# Information and Political Engagement in America: The Search for Effects of Information Technology at the Individual Level

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Some aspects of democracy appear more sensitive than others to the availability throughout society of political information. Individual-level political engagement poses a puzzle in this regard. An instrumental-quantitative conception of information that is central to rational theories and is also found in some behavioral theories of participation appears contradicted by historical trends. I treat the contemporary expansion in political information made possible by new information technology as a form of natural experiment. I test for a relationship between information availability and political engagement using survey data about Internet use in the period 1996-99. This test is relevant to the applied debate over whether the information revolution will prove salutary for participation, and at the same time sheds light on contending theories of information. I find little relationship exists; the only form of participation which is demonstrably connected to Internet use is donating money. This finding fails to support instrumental conceptions of information and instead endorses cognitive conceptions employed in psychological and certain behavioral theories of political engagement.

The information revolution that is bringing so many changes to commerce and the structure of economies is also beginning to affect political systems. This revolution is creating an environment for politics that is increasingly information-rich and communication-intensive, and these developments have precipitated much discussion about the implications of technology for politics. Some of the applied questions about technology raised in this discussion in turn illuminate important theoretical problems involving fundamental political processes.

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One of the most interesting of these questions is whether the Internet will "cause" an increase in the political engagement of ordinary citizens (Norris 1999; Johnson and Kaye 1998). Proponents of this claim range from technologists (Dertouzos 1997; Negroponte 1995) to media professionals and highly placed political consultants (Morris 2000; Bennett and Fielding 1999; Browning 1996; Grossman 1995). Many political scientists and other scholars, on the other hand, are quite doubtful. Although little systematic evidence about contemporary technology has been reported in the academic literature, historical patterns and research on participation in the U.S. fail to support the thesis of a positive correlation between the evolution of informational and communicational resources and levels of citizen engagement. If any correlation exists, it may actually be negative (Schudsen 1998; Flanagin and Zingale 1994; Converse 1972).

This applied question about the Internet in politics resonates with a fundamental theoretical problem in the study of participation. Internet advocates' claim amounts to an assertion that the cost and accessibility of political information are related to citizens' level of engagement with political affairs: the lower the cost and higher the accessibility of political information, the higher the aggregate level of citizen engagement. This assertion is broadly consistent with rational theories of behavior in which the cost of information is an important factor shaping actors' political strategies. It is also resonant with certain behavioral political science in which access or facility with information is understood to affect participation. Efforts to account for the empirical association between education and participation, for instance, sometimes invoke information, pointing to the efforts and skills needed to acquire it as a modulator of participation levels (Verba, Schlozman, and Brady 1995; Luskin 1993; Wolfinger and Rosenstone 1980).

Evidence about the current situation and how it might shed light on these models of behavior is so far unclear. Much of what is known about contemporary technology and democracy is focused at the level of political elites and organizations. At this level of analysis, evidence points to important changes in the resource requirements for political advocacy and organizing collective action (Brainard and Siplon 1999; Gurak 1997). Research suggests that the revolution in information technology may bring substantial changes to the ways that political elites operate and to the nature of political organizations and mobilizers, because these are highly sensitive to the cost of information.

Evidence at the level of individual citizens' engagement with politics, on the other hand, is less thorough, and in most cases is indirect. Johnson and Kaye (1998) show that political resources on the Internet tend to attract highly interested and engaged citizens, but do not test whether these resources contribute to interest or engagement. Sadow and James (1999) study use of the Internet in electoral campaigns but do not provide survey evidence about citizen use of political information and its connection to participation. Graber and White (1999) provide a useful evaluation of communication between public agencies

and citizens via web sites, but do not assess whether these stimulate citizen engagement. Selnow (1998) and Davis (1998) both express doubts that the Internet will boost turnout, but again do not provide direct evidence in support. Two studies have so far used survey evidence to explore information technology and participation rates directly, one dealing exclusively with citizen communication with government (Bimber 1999) and one examining political behavior outside the U.S. (Norris 1999). Both find little effect from technology.

In this article I report on an empirical examination of this problem, exploring an instrumental model of political information and testing the hypothesis that the informational richness of citizens' political environment is associated with aggregate levels of engagement. My chief interest lies in the role of information availability in patterns of participation and non-participation. I am specifically interested in exploring the claim in certain theoretical traditions that the availability of information directly affects levels of participation. I bring two data sets to this question, the National Election Studies surveys from 1996 and 1998, and three nationwide random-digit-dial telephone surveys of my own. I rely on the NES surveys for their rich set of political variables, but supplement these with my own surveys for exploring Internet use in detail, which the NES does not measure thoroughly. My chief empirical finding below is that the information revolution is so far conforming closely to historical patterns, despite manifest differences with earlier developments in telecommunications. With only one exception, neither access to the Internet nor use of the Internet to obtain campaign information is predictive of voting or other forms of political participation. Theoretically, this finding fails to support some important models of political behavior while endorsing others.

## Information and Political Engagement

The questions of whether and how information matters in political engagement present a puzzle. Perhaps the most common conception of information and engagement in theories of participation is an instrumental one. This conception entails the claims that citizens engage in purposive efforts to acquire information, and that the effectiveness of these efforts is a function of the cost or accessibility of information and citizens' skills or capacities. The success at acquiring and assimilating information in turn affects citizens' level of engagement in politics.

This instrumental conception is dominated by the rational choice tradition, in which information constitutes a form of investment. Action toward a desired outcome requires information that illuminates choices and their consequences, as well as illuminating the intentions and strategies of others. Acquiring information is costly, so the decision whether to "invest" is a function of how much information costs and the expected improvement in outcomes it will confer. In Downs's (1957) formulation, citizens continue to acquire or "invest" in information until marginal return equals marginal cost. Aldrich (1993: 248) interprets the basic model as follows. "Clearly there are costs of voting. Presumably, if voters

decide to abstain, they do not have to pay these costs; if they vote, they do. These costs include the costs of obtaining information, processing it, and deciding what do and the directs costs of registering and going to the polls." The rational approach to information in participation can be summarized in four claims: (1) political actors seek information in order to reduce uncertainty; (2) the cost of information is a key regulator of how much information is acquired; (3) high costs of information can lead to strategies involving short-cuts or abstention from a political activity such as voting; and (4) information is subject to a principle of diminishing marginal return.

Some behavioral theories of participation adopt a similar conception, if less explicit or well-articulated. For instance, theories of social networks occasionally invoke information costs. As Rosenstone and Hansen (1989: 24) write, "Social networks address rational ignorance. They provide information. . . . Because of social networks, each person bears the cost of collecting only a fraction of the political information she receives." For Leighley (1996: 447), social networks "subsidize the costs of political information." This conception falls short of modeling information as a formal "investment," but it is consistent with the rational approach. Information also appears in theories of political mobilization. For mobilizers, a more information-intensive political environment facilitates the monitoring of government actions and electoral campaigns, it facilitates the process of identifying citizens who are likely recruits for participation in electoral activities or advocacy campaigns, and it reduces costs associated with contacting them (Cigler and Loomis 1998; Wolfinger and Rosenstone 1993; Rosenstone and Hansen 1989; Berry 1984).

Models of the association between education and participation sometimes rely on a cognate approach to information. Many mechanisms for this association have been explored, including social status and stake in outcomes; cognitive ability, sophistication, and knowledge; civic norms; and resources and skills. Such theories in turn occasionally rely on the claim that participation requires information, that information is difficult to obtain, and that those with more education are more likely to have the information requisite to political action (Verba, Schlozman, and Brady 1995; Wolfinger and Rosenstone 1980). Luskin (1993: 117) goes so far as to claim that "most of education's effect must be informational," and some authors treat "education" and "information" as essentially synonymous (Sniderman, Brody, and Tetlock 1991). The assumption here is that education provides a pool of information directly and that it provides citizens the skills needed to acquire new information effectively.

It is important to note that in addition to approaching information in a broadly instrumental way, these various theories also characterize information quantitatively. They are concerned with how much information is available, how much it costs to obtain or how much skill is needed to obtain it, and the extent to which information reduces uncertainty or clarifies courses of action. A central implication of this instrumental-quantitative conception of information is that exogenous

increases in the volume of information available to citizens, as well as reductions in its cost, should lead to more political participation. Make political information more plentiful and inexpensive to obtain, and at least some people should participate more, especially those who have previously been information-poor.

As common as this conception of information is in various explicit and implicit forms, it does not accord well with certain forms of important empirical evidence. Cross-sectionally, data do show that better informed citizens participate more than less informed ones (Flanagin and Zingale 1994; Zaller 1992). Research also shows cross-sectionally that the availability to citizens of media resources affects levels of citizen knowledge (Delli Carpini, Keeter, and Kennamer 1994; Chaffee and Wilson 1977). The problem lies with longitudinal data and historical trends. Opportunities to become better informed have apparently expanded historically, as the informational context of politics has grown richer and become better endowed with media and ready access to political communication. Yet none of the major developments in communication in the 20th Century produced any aggregate gain in citizen participation. Neither telephones, radio, nor television exerted a net positive effect on participation, despite the fact that they apparently reduced information costs and improved citizens' access to information (Luskin 1993; Neuman 1986; Popkin 1991; Smith 1989; Teixeira 1987).

What explains this apparent failure of the instrumental-quantitative conception to match historical trends? One possibility is that technological developments in the past have not really improved citizens' information environment or reduced material costs of information. None of the major historical telecommunications technologies provides ideal tests of the relationship between information and participation on a societal scale. Telephones are not a particularly effective source of political information. Radio is somewhat better but, like telephones, evolved prior to the availability of good survey data on participation. Television is certainly a vitally important information source, but falls far short of providing the kind of information assumed in many theories; it does not facilitate purposive searches, and does not create the sort of relevant, personal information environments envisioned in some behavioral conceptions of information. Moreover, television has undermined the influence of some traditional political mobilizers, and has fostered forms of communication such as negative advertising that may inhibit participation (Ansolabehere 1995), and these confound the analysis of information cost. Recall of television news is poor to boot (Luskin 1994; Neuman 1976; Patterson 1980). It may simply be that historical developments have so far provided no solid test of the link between information and participation.

A second possibility is that these models mis-specify that link. The most likely problem is that they overemphasize properties of information in the political environment and fail to account adequately for the processes by which information is assimilated and turned into political knowledge in the minds of individuals. By glossing over the problem of how information becomes actionable

knowledge, the instrumental-quantitative conception may miss the most important dynamics of information and political engagement. Research in political psychology gives ample reasons to doubt that the connection between information in the political environment and political knowledge is dominated by such quantitative factors as cost, volume or accessibility. For example, one important model holds that people develop and maintain mental constructs for making sense of the political world—sometimes labeled schema. Citizens are more likely to notice political information relevant to those constructs, and they tend to interpret information in ways that are consistent with them. This leads to selectivity and bias in the acquisition and interpretation of information, as a function of past experience, memory, affect, values, and so on (Lodge, Taber, and Galonsky 1999; Patterson 1980; Lord, Ross, and Lepper 1979).

One important implication of this model is that over time "the information-rich get information-richer" (Kuklinksi, Luskin, and Bolland 1991: 1345). This contradicts the rational prediction that information is subject to diminishing marginal returns. Another implication is that information does not necessarily reduce objective uncertainty or correct false understandings, but rather may reinforce misperceptions. Some research that might broadly be labeled "behavioral" models information similarly, or at least in ways closer to the psychological conception than to the instrumental-quantitative. The contextual approach, for instance, suggests that the formation of preferences on the basis of information in the political environment is modulated by social interaction and approval-seeking (Huckfeldt and Sprague 1995; McPhee 1963). The constructivist approach suggests that the effect of information in the political environment on opinion and behavior is non-systematic, and that people call to mind whatever information is made salient by a call for judgement or choice (Zaller 1992). The information-processing approach occupies a middle ground, being rooted in models of cognition, and assuming a generally purposive or "reasonable" process of information acquisition (McGraw and Lodge 1996; Graber 1984). Some research on media effects is similar, showing that the degree of purposiveness in information acquisition varies across media (Chaffee and Kanihan 1997; Neuman, Just, and Crigler 1992).

The contemporary information revolution is intriguing in light of this theoretical tension about how to model information, because it is the most rapid and far-reaching change in the informational context of American politics so far. In the space of five years, between roughly 1995 and 2000, virtually every political candidate, party, interest group, media business, and governmental institution adopted Internet-based means of communication and information-provision, making readily accessible the largest and most dynamic body of political information ever available to American citizens. In the same brief period, roughly half of American citizens gained access to this corpus of essentially free information that permits the widespread, purposeful acquisition of political information at

very low marginal cost—at least by citizens with access to the Internet. This makes the contemporary information revolution qualitatively different from past developments. If one were to design a national-scale experiment to test for links between the cost or accessibility of external political information and political engagement, one might well devise something much like the Internet. Without attempting to adjudicate among the many non-instrumental models of cognition and information—a project for a second generation of analysis—it is possible at this stage to use developments in information technology to explore the claim that the availability of information in citizens' environment is directly linked to levels of engagement.

## Information Technology and Political Engagement

It is useful to begin the analysis of information technology and participation with an overview of the Internet-using population in the US. For this purpose, I rely on data I gathered in surveys in 1996, 1998, and 1999 using nationwide, random-digit-dial samples collected by the Omnibus Survey Program at the University of Maryland. Each round returned a little over one thousand responses from adults around the U.S., for a total n of 3035. The survey used post-stratification weighting and design-effect weighting to produce a sample as nearly random as is practicable. I find that in April of 1999, 54 percent (±3.5 percent) of adults in the US reported having access to the Internet, up from 26 percent in 1996. Of those 54 percent, about 52 percent had engaged in one of five explicitly political acts: using the Internet to find out what the government or a particular official is doing; using it to contact a public official or candidate for office; using it to express views about politics or government to others; using to learn about political issues; or using it just to browse for political information with no specific purpose in mind. About 9 percent of those with access had contacted a public official or candidate using the Internet and 13 percent had expressed their political views to others.

Demographically, citizens who used the Internet for political purposes differ a little from the rest of the population, but these differences are not as great as one might guess. The median age of political Internet users was 40, about the same as the median age of adults in the U.S. generally. About 55 percent were men, 83 percent were Caucasian, and 37 percent had a college degree. Median household income fell between $50,000 and $75,000. I find no racial or ethnic "digital divide." The greatest demographic deviation from the population as a whole is therefore in income and education. These figures show that a substantial and growing number of citizens not terribly different from the population as a whole are engaged with the Internet as a political resource.

In order to examine media choice among political users of the Internet, I use 1996 NES data, because it includes questions about use of traditional media and use of the Internet explicitly for obtaining campaign information that were not

included in the 1998 study or in my own survey. I modeled the variables that predict citizens' use of three sources of information about the 1996 campaigns: television news stories, newspapers, and the Internet. In my models, I included only citizens with access to the Internet in order to control for the effect of lack of access.

The results are shown in Table 1, and three findings stand out. First, political interest is less strongly associated with obtaining campaign information on the Internet than with watching television and reading newspaper articles. The relationship between interest and obtaining information from newspaper articles or television programs is attenuated for use of the Internet, where political interest exerts about half the influence on citizens' attention to information resources. One explanation of this effect is that in 1996 the presence of campaign information on-line was novel enough that curiosity or other factors independent of political interest drove a good portion of activity. The novelty of the Internet may also result in better recall by less interested citizens of political Internet use than television-watching or newspaper reading—an effect that would likely fade over time. Another explanation is that citizens indeed perceive use of the Internet for campaign information as less costly in time, or as otherwise easier than watching news programs or reading newspaper articles. If so, one would expect that high levels of political interest would be less important as a driver of decisions to dedicate time or effort to learning about campaigns this way.

The second finding is that the effect of age on seeing campaign information on the Internet is about as strong as its effect on newspaper reading, but in the opposite direction. Younger people are more likely than older people to acquire campaign information on-line. This comes as no surprise given the generational effects associated with information technology at present. The third finding concerns gender: women make less use of the Internet as a source of campaign information than do men. This fact is consistent with other research showing that women are less intensive users of the Internet for many kinds of transactions. It is likely that the gender gap in political use of the Internet is reflective of a larger gender phenomenon not specific to politics and technology (Bimber 2000).

What about acts of political engagement? Are citizens with access to the new information resources of the Internet any more likely to participate in democratic affairs? To answer this question, I drew on the 1998 NES data set because it is more current, and I used the entire sample including respondents with and without Internet access. I started with two measures of political engagement as dependent variables: voting, and a dichotomous indicator of whether the respondent engaged in any of seven other standard measures of participation: talking to others and trying to persuade them about the campaigns; wearing a button or displaying a sign or sticker; attending meetings, rallies, or speeches; working for a candidate; giving money to a candidate; giving money to a party; and giving money to another political group. This variable takes on a value of 1 if the

TABLE 1.
LOGIT MODELS PREDICTING MEDIA USE DURING THE 1996 CAMPAIGNS
AMONG THOSE WITH INTERNET ACCESS

| | Paid Attention to TV News Shows on Campaigns | | Paid Attention to Newspaper Articles on Campaigns | | Saw Campaign Information on the Internet | |
|---|---|---|---|---|---|---|
| | B | S.E. | B | S.E. | B | S.E. |
| Education | .27** | .11 | .13 | .10 | .27** | .10 |
| Age | .02 | .01 | .04** | .01 | −.03** | .01 |
| Sex | −.14 | .27 | −.22 | .27 | .69** | .25 |
| Income | .00 | .32 | .00 | .00 | .00 | .00 |
| Interest | 1.50** | .23 | 1.10** | .22 | .62** | .19 |
| Efficacy | .13 | .06 | .10 | .06 | −.01 | .05 |
| Trust in others | −.03 | .30 | .68* | .28 | .46 | .28 |
| Trust in gov | .24 | .27 | .15 | .28 | −.08 | .26 |
| Constant | −.85 | .94 | −.69 | .92 | −.54 | .89 |
| | Chi-Sq. = 88, p = .00; Nagelkerke $r^2$ = .33; N = 293 | | Chi-Sq. = 64, p = .00; Nagelkerke $r^2$ = .29; N = 292 | | Chi-Sq. = 36, p = .00; Nagelkerke $r^2$ = .13; N = 370 | |

Notes: * = significant at .05 level; ** = significant at .01 level. Source is NES 1996.

respondent reports having engaged in one or more of the actions, and 0 if not. I also included in the models variables for education, income, age, sex, trust in others, trust in government, political interest, and efficacy. For efficacy, I use an index constructed from three questions with five-point Likert-scale responses: agreement with the statement that politics is too complicated for someone like the respondent to follow, agreement with the statement that public officials do not care about what people like the respondent think, and agreement with the statement that people like the respondent do not have a say in government.

In the results, the expected relationships between the participation measures and socioeconomic status, age, trust, and interest appear, but Internet access is not predictive of voting or other forms of political participation. Because Internet access is correlated with socioeconomic status, a simple bi-variate correlation between Internet access and participation can be shown, but this correlation washes out in the multivariate model. *Having access* to the wealth of political information and communication available through the Internet is not by itself connected with participation.

A more interesting and important question is whether *obtaining information* about campaigns on the Internet is associated with political engagement, since this variable measures a purposive and explicitly informational act. To examine

TABLE 2.
LOGIT MODELS FOR 1998 VOTING AND OTHER FORMS OF PARTICIPATION AMONG THOSE WITH INTERNET ACCESS

| | Voted | | Engaged in at Least One Other Form of Participation[a] | |
|---|---|---|---|---|
| | B | S.E. | B | S.E. |
| Education | .32** | .08 | .15* | .08 |
| Age | .06** | .01 | .02* | .01 |
| Sex | -.13 | .23 | –.30 | .20 |
| Income | .05** | .02 | .04* | .02 |
| Interest | 1.09** | .19 | 1.10** | .18 |
| Efficacy | .05 | .05 | .04 | .04 |
| Trust in others | .34 | .23 | –.08 | .22 |
| Trust in gov | .06 | .20 | –.05 | .19 |
| Info from Internet | .11 | .28 | .42# | .24 |
| Constant | –5.91** | .80 | –3.7** | .69 |
| | Chi-Sq. = 183, p = .00; Nagelkerke $r^2$ = .42; N = 512 | | Chi-Sq .= 100, p = .00; Nagelkerke $r^2$ = .25; N = 515 | |

Notes: # = significant at .10 level; * = significant at .05 level; ** = significant at .01 level.

[a]Any one of: trying to persuade others; wearing a button or displaying a sign or sticker; attending meetings, rallies, or speeches; working for a candidate; giving money to a candidate; giving money to a party; and giving money to another political group. Source is NES 1998.

this question, I analyzed only respondents in the 1998 NES sample with access to the Internet, and generated logit models predicting political engagement among them. Table 2 presents the results, which show that obtaining campaign information on-line again exerts no effect on voting. Even citizens who pursue political information in this way were no more likely to vote than were demographically similar citizens with Internet access but who did not acquire campaign information.

The model predicting other forms of participation is somewhat different, because the variable for seeing campaign information on-line is significant at the .10 level—not a strong finding, but suggestive. To explore this finding further, I removed one variable at a time from the aggregate index of political acts, and reran the model. The result shows that obtaining political information from the Internet is predictive of one form of participation but none of the others: donating money to a candidate, a party, or a group. Table 3 shows these findings.

The search for effects of the Internet on participation therefore ends here, with a relationship between obtaining political information on-line and donating

TABLE 3.
LOGIT MODELS FOR 1998 OTHER FORMS OF PARTICIPATION AMONG THOSE WITH INTERNET ACCESS: GIVING MONEY VERSUS OTHER ACTIONS

| | Gave Money to a Candidate, Party or Group | | Tried to Persuade Others, Displayed a Sign, Attended a Meeting, or Worked for a Campaign | |
|---|---|---|---|---|
| | B | S.E. | B | S.E. |
| Education | .29** | .12 | .03 | .08 |
| Age | .06** | .01 | .01 | .01 |
| Sex | .04 | .31 | –.37# | .22 |
| Income | .09** | .04 | .02 | .02 |
| Interest | .47* | .24 | 1.28** | .18 |
| Efficacy | .10# | .06 | .04 | .04 |
| Trust in others | –.12 | .33 | .17 | .23 |
| Trust in gov | –.26 | .28 | -.01 | .19 |
| Info from Internet | .95** | .33 | .09 | .25 |
| Constant | –8.89** | 1.27 | –2.98** | .69 |
| | Chi-Sq. = 80, p = .00; Nagelkerke $r^2$ = .28; N = 515 | | Chi-Sq. = 86, p =. 00; Nagelkerke $r^2$ = .23; N = 515 | |

Notes: # = significant at .10 level; * = significant at .05 level; ** = significant at .01 level. Source is NES 1998.

money during election campaigns. There are several possible explanations for this result. In the 1998 campaign season, a few candidates made aggressive use of the Internet for soliciting money, and these efforts may have combined with the novelty of the Internet to entice citizens into donating. It may also be that the immediacy of making donations through a Web site better captures citizens' interest and excitement in response to events such as a primary win than do traditional, slower means of soliciting donations. Anecdotal evidence from the 2000 primary campaigns of John McCain and Bill Bradley is consistent with this finding. Systematic evidence from future elections will be especially important in understanding this phenomenon, which does not appear in the 1996 NES data.

These findings show that the information revolution has penetrated far enough into the American polity that it is possible to begin mapping its political contours and investigating the larger question about whether direct links exist between the informational environment of politics and democratic participation. More information than ever is available to citizens at low marginal cost, and many are using it. But except for being somewhat more likely to give money, those who

make use of this information are no more likely to vote or to be politically active in other traditional ways. There is very little to show for this otherwise remarkable technological phenomenon in terms of aggregate political engagement.

In this analysis, I have simplified matters by treating information technology as pertinent to political engagement strictly because it expands the volume of political information available to citizens and reduces its cost. That simplification facilitates a focus on the common conception of information in terms that are quantitative and instrumental. The findings do not provide the same degree of confidence that might be afforded by panel data—which could benefit many survey designs—but they permit what I believe is the best approach yet to testing the instrumental-quantitative conception at the aggregate level using technological changes in the political environment.

The findings suggest that political participation is not regulated directly by the cost or availability of information. This in turn fails to support theories of behavior that posit citizens to be engaged in purposive searches for information as a precursor to political behavior. More interestingly, these findings also fail to support behavioral theories of participation that employ as mechanisms links between information availability and levels of engagement. These include claims that social networks, mobilization efforts, and education affect participation chiefly through informational mechanisms rather than through affective, cognitive, or social pathways.

Of course information technology does more than expand the volume and reduce the cost of political information. It also changes the structure of information, the speed with which it flows, the number and heterogeneity of elite sources, and control over agendas and frames. These cognitive and qualitative factors are precisely the variables relevant to psychological theories of engagement and to non-instrumental behavioral theories. So, at the same time that the null finding regarding Internet and participation casts doubt on the family of theories that employ instrumental-quantitative conceptions of information, it endorses in a general way more qualitative conceptions of the information environment and the generation and use of political knowledge. This endorsement suggests the next step in using technological developments to advantage in research on political engagement: examining how information technology affects attention, salience, affect, schema, and other cognitive phenomena involved in the formation of political knowledge. If information technology is to affect political participation, it will likely be through such pathways rather than through simple reductions in cost or increases in the volume of political information.

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