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BARRY WELLMAN, ANABEL QUAN HAASE, JAMES WITTE and KEITH HAMPTON

*American Behavioral Scientist* 2001; 45; 436

DOI: 10.1177/00027640121957286

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# Does the Internet Increase, Decrease, or Supplement Social Capital?

## Social Networks, Participation, and Community Commitment

BARRY WELLMAN  
ANABEL QUAN HAASE

*University of Toronto*

JAMES WITTE

*Clemson University*

KEITH HAMPTON

*Massachusetts Institute of Technology*

*How does the Internet affect social capital? Do the communication possibilities of the Internet increase, decrease, or supplement interpersonal contact, participation, and community commitment? This evidence comes from a 1998 survey of 39,211 visitors to the National Geographic Society Web site, one of the first large-scale Web surveys. The authors find that people's interaction online supplements their face-to-face and telephone communication without increasing or decreasing it. However, heavy Internet use is associated with increased participation in voluntary organizations and politics. Further support for this effect is the positive association between offline and online participation in voluntary organizations and politics. However, the effects of the Internet are not only positive: The heaviest users of the Internet are the least committed to online community. Taken together, this evidence suggests that the Internet is becoming normalized as it is incorporated into the routine practices of everyday life.*

## DEBATING THE INTERNET'S EFFECTS ON SOCIAL CAPITAL

How the Internet affects social capital is neither a trivial nor an obscure question. Robert Putnam (1996, 2000) has documented a long-term decline since the

**Authors' Note:** *This article has profited by the advice and assistance of Richard Bernard, Wenhong Chen, Joe Germuska, Philip Howard, Kristine Klement, Valerie May, Carleton Thorne, and Beverly Wellman. Our compatriots at the University of Toronto's NetLab, Centre for Urban and Community Studies, Department of Sociology, the Faculty of Information Studies, the Knowledge Media Design Institute, and the Bell University Laboratories have created stimulating milieus for thinking about cyber-society. The research that underlies this article has been supported by the Bell University Laboratories, the National Geographic Society, the Social Science and Humanities Research Council of Canada, and the Office of Learning Technologies (Human Resources Development Canada).*

AMERICAN BEHAVIORAL SCIENTIST, Vol. 45 No. 3, November 2001 436-455  
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1960s in American civic involvement. This decline includes the lessened ability of citizens to articulate and organize requests for good government, the movement away from community life, and increased psychological alienation. Putnam's evidence encompasses two forms of social capital, which we call

1. *Network capital*: Relations with friends, neighbors, relatives, and workmates that significantly provide companionship, emotional aid, goods and services, information, and a sense of belonging (Wellman & Frank, 2001).
2. *Participatory capital*: Involvement in politics and voluntary organizations that affords opportunities for people to bond, create joint accomplishments, and aggregate and articulate their demands and desires, a concept enshrined in the American heritage by de Tocqueville (1835).

We add a third item to this discussion and to our analysis:

3. *Community commitment*: Social capital consists of more than going through the motions of interpersonal interaction and organizational involvement. When people have a strong attitude toward community—have a motivated, responsible sense of belonging—they will mobilize their social capital more willingly and effectively (McAdam, 1982).

What if Putnam is only measuring old forms of community and participation while new forms of communication and organization underneath his radar are connecting people? Some evidence suggests that the observed decline has not led to social isolation but to community becoming embedded in social networks rather than groups and a movement of community relationships from easily observed public spaces to less accessible private homes (see the related discussions in Lin, 2001; Wellman, 1999a, 2001). If people are tucked away in their homes rather than conversing in cafes, then perhaps they are going online: chatting online one-to-one; exchanging e-mail in duets or small groups; or schmoozing, ranting, and organizing in discussion groups such as listservs or newsgroups (Kraut, Lundmark, et al., 1998; Smith, Drucker, Wellman, & Kraut, 1999). The rapidly expanding Internet has been a big hope for community creation, with more than half of Americans (56%) having Internet access by the end of 2000 (Mosquera, 2000). Although the debate surrounding the influence of the Internet on social capital has been ongoing, no clear pattern has yet emerged. Until recently, much of the debate took place without much systematic data (Flanagan & Metzger, 2001). Utopians have claimed that the Internet provides new and better ways of communication (e.g., De Kerckhove, 1997; Lévy, 1997), whereas dystopians have argued that the Internet takes people away from their communities and families (e.g., Slouka, 1995; Stoll, 1995).

As the Internet has infiltrated North American life, analysts have had to move from seeing it as an external world to seeing how it becomes integrated into the complexity of everyday life (compare the first and second editions of Rheingold, 1993, 2000). We contribute to the debate by asking if the Internet increases, decreases, or supplements social capital. We examine people's Internet use in

the broader context of their face-to-face and telephone communication. We analyze the relationship of their online activities to their interpersonal network capital, their organizational and political participation, and their commitment to community. The evidence for our discussion comes from a large-scale Web survey of visitors to the National Geographic Society Web site in the fall of 1998.

#### **DOES THE INTERNET INCREASE SOCIAL CAPITAL?**

Early—and continuing—excitement about the Internet saw it as stimulating positive change in people's lives by creating new forms of online interaction and enhancing offline relationships. The Internet would restore community by providing a meeting space for people with common interests and overcoming limitations of space and time (Baym, 1997; Sproull & Kiesler, 1991; Wellman, 2001). Online communities would promote open, democratic discourse (Sproull & Kiesler, 1991), allow for multiple perspectives (Kapor, 1993), and mobilize collective action (Schwartz, 1996; Tarrow, 1999). Although early accounts focused on the formation of online virtual communities (e.g., Rheingold, 1993), it has become clear that most relationships formed in cyberspace continue in physical space, leading to new forms of community characterized by a mixture of online and offline interactions (e.g., Müller, 1999; Rheingold, 2000). Moreover, online interactions fill communication gaps between face-to-face meetings. The Internet thus enhances the tendency for many ties to be nonlocal, connected by cars, planes, phones, and now computer networks (Wellman, 1999a, 2001). Although a developing phenomenon worldwide (Wellman, 1999b), nonlocal community is probably most prevalent in North America, where people move frequently and sometimes far away; where family, friends, former neighbors, and workmates are separated by many miles; and where the many immigrants keep contact with friends and relatives in their homelands.

Those who see the Internet as playing an increasingly central role in everyday life would argue that it increases communication offline as well as online. In this view, the Internet not only affords opportunities to contact friends and kin at low cost, it also enhances face-to-face and telephone communication as network members (a) become more aware of each others' needs and stimulate their relationships through more frequent contact (Homans, 1961); (b) exchange songs, pictures, and other files; and (c) make online arrangements to meet in person and by telephone. The Internet can also increase organizational involvement by facilitating the flow of information between face-to-face meetings and arranging these meetings themselves. The plethora of information available on the Web and the ease of using search engines and hyperlinks to find groups fitting one's interests should enable newcomers to find, join, and get involved in kindred organizations. Thus, if the Internet increases social capital, then high Internet use should be accompanied by more offline interpersonal contact, organizational participation, and commitment to community.

### DOES THE INTERNET DECREASE SOCIAL CAPITAL?

The second view argues for an inverse relationship, that the Internet is fostering a decline in social capital. The interrelated bases for the argument are that

*The Internet may be diverting people from true community because online interactions are inherently inferior to face-to-face and even phone interactions.* Online ties may be less able than offline ties to foster complex friendships, provide intangible resources such as emotional support, and provide tangible material aid. As Robert Putnam once told Barry Wellman (personal e-mail, January 10, 2000), "I think you're a wild-eyed optimist to think that person-to-person networks are just as good as, if not better than old-fashioned door-to-door (or rather faces-to-faces) networks."

*The Internet may compete for time with other activities in an inelastic 24-hour day.* There are discrepant findings about whether online time sinks do or do not pull people away from other interactions inside and outside the household—Nie (2001 [this issue]) and Nie and Erbring (2000) said they do, whereas Anderson and Tracy (2001 [this issue]) said they do not. The Internet can draw people's attention away from their immediate physical environment because when they are online they pay less attention to their physical and social surroundings. Some researchers see a parallel in the impact of the Internet with the way that television had a similar absorptive effect that reduced social interaction in the home (Steiner, 1963) as well as social and political involvement outside it (Nie & Sackman, 1970). But broadcast television is not a clear analogue to the socially interactive Internet.

*The Internet may be a stressor that depresses and alienates people from interaction (Kraut, Lundmark, et al., 1998).* One longitudinal study of "newbies" to the Internet found that as Internet use increases, social contact offline decreases and depression and loneliness increase. Although the Internet enhanced weak online ties, it simultaneously decreased stronger offline interactions (Kraut, Mukhopadhyay, Szczypula, Kiesler, & Scherlis, 1998; LaRose, Eastin, & Gregg, 2001). How might the Internet be alienating?

1. Newbies often experience stress and time pressures after getting computerized (Kraut, Mukhopadhyay, et al., 1998; LaRose et al., 2001).
2. Experienced users may have better coping techniques, but their more complex uses of the Internet create problems because programs often function badly and much time is required to cope with computer failures.
3. The vaunted ubiquitous connectivity of the Internet makes people more accessible to each other, whether the recipients want it or not. Contact with less enjoyable people, perhaps bringing unwanted information, may depress and alienate. Active participants are more likely to be flawed and defamed.
4. Not all uses of the Internet are social. Much activity is Web-oriented, seeking information or engaging in solitary recreations. Moreover, many social activities

- online (such as e-mail) are asynchronous, delaying gratifying feedback until the recipient signs on, reads the message, decides to answer, and the original sender eventually gets his or her answer (Sproull & Kiesler, 1991).
5. Computerization and the Internet can blur the home-work boundary. People bring work home and attend to it rather than to their families, friends, and other activities (Nie & Erbring, 2000). The ease of working at home reflects and reinforces the contemporary proliferation of knowledge workers (Cohen & Prusak, 2001; Cross, 2000).
  6. Although the Internet can foster global interactions, it keeps people indoors, staring at their screens, and neglecting local interactions at home and in the neighborhood (Nie, 2001).<sup>1</sup>
  7. Online ties may be more homogeneous in perspective. They often evolve around a specific interest such as soap operas (Baym, 1997) or BMW cars (Wellman & Gulia, 1999). This narrows perspectives and access to new information.
  8. The Internet may foster more contact with acquaintances and tilt the balance between weak and strong ties (Granovetter, 1973). The value of weak ties is in their provision of new information and access to disparate networks, whereas strong ties that are wrapped up in a community are characterized by commitment, friendship, and exchange of resources such as emotional support (Kraut, Lundmark, et al., 1998; Merton, 1957). Thus, if the Internet decreases social capital, then high Internet use should be accompanied by less offline interpersonal contact, organizational and political participation, and commitment to community.

#### DOES THE INTERNET SUPPLEMENT SOCIAL CAPITAL?

Where the increase and decrease arguments privilege the Internet by seeing it as radically changing how people interact offline, the supplement argument gives this new technology less of a central role in shaping social trends. It presents the Internet as best understood in the context of a person's overall life. It is integrated into rhythms of daily life, with life online viewed as an extension of offline activities. For example, one study finds the Internet to be "a multidimensional technology used in a manner similar to other, more traditional technologies" (Flanagan & Metzger, 2001, p. 153). Thus, the Internet provides an additional means of communication to telephone and face-to-face contact (Müller, 1999), one that can be more convenient and affordable.<sup>2</sup> The supplement argument suggests that the Internet's effects on society will be important but evolutionary, like the telephone has been (Fischer, 1992), continuing and intensifying the interpersonal transformation from door-to-door to individualized place-to-place and person-to-person networks (Wellman, 2001). Although face-to-face and telephone contact continue, they are complemented by the Internet's ease in connecting geographically dispersed people and organizations bonded by shared interests.

The Internet may be more useful for maintaining existing ties than for creating new ones (Koku, Nazer, & Wellman, 2001). Nor might the Internet lead to organizational and political participation if users have no interest in such matters. For example, wiring Blacksburg Electronic Village did not produce large changes in interpersonal contact and community involvement (Kavanaugh &

Patterson, 2001 [this issue]; Uslander, 2000). Similarly, the introduction of sophisticated information and communication systems in the business world has not demonstrably created social capital (e.g., Orlikowski, 1996; schraefel, Ho, Chignell, & Milton, 2000). Thus, if the Internet supplements social capital, then Internet use should supplement offline interpersonal interaction, not affect organizational participation and increase commitment to community. The level of Internet involvement will not be associated with either more or less offline activity.

## AN EXPEDITION TO STUDY USERS OF THE INTERNET

### THE NATIONAL GEOGRAPHIC SOCIETY SURVEY 2000

The National Geographic Society Survey 2000 was available to visitors to the Society's Web site from September to November 1998. It was publicized through the widely distributed monthly *National Geographic* magazine, a prominent notice on the Society's homepage, and multiple public information sources. Although the survey was international, garnering 47,176 adult completions worldwide, we focus here on 39,211 North American adult participants: 34,839 Americans and 4,372 Canadians. Although this is not a random sample, comparisons with the 1993 and 1996 U.S. General Social Survey allow us to consider the nature of the self-selection bias (Witte, Amoroso, & Howard, 2000).<sup>3</sup> We exclude here those who encountered the Internet for the first time when completing the survey. Thus, this is an analysis of the social capital of visitors to the National Geographic site and not of the general North American adult population.

### WHAT DO PEOPLE DO ONLINE?

National Geographic survey participants are not a population of newbies. More than half (58%) had been online for at least 2 years when they took the survey, whereas only 12% had been online for less than 6 months. The most common activity is social, exchanging e-mails at a mean rate of 270 days per year (see Table 1). Other social activities include engaging in chats (25 days per year), playing multi-user games (11 days per year), and visiting multi-user dimensions (MUDs) or other online role-playing environments (7 days per year). People also use the Internet for less social activities, such as Web surfing (154 days per year); looking for news, digital libraries, and magazines (124 days per year); receiving announcements (105 days per year); and shopping (8 days per year).

Survey 2000 contained 10 items whereby participants reported different aspects of their Internet use. For each item, participants answered on a scale ranging from 1 (*rarely*), 2 (*monthly*), 3 (*weekly*), 4 (*a few times a week*), to 5 (*daily*).

**TABLE 1: Internet Use: Frequency and Factor Analysis (N = 39,211)**

<i>Internet Activity</i>	<i>Days/Year</i>	<i>Factor Loadings<sup>a</sup></i>	
		<i>Asynchronous</i>	<i>Synchronous</i>
Send/receive e-mail	270	.682 <sup>b</sup>	-.050
Take part in mailing lists	105	.729 <sup>b</sup>	.038
Access digital libraries, newspapers, or magazines	124	.717 <sup>b</sup>	.111
Take online college courses	11	.403 <sup>b</sup>	.237
Purchase products or services	8	.564 <sup>b</sup>	.078
Surf the Web	154	.533 <sup>b</sup>	.310
Participate in Usenet newsgroups	26	.511 <sup>b</sup>	.352
Engage in chats	25	.173	.701 <sup>c</sup>
Visit MUDs, MOOs, other multiuser environments	7	.141	.709 <sup>c</sup>
Play multiuser games	11	-.015	.727 <sup>c</sup>

NOTE: MUDs = multi-user dimensions; MOOs = multi-user object-oriented environments.

a. Principal components analysis with orthogonal varimax rotations.

b. Items included in asynchronous scale.

c. Items included in synchronous scale.

Factor analysis of these 10 items revealed two distinct profiles of Internet use: synchronous and asynchronous (see Table 1). Instead of using factor scores to create scales, we additively combined the items to create a synchronous and an asynchronous scale, with high scores denoting more Internet activity.<sup>4</sup>

The synchronous scale represents simultaneous interaction between two or more users and includes three items (see Table 1). Synchronous activities are inherently social activities involving at least two people interacting simultaneously. By contrast, the asynchronous scale represents diverse activities including e-mail and information search (see Table 1). Asynchronous communication facilitates interaction by not requiring the simultaneous availability of both parties as well as allowing for one-to-many message exchanges. Asynchronous e-mail is the most frequently used Internet activity.

#### WHO ENGAGES IN INTERNET ACTIVITY?

Length of time on the Internet substantially predicts how—and how much—the Internet is used, both asynchronously and synchronously.<sup>5</sup> By contrast, the effects of demographic characteristics are barely visible, if at all. The number of months people have been online is the only meaningful predictor ( $\beta = .41$ ) of the amount of asynchronous Internet activity (see also Howard, Rainie, & Jones, 2001 [this issue]; Kavanaugh & Patterson, 2001). There probably are two reasons for the association. First, those who have been online for a long time may be more apt to be Internet enthusiasts. Second, long exposure makes experienced users Internet savvy and more likely to use it.

The situation for synchronous Internet activities is similar to that for asynchronous activities. The effect of length of time online on synchronous activity is significant, but smaller than for asynchronous activity ( $\beta = .11$ ). Demographic characteristics are not substantially related to synchronous activities. The sole exceptions are that those without a university degree are more likely to engage in synchronous online activities, and those with less than a high school degree are more likely to play multiuser games online (see also Howard et al., 2001; Katz, Rice, & Aspden, 2001 [this issue]). Moreover, latecomers to the Internet are more likely to play multiuser games and to chat online.

The general lack of relationship between demographic characteristics and Internet activities fit recent findings that the digital divide is becoming smaller (e.g., DiMaggio, Hargittai, Neuman, & Robinson, 2001; Katz et al., 2001; National Telecommunications and Information Administration [NTIA], 2000; Reddick, 2000). Affluent, university-educated White men no longer predominate (for reports of the earlier situation see Bikson & Panis, 1997). The clearest result is behavioral: People who have been on the Web longer engage in more types of Internet activities.

## SOCIAL CAPITAL IN THE INTERNET ERA

### NETWORK CAPITAL

*Media use.* Internet-using National Geographic visitors use the telephone most frequently (40%) for contact with socially close friends and relatives, followed by e-mail (32%), face-to-face visits (23%), and a small amount of postal letter writing (4%).<sup>6</sup> Wellman, Carrington, and Hall (1988) show more of a balance between telephone and face-to-face use in their pre-Internet study, although these data pertain only to people's 20 or so most active ties. As in pre-Internet days (Fischer, 1992; Wellman et al., 1988), people communicate almost as much with kin (46% of all reported informal communications) as they do with friends (54%). What about distance, always a constraint on communication even after air travel, freeways, and long-distance telephone lines proliferated (Wellman & Tindall, 1993)? We would expect that because e-mail is asynchronous and its cost does not increase with distance, using it would reduce the constraints of distance on contact. But does e-mail also affect communication with network members living nearby (Hampton, 2001; Haythornthwaite & Wellman, 1998)?

Even in the Internet era, distance still constrains communication (see also Hampton & Wellman, 2001 [this issue]). Most contact is with friends and relatives living nearby (within 50 kilometers). The telephone is the most used medium for contact with network members living nearby. The telephone is used for 52% of all contact with nearby kin and 29% for all contact with nearby

friends. By contrast, e-mail is most often used for more distant network members (living more than 50 kilometers away). E-mail is used for 48% of all contact with distant kin and for 60% of all contact with distant friends. E-mail is especially useful for communicating with people who are far away because of low monthly rates, distance-free costs, and its ease in sending messages to people living in other time zones.

Distance affects kinship less than friendship, a pattern continued from the telephone era (Wellman & Tindall, 1993). Kin are usually more knit into social systems that support contact among distant network members, whereas friendships tend to be more voluntary and one-to-one (Wellman & Wortley, 1990). E-mail supplements other means of communication with kin. Kin who use e-mail a lot to communicate visit and phone each other as frequently as those who rarely use e-mail to keep in contact.

Distance is intertwined with e-mail contact among friends. People use e-mail more often to stay in touch with friends who live nearby than with friends who live at a distance (ratio = 1.4).<sup>7</sup> Nearby friends are contacted three times as often as those farther away (ratio = 2.9); nearby kin are contacted twice as often as those farther away (ratio = 1.9). Friendship contact is more localized than kinship contact. Personal visits occur eight times more often with nearby friends than with distant ones (ratio = 8.8), and telephone contact occurs five times more often with nearby friends than distant ones (ratio = 5.2).

*Interpersonal network contact.* Internet use neither increases nor decreases other forms of communication. Neither the frequency of asynchronous nor synchronous Internet activities is associated with the frequency of other forms of contact. Frequent use of the Internet is associated with more frequent contact with friends and relatives, near and far, but only because Internet use supplements face-to-face and telephone contact (see Tables 2 and 3). People still keep visiting and phoning, but they also e-mail. This suggests that face-to-face and telephone contact provide unique ways of communicating for which the Internet cannot substitute. Moreover, no demographic characteristics of participants are associated with network contact.<sup>8</sup>

#### **PARTICIPATORY CAPITAL**

*Organizational participation.* The Internet supplements and increases organizational involvement.<sup>9</sup> The results indicate a positive relationship between Internet use and organizational participation. The effect is stronger for the asynchronous activities ( $\beta = .13$ ) than for the synchronous activities ( $\beta = .10$ ; see Table 4). The only demographic characteristic related to organizational participation was education: The more highly educated a person, the more involved. Thus, the results suggest that people who use the Web often tend to be involved

**TABLE 2: E-Mail Use by Mean Annual Communication Within 30 Miles (50 km)**

<i>E-Mail Use</i>	<i>Family</i>					<i>Friends</i>				
	<i>F2F</i>	<i>Phone</i>	<i>Letters</i>	<i>E-Mail</i>	<i>Total</i>	<i>F2F</i>	<i>Phone</i>	<i>Letters</i>	<i>E-Mail</i>	<i>Total</i>
Never	77	117	6	1	201	104	136	6	1	247
Rarely	65	116	6	5	192	84	112	8	5	209
Monthly	61	113	6	7	187	74	98	5	9	186
Weekly	62	121	6	13	202	76	99	7	20	202
Few times per week	63	115	7	24	209	83	113	7	37	240
Daily	60	118	8	52	238	92	126	9	118	345
Total	61	117	7	39	224	88	120	9	86	303

NOTE: F2F = face-to-face.

**TABLE 3: E-Mail Use by Mean Annual Communication Beyond 30 Miles (50 km)**

<i>E-Mail Use</i>	<i>Family</i>					<i>Friends</i>				
	<i>F2F</i>	<i>Phone</i>	<i>Letters</i>	<i>E-Mail</i>	<i>Total</i>	<i>F2F</i>	<i>Phone</i>	<i>Letters</i>	<i>E-Mail</i>	<i>Total</i>
Never	12	37	8	1	58	13	25	7	1	46
Rarely	10	36	8	5	59	11	19	7	4	41
Monthly	9	35	7	10	61	8	16	6	8	38
Weekly	9	36	9	19	73	8	17	6	16	47
Few times per week	10	39	9	35	93	9	19	7	30	65
Daily	10	43	10	72	135	10	25	8	85	128
Total	10	41	10	55	116	10	23	8	62	103

NOTE: F2F = face-to-face.

**TABLE 4: Effect of Asynchronous and Synchronous Internet Use on Political and Organizational Participation**

	<i>Asynchronous Internet Use</i>		<i>Synchronous Internet Use</i>	
	<i>Political Participation<sup>a</sup></i>	<i>Organizational Participation<sup>a</sup></i>	<i>Political Participation<sup>a</sup></i>	<i>Organizational Participation<sup>a</sup></i>
Gender (male = 1)	.006*	-.052	.013	-.047
Age (reference = 30 to 39 years)				
18 to 29	.000*	.029	-.015*	.017
40 to 49	.098	.067	.100	.068
50 to 65	.122	.085	.124	.088
66 or older	.065	.067	.062	.065
Race (reference = White)				
Asian	-.017	-.006*	-.014	-.004*
Black	.001*	.018	.000*	.016
Other	.032	.033	.032	.033
Education (reference = undergraduate degree)				
High school or less	-.057	-.095	-.076	-.112
Some college	-.032	-.075	-.045	-.087
Graduate degree	.090	.107	.096	.111
Marital status (reference = married)				
Single	-.015	-.016	-.016	-.017
Living with partner, nonmarried	-.003*	-.038	-.003*	-.038
How long using Internet	.008	-.010*	.063	.032
Asynchronous Internet use	.166	.134	NA	NA
Synchronous Internet use	NA	NA	.116	.105
Adjusted $R^2$	.071	.065	.062	.061

a. Standardized beta coefficients.

\*Indicates nonsignificant coefficients ( $p > .05$ ).

in more organizations. The length of time people have been online is not associated with the extent of their organizational involvement.

The Internet supplements organizational involvement. Involvement in online computer clubs is positively associated with involvement in non-computer-related organizations. The more people are involved in organizations offline, the more they are involved in computer-related activities ( $\beta = .19$ ; see Table 5). The more they engage in asynchronous ( $\beta = .78$ ) and synchronous ( $\beta = .37$ ) Internet activities, the more they are involved with organizations offline and computer clubs online.

*Political participation.* Does the Internet affect people's political participation by providing a new platform for debate and engagement (Castells, 1996)? The patterns are similar to those for organizational involvement, not

**TABLE 5: Demographic, Offline Participation, and Internet Effects on Online Organizational and Political Participation**

	<i>Online Organizational Participation<sup>a</sup></i>	<i>Online Political Participation<sup>a</sup></i>
Gender (male = 1)	.338	.141
Age (reference = 30 to 39 years)		
18 to 29	-.298	-.201
40 to 49	.201	-.191
50 to 65	.688	-.255
66 or older	1.758	-.594
Race (reference = White)		
Asian	.450	-.452
Black	.527	-.093*
Other	.186*	.090*
Education (reference = undergraduate degree)		
High school or less	.269	-.011*
Some college	.279	.176
Graduate degree	-.182	-.088
Marital status (reference = married)		
Single	.191	.223
Living with partner, nonmarried	.104*	.287
How long using Internet	.026	.010
Organizational participation offline	.193	NA
Political participation offline	NA	.268
Asynchronous Internet use	.783	.666
Synchronous Internet use	.365	.547
Constant	-6.693	-4.611
Cox and Snell $R^2$	.070	.157

a. Nonstandardized beta coefficients.

\*Indicates nonsignificant coefficients ( $p > .05$ ).

surprisingly, for most political activity can be seen as organizational involvement.<sup>10</sup> Age is the only demographic characteristic related to political participation. Among people aged 40 to 65 years, there is a significant association between their political participation and their Internet use, both synchronous ( $\beta = .12$ ) and asynchronous ( $\beta = .17$ ; see Table 4). The lack of an effect of time online suggests that no differences in political participation could be established between early and late adopters of the Internet.

The more people engage in political activities offline, the more they engage in political discussions online ( $\beta = .27$ ; see Table 5). The more people use the Internet, either asynchronously ( $\beta = .67$ ) or synchronously ( $\beta = .55$ ), the more they are politically involved online. As is the case for organizational involvement, the length of time one has been on the Internet is not associated with political involvement. The only demographic characteristics related to political participation online are age and race. Unlike organizational participation, older

adults are less involved in online political discussions, whereas Asian Americans are significantly less involved.

Although these cross-sectional results do not show causation, they do show that people active in organizations and politics offline are also active online. Moreover, those more involved with the Internet in general are more involved in discussing politics online. This is especially supported by the considerable increase in Cox and Snell's pseudo  $R^2$ , which increases considerably when the two Internet scales are added to the model.<sup>11</sup> Online political discussion appears to be an extension of offline activity and general involvement in the Internet. High Internet use is associated with high participatory involvement in organizations and politics. The more online participation in organizations and politics, the more offline participation in organizations and politics.

#### COMMUNITY COMMITMENT

If high use of the Internet supplements face-to-face and telephone contact and if it affords greater involvement in organizations and politics, then both of these phenomena should foster more community commitment.<sup>12</sup> Yet this is not the case. There is no association between Internet use, social contact, organizational and political involvement, and feelings of community (or alienation) in everyday life.

However, there are strong negative associations between the extent of Internet use and three measures of commitment to online community (see Table 6).<sup>13</sup> Why does high Internet use decrease commitment to online community? It is not a general avoidance of community, because only online commitment is rejected.

We believe that the causal mechanism is unpleasant exposure. The more people are online, the greater the likelihood that they will encounter annoying people who will act more disagreeably than if they were face-to-face (Lea, O'Shea, Fung, & Spears, 1992). Our reasoning is

1. People who use the Internet frequently tend to have larger online social networks and more contact with network members.
2. Larger online social networks tend to contain a greater number (and higher proportion) of weak ties.
3. The more weak ties in a social network, the more heterogeneous it is likely to be.
4. The more weak ties, the more likely that interactions with some network members will be distasteful.
5. The more weak ties, the more sparsely knit the network. In other words, fewer network members will be directly connected with each other.
6. The more sparsely knit the network, the harder it is to mobilize social control that can encourage behavior appropriate to the community.
7. Hence, a large number of weak ties in a sparsely knit network increases the likelihood of exposure to distasteful computer-mediated communication (e-mails, chats, etc.).
8. Experiencing such distasteful computer-mediated communication will weaken commitment to online community.

**TABLE 6: Demographic, Social Contact, and Internet Effects on Online Community Commitment ( $N = 20,075^a$ )**

	<i>Sense of Community With Family Online<sup>b</sup></i>	<i>General Sense of Online Community<sup>b</sup></i>	<i>Sense of Alienation Online<sup>b</sup></i>
Gender (male = 1)	.108	.020	.007*
Age (reference = 30 to 39 years)			
18 to 29	.034	.060	.052
40 to 49	-.016	-.021	-.064
50 to 65	-.084	-.047	-.073
66 or older	-.081	-.048	-.023*
Race (reference = White)			
Asian	-.008*	.011*	.025
Black	.066	.019	.005*
Other	.022	-.006*	.007
Education (reference = undergraduate degree)			
High school or less	.016	-.062	-.034
Some college	.011*	-.083	-.034
Graduate degree	.033	.021*	.040
Marital status (reference = married)			
Single	.038	-.044	.007*
Living with partner, nonmarried	.002*	-.035	-.028
How long using Internet	-.020	.008*	.039
Personal visits (family within 30 miles)	.014*	.007*	-.035
Telephone (family within 30 miles)	-.046	.021*	.019*
Personal visits (friends within 30 miles)	-.016	.000*	.001*
Telephone (friends within 30 miles)	.019*	.032	-.013*
Personal visits (family beyond 30 miles)	-.016	.005*	.000*
Telephone (family beyond 30 miles)	-.135	.051	.020*
Personal visits (friends beyond 30 miles)	-.001*	.007*	.000*
Telephone (friends beyond 30 miles)	-.011*	-.010*	-.020*
Political participation	-.025	-.041	.030
Organizational participation	-.051	-.001	.013
Asynchronous Internet use	-.175	-.315	-.083
Synchronous Internet use	-.049	-.316	-.071
Adjusted $R^2$	.108	.289	.029

a. Sample size is reduced because not all respondents completed this module.

b. Standardized beta coefficients.

\*Indicates nonsignificant coefficients ( $p > .05$ ).

In short, greater use of the Internet may lead to larger social networks with more weak ties and distasteful interaction with some of these ties, resulting in lower commitment to the online community. We caution that we have demonstrated only the bookends of this argument here: the relationship between frequent use of the Internet and a low sense of online community. The rest is a black box that awaits future investigation.

### HOW THE INTERNET MAY AFFECT SOCIAL CAPITAL

Does the Internet affect social capital in terms of social network contact, organizational and political participation, and community commitment? Our results indicate that Internet use supplements network capital by extending existing levels of face-to-face and telephone contact. This is one of the few situations in the social sciences where a lack of association is meaningful. Heavy Internet users neither use e-mail as a substitute for face-to-face visits and telephone calls nor visit and phone more often. Most Internet contact is with people who live within an hour's drive. People who live farther apart have less overall contact. Yet, these long-distance ties use the Internet for a higher proportion of their overall contact.

The Internet is especially used to maintain ties with friends. Friends usually interact as either two people or two couples, whereas kin and neighbors are likely to be in densely knit social networks. Our findings suggest that the Internet is particularly useful for keeping contact among friends who are socially and geographically dispersed. Yet distance still matters: Communication is lower with distant than nearby friends.

These results suggest that the effects of the Internet on social contact are supplementary, unlike the predictions of either the utopians or dystopians. Moreover, our results show that Internet use is not a uniform activity: People engage in social and asocial activities when online. On one hand, the Internet is used as a tool for solitary activities that keep people from engaging with their kin and in their communities. On the other hand, not all online activities compete with offline interactions. People might read newspapers or search for information regardless of whether they do this online or offline. The time people save because they shop online may be spent in offline socializing with family and friends.

Internet use increases participatory capital. The more people are on the Internet and the more they are involved in online organizational and political activity, the more they are involved in offline organizational and political activity. The limitations of our data do not allow us to make strong inferences about how Internet activity influences political participation. Although future research will have to specify the causal sequence, we suspect a positive feedback effect. Rather than distinct online and offline spheres, people are using whatever means are appropriate and available at the moment to participate in organizations and politics. People already participating offline will use the Internet to augment and extend their participation. People already participating online will get more involved in person with organizations and politics.

Internet use is associated with decreased commitment to online community. Because the association is limited to online community, we suspect that high Internet use has led to bad experiences that have resulted in low levels of commitment.

Taken together, our results suggest that the Internet is increasing interpersonal connectivity and organizational involvement. However, this increased

connectivity and involvement not only can expose people to more contact and more information, it can reduce commitment to community. Even before the advent of the Internet, there has been a move from all-encompassing, socially controlling communities to individualized, fragmented personal communities (Wellman, 1999a, 2001). The security and social control of all-encompassing communities have given way to the opportunity and vulnerability of networked individualism. People now go through the day, week, and month in a variety of narrowly defined relationships with changing sets of network members.

It is time for more differentiated analyses of the Internet, analyses that embed it in everyday life offline as well as online. Although we have shown that the Internet affects social capital, the mechanisms are unclear. Knowing that people have been using the Internet for more than 2 years or that they are online for 3 hours per day does not provide a clear picture of the activities in which they are engaged.

Future analyses need to examine in more detail the effects of the Internet, focus on the types of activities performed online, and explore how these fit into the complexity of everyday life. In general, the activities fall into two categories:

- social activities such as e-mail and chatting that promote interactions, and
- asocial activities such as Web surfing and reading the news.

When the Internet engages people primarily in asocial activities, then even more than television, its immersiveness can turn people away from community, organizational and political involvement, and domestic life. By contrast, when people use the Internet to communicate and coordinate with friends, relatives, and organizations—near and far—then it is a tool for building and maintaining social capital. Our research has shown that there are no single Internet effects. In this era of spatially dispersed community, the Internet fills needs for additional interpersonal contact that supplement in-person and telephone contact. At a time of declining organizational participation, the Internet provides tools for those already involved to increase their participation. Yet, at a time when networked individualism reduces group social cohesion, extensive involvement with the Internet apparently exposes participants to situations that weaken their sense of community online. This suggests that future examination of Internet use might identify what affects the quality as well as the quantity of online social interaction—for weak and strong ties.

## NOTES

1. However, our Netlab's study of a suburb found that highly wired residents had many more neighborhood ties and interactions than the nonwired (Hampton, 2001; Hampton & Wellman, 1999).

2. Our data and others (Wellman, Carrington, & Hall, 1988) show that other than ritual greeting cards, people rarely send letters through the traditional post anymore, even as the Internet itself boosts the sheer volume of written communication. It would be interesting to compare the effects of

the Internet to that of the introduction of the telephone as a complement to and replacement for face-to-face and postal communication. For the beginnings of such analysis, see Fischer (1992) and Wellman and Tindall (1993).

3. The survey was prepared in collaboration with our research group and has been available at <http://www.nationalgeographic/survey>. It is documented in Witte and Howard (1999) and Witte, Amoroso, and Howard (2000). See also Chmielewski and Wellman (1999).

4. Although we used orthogonal varimax factor analysis to identify associated variables, for ease of interpretation we use the variables themselves to construct the two scales. Cronbach's  $\alpha$ , indicating scale reliability, is .72 for the asynchronous scale and .53 for the synchronous scale. Other scaling techniques were tried and provided similar results.

5. We do not place much importance in statistical significance in this article, for, with a sample size of nearly 40,000, the most trivial relationships become significant. Thus, statistically significant relationships may not be substantively significant.

6. Percentages indicate how often the participants contacted each of the relationships in the past year.

7. Ratios are obtained by calculating the proportion of frequency of one relationship by another. For example, in Tables 2 and 3, the ratio nearby friend:distant friend for contact via e-mail is 86:62 = 1.39. The mean annual communication via e-mail with friends nearby is divided by the mean annual communication with friends at a distance.

8. Regressions available at [www.chass.utoronto.ca/~wellman](http://www.chass.utoronto.ca/~wellman).

9. Organizational involvement was measured by 20 items asking questions about organizational participation. The participants were asked to indicate the extent to which they were involved in different organizations. The options were *not at all*, *am a member*, and *am an active member*. From the 20 items, a scale measuring the degree of organizational involvement for each participant was constructed by summing the number of memberships for each item, with membership including members and active members. Thus, for each participant a score was obtained that reflected the sum of all the activities engaged. Similar regression results were found for a scale measuring active membership only. Frequencies of participation are available at [www.chass.utoronto.ca/~wellman](http://www.chass.utoronto.ca/~wellman).

10. The 12-item scale measuring political participation was based on the measure of participatory acts and political protest designed by the Roper Centre for Public Opinion Research. For the purpose of this study, a scale was created that summarized the number of activities a person had been involved in. Thus, each person was assigned a score ranging from 0 (*no participation at all*) to 12 (*high level of political involvement*). Besides including the scale on political participation, which exclusively measures activity offline, we also included an item to measure participants' online political activity.

11. See [www.chass.utoronto.ca/~wellman](http://www.chass.utoronto.ca/~wellman) for a comparison of logistic regression models.

12. Community commitment was measured by 15 items that were summarized into a scale. For factor loadings, see [www.chass.utoronto.ca/~wellman](http://www.chass.utoronto.ca/~wellman).

13. Three measures of a sense of community online are (a) a scale measuring a general sense of online community, (b) a scale measuring sense of community with kin via computer-mediated communication, and (c) a single item measuring a sense of alienation online. Cronbach's  $\alpha$ , indicating scale reliability, is .86 for the online community scale and .76 for the kinship scale.

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