1993; Zuckerman & West, 1985) have identified affinity with political parties as an important determination of government contact. Political affinity is measured using dummy variables for Democrat and Republican, with independents serving as the reference group. Because males are more likely to initiate contact with government than females (Rosenstone & Hansen, 1993), a dummy variable for gender is included: coded 1 for male and 0 for female. To control for race and ethnicity, dummy variables were added for African Americans, Asian Americans, and Latinos, with non-Hispanic Whites as the reference group.

The literature on citizen-initiated contact finds that contact is often precipitated by need (or perceived need) for a specific government service; this suggests that individuals who contact government have a greater stake or interest in government (Sharp, 1986; Thomas, 1982; Thomas & Melkers, 1999). To control for the influence of stakeholders, parents and government employees are included in the models. Parents (at least at the local level) initiate contact with government as a result of concern for their children (Sharp, 1986, p. 1). Parent is measured using a dummy variable coded 1 if the individual is a parent or guardian of a child under 18 and 0 otherwise. Government employee is measured using a dummy variable coded 1 if the respondent is a government employee and 0 otherwise.

Individual attitudinal and demographic measures control for factors that influence Internet access and the digital divide. Additionally, it is argued that the concept of the digital divide extends beyond the basic question of access and now encompasses the issue of the type of access. Increasingly, the case is made that broadband high-speed access goes beyond dial-up access in promoting online activities (Bennett, 2003). Broadband is faster than traditional dial-up access and is thought to better facilitate online tasks and promote the development of Internet skills (European Commission, 2004). To control for the impact that different forms of access may have, two variables for Internet access at home are included. Because the same individuals (those with higher income and education) who are more likely to initiated citizen–government interaction are also more likely to have Internet access, simultaneity may result in biased coefficients, and therefore incorrect inferences. To address this problem, two-stage modeling is used in which the predicted probabilities of having dialup or broadband access at home from a first stage model are used as measures for dial-up and broadband access.

Finally, a variable for utilizing traditional means of contacting government was included. Verba et al. (1995) found that contacting a political official was in part dependent on civic skills. In order to contact a government official, one needs to know who to contact and how to do so. Individuals who have been contacting officials through traditional means should have civic skills that facilitate learning how to contact officials online. Additionally, individuals who have been using traditional means may consider themselves stakeholders and have greater motivation to use e-government. Traditional contact means are measured using a four-point scale that ranges from 3 to 0. For this measure, 3 indicates that the individual uses telephone, letters, and in-person visits to contact government officials and 0 indicates that they do not use any of these traditional means.

Impact of Citizen-Initiated Contacts on Trust in Government

E-government may also impact the relationship between citizens and government by increasing citizens' access to government information and services. It has been argued that, by increasing the availability of information and services and by improving the delivery of these services, ultimately e-government will lead to improved citizen trust in government (Gore, 1993; Raney, 2000). To examine this argument, we explore the impact of online citizen-initiated government contact on trust in government. Trust is measured on a three-point ordered scale that reflects the responses within The Internet and American Life Daily Tracking Survey, July 2003, where the available answers to the question "How often do you trust the government in Washington to do the right thing?" are "only some of the time," "most of the time," or "just about always." The main explanatory (independent) variables are e-mailing a government official, looking for government information online, and using the Internet to apply for benefits online.

We test three broad categories of variables found in the literature. First, we incorporate individual-level attitudinal and sociodemographic controls from the first model including age, income, education, male, Republican, Democrat, Latino, Black, and Asian. Early studies on trust in government that focused on such attitudinal and demographic variables found little relation between these measures and trust in government (e.g., Citrin & Luks, 1998; Lyons, 1978; Owen & Dennis, 2001). A notable exception to these studies is research that finds that race has an impact on trust in government; specifically, that Blacks are less trusting of government than Whites. This finding has been attributed to a perception among Blacks that they have less political power (Abramson, 1983; Howell & Fagan, 1988). We speculate that race and other sociodemographic factors may foster or impede trust in a more mature e-government environment.

Although little evidence to date suggests that most attitudinal and demographic variables have an impact on trust in government, other variables have been found to be significantly related to trust. Among them is government employment. Research has found that government employees have greater trust in government (Brewer & Sigelman, 2002). We control for this relationship using the same measure of government employment as in the first model.

Variables found to most likely influence trust in government can also be categorized as those related to individual judgments of the policy process, political actors, and policy outcomes (Ulbig, 2002). Among the factors related to the policy process is an individual's perception of government's inherent ability to overcome obstacles to performance. Research has found that individuals are more likely to become focused on gridlock and quarreling in government if adequate solutions to public problems are not found. This leads to less trust and support of actors in government (Durr, Gilmour, & Wolbrecht, 1997; Hibbing & Theiss-Morse, 1995). Here, this perception of government is measured using a dummy variable coded 1 if individuals believe that "government often does a better job than people give them credit for" and 0 otherwise. Among the actors important to individual assessment of policy and trust in government is the president. We measure individual judgment of the president using a dummy variable coded 1 if the individual approves "of the way George W. Bush is handling his job as president" and 0 otherwise. Finally, policy outcomes are measured using a dummy variable where 1 indicates that an individual is "satisfied with the way things are going in the country" and 0 otherwise.

The Impact of Online Citizen-Initiated Contact on the Quality of Government Interaction

One factor to consider in predicting the impact of online citizen-initiated contact is the circumstances under which policy itself promotes interaction between government and citizens through the Internet. In the United States, e-government was promoted in the mid-1990s by the Clinton administration as part of its effort to "reinvent government." The American impetus for adopting online government activities

was to increase efficiency and reduce waste (Gore, 1993). Other nations reflect this efficiency calculus in touting e-government as a "new public management reform." By contrast, other countries have advanced more variable motivations for adopting e-government, heralding it as a means of increasing political participation or as a means of increasing transparency and consequently political trust (Chadwick & May, 2003; Fountain, 2001).

Because the goals for adopting the use of the Internet for government activities vary from country to country, so may the outcomes and impacts of such policies. Because e-government was initially adopted in the United States to foster efficiency and cost-cutting, we can hypothesize that, in this American context, online citizen-initiated contact with government agencies will result in better "service" rather than increased trust. To test this argument, we examine the effects of online citizen–government interactions on the quality of such interactions. Quality of citizen-initiated interactions is measured with the question "How much has the Internet improved your interactions with the government?" The possible answers for this question included not at all, only a little, some, and a lot. The question was only asked of the subset of individuals who have used the Internet to interact with government. This question was asked separately for all three levels of government (federal, state, and local). The main explanatory (independent) variables are e-mailing a government official, looking for government information online, and using the Internet to apply for benefits online.

Individual-level variables from the previous models are incorporated here as controls, including age, income, education, male, Republican, Democrat, government employee, Latino, African American, and Asian American. Additionally, because the frequency of use of e-government may impact perception of the quality of service provided online, a measure of frequency of e-government usage was included. The measure is based on the question "How often do you use the Internet to contact the government?" Possible responses include less often, every few months, several times a month, several times a day, and every day.

FINDINGS

Determinates of Citizen-Initiated Online Contacts

The analysis of factors that influence whether citizens use the Internet to contact government is reported in Table 1. Dependent variables are coded so that higher scores are associated with increased use of e-government (greater online citizen-initiated contact with government). Because the dependent variables are binary, the models are estimated using logistic regression.

The findings in Table 1 suggest that some of the factors that stimulate traditional forms of citizen-initiated contact are also associated with online contact. Higher education was associated with an increased likelihood of looking for information online and contacting public officials by e-mail. Additionally, across all three models, government employment and greater use of traditional means of contact were associated with online citizen-initiated contact. Blacks were less likely to look for information online, and those with higher incomes were more likely to e-mail government officials.

Not all of the findings related to online citizen-initiated contact coincided with findings related to traditional means of interaction with government. The most significant of these differences were age and gender. Younger individuals were more likely to e-mail government officials. Age, however, was not a significant factor in predicting whether citizens will look for information online or apply for benefits online. The literature on traditional forms of citizen-initiated contacts finds that older individuals are more likely to contact government, presumably because they possess greater civic skills than younger individuals. The finding related to contacting government through online methods suggests that the technological skills may help to compensate for lower levels of civic skills in the young. This finding is also consistent with van Dijk and Hacker (2003); they found that age, gender, and literacy were the strongest predictors of digital skills with younger individuals, males and persons with greater literacy skills having the stronger Internet skills.

TABLE 1. Determinates of Online Citizen-Initiated Government Contact

Variables	E-mail Government Official		Look for Online Information		Apply for Benefits Online	
	β (se)	p>|z|	β (se)	p>|z|	β (se)	p>|z|
Individual-level variables						
Traditional methods of contact	.702 (.062)	***	.828(.062)	***	.446(.062)	***
Parent	.058(.113)		.228(.135)	**	–.077(.130)	
Predicted probability of broadband access at home[1]	.101(1.119)		.893(1.342)		1.656(1.339)	
Predicted probability of dial-up access at home[1]	2.351(.859)	***	3.007(1.038)	***	5.322(1.051)	***
Government employee	.671(.159)	***	.341(.157)	**	.352(.156)	**
Democrat	.091(.131)		.291(.157)	*	–.077(.151)	
Republican	.022(.121)		.119(.144)		–.274(.144)	*
Age	–.028(.008)	***	.011(.010)		.001(.010)	
Male	.088(.107)		.223(.127)	*	.077(.127)	
Latino	–.316(.230)		–.422(.319)		.501(.258)	*
Black	–.094(.222)		–.633(.307)	**	.221(.265)	
Asian	–.211(.397)		–.151(.487)		–.347(.522)	
Education	.267(.070)	***	.168(.083)	**	–.041(.083)	
Income	.163(.067)	**	.089(.081)		–.206(.079)	***
Constant	–2.486(.404)	***	–5.745(.531)	***	–3.459(.500)	***
Pseudo R^2	.2430		.2182		.0933	
LR Chi^2 (14)	755.80	***	495.61	***	187.67	***
N	2249		2251		2249	

Source: *The Internet and American Life Daily Tracking Survey July 2003*, The Pew Research Center for the People and the Press. Cell entries are logistic regression coefficients with standard errors in parentheses. Reported probabilities are based on two-tailed tests.

***indicates p ≤ .01. **indicates p ≤ .05. *indicates p ≤ .10.

[1]Predicted probabilities from first stage multinomial logistic regression where the dependent variable is Internet access at home (either none, dial-up or broadband) and independent variables are income, education, age, male, parent, government employee, African American, Asian American, Latino, married, lives in an urban area, and lives in a suburban area.

Our findings related to gender conflict with the findings of van Dijk and Hacker (2003) and others. We find gender to be unrelated to online e-government use except in the case of government information, in which we find males to be more likely to engage in this activity. Studies examining traditional means of contact report that women are as much as 8% less likely than men to contact government (Verba et al., 1995). The difference based on gender has been found to carry over to the Internet. Bimber (1999) found that women were less likely to use the Internet to initiate contact with public officials, and Mossberger et al. (2003) found that women were less willing to vote online or take part in online town meetings. Van Dijk and Hacker (2003, p. 319) concluded that differences in skill based on gender and age were most likely attributed to motivation than to formal levels of education. It is possible that difference in skill based on gender is diminishing over time as a result of changing attitudes, cumulative exposure to the Internet, and related technological advances. Bimber's study was based on 1996–97 data, van Dijk and Hacker used 2000 data, and Mossberger et al. used 2001 data. The analysis reported in this article utilizes 2003 data, and the findings suggest in part that the gender gap based on skill may be closing. When considered against earlier work, our findings suggest that the Internet may be helping to eliminate the bias in government contact based on gender.

The findings regarding gender may simply reflect the closing of the gender gap in Internet usage. When the National Telecommunications and Information Administration (NTIA) began publishing a series of reports on computer and Internet usage, there was a significant gender divide in Internet access. By the time of its final report, *A Nation Online: How Americans Are Expanding Their Use of the Internet* (U.S.

Department of Commerce, 2002), the NTIA had found that the differences based on gender had disappeared.

Our findings also suggest that citizen-initiated contact is driven by the need for a specific government service or the perceived need for service, as has been suggested by earlier literature (Sharp, 1986; Thomas, 1982; Thomas & Melkers, 1999). In support of this argument, we find that Latinos and individuals with lower income are significantly more likely to apply for benefits online. Neither of these groups is typically associated with citizen-initiated contact with government; however, the need for a specific government service appears to be driving their online communications. We also find a positive association between looking for government information on the Web and being a parent.

The most surprising finding in this section of the analysis pertains to perceived distinctions between the benefits of dial-up versus broadband Internet access. The European Commission (2004) argues that broadband connectivity is not only faster than dial-up, but also increases Internet skills and encourages online interactions. We find otherwise. The predicted probability of having dial-up Internet access at home is significantly and positively associated with all three online activities (e-mailing government officials, looking for information on government Web sites, and applying for benefits online). The predicted probability of having high-speed Internet access at home was not found to be associated with any of these online activities. This finding is open to competing interpretations. It is possible that this outcome is related to the relatively low penetration of broadband technology at the time of the survey; approximately 35% of home Internet users had broadband by November 2003 (Horrigan, 2007, p. 1). The broadband lag appears to have continued since that time. A recent cross-national comparison of 30 countries prepared by the Organisation for Economic Co-operation and Development (OECD) ranks the United States 15th on per capita broadband adoption rates (OECD, 2007). However, the lack of significance of in-home broadband access as reported in this article may also suggest that in-home broadband access is simply not a significant factor in the United States; nearly one-third of those with dial-up connections at home are able to use high-speed Internet connections in the workplace (Horrigan, 2007, p. 3).

To further explore the issue of citizen-initiated government contact and to examine our questions with more recent data, we ran an additional model using the Joint Post-Election Survey, November 2006, conducted for the Pew Research Center for the People and the Press and Pew Internet and American Life Project by the Princeton Survey Research Associates. The Pew survey is a random-digit-dialed national telephone survey conducted in November 2006 and has a sample size of 2,562. The dependent variable available through the Joint Post-Election Survey, November 2006 was "looked for information on government Web sites." It is a dummy variable coded 1 for "has looked for information on government Web sites" and 0 otherwise. Although the 2006 data is not fully compatible with the 2003 survey, our analysis found similarities in that older Whites with higher income and better education are more likely to visit a Web site. Education was the most important of the significant factors. The analysis of 2006 data is based on a relatively low level of contact with government—simply using the Internet to look up information. A digital divide does not appear to exist within the 2006 data.

Impact of Citizen-Initiated Contacts on Trust in Government

The analysis of the impact of citizen-initiated contacts on trust in government is reported in Table 2. The dependent variable is coded so that higher scores are associated with increased trust in government. Because the dependent variable is ordinal, the models are estimated using ordered logistic regression. The findings in Table 2 support earlier research that indicates that attitudinal and demographic variables are unrelated to trust in government (Citrin & Luks, 1998; Lyons, 1978; Owen & Dennis, 2001; Ulbig, 2002).

The only individual variable found to be significantly related to trust was political party

TABLE 2. The Impact of Online Citizen-Initiated Contact on Political Trust

Variables	Political Trust	
	β (se)	p>|z|
Judgment of policy, political actors, and procedures		
Efficiency	1.536(.117)	***
Presidential approval	1.428(.159)	***
Satisfied with direction of country	.942(.127)	***
Citizen-initiated contact		
E-mail government official	−.124(.132)	
Look for online information	.099(.147)	
Apply for benefits online	.024(.150)	
Individual-level variables		
Government employee	.152(.151)	
Democrat	.043(.153)	
Republican	.436(.126)	***
Age	−.004(.003)	
Male	.099(.107)	
Latino	.130(.222)	
Black	.191(.241)	
Asian	−.159(.484)	
Education	.021(.039)	
Income	−.008(.029)	
Pseudo R^2	.2164	
LR Chi^2 (16)	709.17	***
N	1867	

Source: *The Internet and American Life Daily Tracking Survey July 2003*, The Pew Research Center for the People and the Press. Cell entries are ordered logistic regression estimates with standard errors in parentheses. Reported probabilities are based on two-tailed tests.
***indicates p ≤ .01. **indicates p ≤ .05. *indicates p ≤ .10.

affiliation. Here, Republican affiliation was positively related to trust across all three models. The findings with regard to party affiliation are consistent with the literature on trust. One component of an individual's perception of policy, the process, and political actors is whether policy outcomes are consistent with what an individual wants (Citrin, McCloskey, Shanks, & Sniderman, 1975; Easton, 1965; Miller, 1974a, 1974b). Essentially, those who get the outcomes that they desire are more likely to trust government. At the time of the survey (2003), Republicans controlled both houses of Congress and had recently won the presidency in 2000; it is expected that Republicans would be more trusting of government at that time.

Measures of perception of policy, the process, and political actors are in the expected direction. Across all three models, individuals who believe the country is moving in the right direction, approve of how George W. Bush is handling his job as president, and believe that government is efficient are more likely to trust government. This is consistent with the literature on perception that finds that individuals who are happy with policy outcomes and believe government is acting efficiently are more trusting of government.

None of the three measures of online citizen-initiated contact was found to be significantly associated with trust in government. One explanation for this is that the survey questions may not reflect the full array of factors that influence trust. At least some of these components include the perception of government's ability to solve problems, happiness with policy outcomes, the belief that the policy process is fair, and the feeling of having a voice or standing in

the process. There is some argument, however, that can tie our three measures of interaction to these components. Using e-mail to contact a government official about a problem or to conduct a service may speed up the process, creating some positive perception of government's ability to solve problems. The ability to contact government so directly and without intermediaries may also enhance feelings of equity and standing in the process. Similarly, the ability to apply for benefits online and the ability to look for government information online may also increase the perception of efficiency, equity, or standing. It is also possible that having greater access to information might increase the perception that the process is fair. However, efficiency and fairness have been found to be only weakly related to trust; the findings here diminish the likelihood that these means of online contact will increase trust in government.

Another explanation for the finding that there is no relationship between e-government and trust among its users is that increasing citizen trust was not an underlying goal of the United States government at the time e-government was being promoted. While some countries adopted e-government measures with an underlying goal of increasing transparency and consequently increasing political trust, in the United States e-government was seen primarily as an administrative reform that could be used as a tool to increase efficiency and reduce waste. Therefore, we might expect to see that American citizens who use e-government also experience improvements in their exchanges with government. We examine this scenario in the following section.

The Impact of Online Citizen-Initiated Contact on the Quality of Government Interaction

The analysis of the impact of citizen-initiated contacts on the quality of government interaction is reported in Table 3. In Table 3, the dependent variable is coded so that higher scores are associated with a greater belief that using the Internet for interactions with the

TABLE 3. The Impact of Online Citizen-Initiated Contact on the Quality of Government Interaction

Variables	Federal Government		State Government		Local Government	
	β (se)	p>|z|	β (se)	p>|z|	β (se)	p>|z|
Citizen-initiated contact						
Frequency of government interactions	.431(.069)	***	.307(.066)	***	.193(.064)	***
E-mail government official	.953(.133)	***	.997(.133)	***	.670(.133)	***
Look for online information	.633(.122)	***	.687(.122)	***	.459(.121)	***
Apply for benefits online	.484(.120)	***	.109(.119)		.120(.120)	
Individual-level variables						
Government employee	−.066(.138)		−.038(.134)		−.128(.134)	
Democrat	.199(.132)		.345(.131)	***	.409(.129)	***
Republican	.272(.117)	**	.196(.116)	*	.203(.119)	*
Age	−.020(.004)	***	−.014(.004)	***	−.018(.004)	***
Male	.222(.100)	**	.023(.099)		−.090(.100)	
Latino	.171(.218)		.088(.213)		.190(.207)	
Black	−.029(.211)		.258(.206)		.722(.196)	***
Asian	.377(.381)		.093(.365)		.951(.362)	***
Education	.084(.037)	**	.047(.037)		−.016(.037)	
Income	.050(.028)	*	.041(.028)		.052(.028)	*
Pseudo R^2	.1053		.0805		.0466	
LR Chi^2 (14)	413.83	***	317.19	***	175.28	***
N	1438		1429		1419	

Source: *The Internet and American Life Daily Tracking Survey July 2003*, The Pew Research Center for the People and the Press. Cell entries are ordered logistic regression estimates with standard errors in parentheses. Reported probabilities are based on two-tailed tests.

***indicates $p \leq .01$. **indicates $p \leq .05$. *indicates $p \leq .10$.

government improves these activities. Since the dependent variable is ordinal, the models are estimated using ordered logistic regression. Because previous research (Tolbert & Mossberger, 2006; Zuckerman & West, 1985) finds that citizen perception of quality of the exchange with government officials varies across levels of government, separate models are run for each level of government (federal, state, and local).

The findings support the argument that proximity matters when evaluating citizen interaction with government officials. For all three levels of government, individuals who e-mailed government officials or looked for information online found that their exchange with government had improved. However, for those who applied for benefits online there was only a significant improvement when doing so the federal level. Across all three levels of government, Republicans, younger individuals, and those who contact the government more frequently were more likely to find that e-government improved contacts with government officials.

The relationship between other demographic variables and perception of improvement in interactions was predicated on the level of government being contacted. Males, more affluent individuals, and those with higher educational attainment were more likely to perceive that the Internet improved their interaction with federal government. On the other hand, African Americans, more affluent individuals, Democrats, and Asian Americans were more likely to perceive that the Internet improved their communications with the local government. Few demographic variables were related to interactions with the state government. Overall, the analysis supports the argument that proximity matters when evaluating the impact of the Internet on citizen-initiated contacts with government. Additionally, the findings suggest that the policy goals underlying the initial adoption of e-government in the U.S. may have influenced its impact to date. These initial goals were aimed at improving efficiency and reducing wasteful spending rather than a specific focus on increasing transparency, participation in the democratic process, or trust in government.

CONCLUSION

The rise of e-government has been accompanied with high expectations. Among these is the belief that it will provide government information more efficiently and more effectively. Another hope is that e-government will provide services and information to citizens who are not currently engaged in the political process. In turn, these factors have been predicted to increase political participation and trust in government.

Not everyone has embraced this optimistic scenario; currently there are barriers that hinder the potential of e-government. The literature suggests at least three obstructions to Internet use that alter the current landscape: lack of motivation, limited access, and deficiencies in technical and information literacy skills. These barriers—based primarily on socioeconomic characteristics such as income, race, and education—created gaps in citizen–government interaction and citizen participation prior to the arrival of the Internet and e-government.

In this article, we explore whether the Internet has changed the interaction between citizens and government and, if so, how? To conduct our analysis, we examine the influence of the rise of e-government in the United States in several directions and pose several questions. Has the Internet changed the demographics of who contacts government? Or, instead, have the barriers to the Internet, including the access divide and the skill divide, served to magnify the gaps that already exist in citizen–government interactions? Does the purpose of the contact with government reflect a difference in trust in government? Specifically, is contact initiated with government to obtain a service more likely to be associated with increased trust than contact merely to look for information? Finally, does online contact translate into increased perceptions about the quality of government services?

The findings presented in this article confirm some of the fears related to the impact of the Internet on citizen–government interaction while dispelling others. As with traditional means of citizen-initiated contact, individuals who were more highly educated were more

likely to take part in online government interactions. However, differences based on age and gender were found to be modest to nonexistent. These findings stand in contrast to the sociodemographic characteristics of traditional means of citizen–government interactions, in which men and older individuals were more likely to contact government. E-government appears to a double-edged sword, motivating citizen-initiated contact of government for some (the young and women) while magnifying existing gaps based on other factors.

Along with the hope that the Internet will change the landscape of political participation, it was forecast to increase trust in government by providing citizens with greater access to government services and information. This research was unable to provide support for that hypothesis. None of the three means of citizen-initiated contact were found to be associated with trust in government. However, findings here provide support for the argument that e-government could improve interactions with government through improving speed and convenience. It is possible that this positive impact of e-government coupled with that lack of change in trust among its users is predicated on the underlying goals of the United States government for adopting e-government. While some countries adopted e-government measures with an underlying goal of increasing transparency and consequently political trust, in the United States it was seen primarily as an administrative reform that could be used to increase efficiency and reduce wasteful spending. To further test this assumption, future research is needed to compare citizen contact with government and citizen assessments of quality and trust across countries that had different initial goals for adopting e-government measures. The models presented in this research could be used to explore whether differences in the initial goals of e-government policies are predictors of divergent outcomes, if such divergence exists.

Further research is also needed to test the propositions posited in this article against the communications methods that are emerging as a new generation of Internet applications. Discussed under the broad umbrella of Web 2.0 (O'Reilly, 2005), these applications involve "utilizing collective intelligence, providing network enabled interactive services, and giving users control over their own data" (Madden & Fox, 2006, p. 1). Applications that fall generally within the Web 2.0 rubric include use of the Internet to display photos or videos, to share files or other created material online, to engage in online social or professional networking, and for blogging. A common thread is the relative importance of collective interaction and the apparent subordination of traditional government institutions (2006, p. 2).

Anecdotal evidence suggests that citizens are making use of applications such as Facebook, MySpace, and YouTube to communicate with one another and with candidates *about* government. Presidential candidates are now communicating with citizens through these and other social networking sites. As one example, citizens are compiling videos of testimonials from Barack Obama supporters and making them available online through various hubs and networks (Vargas, 2008). Video feeds from local public meetings are now embedded in online news media and generate citizen commentary that is also available online within the same reading experience. As a recent example, an online news account of a political conflict within an Ohio county-level election board includes video clips of board meetings as well as video statements from several participants in the conflict; the online news account is supplemented by citizen commentary (Kaufmann, 2008).

It is not clear whether these or other Web 2.0 applications will foster new methods of citizen-initiated interaction with government, increased contact with government, greater perceptions of trust in government, or perceptions of higher quality in government services. A rich array of such applications has taken hold in the market and captured citizens as customers. Coupled with highly personalized and portable devices such as iPods and iPhones, these technologies may enable citizens to interact with government in ways that are difficult to foresee, and may produce changes in the interaction between citizens and government that are far more dramatic than those seen to date.

The genesis of Web 2.0 applications as tools to foster connectivity and networked relationships among citizens may be an important difference that distinguishes more recent Internet applications from first generation e-government. New applications may also support new expectations among citizens about communication and connectivity in general. As consumers, citizens now demand greater variety in modes of delivering and receiving information as well as greater personalization and customization (Goldsmith & Eggers, 2004). To the extent that these consumer expectations cross the boundaries from market to state and become citizen expectations, governments will experience new challenges in future iterations of e-government initiatives. The model presented here can provide a basis for further study as more data becomes available on these emerging applications and their influence on citizen-initiated contact with government, quality, and trust.

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