NONRECURSIVE MODELS OF INTERNET USE AND COMMUNITY ENGAGEMENT: QUESTIONING WHETHER TIME SPENT ONLINE ERODES SOCIAL CAPITAL

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Although some argue that Internet use may erode involvement in public life, the most common Internet behaviors, social communication and information searching, may actually foster social and civic participation. To examine this possibility, we test a series of non-recursive models using a national survey of nearly 3,400 respondents. Two-stage least squares regressions were performed to simultaneously test the reciprocal relationship between frequency of Internet use (i.e., hours per day) and three sets of community engagement behaviors: informal social interaction, attendance at public events, and participation in civic volunteerism (i.e., annual frequency). Time spent online has a positive relationship with public attendance and civic volunteerism. No evidence of time displacement from frequency of Internet use is observed.

A great deal of attention has been paid to the decline in Americans' participation in social and civic life. Available evidence suggests that while contributions to charitable groups are at all-time highs, face-to-face encounters in our communities have slid to a forty-year low. Measures of informal socializing indicate that people are visiting friends, playing cards, having dinner parties, and going out to bars at substantially lower levels than a generation ago. At first glance, levels of volunteering counter this trend; however, cohort analyses suggest that older Americans bear a disproportionate amount of the service burden. And although attendance at public events has remained high—even increased—it cannot match the sharp rise in privatized entertainment, particularly television. It seems, then, that between 1960 and 2000, we have drifted from being a nation of joiners to a nation of watchers, with the youngest Americans the most detached from public life.[1]

Political participation has also declined, with fewer than half of Americans voting in recent national elections, and reduced numbers working for campaigns and running for political office.[2] Research on *social capital* links these indicators of community health at the aggregate and individual level by conceiving of political participation as a "by-

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product of activities engaged in for other purposes."[3] Putnam, drawing on Coleman, defines social capital as "features of social life—networks, norms, and trust—that enable participants to act together more effectively to pursue shared objectives."[4] Inglehart[5] has found that aspects of social life, such as spending time with friends and participating in community life, may strengthen social networks and reinforce norms of reciprocity. Thus, both formal and informal community ties can improve the health of civil society. Individuals who are connected and confident about the return of their social investments feel a greater sense of belonging to their communities and take a more active role in politics.[6]

Scholars and pundits alike have looked to the media for clues on the production and destruction of social capital. Newspapers, with their focus on news and community events, produce pro-civic consequences; newspaper readers, especially those who pay attention to local news content, are more participatory and politically knowledgeable than nonreaders.[7] Conversely, television has been blamed for civic disengagement because time spent with it supposedly displaces social activities and cultivates a psychological barrier to participation.[8] Scholars have questioned whether television use, writ large, creates an obstacle to participation.[9]

Nonetheless, some technologists and social critics surmise that Internet users also become increasingly removed from meaningful social relationships and less likely to engage the community as they spend more time online.[10] Field research—the little there is—provides some support for this pessimistic view; frequent Internet use has been related to withdrawal from family and community life within a pair of recent panel studies.[11] However, these studies provided subjects with free Internet access and Net devices and then assessed social effects. Subjects in these studies may feel compelled to take advantage of the services and otherwise act in atypical ways. Further, some of the "users" studied did not come to the Internet on their own and therefore are unlike Internet adopters, for whom interest overwhelmed cost constraints. Moreover, Nie and Erbring[12] asked individuals to assess whether their use of the Internet changed the time they spent socializing and attending public events. Forcing people to estimate past behavior both before and after receiving Internet devices and then comparing these behaviors seems more prone to response error than standard frequency of behavior measures. Our research is a response to these limitations.

This paper reports secondary analysis of the 1999 Life Style Study, a national survey of nearly 3,400 respondents conducted by DDB-Chicago. Two-stage least squares regressions were run to test simultaneously the reciprocal relationship between frequency of Internet use and three sets of community engagement behaviors: informal social interaction, attendance at public events, and participation in civic volunteerism.

As the academic and public dialogue has unfolded regarding the decline of social capital and the role of the media in this dynamic, a new medium—the Internet—has emerged. Some scholars assume the Internet will hasten America's civic disengagement, contending that Internet use weakens real-world ties and reduces community involvement

Social Consequences of Internet Use

because individuals who invest time and energy in online activities have less to invest in other interactions.[13] As noted, this perspective has found some support, albeit methodologically flawed.[14] Still, the underlying assumption of this line of theorizing is persuasive: connecting with others in online environments displaces strong, face-to-face ties with weak associations.

Other theorists are more sanguine about the Internet; some even assert that "being wired" has the potential to tighten social associations and encourage community building.[15] In particular, individuals who use the Internet to explore interests, gather data, and send e-mail appear to be more, not less, socially and politically engaged.[16] These are among the most common Internet behaviors,[17] which raises the possibility that Internet use, on the whole, has positive consequences. That is, Internet use may promote social interaction and civic engagement because it allows users to reinforce social bonds, gain knowledge, and coordinate their actions to address joint concerns.[18]

Indeed, for the motivated user, the Web contains much mobilizing information and civic content: Congressional voting records; legislation before governmental bodies; recruitment materials of charitable groups and social movements; Web pages for social clubs; and, of course, the panoply of news media sources. As Davis writes, "citizens armed with such information…[are] able to interact intelligently with government officials to articulate their concerns."[19] They may also use e-mail to communicate with others about politics or to recruit friends into civic service. On-demand information coupled with the associative features of e-mail may make social activists out of otherwise inactive citizens.[20] Indeed, politicians and academics assert that the Net is among the most powerful tools for public deliberation and organizing.[21]

Thus, considerable research suggests that Internet use positively affects civic and social engagement. However, this work assumes the causal flow between these two variables runs from Internet use to social behaviors. It is possible that pre-existing networks of communication and engagement dictate Internet use, at least in part. For example, socially active individuals may use the Internet to stay connected with their social circle. Similarly, individuals active in civic life may use the Internet to organize volunteer efforts and gather information. One way to begin to untangle these potentially reciprocal effects is to develop non-recursive models containing hours of Internet use and frequency of social interaction as endogenous variables,[22] allowing insight into the strength and direction of the linkage, if any, between frequency of Internet use and community engagement in the form of informal socializing, public attendance, and civic participation.

Engaging Community Life	There are many ways one can engage public life. For instance, individuals can join clubs or groups, advance community projects, or volunteer for service. Research has established that involvement in formal associations increases the likelihood that an individual will become politically active.[23] Even when groups are not overtly political, membership can still affect political activity. Further, individuals in social organizations gain confidence, skills, and the sense of civic

attachment necessary to make the move into political life.[24] That is, associational membership functions as a training ground for broader participation. Members meet like-minded people and learn skills such as leadership, group decision making, letter writing, and public speaking that can be used in the political realm. Such skills are positively related to civic engagement, regardless of where they are developed.[25]

Civic volunteerism also develops a psychological sense of belonging that leads to identifying with the larger community; this phenomenon has been labeled "community attachment,"[26] "belonging"[27] and "group identity."[28] People with this sense of attachment are more likely to participate in politics.[29] Political and policy concerns may become more salient to those involved in civic activities.[30] Studies show that those involved in formal associations score higher on measures of trust, political efficacy, and political talk.[31]

Civic participation differs markedly from public attendance. Indeed, some contend that attending public events largely consists of "watching" as opposed to "joining." Nonetheless, people who frequent public events and spaces reinforce existing social networks and come into contact with people they otherwise might not meet. This study takes the position that attending public events such as concerts and movies and visiting public spaces such as museums and zoos may foster recognition of the value of the larger community for participants. Berkowitz[32] suggests that public events and spaces promote community attachment, solidarity, pride, and unity.

In this same vein, scholars are increasingly concerned with the effects of informal socializing on political participation.[33] Research shows that while socializing with friends fosters civic and political engagement, it operates differently than organizational membership. Scholars have concluded that informal socializing reinforces democratic values and the salience of political issues[34] and facilitates peer-to-peer political action.[35] These mechanisms for drawing new participants into collective efforts may be distinct from membership in formal associations due to the horizontal structure of informal socialization versus the hierarchical nature of formal associations. Informal structures are more open and fluid, which may make individuals more receptive to information and opportunities they encounter.[36]

Given the potential importance of these different forms of community involvement for political participation, it becomes increasingly important to clarify the effects of Internet use on them. Although the "time-displacement" perspective asserts that Internet use erodes public engagement, recent cross-sectional research suggests that the relationship between Internet use and community involvement may be positive for many "Netizens."[37] Thus, we hypothesize the following:[38]

> H1: Time spent using the Internet will increase community engagement.

However, it is important to recognize that Internet use may not shape individuals' social behaviors (for better or worse) in a

unidirectional manner. It is possible that pre-existing networks of communication and engagement structure use of the Internet. Given recent trends in interactive and community-building Internet technologies, entertainment guides, and other community-based online resources, the possibility of reverse causation seems even more likely. We recognize this possibility and hypothesize the following:

> H2: Community engagement will increase time spent using the Internet.

Data and Methods

To test these hypotheses, we performed a secondary analysis of the 1999 DDB Life Style data collected as part of an annual self-administered mail survey conducted by Market Facts and funded by DDB-Chicago, an international marketing communications agency. Market Facts acquires names and addresses of Americans from commercial list brokers. Via mail, large numbers are asked to participate periodically in mail or telephone surveys, and to provide basic demographic information. Each year, demographically balanced samples are then drawn from among the 500,000+ people who agreed to become part of the "mail panel" in the Life Style Survey.

The starting sample of approximately 5,000 mail panelists is adjusted within the subcategories of race, gender, and marital status to compensate for expected differences in return rates. Weights are applied to match the demographic composition of the target population.[39] Further, the sample is drawn to approximate "actual distributions within the nine Census divisions of household income, population density, panel member's age, and household size."[40] In 1999, 3,388 responses were received, a response rate of 67.8%.

The Life Style data provide an opportunity to test the effects of Internet use on a variety of social interactions: *civic participation, public attendance,* and *informal social interactions.* Unlike prior studies,[41] our analysis does not assume a unidirectional relationship between Internet use and community engagement. Instead, this study presupposes that Internet use and community engagement are jointly determined (i.e., in a two-way causal relationship). Accordingly, a direct linear regression predicting modes of engagement without accounting for the two-way causal relationship will produce biased coefficients (i.e., simultaneity bias) and hence make tests of statistical significance inaccurate.[42] Increasing the number of observations will not reduce this bias.

The most frequently used method to overcome simultaneity bias is Two-Stage Least Squares regression (2SLS), which uses an "instrumental variable" that is uncorrelated with the error term of the regression equation in place of the independent variable suspected of endogeneity.[43] To do this, a *first-stage* Ordinary Least Squares (OLS) model is run to predict the independent variable. In our case, this means we first run a regression model predicting Internet use, which would include social engagement as an independent variable. Then a *second-stage* regression is run in which fitted values from the first-stage

regression are substituted in place of the endogenous independent variable to obtain the final regression coefficients of interest. In our case, this means that we substitute the fitted values from the first-stage regression in place of Internet use as a predictor of social engagement. The coefficients are still biased but in 2SLS this is reduced with large sample sizes, which we have.[44]

The reciprocal relationship between Internet use and community engagement can be represented by two equations for each of the three models estimated for our criterion variables: civic participation, public attendance, and informal social interactions. The first equation represents time online as a function of community engagement, time spent with other media, technological ownership, time pressures, and background demographics:

Time Spent Online = f (community engagement + media use + technological ownership + time pressures + demographics)

The second equation represents engagement as a function of Internet use, surveillance news media use, social psychological predispositions (e.g., personality strength, adventurousness, political interest), time pressures, and background demographics:

Community engagement = f (Time online + news use + social psychological predispositions + time pressures + demographics)

Endogenous Criterion Variables. *Civic participation* is operationalized as an additive index from three items. Respondents indicated how often in the past year they "did volunteer work"; "worked on a community project"; and "went to a club meeting." Each item was coded from 1 = "none in past year, to 7 = "52+ times." To approximate a continuous distribution for optimal estimation of the 2SLS models, scores were "annualized" using Putnam's algorithm[45] and added (see Appendix I). The resulting index yielded a mean inter-item correlation of .35 (M = 14.90; s.d. = 25.25).[46]

Public attendance is operationalized as an additive index from five social engagement items: "visited an art gallery or museum"; "went to a classical concert"; "went to a pop or rock concert"; "attended a country music concert"; and "went to the zoo" (Cronbach's α =.55; M = 4.29; s.d. = 8.61).[47] *Informal social interaction* is operationalized as an additive index from three items: "entertained people in my home"; "gave or attended a dinner party"; and "played cards" (mean inter-item correlation = .30 M = 20.31; s.d. = 22.41).

Internet use was operationalized by the following item: "How much time do you spend on each of the following on an average day? Internet." Scores were registered on a 6-point scale from "don't use" to "5+ hours." Following another algorithm developed by Putnam (2000),[48] the Internet measure was converted to a "minutes-per-day" measure to approximate a continuous distribution for optimal estimation of the

2SLS models (M = 28.10; s.d. = 57.22) (see Appendix I for converted scores).

Exogenous Variables. To account for variance in our endogenous variables and specify our models, we included a substantial list of exogenous variables in our analysis that can be grouped into five categories: media usage, technology ownership, social psychological predispositions, time resources, and demographics.

Respondents were asked how much time they average daily with newspapers, television, radio, and magazines. Each of these potentially represents a competitor with the Internet for respondents' time.[49] However, media use may reflect an underlying desire to fulfill particular needs, such as surveillance. Those motivations could result in higher levels of Internet use as well. Thus, these items were used as predictors of time spent with the Internet. Responses, which were gauged on the same 6-point scale used for Internet use, were converted using the average-daily-use algorithm described above.

In addition to time-spent measures, two measures of news use were constructed. Respondents indicated which sections of the newspaper they read most. Positive responses to "news""and "editorial" sections formed a two-item index of hard news use (r = .26). Positive responses to "entertainment" and "lifestyle" sections formed an index of soft news use (r = .45). While hard news may relate to civic participation because of the role community news can play in motivating participation,[50] soft news could potentially play a role in all three forms of community engagement: entertainment and lifestyle news provide information about venues for social interaction and public activities.

Technology ownership is a key precursor to time on the Internet. Research shows that introduction of technology into a home can affect time allocation and that individuals who self-select to use certain technologies may differ in how they adapt to technology.[51] These analyses use a three-item measurement of technology ownership: owning a personal computer, subscribing to an online service, and having a modem (mean inter-item correlation = .66).

Social psychological predispositions are important predictors of community engagement. Social trust has been linked to civic participation and informal socializing.[52] The social trust variable is operationalized by the following item "Most people are honest," on a 6-point scale ranging from 1, "I definitely disagree," to 6, "I definitely agree." Distinct from social trust is trust in institutions (such as government),[53] measured as an index of three items using the same scale: "I have little faith in the criminal justice system," "Most big companies are just out for themselves," and "An honest man cannot get elected to high office" (mean inter-item correlation = .22). Low levels of institutional trust are thought to weaken confidence in democratic institutions and reduce political participation. The same dynamic may reduce civic engagement and public attendance. Some individuals may also display a fear of crime, measured on the same 6-point scale by a single item: "I worry a lot about myself or a family member becoming a victim of a crime." Fear of crime may limit willingness to socialize.

Some argue that general life satisfaction variables may also be important predictors of community engagement, particularly more informal types of interaction.[54] Life satisfaction was measured by an index of items, which used the same 6-point scale: "I am very satisfied with the way things are going in my life these days," "I wish I could leave my present life and do something different," and "If I had my life to do over, I would sure do things differently" ($r = .41$, the last two items were reverse-coded). Another factor that could inhibit socializing and public attendance is a general withdrawal from social life, measured as a two-item index: "I would rather spend a quiet evening at home than go out to a party," and "I am a homebody" ($r = .45$). In contrast is orientation toward a more adventurous lifestyle, measured here as a three-item index: "I enjoy parties, games, shows — anything for fun," "I am the kind of person who would try anything once," and "I like to visit places that are totally different from my home" ($r = .25$). Individuals who score high on these items may engage more in informal socializing and public attendance.

Individuals with strong, leadership-oriented personalities may also socialize and engage more in civic participation, in part because of their status at the center of social networks.[55] Personality strength was operationalized as an index of five items: "I have more self-confidence than most of my friends," "I like to be considered a leader," "I am the kind of person who knows what I want to accomplish in life and how to achieve it," "I am influential in my neighborhood," and "My friends and neighbors often come to me for advice about products and brands" (Cronbach's $\alpha = .69$).

Community attachment and deeper values concerning public life may also drive various forms of engagement. For example, people who feel more attached are potentially more likely to have social networks and engage in social interaction. Community attachment was measured with two items: "I would be content to live in the same town the rest of my life" and "We will probably move at least once in the next five years" ($r = .35$, the second item was reverse-coded). Interest in politics could also affect engagement[56] and was measured from a single item: "I am interested in politics."

Likewise, a preference for postmaterialist values—favoring justice and equality, expressive freedom, personal efficacy, and social integration—over materialist values predisposes people to engage in community life, making them particularly likely to participate in civic and political activities.[57] This variable was measured by asking respondents to prioritize "what the aims of this country should be for the next ten years" from three lists of four goals, two materialist and two postmaterialist.[58] For each list, if a respondent selected two postmaterialist goals as their first and second priorities, they scored 1; conversely, if they selected two materialist goals as their first and second priorities, they scored –1. All other respondents, including those with mixed goals and those who did not know what goals to prioritize, were scored 0. This process yielded three value preference measures, one for each goal list. These items were additively combined into a scale (mean inter-item correlation = .19.)

Because engagement and Internet use require leisure time, the endogenous variables are likely related time pressures. Time pressures were measured with a three-item index, again using the 6-point scale: "I work very hard most of the time," "I would like to work fewer hours, even if it means a drop in earnings," and "I have a lot of spare time" ($r = .27$, the last item was reverse-coded).

Finally, five demographic variables were used as predictors for all four endogenous measures: sex, age, income, education, and race/ethnicity. Past research has shown age and education are positively associated with civic engagement.[59] The roles of sex and income are less clear, although individuals with higher incomes seem more likely to have resources available to engage in civic life. Finally, race, here operationalized as a dichotomous variable of whites and all other races/ethnicities, could be related to decreased levels of trust and therefore social engagement.[60]

In addition to these variables, several other demographic measures were used more selectively as predictors of the endogenous measures. Number of children at home is used as a predictor of time spent on the Internet; children could potentially take away from time available to use the Net, or could contribute to technological literacy and actually increase use. Employment status could affect the ability of individuals to engage in civic participation. This was measured with two dichotomous variables: one indicating full-time employment, the second indicating if an individual was a full-time homemaker. Because the latter status could inhibit development of social networks, it is also used as an indicator of informal socializing.

Marital status is another possible factor affecting social networks; it is used as a potential predictor of socializing, operationalized as a dichotomous variable indicating whether an individual is currently divorced/separated or not. Another factor potentially affecting both informal socializing and public attendance is community population, measured here as metropolitan population from the 1990 Census. Larger communities are likely to offer more opportunities for public attendance and socializing, although living in a larger community could also lead to increased anomie and isolation, reducing willingness to socialize. Finally, church attendance, which builds civic skills and social networks critical for civil society,[61] is included as a predictor of civic engagement and informal socializing. This variable was measured on the same 7-point scale used to assess community engagement.

Results

We use a series of 2SLS regressions to analyze the strength and direction of the relationship between Internet use and community engagement. The first step in developing these models is to run a set of standard OLS regressions predicting each of the four endogenous variables. These regressions produce trimmed models featuring only significant predictors of each of the four key variables. The trimmed models were then used as instruments in the final 2SLS models testing linkages between the endogenous variables.

TABLE 1

OLS Regression Predicting Time Spent with Internet

Predictor	Original Equation		Respecified Equation	
	Coeff.	Std. Coeff.	Coeff.	Std. Coeff.
Age	-.473 (.064)	-.134***	-.479 (.063)	-.135***
Sex (Female)	-4.686 (1.792)	-.041**	-4.700 (1.789)	-.041**
Education	2.490 (.791)	.054**	2.482 (.779)	.054**
Income	-.653 (.253)	-.047*	-.635 (.250)	-.045*
Race (Non-white)	-.264 (2.236)	-.002		
Children in Home	-4.057 (.891)	-.077***	-4.104 (.887)	-.078***
Time Pressure	-.674 (.320)	-.036*	-.646 (.317)	-.034*
Tech Ownership	19.374 (.820)	.406***	19.380 (.816)	.406***
Time w/Radio	.007 (.009)	.013		
Time w/TV	-.003 (.010)	-.005		
Time w/Magazine	.076 (.022)	.059**	.077 (.022)	.060**
Time w/NP	.078 (.027)	.052**	.078 (.027)	.051**
Total R²		.194***		.194***
	N=3,377		N=3,377	

Note: Cell entries are unstandardized and standardized regression coefficients. Standard errors are in parentheses to the right of the unstandardized coefficients.*$p < .05$, **$p < .01$, ***$p < .001$

Table 1 shows the first set of OLS regressions—both original and trimmed models—with time spent on the Internet as the criterion variable. Age, sex (female), income, presence of children, and time pressures are significant negative predictors, while education, technology ownership, time spent with magazines and with newspapers are all significantly and positively related to Internet time in the original model. Notably, time spent with radio and television appears to have no effect on time spent with the Internet, indicating little cross-media time displacement. Instead, the positive relationship with time spent with newspaper and magazines suggests that people use the Internet to satisfy the same motives served by reading the newspaper and magazines—information acquisition and social surveillance. In the trimmed model, all relationships remain significant after removing nonsignificant predictors. These variables account for 19.4% of the variance in time spent with the Internet.

Table 2 shows the second set of OLS regressions, with civic participation as the criterion variable. In these analyses, age, education, being a homemaker, hard news use, soft news use, personality strength, postmaterialism, political interest, and church attendance all positively predict civic participation in both original and trimmed models, while employment is a negative predictor. Notably, neither form of trust predicts civic participation, contrary to theories concerning the "virtuous circle" of social capital. Further, time pressure did not contribute to the final model, indicating that busyness is not necessarily a barrier to

TABLE 2

OLS Regression Predicting Civic Participation

Predictor	Original Equation		Respecified Equation	
	Coeff.	Std. Coeff.	Coeff.	Std. Coeff.
Age	.189 (.030)	.121***	.196 (.028)	.126***
Sex (Female)	1.496 (.899)	.030		
Education	2.365 (.361)	.118***	2.517 (.339)	.125***
Income	.029 (.114)	.005		
Race (Non-white)	-1.494 (1.014)	-.024		
Employed	-2.899 (1.038)	-.054**	-2.773 (.956)	-.052**
Homemaker	6.651 (1.507)	.078***	7.223 (1.420	.085***
Hard News Use	1.486 (.676)	.039*	1.575 (.675)	.041*
Soft News Use	1.517 (.534)	.049**	1.759 (.513)	.057**
Institutional Trust	-.123 (.141)	-.015		
Personality Strength	.643 (.095)	.115***	1.149 (.339)	.115***
Time Pressure	.127 (.149)	.015		
Postmaterialism	1.184 (.341)	.056**	1.149 (.339)	.054**
Individual Trust	.425 (.341)	.021		
Political Interest	.641 (.277)	.040*	.600 (.274)	.038*
Church Attendance	.232 (.018)	.212***	.239 (.018)	.218***
Total R²		.152***		.150***
	N=3,377		N=3,377	

Note: Cell entries are unstandardized and standardized regression coefficients. Standard errors are in parentheses to the right of the unstandardized coefficients.*$p<.05$, **$p<.01$, ***$p<.001$

engagement. In total, this model explains 15% of the variance in civic participation.

Table 3 shows the predictors of public attendance. Age and social withdrawal are negative predictors, while education, population, soft news use, adventurousness, and political interest are positive predictors. Notably, the relationship between age and public attendance drops below significance when the model is trimmed, so it is excluded from the final analysis. Neither income nor time constraints appear to affect attendance at public events. Institutional trust and hard news use have little effect on public attendance. The remaining significant predictors in the trimmed model combine to account for just 4.8% of the variance in public attendance.

Finally, informal socializing, which serves as the criterion variable in the original and trimmed models presented in Table 4, is significantly, positively related to sex, income, soft news use, personality strength, life satisfaction, and adventurousness. It is negatively related to race (nonwhite), community population, employment, marital status, social withdrawal, and time pressures. Informal socializing is not predicted by social trust or fear of crime, further calling into question the "virtuous circle" of social capital. The remaining variables account for 10.1% of variance in informal socializing.

TABLE 3
OLS Regression Predicting Public Attendance

Predictor	Original Equation		Respecified Equation	
	Coeff.	Std. Coeff.	Coeff.	Std. Coeff.
Age	.024 (.010)	-.044*		
Sex (Female)	-.266 (.307)	-.016		
Education	.605 (.129)	.088***	.667 (.120)	.097***
Income	.029 (.040)	.014		
Race (Non-white)	-.471 (.366)	-.022		
Population	.370 (.136)	.048**	.313 (.131)	.041*
Hard News Use	.341 (.246)	.026		
Soft News Use	.807 (.196)	.076***	.797 (.182)	.075***
Institutional Trust	.041 (.050)	.014		
Social Withdrawal	-.184 (.063)	-.053**	-.183 (.062)	-.053**
Adventurousness	.237 (.053)	.082***	.257 (.052)	.089***
Time Pressure	-.031 (.052)	-.011		
Political Interest	.337 (.099)	.062**	.341 (.094)	.063***
Total R^2		.050***		.048***
	$N=3,377$		$N=3,377$	

Note: Cell entries are unstandardized and standardized regression coefficients. Standard errors are in parentheses to the right of the unstandardized coefficients.*$p<.05$, **$p<.01$, ***$p<.001$

These models were then used to conduct the full, 2SLS analyses. This analysis provides a more complete understanding of the factors predicting hours of Internet use and the three forms of community engagement, as well as the strength and direction of the ties between engagement and Internet use. Table 5 data show the relationship between time online and civic participation, suggesting that time spent on the Internet contributes to increased levels of participation, but that civic participation is not a significant predictor of time spent online. This provides some support for H1 but no support for H2.

Table 6 presents the 2SLS model for public attendance, which is positively predicted by time spent with the Internet (Table 6). The results indicate that time spent on the Internet contributes weakly to higher levels of attendance. However, as was the case with civic participation, the reciprocal relationship does not hold. Attending public events is not a significant positive predictor of hours spent online. This also provides some support for H1 but no support for H2.

The relationship between time spent online and informal socializing does not continue this pattern, however (Table 7). There appears to be no relationship between use of the Internet and socializing with friends. Time spent with the Internet is not a significant predictor of informal socializing and informal socializing does not significantly predict spending time with the Internet. Therefore, in the case of informal socializing, these data do not support either one of the hypotheses testing the possibility of reciprocal links.

TABLE 4
OLS Regression Predicting Informal Socializing

Predictor	Original Equation		Respecified Equation	
	Coeff.	Std. Coeff.	Coeff.	Std. Coeff.
Age	-.012 (.029)	-.009		
Sex (Female)	2.868 (.818)	.064***	3.391 (.774)	.076***
Education	-.197 (.327)	-.011		
Income	.302 (.109)	.055**	.287 (.103)	.051**
Race (Non-white)	-3.657 (.942)	-.067***	-3.924 (.926)	-.072***
Population	-.942 (.345)	-.047**	-1.036 (.338)	-.052**
Employed	-2.883 (.956)	-.061**	-2.385 (.853)	-.051**
Homemaker	2.380 (1.394)	.031		
Divorced/Separated	-2.666 (1.164)	-.039*	-2.385 (1.148)	-.042*
Soft News Use	1.564 (.480)	.057**	1.569 (.477)	.057**
Personality Strength	.716 (.091)	.144***	.697 (.089)	.140***
Life Satisfaction	.352 (.113)	.058**	.425 (.109)	.070***
Community Attach.	.335 (.141)	.044*		
Social Withdrawal	-1.030 (.160)	-.114***	-.984 (.158)	-.109***
Adventurousness	.768 (.140)	.044*	.724 (.136)	.097***
Time Pressures	-.341 (.137)	-.046*	-.411 (.131)	-.056**
Individual Trust	.015 (.310)	.001		
Fear of Crime	-.249 (.266)	-.016		
Total R^2		.104***		.101***
	$N=3,374$		$N=3,384$	

Note: Cell entries are unstandardized and standardized regression coefficients. Standard errors are in parentheses to the right of the unstandardized coefficients.*$p<.05$, **$p<.01$, ***$p<.001$

Discussion

These data generally support H1—time spent on the Internet predicts positively to community engagement for two of three types of behaviors—but not H2. Time spent is significantly and positively related to both traditional civic participation and public attendance. The data do not show a significant relationship between time spent online and informal socializing, either in the positive direction hypothesized or in the negative direction predicted by some other scholars. Overall, these data provide little support for the time displacement arguments that have grown out of Putnam's critiques of television and been extended to the Internet in recent years. Our findings are consistent with recent work by Kraut and colleagues,[62] in which they revisit their initial claims about the "Internet Paradox" and discover that some Internet use is positively related to communication, integration, and well-being.

Although our results contradict some earlier research on Internet use and types of social participation, both the data collection methodology and our analytical approach have advantages that provide

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TABLE 5

Structural Model of Time Spent with Internet and Civic Participation

	Civic Participation	
Predictor	Coeff.	Std. Coeff.
Time w/ Internet	.037 (.018)	.083*
Age	.212 (.029)	.136***
Education	2.270 (.357)	.114***
Employed	-2.870 (.958)	-.054**
Homemaker	7.543 (1.430)	.089***
Hard News	1.467 (.677)	.038*
Soft News	1.790 (.514)	.058***
Personality Strength	.614 (.094)	.110***
Postmaterialism	1.137 (.339)	.054***
Political Interest	.605 (.274)	.038*
Church Attendance	.243 (.018)	.222***
Total R^2		.151***

	Time Spent with Internet	
Predictor	Coeff.	Std. Coeff.
Civic Participation	-.180 (.129)	-.079
Age	-.426 (.074)	-.120***
Sex (Female)	-3.895 (1.890)	-.034*
Education	3.084 (.894)	.067***
Income	-.635 (.251)	-.045*
Children in Home	-4.031 (.894)	-.077***
Time Pressure	-.638 (.319)	-.034*
Tech Ownership	19.543 (.829)	.409***
Time w/Magazines	.077 (.022)	.060***
Time w/Newspaper	.084 (.027)	.056**
Total R^2		.193***
	N=3,374	

Note: Cell entries are unstandardized and standardized regression coefficients. Standard errors are in parentheses to the right of the unstandardized coefficients.*$p<.05$, **$p<.01$, ***$p<.001$

confidence for our conclusions about the Internet and community life. In particular, those surveyed were typical Internet users with normally occurring online behaviors rather than potentially artificial behaviors created when individuals were given Internet access or new Web access devices. Further, respondents were asked only to list current levels of use and participation, not to calculate retrospectively prior levels of engagement and then draw comparisons. Finally, the nonrecursive models allow us to begin to untangle the causal flow between community engagement and the Internet.

TABLE 6
Structural Model of Time Spent with Internet and Public Attendance

Public Attendance

Predictor	Coeff.	Std. Coeff.
Time w/ Internet	.013 (.006)	.089*
Education	.572 (.128)	.083***
Population	.303 (.131)	.039*
Soft News Use	.816 (.182)	.077***
Social Withdrawal	-.181 (.062)	.052**
Adventurousness	.239 (.053)	.083***
Political Interest	.346 (.094)	.064***
Total R^2		.049***

Time Spent with Internet

Predictor	Coeff.	Std. Coeff.
Public Attendance	.643 (.372)	.096
Age	-.452 (.069)	-.128***
Sex (Female)	-4.760 (1.796)	-.042**
Education	2.010 (.924)	.044*
Income	-.693 (.258)	-.049**
Children in Home	-3.832 (.934)	-.073***
Time Pressure	-.623 (.319)	-.033
Tech Ownership	19.360 (.820)	.406***
Time w/Magazines	.067 (.025)	.052**
Time w/Newspaper	.072 (.028)	.047*
Total R^2		.193***

N=3,377

Note: Cell entries are unstandardized and standardized regression coefficients. Standard errors are in parentheses to the right of the unstandardized coefficients.*$p<.05$, **$p<.01$, ***$p<.001$

Because these data show a positive relationship between Internet use and engagement, they counter the theory of time displacement. Increased time spent on the Internet does not appear to diminish social ties. This makes sense, given how people use the Web. Internet users have access to resources that can facilitate social interaction: E-mail, bulletin boards, and chat rooms are all interactive communication media. Web pages and other information resources can help people discover ways to be active in their community and potentially strengthen ties to social organizations.

These data should lessen fears that Internet use will isolate individuals from their communities in favor of interactions with geographically and socially remote groups. Although much social interaction on the Net takes place with people who are not part of an

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TABLE 7

Structural Model of Time Spent with Internet and Informal Socializing

Informal Socializing

Predictor	Coeff.	Std. Coeff.
Time w/ Internet	-.012 (.016)	-.031
Sex (Female)	3.303 (.782)	.074***
Income	.290 (.106)	.053**
Race (Non-white)	-3.912 (.931)	-.071***
Population	-1.028 (.339)	-.051**
Employed	-2.355 (.858)	-.050**
Divorced/Separated	-2.875 (1.155)	-.042*
Soft News Use	1.557 (.480)	.057**
Personality Strength	.704 (.091)	.142***
Life Satisfaction	.417 (.110)	.069***
Social Withdrawal	-.996 (.159)	.142***
Adventurousness	.737 (.137)	.098***
Time Pressure	-.403 (.132)	-.055**
Total R^2		.101***

Time Spent with Internet

Predictor	Coeff.	Std. Coeff.
Informal Socializing	.037 (.140)	.014
Age	-.477 (.063)	-.135***
Sex (Female)	-4.842 (1.890)	-.042*
Education	2.469 (.780)	.054**
Income	-.653 (.261)	-.047*
Children in Home	-4.085 (.890)	-.078***
Time Pressure	-.631 (.322)	-.033*
Tech Ownership	19.375 (.817)	.406***
Time w/Magazines	.076 (.022)	.059***
Time w/Newspaper	.077 (.027)	.051**
Total R^2		.193***

$N=3,374$

Note: Cell entries are unstandardized and standardized regression coefficients. Standard errors are in parentheses to the right of the unstandardized coefficients. $*p<.05$, $**p<.01$, $***p<.001$

immediate community, it appears that a sufficient amount of Net usage promotes proximate relationships to offset any isolating or distancing effect. As more remote, or virtual, communities form over the Internet, this pattern may change, though these data suggest little reason to be alarmed about the role of the Internet in the erosion of civic life. In fact, given the fact that the Internet is most widely used by younger people,

its use may actually hold promise for civic renewal efforts targeting youth, adolescents, and young adults.

Further, it should be noted that the pattern of relationships shown in these analyses is consistent with other studies. The predictors of various types of social interactions are similar to those shown in earlier work, implying that participation promoted by Internet usage does have a positive impact on social capital above and beyond traditional indicators. The unique characteristics of informal participation that emerge suggest that it may lead to different outcomes than the more traditional, formal measures of civic engagement.

There are some limitations to the study that also beg for further research. The data do not directly address the family relationships that Nie and Erbring[63] claim are among those declining due to Internet use. Nor do they adequately capture the potential pattern of behavioral change that occurs as Net use increases or decreases—a panel design would better address this concern. Finally, we do not consider the possibility of a non-linear relationship, with very heavy Internet users withdrawing from social life due to Web addiction, for example. A fruitful approach for further research may involve deliberately over-sampling those who are "heavy" Internet users and determining if the positive relationship between community participation and Internet use remains as use climbs into the several-hours-per-day range. Although the data do not generally support a time-displacement theory, the heaviest users may very well suffer from a lack of time for community engagement.

However, this study may in fact be a conservative estimate of the link between community engagement and Internet use. Largely absent from our measures of engagement are online behaviors that could be seen as *new forms* of civic participation or social interaction. Further research on the effects of new media on engagement will have to adopt measures of "e-participation" as well as "e-socializing." Despite this, the study reported here is a step forward in research into the effects of the Internet on community behaviors and, indirectly, social capital and political activism. It offers evidence that the Net may be developing in fundamentally different ways than have earlier, less-interactive electronic media—ways that have pro-civic potential for users.

Appendix I and Notes follow.

Algorithm for Estimated Daily Frequencies

DDB Needham Life Style Response Alternatives	Imputed Score
Don't Use	0
Less than 30 minutes	15
30 minutes to 1 hour	45
1-2 hours	90
3-4 hours	218
5+ hours	318

Algorithm for Estimated Yearly Frequencies

DDB Needham Life Style Response Alternatives	Imputed Score
None in past year	0
1-4 times	2
5-8 times	6
9-11 times	10
12-24 times	18
25-51 times	38
52+ times	55

NOTES

1. Robert Putnam, "Bowling Alone: America's Declining Social Capital," *Journal of Democracy* 6 (1995): 65-78; Robert Putnam, *Bowling Alone: The Collapse and Revival of American Community* (NY: Simon & Schuster, 2000); Sidney Verba, Kay Lehmann Schlozman, and Henry E. Brady, *Voice and Equality: Civic Volunteerism in American Politics* (Cambridge: Harvard University Press, 1995).

2. Steven J. Rosenstone and John M. Hansen, *Mobilization, Participation and Democracy in America* (NY: Macmillan, 1993).

3. James Coleman, "Commentary: Social Institutions and Social Theory," *American Sociological Review* 55 (June 1990): 312.

4. Putnam, *Bowling Alone*, 664-65.

5. Ronald Inglehart, *Modernization and Postmodernization: Cultural, Economic, and Political Change in 43 Countries* (Princeton: Princeton, 1997).

6. Wendy M. Rahn, John Brehm, and Neil Carlson, "National Elections as Institutions for Generating Social Capital," in *Civic Engagement in American Democracy*, ed. Morris Fiorina and Theda Skocpol (Washington, DC: Brookings Institution & Russell Sage, 2000).

7. Jack M. McLeod, Katie Daily, Zhongshi Guo, William P. Eveland, Jan Bayer, Seungchan Yang, and Hsu Wang, "Community Integration, Local Media Use and Democratic Processes," *Communication Research* 23 (April 1996): 179-209; Jack M. McLeod and Dietram A. Scheufele, "Community, Communication, and Participation: The Role of Mass Media and Interpersonal Discussion in Local Political Participation," *Political Communication* 16 (July-September 1999): 315-36; Dhavan V. Shah, "Civic Engagement, Interpersonal Trust, and Television Use: An Individual-Level Assessment of Social Capital," *Political Psychology* 19 (September 1998): 469-96.

8. Putnam, *Bowling Alone*; George Gerbner, Larry Gross, Michael Morgan, and Nancy Signorielli, "The 'Mainstreaming of America: Violence Profile No. 11," *Journal of Communication* 30 (March 1980):10-29.

9. See Robert P. Hawkins and Susan Pingree, "Uniform Messages and Habitual Viewing: Unneccessary Assumptions in Social Reality Effects," *Human Communication Research* 7 (summer 1981): 291-301; Patricia Moy, Dietram A. Scheufele, and R. Lance Holbert, "Television and Social Capital: Testing Putnam's Displacement Hypothesis," *Mass Communication & Society* 2 (winter/spring 1999): 27-45; Pippa Norris, "Does Television Erode Social Capital? A Reply to Putnam," *PS: Political Science & Politics* 293 (September 1996): 474-80.

10. Richard Davis, *The Web of Politics: The Internet's Impact on the American Political System* (NY: Oxford, 1999); Jayne Gackenbach, ed., *Psychology and the Internet: Intrapersonal, Interpersonal, and Transpersonal Implications* (San Diego: Academic Press, 1998); Clifford Stroll, *Silicon Snake Oil* (NY: Doubleday, 1995); Studs Turkle, "Virtuality and Its Discontents: Searching for Community in Cyberspace," *The American Prospect* 24 (winter 1996): 50-57.

11. Michael Patterson and Robert Kraut, "Internet Paradox: A Social

Technology That Reduces Social Involvement and Psychological Well-Being?" *American Psychologist* 53 (September 1998): 1017-1031; Norman Nie and Lutz Erbring, "Internet and Society: A Preliminary Report," 2000, http:www.stanford.edu/group/siqss/ Press_Release/ internetStudy.html (November 2000).

12. Nie and Erbring, "Internet and Society."

13. Stroll, *Silicon Snake Oil*; Turkle, "Virtuality and Its Discontents," 50-57.

14. Patterson and Kraut, "Internet Paradox," 1017-1031; Nie and Erbring, "Internet and Society."

15. Anthony Corrado and Charles M. Firestone, *Elections in Cyberspace: Toward a New Era in American Politics* (Washington, DC: Aspen Institute, 1996); Michael L. Dertouzos, *What Will Be: How the New World of Information Will Change Our Lives* (San Francisco: Harper Edge, 1997); James E. Katz and Philip Aspden, "A Nation of Strangers?" *Communications of the ACM* 40 (December 1997): 81-86.

16. Bruce Bimber, "The Internet and Political Transformation: Populism, Community, and Accelerated Pluralism," *Polity* 31 (fall 1998):133-60; Montague Kern, "Social Capital and Citizen Interpretation of Political Ads, News, and Web Site Information in the 1996 Presidential Election," *American Behavioral Scientist* 40 (August 1997): 1238-1250; Davis, *The Web of Politics*; Pippa Norris and David Jones, "Virtual Democracy," *Harvard International Journal of Press-Politics* 3 (spring 1998): 1-4; Dhavan V. Shah, R. Lance Holbert, and Nojin Kwak, "Expanding the 'Virtuous Circle' of Social Capital: Civic Engagement, Contentment, and Interpersonal Trust" (paper presented at the annual meeting of AEJMC, New Orleans, Louisiana, 2000).

17 Nie and Erbring, "Internet and Society."

18. Bimber, "The Internet and Political Transformation"; Montague Kern, "Social Capital and Citizen Interpretation of Political Ads, News, and Web Information in the 1996 Presidential Election," *American Behavioral Scientist* 40 (August 1997): 1238-1250; Norris and Jones, "Virtual Democracy," 1-4; Dhavan V. Shah, Jack M. McLeod, and So-Hyang Yoon, "Communication, Context, and Community: An Exploration of Print, Broadcast, and Internet Influences," *Communication Research* 28 (August 2001): 464-506.

19. Davis, *The Web of Politics*, 22.

20. Lawrence Grossman, *The Electronic Republic* (NY: Penguin, 1995).

21. Corrado and Firestone, *Elections in Cyberspace*; Albert Gore Jr., "Speech to the International Telecommunications Union," *Computers, Ethics, and Social Values*, ed. Deborah G. Johnson and Helen Nissenbaum, (Englewood Cliffs: Prentice Hall, 1994); John V. Pavlik, *New Media Technology: Cultural and Commercial Perspectives* (Boston: Allyn and Bacon, 1996); Bimber, "The Internet and Political Transformation"; Steven G. Jones, *Cybersociety: Computer Mediated Communication and Community* (Thousand Oaks: Sage, 1995); Katz and Aspden, "A Nation of Strangers?"; Howard Rheingold, *The Virtual Community: Homesteading on the Electronic Frontier* (NY: Harper Collins, 1993).

22. John Brehm and Wendy Rahn, "Individual-Level Evidence for the Causes and Consequences of Social Capital," *American Journal of*

Political Science 41 (July 1997): 999-1023; Shah, "Civic Engagement, Interpersonal Trust, and Television Use."

23. Henk Flap, "Creation and Returns of Social Capital: A New Research Program," *The Tocqueville Review* 21 (1, 2000): 5-26; Phillip H. Pollack, III, "Organizations as Agents of Mobilization: How Does Group Activity Affect Political Participation?" *American Journal of Political Science* 26 (August 1982): 485-503; Robert Putnam, *Making Democracy Work: Civic Traditions in Modern Italy* (Princeton: Princeton, 1993).

24. Verba, Schlozman, and Brady, *Voice and Equality.*

25. Verba, Schlozman, and Brady, *Voice and Equality.*

26. Willis J. Goudy, "Community Attachment in Rural Religion," *Rural Sociology* 55 (summer 1990): 178-98.

27. Carol A. Cassel, "Voluntary Associations, Churches, and Social Participation Theories of Turnout," *Social Science Quarterly* 80 (September 1999): 504-517.

28. Steven Peterson, "Church Participation and Political Participation: The Spillover Effect," *American Politics Quarterly* 20 (January 1992): 123-39.

29. William B. Davidson and Patrick R. Cotter, "Sense of Community and Political Participation," *Journal of Community Psychology* 17 (April 1989): 119-25; Donald G. Unger and Abraham Wandersman, "The Importance of Neighbors: The Social, Cognitive, and Affective Components of Neighboring," *American Journal of Community Psychology* 13 (April 1985): 139-69.

30. Bonnie H. Erickson and T.A. Nosanchuk, "How an Apolitical Association Politicizes," *Canadian Review of Sociology and Anthropology* 27 (May 1990): 206-219; Marvin E. Olsen, "Social Participation and Voting Turnout: A Multivariate Analysis," *American Sociological Review* 37 (June 1972): 317-33.

31. Michael Hanks and Bruce K. Eckland, "Adult Voluntary Associations and Adolescent Socialization," *The Sociological Quarterly* 19 (summer 1978):481-90; Peterson, "Church Participation and Political Participation," 123-39; Dietland Stolle and Thomas R. Rochon, "Are All Associations Alike?" *The American Behavioral Scientist* 41 (September 1998): 47-65.

32. Bill Berkowitz, "Personal and Community Sustainability," *American Journal of Community Psychology* 24 (August 1996): 441-59.

33. Dhavan V. Shah, Nogin Kwak, and R. Lance Holbert, "'Connecting' and 'Disconnecting' with Civic Life: Patterns of Internet Use and the Production of Social Capital," *Political Communication* 18 (April 2001): 141-62.

34. Peter Gundelach and Lars Torpe, "Voluntary Associations: New Types of Involvement and Democracy" (paper presented to the ECPR Joint Sessions Workshops, Oslo, Norway, 1996).

35. Geraint Parry, George Moyser, and Neil Day, *Political Participation and Democracy in Britain* (NY: Cambridge, 1992).

36. Kenneth Newton, "Social Capital and Democracy," *The American Behavioral Scientist* 40 (March/April 1997): 575-86.

37. Norris and Jones, "Virtual Democracy." See, also, Shah, Kwak, and Holbert, "'Connecting' and 'Disconnecting' with Civic Life."

38. An approach that disaggregates Internet activities may be preferable in some ways to a "time-spent" approach we adopt; however, it would not permit a direct examination of the time-displacement hypothesis that many critics of the Internet have offered. Since this study is a response to past work, we use an hour-of-use measure that parallels the research conducted by others (e.g., Nie and Erbring, "Internet and Society"; Patterson and Kraut, "Internet Paradox."

39. Putnam, *Bowling Alone*; Robert D. Putnam and Steve Yonish, "How Important are Random Samples? Some Surprising New Evidence"(paper presented to the annual meeting of the American Association of Public Opinion Research, St. Petersburg, FL, 1999).

40. Sidney Groeneman, "Multi-Purpose Household Panels and General Samples: How Similar and How Different?" (paper presented to the American Association for Public Opinion Research, Danvers, MA, 1994), 4.

41. Norman Nie and Lutz Erbring, "Internet and Society: A Preliminary Report" (online, available http://www.stanford.edu/group/siqss/Press_Release/internetStudy.html, 2000).

42. One of the assumptions of the classical OLS estimation is that error terms in the dependent variable are uncorrelated with independent variables of the regression equation.. However, it can be shown that in a simultaneous-equation system, an endogenous independent variable is correlated with the error term.

43. When the data generating process assumes that causation is bi-directional, independence between error terms and predictor variables is no longer valid. In such cases, 2SLS is an optimal solution. First, instrumental variables that are uncorrelated with the error terms are used to compute estimated values of the endogenous predictor variable in the first stage; and, second, the computed values are used to estimate a linear regression model for the dependent variable in the second stage. Thus, the basic assumptions of OLS estimation hold because the values of the predictors are computed based on variables that are uncorrelated with the errors (i.e., instruments). (See L.M. Bartels, "Instrumental and quasi-instrumental variables," *American Journal of Political Science* 35 [August 1991]: 777-801.)

44. One critical component of 2SLS regression is that 2SLS will only be effective in reducing simultaneity bias if the fit from the first-stage regression is good. This is because the instrumental variable that is created in the first-stage needs to serve as a good proxy measure to replace the endogenous independent variable. To the extent that the first-stage fit is poor, then the instrumental variable is no longer correlated with the original endogenous variable. In our case, this would mean that we can no longer be assured that the variance in the levels of community engagement (i.e., the endogenous dependent variable) is being explained by Internet usage. Therefore, we are inclined to use a large set of independent variables in the first-stage regression to explain as much variation as possible in Internet usage.

45. Putnam, *Bowling Alone*.

46. For all indices composed of three or fewer items, mean inter-item correlations are reported in place of Cronbach's alpha. This is to avoid

biases inherent in the calculation of alpha when dealing with a limited number of scale items (see Edward G. Carmines and Richard A. Zeller, *Reliability and Validity Assessment* [Beverly Hills, CA: Sage Publications, 1979]).

47. The low alpha for public attendance is not viewed as a threat to validity because the different behaviors tapped by the scale may be mutually exclusive. That is, there is little reason to expect that the same people who attend classical music concerts and visit museums and art galleries are the ones who go to country music concerts or visit the zoo. Still, all of these modes of community engagement should be included as indicators of public attendance.

48. Putnam, *Bowling Alone.*

49. Nie and Erbring, "Internet and Society."

50. Jack M. McLeod, Dietram A. Scheufele, and Patricia Moy, "Community, Communication and Participation: The Role of Mass Media and Interpersonal Discussion in Local Political Participation," *Political Communication* 16 (July-September 1999): 315-36; Dietram A. Scheufele, James Shanahan, and Sei-Hill Kim, "Who Cares about Local Politics? Media Influences on Local Political Involvement, Issue Awareness, and Attitude Strength," *Journalism & Mass Communication Quarterly* 79 (summer 2002): 427-44.

51. Robert Kraut, Sara Kiesler, Bonka Boneva, Jonathon Cummings, Vicki Helgeson, and Anne Crawford, "Internet Paradox Revisited," *Journal of Social Issues* 58 (January 2002): 49-74.

52. John Brehm and Wendy Rahn, "Individual-Level Evidence for the Causes and Consequences of Social Capital," *American Journal of Political Science* 41 (July 1997): 999-1023; Putnam, *Bowling Alone.*

53. Shah, "Civic Engagement, Interpersonal Trust and Television Use."

54. Dietram Scheufele and Dhavan V. Shah, "Personality Strength and Social Capital: The Role of Dispositional and Informational Variables in the Production of Civic Participation," *Communication Research* 27 (April 2000): 107-131.

55. Scheufele and Shah, "Personality Strength and Social Capital."

56. McLeod, Scheufele, and Moy, "Community, Communication and Participation"; Shah, "Civic Engagement, Interpersonal Trust and Television Use."

57. McLeod, Scheufele, and Moy, "Community, Communication and Participation."

58. The first list contained the following goals: "a high level of economic growth" (materialist), "making sure this country has strong defense forces" (materialist), "seeing that people have more say about how things are done at their jobs and in their communities" (postmaterialist), and "trying to make our cities and countryside more beautiful" (postmaterialist). The second list contained the following goals: "maintaining order in the nation" (materialist), "fighting rising prices" (materialist), "giving people more say in important government decisions" (postmaterialist), and "protecting freedom of speech" (postmaterialist). The third list contained the following goals: "a stable economy" (materialist), "the fight against crime" (materialist), "progress

toward a less impersonal and more humane society" (postmaterialist), and "progress toward a society in which ideas count more than money" (postmaterialist).

59. Eric M. Uslaner, "Social Capital, Television and the Mean World; Trust, Optimism, and Civic Participation," *Political Psychology* 19 (September 1998): 441-67; Verba, Schlozman, and Brady, *Voice and Equality*.

60. Shah, "Civic Engagement, Interpersonal Trust and Television Use"; Brian Mullen, "Group Composition, Salience and Cognitive Representations: The Phenomenology of Being in a Group," *Journal of Experimental Social Psychology* 27 (July 1991): 297-323.

61. Verba, Schlozman and Brady, *Voice and Equality*.

62. Kraut et al., "Internet Paradox Revisited."

63. Nie and Erbring, "Internet and Society."