

Revised version
**Does the Internet Increase, Decrease, or Supplement Social Capital?
Social Networks, Participation, and Community Commitment**

Barry Wellman (Sociology, CUCS, KMDI, University of Toronto)

Anabel Quan Haase (Information Studies, University of Toronto)

James Witte (Sociology, Clemson)

Keith Hampton (Urban Studies and Planning, MIT)

To be published in the *Hungarian Journal for Social Sciences*

Abstract

How does the Internet affect social capital? Do the communication possibilities of the Internet increase, decrease, or supplement interpersonal contact, participation, and community commitment? Our evidence comes from a 1998 survey of 39,211 visitors to the National Geographic Society website, one of the first large-scale web surveys. We find that people's interaction online supplements their face-to-face and telephone communication, without increasing or decreasing it. However, 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. Internet use is associated with a sense of online community, in general and with kin. Taken together, the evidence suggests that the Internet is becoming normalized as it is incorporated into the routine practices of everyday life.

Keywords: Internet use, social capital, social networks, voluntary organizations, politics, community commitment, technology.

Acknowledgments

This article is reprinted by permission of Sage Publications from the *American Behavioral Scientist*, 45, 3 (November 2001), pp. 437-56. The only change is a correction in the findings about community commitment. It 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 paper 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).

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 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, 1996, 2000). Putnam's evidence encompasses two forms of social capital, which we call:

a) 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).

b) Participatory Capital: Involvement in politics and voluntary organizations that afford opportunities for people to bond, create joint accomplishments, and aggregate and articulate their demands and desires (a concept enshrined in the American heritage by Tocqueville, 1835).

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

c) 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 email in duets or small groups; or schmoozing, ranting, and organizing in discussion groups such as “list serves” 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 percent) 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), while 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 does the Internet increase, decrease, or supplement social capital? 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 website in the fall of 1998. Although these data, especially in the context of Internet research, are not recent, their value consists in the size of the data set, which comprises 39, 211 North American adult respondents. Moreover, we see the value in that we provide empirical evidence for early trends between Internet use and social capital that provide a baseline

to which later research on the Internet can be compared as Internet penetration increases. Thus, these data allow documenting changes in the impact of the Internet on the functioning of society. We also take a unique perspective in our analysis in that we investigate their online activities in relation to their offline activities, thus we do not assume that offline life comprises a separate sphere. We examine people's Internet use in the broader context of their face-to-face and telephone communication.

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, 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 (Kapoor, 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 world-wide (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 afford opportunities to contact friends and kin at low cost, it also enhances face-to-face and telephone communication as network members: (1) become more aware of each others' needs and stimulate their relationships through more frequent contact (Homans, 1961); (2) exchange songs, pictures, and other files; and (3) 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 and political 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:

(1) 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 friendship, provide intangible resources such as emotional support, and provide tangible material aid. As Robert Putnam once told Barry Wellman: "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” (personal email, January 10 2000).

(2) 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, this issue and Nie & Erbring, 2000 say they do; Anderson & Tracy, this issue say 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.

(3) 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, Szczypula, Kiesler, & Scherlis, 1998; LaRose, Eastin, & Gregg, 2001).

(2) Experienced users may have better coping techniques, but their more complex uses of the Internet creates 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 email are asynchronous, delaying gratifying feedback until the recipient signs on, reads the message, decides to answer, and the original sender eventually gets his 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 both 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, this issue).¹

(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 so foster contact with acquaintances as to tilt the balance between weak and strong ties (Granovetter, 1973). The value of weak ties is in their provision of new

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

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),² one that can be more convenient and affordable. 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.

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 (Fischer, 1992) and Wellman and Tindall (1993).

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, this issue; see also Uslaner, 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 and political 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 website, September-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).³ We exclude here those who encountered the Internet

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); Witte, Amoroso, and Howard (2000). See also Chmielewski and Wellman (1999).

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 two years when they took the survey, while only 12% had been online for less than six months. The most common activity is social, exchanging emails at a mean rate of 270 days per year (Table 1). Other social activities include engaging in chats (25 days/year), playing multiuser games (11 days/year), and visiting multi-user dimensions (MUDs) or other online role-playing environments (7 days/year). People also use the Internet for less social activities, such as web-surfing (154 days/year); looking for news, digital libraries, and magazines (124 days/year); receiving announcements (105 days/year); and shopping (8 days/year).

---see Table 1 ---

Survey 2000 contained ten items where participants reported different aspects of their Internet use. For each item, participants could answer: "1. Rarely," "2. Monthly," "3. Weekly," "4. A Few Times a Week," and "5. Daily". Factor analysis of these ten items revealed two distinct profiles of Internet use: synchronous and asynchronous (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.⁴

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 α , indicating scale reliability, is .72 for the asynchronous scale and .53 for the synchronous scale. Other scaling techniques were tried and provided similar results.

The *synchronous scale* represents simultaneous interaction among two or more users and includes three items (Table 1). Synchronous activities are inherently social activities involving at least two people interacting simultaneously. By contrast, the *asynchronous scale* represents diverse activities including email and information search (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 email 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.⁵ 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 (also see in this issue Howard, Rainie, & Jones; Kavanaugh & Patterson). 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

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

are more likely to play multiuser games online (see also Howard et al., this issue; Katz, Rice, & Aspden, 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., this issue; 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 email (32%), face-to-face visits (23%), and a small amount of postal letter writing (4%).⁶ 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 twenty-or-so most active ties. As in pre-Internet days (Wellman, et al., 1988; Fischer, 1992), people communicate almost as much with kin (46 percent of all reported informal communications) as they do with friends (54 percent). 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 email is asynchronous and its cost does not increase with distance, using it

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

would reduce the constraints of distance on contact. But does email 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, 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, email is most often used for more distant network members (living more than 50 kilometers away). Email is used for 48% of all contact with distant kin and for 60% of all contact with distant friends. Email is especially useful for communicating with people who are far-away because of low monthly-rate, 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, while friendships tend to be more voluntary and one-to-one (Wellman & Wortley, 1990). Email supplements other means of communication with kin. Kin who use email a lot to communicate visit and phone each other as frequently as those who rarely use email to keep in contact.

Distance is intertwined with email contact among friends. People use email more often to stay in touch with friends who live nearby than with friends who live at a distance (ratio=1.4).⁷

Nearby friends are contacted *three* times as often as those further away (ratio=2.9); nearby kin

⁷ Ratios are obtained by calculating the proportion of frequency of one relationship by another. For example, in Table 2 and 3, the ratio "nearby friend / distant friend" for contact via email is 86/62 days per year =1.39. This is the mean annual communication via email with friends nearby divided by the mean annual communication with friends at a distance.

are contacted *twice* as often as those further 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 email. 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.⁸

--- see Table 2 ---

--- see Table 3 ---

Participatory Capital

Organizational Participation. The Internet both supplements and increases organizational involvement.⁹ The results indicate a positive relationship between Internet use and organizational participation. The effect is stronger for the asynchronous activities ($\beta=.13$)

⁸ Regressions available at 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 both 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.

than for the synchronous activities ($\beta = .10$; 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 in more organizations. The length of time people have been online is not associated with the extent of their organizational involvement.

--- see Table 4 ---

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 ($\beta = .19$; Table 5). The more they engage in both asynchronous ($\beta = .78$) and synchronous Internet activities ($\beta = .37$), the more they are involved with organizations offline and computer clubs online.

--- see Table 5 ---

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 surprisingly, for most political activity can be seen as organizational involvement.¹⁰ Age is the only demographic characteristic related to political participation. Among people aged 40-65, there is a significant association between their political participation and their Internet use, both synchronous ($\beta = .12$) and asynchronous ($\beta = .17$, Table

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 which summarized the number of activities a person had been involved. Besides including the scale on political participation, which exclusively measures activity offline, we also included an item to measure participants' online political activity. Thus, each person was assigned a score that ranged from 0 to 13: 0 indicates no participation at all, and 13 indicates a high level of political involvement.

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 ($\beta=.27$; 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, while 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.¹¹ 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 both 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

¹¹ See www.chass.utoronto.ca/~wellman for a comparison of logistic regression models.

foster more community commitment.¹² Yet, this is not the case. There is no association between how long people have been on the Internet, the extent of their Internet use, and their sense of community in everyday life or their general feelings of alienation. Also people's amount of social contact are not associated (either positively or negatively) with their general sense of community or alienation. The only association is with participation. High levels of political participation ($\beta=.13$) and organizational participation ($\beta=.17$) are associated with a greater sense of community.

However, there are strong *positive* associations between the extent of Internet use and three measures of commitment to *online* community (Table 6).¹³ Those who use the Internet frequently have a stronger sense of online community commitment than infrequent users. This is true for both synchronous ($\beta=.32$) and asynchronous ($\beta=.32$) use of the Internet. Thus, involvement in and exposure to the Internet are the best predictors of having a positive attitude towards community online. This suggests that the Internet provides a sphere for social interaction, for people to meet others with similar interests, and for the creation of social cohesion. Further, the association provides, in accord with other recent findings, evidence against the alienation hypotheses and supports the notion of the Internet as a social sphere (see the other articles in this issue, and compare the two studies by Kraut et al., 1998, 2001).

¹² Community commitment was measured by 15 items that were summarized into a scale. For mean values of single items see www.chass.utoronto.ca/~wellman.

¹³ Three measures of a sense of community online were created on the basis of factor loadings obtained from a principal components analysis with orthogonal varimax rotations: 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. For mean values of single items and factor loadings see www.chass.utoronto.ca/~wellman. Chronbach's α , indicating scale reliability, is .86 for the online community scale and .76 for the kinship scale.

Asynchronous Internet use (such as email) is positively associated with a sense of online community with ($\beta=.18$). This is not surprising because asynchronous communication, such as email, is a useful medium for contact with kin, who are apt to live far away (compare Tables 2 and 3). By contrast, synchronous Internet use is not associated with a sense of online community with kin. Synchronous online games, multi-user environments, and chat rooms are more spaces for “casual” socialization, where friends meet to chat, form new bonds, and have serendipitous interactions.

Thus, the time people currently spend online, and not the time since they first went online, is related to how they feel about the Internet. Behavior and attitude are related. Those who believe that the Internet will provide them with community are the ones using it the most.

--- see Table 6 ---

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 email as a substitute for face-to-face visits and telephone calls, nor do they visit and phone more often. Most Internet contact is with people who live within an hour's drive. People who live further 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, while 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 both social and asocial activities when online. On the 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 relatives 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 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.

Using the Internet is related differently to (a) a general sense of community and (b) a sense of *online* community. On the one hand, there is no association between use of the Internet and either a general sense of community or feelings of alienation. On the other hand, frequent use of the Internet is associated with positive feelings of community online. The Internet is

neither fulfilling the utopians' dreams of greater community euphoria nor echoing the dystopians' nightmare of greater alienation. The evidence does suggest that those who spend more time online value the Internet for its positive social virtues as a space for supportive social interactions to flourish. Their online encounters function as positive feedback increasing their willingness to maintain their use of the Internet. Using the Internet may also be leading people to realize that complementary and alternative ways of finding community exist online in addition to those currently available offline.

Taken together, our results suggest that the Internet is increasing interpersonal connectivity, organizational involvement, and new forms of community commitment. However, as the Internet becomes normalized, increased connectivity and involvement not only can expose people to more contact and more information, it can also expose them to negative experiences, such as hacker intrusions, privacy breaches, misunderstanding, and conflict. 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, and analyses, which embeds 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 two years or that they are online for three 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, explore how these fit into the complexity of everyday life.

In general, the activities fall into two categories:

- a) social activities, such as email and chatting that promote interactions;
- b) *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. This suggests that future examination of Internet use might identify what affects the quality as well as the quantity of online social interaction – for both weak and strong ties.

REFERENCES

- Anderson, B., & Tracey, K. (2001). Digital living: The impact (or otherwise) of the internet on everyday life. *American Behavioural Scientist*, 45(3), 000-000
- Baym, N. K. (1997). Interpreting soap operas and creating community: Inside an electronic fan culture. In S. Kiesler (Ed.), *Culture of the Internet* (pp. 103-120). Mahwah, NJ: Lawrence Erlbaum.
- Bikson, T. K., & Panis, C. W. A. (1997). Computer and connectivity: Current trends. In S. Kiesler (Ed.), *Culture of the Internet* (pp. 407-430). Mahwah, NJ: Lawrence Erlbaum.
- Castells, M. (1996). *The rise of the network society*. Cambridge, MA: Blackwell Publishers.
- Chmielewski, T., & Wellman, B. (1999). Tracking geekus unixus: An explorers' report from the *National Geographic* website. *SIGGROUP Bulletin*, 20, 26-28.
- Cohen, D., & Prusak, L. (2001). *In good company: How social capital makes organizations work*. Harvard, MA: Harvard Business School Press.
- Cross, R. (2000). The ties that share: Relational characteristics that facilitate knowledge transfer and organizational learning. Paper presented at the Sunbelt Social Network Analysis Conference, Vancouver, British Columbia.
- De Kerckhove, D. (1997). *Connected intelligence: The arrival of the web society*. Toronto: Somerville House Publishing.
- DiMaggio, P., Hargittai, E., Neuman, R., & Robinson, J. P. (2001). Social implications of the Internet. *Annual Review of Sociology*, 27, 307-336.
- Fischer, C. (1992). *America calling: A social history of the telephone to 1940*. Berkeley, CA: University of California Press.
- Flanagan, A., & Metzger, M. (2001). Internet use in the contemporary media environment. *Human Computer Research*, 27, 153-181.
- Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology*, 78, 1360-1380.
- Hampton, K. N. (2001). *Living the wired life in the wired suburb: Netville, glocalization and civic society*. Unpublished Doctoral Dissertation, University of Toronto, Toronto.
- Hampton, K.N., & Wellman, B. (1999). Netville on-line and offline: Observing and surveying a wired suburb. *American Behavioural Scientist*, 43 (3), 478-492.
- Haythornthwaite, C., & Wellman, B. (1998). Work, friendship and media use for information exchange in a networked organization. *Journal of the American Society for Information Science*, 49(12), 1101-1114.
- Homans, G. (1961). *Social behavior: Its elementary forms*. New York: Harcourt Brace Jovanovich.
- Howard, P. E. N., Rainie, L., & Jones, S. (this issue). Days and nights on the Internet: The impact of a diffusing technology. *American Behavioral Scientist*.
- Kapor, M. (1993). Where is the digital highway really heading? *Wired*, July/August(94), 53-59.
- Katz, J. E., Rice, R. E., & Aspden, P. (this issue). The Internet, 1995-2000: Access, civic involvement, and social interaction. *American Behavioral Scientist*.
- Kavanaugh, A. L., & Patterson, S. J. (this issue). The rise and fall of Internet use and the quality of life in communities. *American Behavioral Scientist*.
- Koku, E., Nazer, N., & Wellman, B. (2001). Netting scholars: Online and offline. *American Behavioral Scientist*, 43(Special issue: Mapping Globalization), 1750-1772.

- Kraut, R., Lundmark, V., Patterson, M., Kiesler, S., Mukopadhyay, T., & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist*, 53(9), 1017-1031.
- Kraut, R., Mukhopadhyay, T., Szczypula, J., Kiesler, S., & Scherlis, W. (1998). Communication and information: Alternative uses of the Internet in households. *Proceedings of the CHI 98* (pp. 368-383). NY: ACM.
- LaRose, R., Eastin, M. S., & Gregg, J. (2001). Reformulating the Internet paradox: Social cognitive explanations of Internet use and depression, [Online]. *Journal of Online Behavior*, 1, 2. Retrieved March 23, 2001, from the World Wide Web: <http://www.behavior.net/JOB/v1n2/paradox.html>.
- Lea, M., O'Shea, T., Fung, P., & Spears, R. (1992). 'flaming' in computer-mediated communication: Observations, explanations, implications. In M. Lea (Ed.), *Contexts of computer-mediated communication* (pp. 89-112). London: Harvester-Wheatsheaf.
- Lévy, P. (1997). *Collective intelligence: Mankind's emerging world in cyberspace*. New York: Plenum Trade.
- Lin, N. (2001). *Social capital: A theory of social structure and action*. Cambridge, UK: Cambridge University Press.
- McAdam, D. (1982). *Political process and the development of black insurgency 1930-1970*. Chicago: University of Chicago Press.
- Merton, R. (1957). Patterns of influence: Cosmopolitans and locals. In R. Merton (Ed.), *Social theory and social structure* (pp. 387-420). Glencoe, IL: Free Press.
- Mosquera, M. (2000). *More than half of u.S. Households now have Internet access*. TechWeb News. Retrieved December 18, 2000, from the World Wide Web: <http://www.techweb.com/wire/story/TWB200011218S0011>.
- Müller, C. (1999). Networks of 'personal communities' and 'group communities' in different online communication services. *Proceedings of the Exploring Cyber Society: Social, Political, Economic and Cultural Issues July 5-7 1999* (pp. University of Northumbria at Newcastle/UK: uk.
- Nie, N. H. (this issue). Sociability, interpersonal relations, and the Internet: Reconciling conflicting findings. *American Behavioral Scientist*.
- Nie, N. H., & Erbring, L. (2000). *Internet and society: A preliminary report*. Stanford, CA: Stanford Institute for the Quantitative Study of Society.
- Nie, N. H., & Sackman, H. (1970). *The information utility and social choice*. Montvale, NJ: AFIPS.
- NTIA. (2000). *Falling through the net: Toward digital inclusion*, [Report]. National Telecommunications and Information Administration, U.S. Department of Commerce, Economic and Statistics Administration. Retrieved March 16, 2001, from the World Wide Web: <http://www.ntia.doc.gov/ntiahome/digitaldivide/>.
- Orlikowski, W. J. (1996). Learning from notes: Organizational issues in groupware implementation. In R. Kling (Ed.), *Computerization and controversy: Value conflicts and social choices* (2nd ed., pp. 173-189). San Diego, CA: Academic Press.
- Putnam, R. D. (1996). The strange disappearance of civic America. *The American Prospect*, 24, 34-48.
- Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. NY: Simon & Schuster.

- Reddick, A. (2000, July 2000). *The dual digital divide: The information highway in Canada*, [Report]. The Public Interest Advocacy Centre, Human Resources Development Canada, Industry Canada. Retrieved March 31, 2001, from the World Wide Web: <http://olt-bta.hrdc-drhc.gc.ca/publicat/index.html>.
- Rheingold, H. (1993). *The virtual community: Homesteading on the electronic frontier*. Reading, MA: Addison-Wesley.
- Rheingold, H. (2000). *The Virtual Community: Homesteading on the electronic frontier* (2nd ed.). Cambridge, MA: MIT Press.
- Schraefel, m. c., Ho, J., Chignell, M., & Milton, M. (2000). Building virtual communities for research collaboration. Paper presented at the AIWoRC'00 An International Working Conference and Industrial Expo on New Advances and Emerging Trends in Next Generation Enterprises, Buffalo, NY.
- Schwartz, E. (1996). *Netactivism: How citizens use the Internet*. Sebastopol, CA: Songline Studies.
- Slouka, M. (1995). *War of the worlds: Cyberspace and the high-tech assault on reality*. New York: Basic Books.
- Smith, M. A., Drucker, S. M., Wellman, B., & Kraut, R. (1999, May). Counting on community in cyberspace. Paper presented at the CHI '99, Pittsburgh.
- Sproull, L. S., & Kiesler, S. B. (1991). *Connections: New ways of working in the networked organization*. Cambridge, MA: MIT Press.
- Steiner, G. A. (1963). *The people look at television: A study of audience attitudes*. NY: Knopf.
- Stoll, C. (1995). *Silicon snake oil: Second thoughts on the information highway*. NY: Doubleday.
- Tarrow, S. (1998). Fishnets, internets and catnets: Globization and transnational collective action. In M. Hanagan, L. Moch , & W. TeBrake (Eds.), *The past and future of collective action* 228-244. Minneapolis: University of Minnesota Press.
- Tocqueville, A. d. (1835). *Democracy in America*. New York: Knopf.
- Uslaner, E. M. (2000). Social capital and the net. *Communications of the ACM*, 43(12), 60-65.
- Wellman, B. (1999a). The network community: An introduction. In B. Wellman (Ed.), *Networks in the global village* (pp. 1-48). Boulder, CO: Westview.
- Wellman, B. (1999b). *Networks in the global village*. Boulder, CO: Westview Press.
- Wellman, B. (2001). Physical place and cyber place: The rise of personalized networking. *International Journal of Urban and Regional Research*, 25, 227-252.
- Wellman, B., Carrington, P., & Hall, A. (1988). Networks as personal communities. In B. Wellman & S. D. Berkowitz (Eds.), *Social structures: A network approach* (pp. 130-184). Cambridge: Cambridge University Press.
- Wellman, B., & Frank, K. (2001). Network capital in a multilevel world: Getting support from personal communities. In N. Lin, R. Burt , & K. Cook (Eds.), *Social capital: Theory and research* 233-273. Hawthorne, NY: Aldine de Gruyter.
- Wellman, B., & Gulia, M. (1999). Net surfers don't ride alone. In B. Wellman (Ed.), *Networks in the global village* (pp. 331-366). Boulder, CO: Westview Press.
- Wellman, B., & Tindall, D. (1993). Reach out and touch some bodies: How social networks connect telephone networks. *Progress in Communication Sciences*, 12, 63-93.
- Wellman, B., & Wortley, S. (1990). Different strokes from different folks: Community ties and social support. *American Journal of Sociology*, 96, 558-588.

Witte, J. C., Amoroso, L. M., & Howard, P. E. N. (2000). Method and representation in Internet-based survey tools: Mobility, community, and cultural identity in survey2000. *Social Science Computing Review*, 18(2), 179-195.

Tables for
**Does the Internet Increase, Decrease, or Supplement Social Capital?
 Social Networks, Participation, and Community Commitment**

Barry Wellman (Sociology, CUCS, KMDI, University of Toronto)

Anabel Quan Haase (Information Studies, University of Toronto)

James Witte (Sociology, Clemson)

Keith Hampton (Urban Studies and Planning, MIT)

To be published in the *Hungarian Journal for Social Sciences*_

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

<i>Internet Activities</i>	<i>Days/Year</i>	<i>Factor Loadings^a</i>	
		<i>Asynchronous</i>	<i>Synchronous</i>
Send/receive email	270	.682 ^b	-.050
Take part in mailing lists	105	.729 ^b	.038
Access digital libraries, newspapers, magazines	124	.717 ^b	.111
Take online college courses	11	.403 ^b	.237
Purchase products or services	8	.564 ^b	.078
Surf the web	154	.533 ^b	.310
Participate in usenet newsgroups	26	.511 ^b	.352
Engage in chats	25	.173	.701 ^c
Visit MUDs, MOOs, other multiuser environments	7	.141	.709 ^c
Play multiuser games	11	-.015	.727 ^c
% of variance explained		25.86	18.20

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.

Table 2: Email Use by Mean Annual Communication Within 30 Miles (50 km)

<i>Email Use</i>	<i>Relatives</i>					<i>Friends</i>				
	<i>F2F</i>	<i>Phone</i>	<i>Letters</i>	<i>Email</i>	<i>Total</i>	<i>F2F</i>	<i>Phone</i>	<i>Letters</i>	<i>Email</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 x/wk	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: Email Use by Mean Annual Communication Beyond 30 Miles (50 km)

<i>Email Use</i>	<i>Relatives</i>					<i>Friends</i>				
	<i>F2F</i>	<i>Phone</i>	<i>Letters</i>	<i>Email</i>	<i>Total</i>	<i>F2F</i>	<i>Phone</i>	<i>Letters</i>	<i>Email</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 x/wk	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^a</i>	<i>Organizational Participation^a</i>	<i>Political Participation^a</i>	<i>Organizational Participation^a</i>
Gender (Male=1)	.006*	-.052	.013	-.047
Age (Reference=30-39 years)				
18-29	.000*	.029	-.015*	.017
40-49	.098	.067	.100	.068
50-65	.122	.085	.124	.088
66+	.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, Non-married	-.003*	-.038	-.003*	-.038
How Long using Net?				
Asynchronous Internet Use	.008	-.010*	.063	.032
Synchronous Internet Use	.166	.134	N/A	N/A
Adjusted R ²	N/A	N/A	.116	.105
	.071	.065	.062	.061

NOTE: N/A = not applicable.

a. Standardized beta coefficients.

*Indicates non-significant coefficients ($p > .05$).

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

	<i>Organizational Participation Offline to Online^a</i>	<i>Political Participation Offline to Online^a</i>
Gender (Male=1)	.338	.141
Age (Reference=30-39 years)		
18-29	-.298	-.201
40-49	.201	-.191
50-65	.688	-.255
66+	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, Non-married	.104*	.287
How Long using Net?	.026	.010
Organizational Participation Offline	.193	N/A
Political Participation Offline	N/A	.268
Asynchronous Internet Use	.783	.666
Synchronous Internet Use	.365	.547
Constant	-6.693	-4.611
Cox & Snell R ²	.070	.157

NOTE: N/A = not applicable.

a. Nonstandardized beta coefficients.

*Indicates non-significant coefficients ($p > .05$).

Table 6: Demographic, Social Contact, and Internet Effects on Online Community Commitment

	<i>General Sense of Online Community^a</i>	<i>Sense of Community with Relatives Online^a</i>	<i>Sense of Alienation Online^a</i>
Gender (Male=1)	-.020	-.108	-.007*
Age (Reference=30-39 years)			
18-29	-.060	-.034	-.052
40-49	.021	.016	.064
50-65	.047	.084	.073
66+	.048	.081	.023*
Race (Reference=White)			
Asian	-.011*	.008*	-.025
Black	-.019	-.066	-.005*
Other	.006*	-.022	-.007
Education (Reference= Undergraduate Degree)			
High School or Less	.062	-.016	.034
Some College	.083	-.011*	.034
Graduate Degree	-.021*	-.033	-.040
Marital Status (Reference= Married)			
Single	.044	-.038	-.007*
Living with Partner, Non-married	.035	-.002*	.028
How Long using Net?	-.008*	.020	-.039
Personal Visits (Kin within 30 miles)	-.007*	-.014*	.035
Telephone (Kin within 30 miles)	-.021*	.046	-.019*
Personal Visits (Friends within 30 miles)	-.000*	.016	-.001*
Telephone (Friends within 30 miles)	-.032	-.019*	.013*
Personal Visits (Kin beyond 30 miles)	-.005*	.016	-.000*
Telephone (Kin beyond 30 miles)	-.051	.135	-.020*
Personal Visits (Friends beyond 30 miles)	-.007*	.001*	-.000*
Telephone (Friends beyond 30 miles)	.010*	.011*	.020*
Political Participation	.041	.025	-.030
Organizational Participation	.001	.051	-.013
Asynchronous Internet Use	.315	.175	.083
Synchronous Internet Use	.316	.049	.071
Adjusted R ²	.289	.108	.029

a. Standardized beta coefficients.

*Indicates non-significant coefficients ($p > .05$).

