# Long Distance Community in the Network Society

## Contact and Support Beyond Netville

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*The authors examine the experience of the residents of Netville, a suburban neighborhood with access to some of the most advanced new communication technologies available, and how this technology affected the amount of contact and support exchanged with members of their distant social networks. Focusing exclusively on friends and relatives external to the neighborhood of Netville, the authors analyze community as relations that provide a sense of belonging rather than as a group of people living near each other. Computer-mediated communication (CMC) is treated as one of several means of communication used in the maintenance of social networks. Contrary to expectations that the Internet encourages a global village, those ties that previously were just out of reach geographically experience the greatest increase in contact and support as a result of access to CMC.*

### COMMUNITIES AS SOCIAL NETWORKS: ON AND OFF THE INTERNET

We usually think of communities as idyllic neighborhoods, where neighbors visit each other's private homes, chat on street corners, and get together in local cafes and bars (Oldenburg, 1999). This image is broadly shared by the public, the media, politicians, and indeed scholars, for whom a community study means going to a neighborhood and seeing what transpires there (Wellman & Leighton, 1979).

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Yet if we emphasize the social aspect of community over the spatial, then most community ties have been nonlocal for many decades (Fischer, 1982, 1984; Wellman, 1999). The social definition of community emphasizes supportive, sociable relations that provide a sense of belonging rather than a group of people living near to each other. Seen this way, communities usually have many ties that extend well beyond the neighborhood. This was so even before the Internet, when to see friends and relatives people had to get into their cars, fly on airplanes, or try to find them by telephone (often paying expensive long-distance charges) (Wellman & Tindall, 1993). For example, in the Toronto borough of East York, only 13% of residents' active ties are with people living in the same neighborhood (Wellman, Carrington, & Hall, 1988).

Community is best seen as a network—not as a local group. We are not members of a society that operates in little boxes, dealing only with fellow members of the few groups to which we belong: at home, in our neighborhood, in our workplaces, or in cyberspace. Each person has his or her own personal community of kinship, friendship, neighboring, and workmate ties. Personal communities traverse a variety of social settings and are generally far flung, sparsely knit, crosscutting, loosely bounded, and fragmentary (Wellman, 1999). Social ties vary in intensity and are maintained through multiple communication media: direct in-person contact, telephone, postal mail, and more recently fax, e-mail, chats, and discussion groups.

This networking of community—and indeed, of society—began well before the advent of personal computers connected by the Internet (Wellman, 1997). But a computer network is a social network when it connects people and institutions. The growth of computer-mediated communication (CMC) introduces a new means of social contact with the potential to affect many aspects of personal communities. This article examines the experience of the residents of Netville, a suburban neighborhood with access to some of the most advanced new communication technologies available, and how this technology affected contact and support stretching beyond Netville to the residents' personal communities.

## THE DEBATE ABOUT COMMUNITY GETS WIRED

Unlike the almost universal earlier fear that technologies such as the automobile and television would harm community (Stein, 1960), the debate about the

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Internet comes in two flavors (Wellman & Gulia, 1999). Enthusiasts hail the Internet's potential for making connections without regard to race, creed, gender, or geography. As Phil Patton (1986) proclaimed,

> Computer-mediated communication . . . will do by way of electronic pathways what cement roads were unable to do, namely connect us rather than atomize us, put us at the controls of a "vehicle" and yet not detach us from the rest of the world. (p. 20)

By contrast, contemporary dystopians suggest that the lure of new communication technologies withdraws people from in-person contact and lures them away from their families and communities (Kraut et al., 1998; Nie, 2001 [this issue]; Nie & Erbring, 2000). They worry that meaningful contact will wither without the full bandwidth provided by in-person, in-the-flesh contact. As Texas commentator Jim Hightower warned over the ABC radio network, "While all this razzle-dazzle connects us electronically, it disconnects us from each other, having us 'interfacing' more with computers and TV screens than looking in the face of our fellow human beings" (quoted in Fox, 1995, p. 12).

Yet several scenarios are possible. Indeed, each scenario may happen to different people or to the same person at different times. In an information society where work, leisure, and social ties are all maintained from within the smart home, people could reject the need for social relationships based on physical location. They might find community online (or not at all) rather than on street corners or while visiting friends and relatives. New communication technologies may advance the home as a center for services that encourage a shift toward greater home-centeredness and privatization. At the same time, the location of the technology inside the home facilitates access to local relationships, suggesting that domestic relations may flourish, possibly at the expense of more distant ties.

Our research has been guided by a desire to study community offline as well as online. We are interested in the totality of relationships in community ties and not just in behavior in one communication medium or locale. In this we differ from studies of virtual community that only look at relationships online (see some of the chapters in Smith & Kollock, 1999) and from traditional sociological studies of in-person, neighborhood-based communities. The former overemphasizes the prevalence of computer-only ties, whereas the latter ignores the importance of transportation and communication in connecting community members over a distance. Unlike many studies of CMC that observe undergraduates in laboratory experiments (reviewed in Sproull & Kiesler, 1991; Walther, Anderson, & Park, 1994), we study people in real settings. We focus here on the effect of new communication technologies on the residents of the wired neighborhood of Netville.

## THE SOCIAL AFFORDANCES OF THE INTERNET[1]

Pre-Internet advances in transportation and communication technology partially emancipated community from its spatial confines. The cost of mobility and social contact have decreased with the advent of technologies such as the train, automobile, airplane, and telephone (Hawley, 1986). People decentralized their active social ties as the financial and temporal costs of transcending space decreased. CMC—in the form of e-mail, chat groups, and instant messaging—introduces new means of communication with friends and relatives at a distance. The Internet has the capacity to foster global communities, in which ties might flourish without the constraints of spatial distance. On the Internet, neighbors across the street are no closer than best friends across the ocean. In practice, the shrinking of the map of the world is unlikely to go so far. Most ties probably function through the interplay of online and offline interactions. Hence, CMC should lessen, but not eliminate, the constraints of distance on maintaining personal communities.

With the telephone, the cost of contact increases with physical distance. By contrast, with CMC the cost of contact does not vary with distance but is based on a flat fee, along with access to a personal computer and the Internet. For most, the decision to purchase a home computer has been based on a desire to expand educational or work opportunities and not directly out of a need to maintain contact with distant network members (Ekos Research Associates, 1998). As a result, the ability to use CMC as a form of contact is largely a by-product of a financial investment in other activities.

In addition to reducing the financial cost of social contact, specific forms of CMC, such as e-mail, provide temporal freedom. Asynchronous e-mail means that both parties do not have to be present for contact to take place. Analogous to the traditional paper letter, e-mail can be composed without the immediate participation of the receiving party. Those with free, high-speed, always-on Internet access, such as what was available to the residents of Netville, are even better situated to experience increased social contact with network members.[2] They can send messages whenever the urge hits them, without waiting to boot up the computer, dial the Internet, or worry about interfering with telephone calls. They can quickly send and receive pictures, audio messages, and e-mail. As temporal flexibility becomes more important with complex, individualized daily lives (Wellman, in press), CMC should improve the ability of contact to take place for local as well as distant network members.

It is time to move from speculation to evidence. This article tests the hypotheses that

- Living in a wired neighborhood with access to free, high-speed, always-on Internet access increases social contact with distant network members.
- Those ties located at the greatest distance will experience the greatest increase in contact as a result of Internet access.

Previous studies have demonstrated that CMC can be used for the exchange of noninstrumental support, such as companionship and emotional aid (Haythornthwaite & Wellman, 1998). In this way, CMC is similar to the telephone in its ability to participate in the exchange of social support regardless of physical distance. However, instrumental aid—such as lending household items and providing child care—relies more on physical access and is more appropriately exchanged with physically available network members (Wellman & Wortley, 1990). For ties in close proximity, the introduction of CMC may help facilitate the delivery of aid but is likely limited to supplementing existing means of communication. At best, CMC will contribute to a modest increase in support exchanged with nearby ties.[3]

The most physically distant ties are also unlikely to experience a significant increase in the exchange of support as a result of CMC. Regardless of the means of communication, distance between network members makes it difficult to provide many goods and services. Support that does not require in-person contact—such as financial aid, companionship, and emotional aid—are the only forms of support likely to benefit from CMC between distant network members.

CMC is likely to afford the greatest increase in support among midrange ties, located somewhere between the most distant network members and those who live nearby. CMC, particularly e-mail, should facilitate coordination with midrange ties, increase awareness of network members' social capital, and increase the amount and breadth of support exchanged. Network members within this midrange can provide noninstrumental aid that does not rely on in-person contact. With some coordination and effort, they can also provide some instrumental aid. The reduced cost and temporal flexibility of e-mail reduces previous barriers to obtaining such support from midrange network members. We would therefore expect the greatest increase in the exchange of overall support to occur with those who were previously just out of reach. We hypothesize that

- Living in a wired neighborhood with free, high-speed, always-on Internet access increases overall levels of support exchanged with network members. In particular, midrange ties (50 to 500 km) will experience the greatest increase in the exchange of overall support.

## STUDYING NETVILLE[4]

### NETVILLE[5]

The evolving nature of the Internet makes it a moving research target. Almost all research can only describe what has been the situation, rather than what is now or what will soon be. We have been blessed with a window into the future by having spent several years studying Netville, a leading-edge wired suburb filled with Internet technology that is not yet publicly available. The widespread use of

such technology in Netville makes it an excellent setting to investigate the effects of CMC on community.

Netville is a newly built development of approximately 109 medium-priced detached homes in a rapidly growing outer suburb of Toronto. Most homes have three or four bedrooms plus a study (2,000 square feet on a 40-foot lot). In its appearance it is nearly identical to most other suburban developments in the Toronto area. Netville's distinguishing feature is that it is one of the few developments in North America where all of the homes were equipped from the start with a series of advanced communication technologies supplied across a broadband high-speed local network. Users could reliably expect network speeds of 10 Mbps, more than 10 times faster than other commercially available high-speed, always-on[6] Internet systems (i.e., telephone DSL and cable modem services) and more than 300 times faster than dial-up telephone connections. For 2 years, the local network provided residents with high-speed Internet access (including electronic mail and Web surfing), computer desktop videophone, an online jukebox, entertainment applications, online health services, and local discussion forums. In exchange for free access to these advanced services, Netville residents agreed to be studied by the corporate and scholarly members of the Magenta Consortium, the organization responsible for developing Netville's local network.[7] Approximately 60% of Netville homes participated in the high bandwidth trial and had access to the network for up to 2 years. The other 40% of households, for various organizational reasons internal to the Magenta Consortium, were never connected to the network despite assurances at the time residents purchased their homes that they would be.[8] Those households not connected to the local network provide a convenient, quasi-random comparison group for studying the effects of computer-mediated communication.

Wired and nonwired Netville residents were similar in terms of age, education, and family status (Hampton, 2001b). Residents were largely lower middle class, English speaking, and married. More than half of all couples had children living at home when they moved into the community, and as with many new suburbs, a baby boom happened soon after moving in. Most residents were White, but an appreciable number were racial and ethnic minorities. About half had completed a university degree. Residents worked at such jobs as technician, teacher, and police officer. Their median household income in 1997 was C$75,000 (U.S.$50,000). Netville residents were as likely to have a television, a VCR, cable television, a home computer, and home Internet access as other Canadian's of similar socioeconomic status (Hampton, 2001b). Although the decision of some to purchase a home in Netville was motivated by the technology available, only 21% of home purchasers identified Netville's information services as one of the top three factors in their purchasing decision.

As technology developed and fashions changed, the telecommunications company responsible for Netville's local network decided that the hybrid fiber coaxial technology used in the development was not the future of residential

Internet services. They terminated the field trial early in 1999 to the dismay of the residents (Hampton, in press).

## RESEARCH DESIGN

Our research objectives led us to gather information about residents' community ties online and offline, globally and locally, including relations within Netville (see Hampton, 2001a, 2001b; Hampton & Wellman, 1999), personal networks extending well beyond Netville (the subject of this article), civic involvement, and attitudes toward community, technology, and society. We used several research methods, principally ethnographic fieldwork and a cross-sectional survey.

*Ethnography.* In April 1997, Keith Hampton began participating in local activities. Hampton moved into Netville in October 1997 (living in a resident's basement apartment), staying until August 1999. Given the widespread public interest in Netville, residents were not surprised about his research activity and incorporated him into the neighborhood. Hampton worked from home, participated in online activities, attended all possible local meetings (formal and informal), walked through the neighborhood chatting, and did ethnographic participant observation. Like other residents, he relied on the high-speed network to maintain contact with social network members living outside of Netville. His daily experiences and observations provided detailed information about how residents used the available technology, their domestic and neighborhood relations, and how they used time and local space. Insights gained through observation and interactions were instrumental in developing the survey.

*Survey.* The survey was first administered to those moving into Netville in April 1998 and was expanded to include existing wired and nonwired residents in September 1998. The survey obtained information on geographic perception, personal and neighborhood networks, neighboring, community alienation, social trust, work, experience with technology, time use, and basic demographics. We tried to learn the extent to which Netville residents' personal networks were abundant, strong, solidary, and local. Our attempt to collect very detailed information on residents' closest social ties was met with mixed success as a result of Magenta's decision to end the technology trial and problems in our use of computer-assisted interviewing (see Hampton, 1999). As a result, although recognizing that different types of ties (friends, relatives, etc.) and ties of different strengths are likely to provide different types of aid and support, this analysis does not include an analysis of specific types of ties or forms of support. Instead, we focus exclusively on changes in social contact and exchange of support with friends and relatives at various distances. Noticeably absent from this analysis is a full review of Netville residents' neighborhood ties, which will be explored in a forthcoming article (see Hampton, 2001b).

Although this article relies principally on survey data, it is also informed by ethnographic observation, monitoring an online community forum, and observing focus groups.

## MEASURING SOCIAL CONTACT AND SUPPORT

We report here on change in contact and support with nonlocal friends and relatives living outside Netville.[9] We asked 18 questions about change in support and contact with network members living at the distances of (a) less than 50 km (excluding neighborhood ties), (b) 50 to 500 km, and (c) greater than 500 km in comparison to 1 year before their move to Netville. Participants were asked to indicate on a 5-point scale from –2 (*much less*) to +2 (*much more*) how their overall levels of contact and support exchanged with friends and relatives had changed. The 18 ordinal variables were combined into eight scales that document[10]

1. Change in social contact with all social ties, regardless of distance.
2. Change in support exchanged with all social ties, regardless of distance.
3. Change in social contact with ties outside Netville but within 50 km.
4. Change in support exchanged with ties outside Netville but within 50 km.
5. Change in social contact with mid-range (50 to 500 km) social ties.
6. Change in social support exchanged with mid-range (50 to 500 km) social ties.
7. Change in social contact with ties more than 500 km away.
8. Change in support exchanged with ties more than 500 km away.

To test hypotheses of how living wired in Netville, that is, with access to the local high-speed network, affects contact and support exchanged with social network members, the distribution and mean scores for wired and nonwired participants are compared for change in social contact and support (a) regardless of distance, and with network members living at (b) less than 50 km (which includes Toronto but excludes immediate neighbors), (c) 50 to 500 km, and (d) more than 500 km.

Social contact and support scales are dependent variables in regressions that include the independent variables of wired status (connected or not connected to Netville's high-speed network) and control variables for gender, age, years of education, and length of residence (the length of time participants had lived in Netville at the time they were interviewed). The rationales for inclusion of the control variables are

1. *Gender:* Women may be more likely than men to experience a change in social contact or support as a result of their role in maintaining the majority of household ties.
2. *Age:* Age may contribute to network stability and reduce the likelihood of experiencing change in social contact or support.
3. *Education:* Education contributes to greater social and financial capital, which may help in the maintenance of social contact and support networks.
4. *Length of residence:* Moving may create instability in communication with network members. Length of residence in Netville is included to control for the

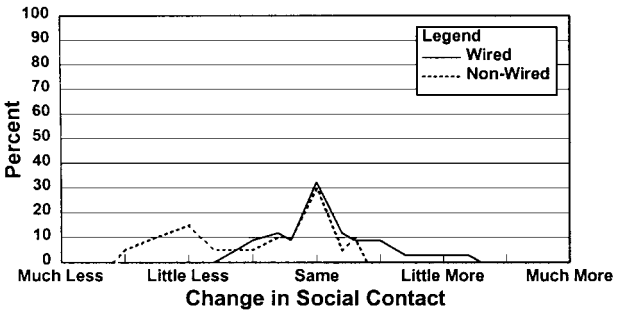


**Figure 1: Overall Change in Social Contact**

possibility that early movers may report a drop in social contact and support in comparison to those who have had time to settle into their new home.

## SOCIAL CONTACT AND SOCIAL SUPPORT

### OVERALL CHANGES

*Contact*. Compared to 1 year before moving to Netville, 41% of Netville residents reported a drop in social contact with friends and relatives, 32% reported no change, and 28% reported an increase. Yet wired residents had significantly more contact than nonwired: 68% of wired residents reported that their overall level of social contact either increased or remained the same as compared with only 45% of nonwired residents (see Figure 1). On average, nonwired residents reported a drop in contact and wired residents reported almost no change in social contact compared to a year before their move (see Table 1). Holding other factors constant, the negative intercept coefficient in Table 2 indicates that Netville residents generally experienced a drop in contact as a result of their move. This is consistent with the observations of S. D. Clark (1966) and Herbert Gans (1967), who observed a similar loss of social contact among new suburban dwellers. Although moving to a new suburban neighborhood generally decreased the contact of Netville residents with friends and relatives, access to the high-speed network helped wired residents to maintain contact. Both personal attributes and high-speed access affect contact with social network members. Being wired, better educated, and older positively affect change in overall contact (see Table 2). Being connected to the local network has the same effect on boosting social contact as 4 more years of education or nearly 13 years of increased age. Among younger residents with fewer years of formal education, wired status is particularly important in helping maintain contact at premove levels.

**TABLE 1: Comparison of Wired and Nonwired Residents by Mean Change in Contact With Social Ties at Various Distances**

| | *Overall* | | *Less Than 50 km* | | *50 to 500 km* | | *More Than 500 km* | |
|---|---|---|---|---|---|---|---|---|
| | *Nonwired* | *Wired* | *Nonwired* | *Wired* | *Nonwired* | *Wired* | *Nonwired* | *Wired* |
| *M* | –0.33** | 0.03** | –0.28 | –0.13 | –0.43** | 0.03** | –0.30** | 0.19** |
| *SD* | 0.51 | 0.38 | 0.73 | 0.58 | 0.61 | 0.56 | 0.73 | 0.46 |
| Min | –1.50 | –0.67 | –2.00 | –1.50 | –1.50 | 1.00 | –2.00 | –0.50 |
| Max | 0.33 | 1.17 | 1.00 | 1.00 | 0.50 | 1.50 | 1.00 | 2.00 |

NOTE: For wired, $n = 34$; for nonwired, $n = 20$. Scale for mean score ranges from –2 (*lot less*) to +2 (*lot more*).
**$p < .01$.

**TABLE 2: Coefficients From the Regression of Change in Social Contact on Wired Status and Other Independent Variables at Various Distances ($N = 54$)**

| *Control Variable* | *Overall* | *Less Than 50 km* | *50 to 500 km* | *More Than 500 km* |
|---|---|---|---|---|
| Wired[a] | 0.25* (0.26) | — | 0.45** (0.36) | 0.40* (0.32) |
| Female[b] | — | — | — | — |
| Education | 0.06* (0.26) | 0.10* (0.32) | — | — |
| Age | 0.02* (0.25) | — | — | 0.03* (0.30) |
| Residency | — | — | — | — |
| Intercept | –1.73** | –1.74** | –0.43** | –1.16** |
| $R^2$ | 0.26** | 0.10* | 0.13** | 0.24*** |

NOTE: Numbers in parentheses are standardized coefficients (β). Only those variables that significantly improved on the explained variance ($R^2$) are included in the final model.
a. Dummy variable for wired status, reference category is wired access to the high-speed network.
b. Dummy variable for gender, reference category is female.
*$p < .05$. **$p < .01$. ***$p < .001$.

*Support*. Fully 79% of wired Netville residents reported the same or more support after moving as compared to only 50% of nonwired residents (see Figure 2). As with social contact, wired residents on average have maintained support near premove levels, whereas nonwired residents reported significantly less support (see Table 3). Controlling for other factors, those who moved into Netville reported an overall decrease in support exchanged with network members across all distances (see Figure 3). Living in Netville and being connected to the local high-speed network reverses this trend. On average, nonwired residents reported a moderate drop in support, whereas wired residents have been able to maintain support slightly above premove levels. Indeed, being wired is the only variable that is significantly associated with changes in the exchange of support (see Table 4).

**TABLE 3: Comparison of Wired and Nonwired Residents by Mean Change in Support Exchanged With Social Ties at Various Distances**

| | *Overall* | | *Less Than 50 km* | | *50 to 500 km* | | *More Than 500 km* | |
|---|---|---|---|---|---|---|---|---|
| | *Nonwired* | *Wired* | *Nonwired* | *Wired* | *Nonwired* | *Wired* | *Nonwired* | *Wired* |
| *M* | –0.24** | 0.05** | 0.03 | 0.10 | –0.51*** | 0.04*** | –0.24** | 0.01** |
| *SD* | 0.50 | 0.20 | 0.72 | 0.41 | 0.64 | 0.21 | 0.52 | 0.19 |
| Min | –1.50 | –0.50 | –1.50 | –1.00 | –2.00 | –0.50 | –1.50 | –0.50 |
| Max | 0.33 | 0.58 | 1.00 | 1.00 | 0.25 | 0.75 | 0.50 | 1.00 |

NOTE: For wired, $n = 34$; for nonwired, $n = 20$. Scale for mean score ranges from –2 (*lot less*) to +2 (*lot more*).
**$p < .01$. ***$p < .001$.

**TABLE 4: Coefficients From the Regression of Change in Support Exchanged on Wired Status and Other Independent Variables at Various Distances ($N = 54$)**

| *Control Variable* | *Overall* | *Less Than 50 km* | *50 to 500 km* | *More Than 500 km* |
|---|---|---|---|---|
| Wired[a] | 0.29** (0.39) | — | 0.55*** (0.54) | 0.25** (0.33) |
| Female[b] | — | — | — | — |
| Education | — | — | — | — |
| Age | — | — | — | — |
| Residency | — | — | — | — |
| Intercept | –0.24** | — | –0.51*** | –0.24** |
| $R^2$ | 0.15** | — | 0.29*** | 0.11** |

NOTE: Numbers in parentheses are standardized coefficients. Only those variables that significantly improved on the explained variance ($R^2$) are included in the final model.
a. Dummy variable for wired status, reference category is wired access to the high-speed network.
b. Dummy variable for gender, reference category is female.

### TIES LIVING WITHIN 50 KILOMETERS

*Contact*. Netvillers neighbor extensively and intensively. Many local friendships and community activities have developed. Although this is a usual characteristic of moving into a new suburban development (Gans, 1967), wired Netville residents neighbor much more than those who are offline. Wired Netville residents on average know the names of 25 neighbors as compared to 8 for the nonwired, they visit in each other's homes 50% more often, and the neighbors they know are spread more widely throughout Netville (Hampton, 2001b).[11]

If being wired fosters neighboring, how does it affect contact and support with friends and relatives who live nearby but not within Netville itself? We have hypothesized that as distance to ties increases, access to CMC will facilitate increased contact. At this distance, 65% of wired and 55% of nonwired residents reported either no change or a small increase in contact with nearby ties (see Figure 3). On average, wired and nonwired residents both experienced a minor drop

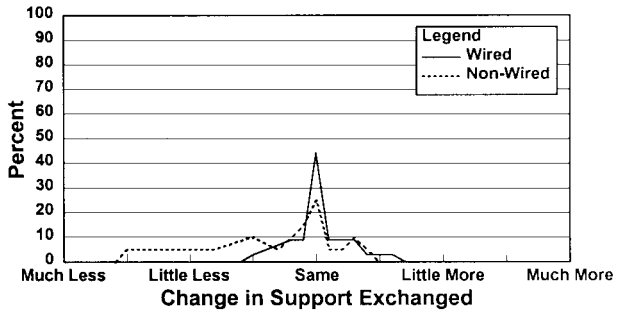


**Figure 2: Overall Change in Social Support**

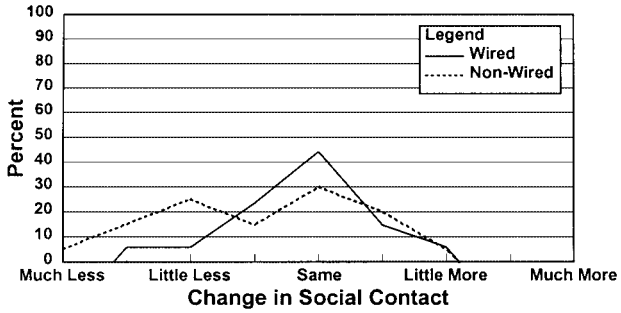


**Figure 3: Contact With Ties Within 50 km**

in contact with ties at this distance (see Table 1). Whereas nonwired residents average a slightly greater drop in contact, analysis of variance does not identify a statistically significant difference between the mean scores of wired and nonwired residents. Controlling for gender, age, education, and length of residence fails to reveal an effect of wired status on contact with network members living within 50 km but not within Netville (see Table 2). Years of education is the only significant variable predicting contact. As in the previous analysis, the act of moving contributed to a loss of contact for all Netville residents. Those with 17 years of education have been able to maintain contact at premove levels, but all other residents experienced a drop in social contact with nonneighborhood ties living within 50 km compared to a year before their move.

In sum, being wired does not increase or decrease social contact with nonneighborhood network members living within 50 km. Much contact with these network members continues to use established means of communication, such as the telephone and in-person meetings. Moving to Netville and accessing its high-speed local network does not appreciably change the amount of contact.

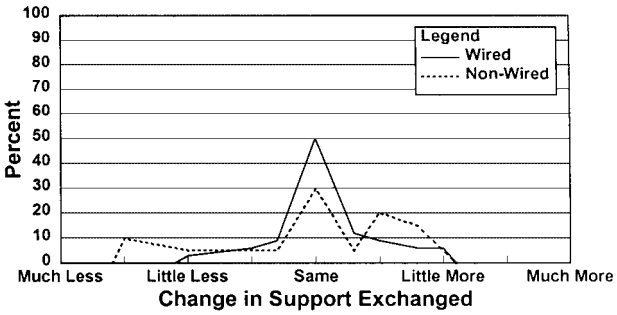


**Figure 4: Support With Ties Within 50 km**

*Support*. Wired residents (82%) are more likely than nonwired (75%) to report either a small increase or no change in support from nearby network members (see Figure 4). On average, nonwired residents reported almost no change in social support, whereas wired residents reported a very slight increase compared to a year before their move (see Table 3). The mean scores for wired and nonwired residents are not statistically different (see Table 3), nor does any other variable predict to changes in support with nearby network members (see Table 4). As hypothesized, there is no effect of CMC on the exchange of support with nonneighborhood ties living within 50 km.

#### MIDRANGE TIES (50 TO 500 KILOMETERS AWAY)

*Contact*. When network members live 50 to 500 km away, they are at a distance where telephone and in-person contact become more costly and difficult and where less costly CMC may be used more. Controlling for other factors, Netville residents had less contact with midrange network members as a result of their move (negative intercept in Table 2). Unlike nearby ties, wired residents were able to maintain contact with midrange ties, whereas nonwired residents were not (see Tables 1 and 2). Indeed, being wired is the only significant variable for change in contact with midrange ties. The majority (62%) of wired residents reported no change in contact, 18% reported a decrease, and 21% reported an increase. By contrast, although 50% of nonwired residents reported no change, fully 45% reported some level of lost contact and only 5% report increased contact (see Figure 5).

*Support*. Midrange ties should experience the greatest increase in support as a result of being wired. They are far enough apart that CMC becomes especially useful for communication, but they are near enough to each other that the delivery of material aid (as well as emotional aid) can be accomplished without great strain. Midrange support in Netville did not increase with being wired, but being wired has enabled residents to maintain premove levels of supportiveness with

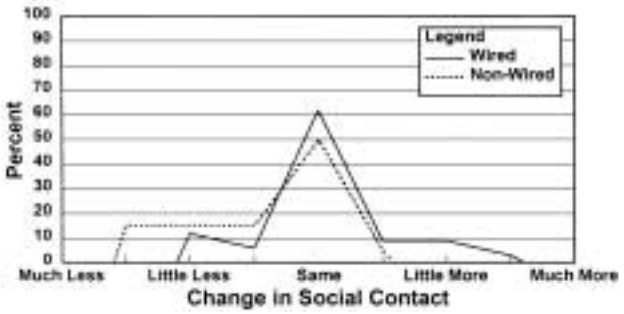


**Figure 5: Contact With Midrange Ties (50 to 500 km away)**

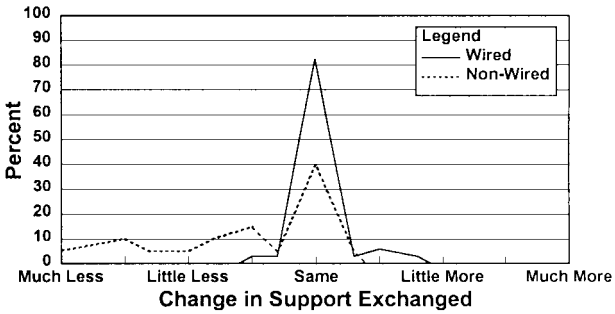


**Figure 6: Support With Midrange Ties (50 to 500 km away)**

midrange ties, whereas residents who were not wired have exchanged significantly less support after moving (see Tables 3 and 4). Fully 82% of wired residents reported no change in support after moving, only 6% reported a decrease, and 12% reported an increase (see Figure 6). By contrast, only 40% of the nonwired residents reported no change in support, the majority (55%) reported a decrease, and only 5% reported an increase. Moreover, being wired is the only variable significantly associated with changes in the level of support from midrange ties (see Table 4).[12] As with the previous analysis, there is evidence that moving to Netville introduced a barrier to the exchange of support with network members. However, when Netville residents became connected to the local high-speed network, they were able to overcome after-move barriers to the exchange of support with network members living 50 to 500 km away.

#### DISTANT TIES (MORE THAN 500 KILOMETERS AWAY)

*Contact*. Social contact by conventional means (i.e., telephone, in-person meetings) is increasingly expensive with network members who live more than

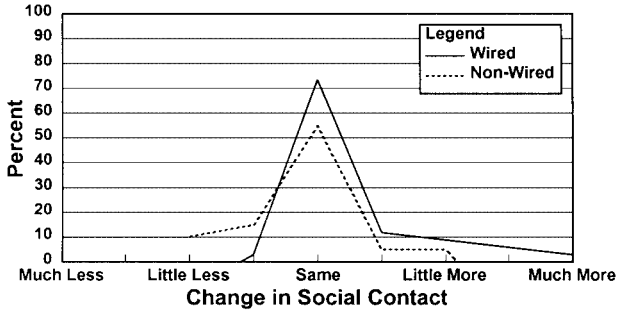


**Figure 7: Contact With Distant Ties (500 km or more)**

500 km away. To support the hypothesis that access to Netville's local network is most successful in increasing contact with the most distant social ties, wired residents should report an increase in contact relative to nonwired residents of greater magnitude than for their midrange ties.

As expected, wired residents have been better able than the nonwired to maintain contact with network members living far away (see Table 1 and Figure 7). By contrast, nonwired residents have not been able to maintain premove levels of contact. This is the only measure of social contact where the wired have not only been able to maintain contact at premove levels, but on average reported an increase over premove levels. Being wired and being older significantly affect contact at this distance (see Table 2).[13] Those older than the age of 38 years and nonwired and those older than the age of 25 years and wired have been able to maintain contact with distant network members at premove levels. Only one wired resident reported a decrease in social contact, whereas 74% reported no change and 24% reported an increase (see Figure 7). By contrast, 35% of nonwired reported a decrease in contact, 55% reported no change, and only 10% reported an increase. The distribution of the social contact scale follows the trend of the previous two analyses: As distance to network members increases, so does the proportion of Netvillers reporting no change in social contact.

*Support*. By contrast to our expectation of increased contact, we did not expect that being wired would increase support exchanged with the most distant social ties. The lack of easy physical access makes distant network members ill-suited for exchanging tangible goods and services. Access to new methods of communication, provided through high-speed Internet access, may at best allow for a minor increase in the exchange of intangible, nonmaterial support, such as emotional aid.

In practice, most wired and nonwired residents reported no change after moving in the supportiveness of their most distant network members. Yet, there are significant differences between the wired and nonwired residents (see Table 3). Once again, the Internet enables almost all wired residents (94%) to

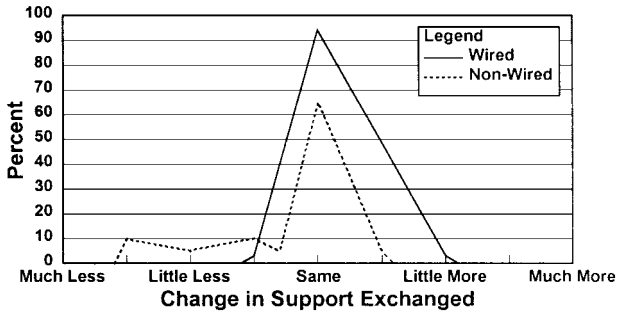


**Figure 8: Support With Distant Ties (500 km or more)**

maintain support at premove levels (see Figure 8). Only 3% have experienced an increase and 3% a decrease. By contrast, a significant minority (30%) of nonwired residents have experienced a drop in support with their most distant social ties, 65% of nonwired residents reported no change, and only 5% reported an increase. Being wired is the only variable that affects changes in level of support with distant ties (see Table 4).[14]

## BEING WIRED FOSTERS CONTACT AND SUPPORT, NEAR AND FAR

Moving to Netville, a new suburban neighborhood, reduced contact and support with friends and relatives. The move to a new home and neighborhood is itself stressful; former neighbors are no longer at hand; and with the move to an outer suburb, distance may play a role in reducing contact and the exchange of support with network members (Clark, 1966; Gans, 1967). Yet Netville residents with access to a free, high-speed, always-on computer network have been more successful than the nonwired in maintaining contact and exchanging support with friends and relatives.

Relative to the nonwired, wired residents demonstrated increased contact as a result of CMC and were able to maintain contact at premove levels with network members living more than 50 km away. By contrast, nonwired Netville residents experienced a drop in contact with social ties at all distances in comparison to a year before their move.

As hypothesized, living in a wired neighborhood with access to free, high-speed, always-on Internet access increases social contact with distant network members. Comparing unstandardized regression coefficients at 50 to 500 km and 500 km or more does not confirm the expectation that as distance increases CMC facilitates greater contact (see Table 2). Those who are wired experienced nearly the same change in social contact with ties beyond 500 km as they did

with ties between 50 and 500 km. The slightly smaller regression coefficient for the effect of being wired on contact with ties at 500 km or more suggests a leveling off or even a slight drop in the effect of CMC on contact as distance increases. The slightly greater effect of being wired on contact with midrange ties may relate to the types of support that are likely to be exchanged with ties at this distance. Frequent contact and the provision of tangible support reinforce each other (Homans, 1961; Wellman & Frank, 2001; Wellman & Wortley, 1990).

Netville residents had difficulty in maintaining premove levels of support with network members living more than 50 km away unless they were wired into the high-speed computer network. Wired residents maintained support at premove levels with ties at all distances, whereas nonwired residents had decreased support with ties more than 50 km away. Based on a comparison of unstandardized regression coefficients, being connected to Netville's high-speed network had nearly twice the effect on support with network members at the 50 to 500 km range as it did with those at more than 500 km (see Table 4). This is consistent with the hypothesis that Netville's free, high-speed, always-on Internet access increased overall levels of support exchanged with network members, but that midrange ties experienced the greatest increase in the exchange of support.

Although the move to a new suburb depressed contact and support, Netville's local computer network helped residents maintain contact and support at premove levels. The increased connectivity of a high-speed network should increase contact and support beyond preexisting levels in an established neighborhood. It is not that the Internet is special. Rather, the Internet is another means of communication used along with existing media, especially in-person contact and the telephone. When distance makes in-person and telephone communication difficult, CMC has the potential to fill the gap. CMC seems especially useful for increasing contact and support for those who previously had been just out of reach. The Internet fosters glocalization: It increases local as well as global contact.

The blossoming of the Internet has affected the ways in which people connect with each other, eliminating the financial cost of long-distance communication, reducing the time cost of contacting far-away people, and emphasizing communication by written text—e-mail—rather than by audio (phone) or audiovisual (in person). Although some community ties function solely online, so-called virtual communities (Rheingold, 2000), in practice most people use whatever means are necessary to stay in contact with community members: in person, by telephone, as well as the Internet (Wellman, Quan Haase, Witte, & Hampton, 2001 [this issue]). Contrary to dystopian predictions, new communication technologies do not disconnect people from communities. CMC reinforces existing communities, establishing contact and encouraging support where none may have existed before.

## NOTES

1. *Affordances* is a term widely used in the study of human computer interaction (Gaver, 1996; Norman, 1999). Erin Bradner (2000), writing for computer scientists, coined the term *social affordances* to emphasize the social as well as individual possibilities of computer networks.

2. This study is limited by the conventional wiring of Netville residents' nonneighborhood social ties.

3. Neighborhood ties are an exception in Netville and are treated as a special case in Hampton (2001b) and a forthcoming Hampton and Wellman article.

4. For more details, see Hampton (2001a, 2001b), Hampton (1999), and Hampton and Wellman (1999).

5. Netville and the Magenta Consortium are pseudonyms.

6. Always-on Internet access refers to a property of most high-speed Internet services that allows users to be connected to the Internet whenever the computer is turned on without performing any special tasks, manually starting any additional programs, or dialing up to the Internet.

7. This agreement was only lightly enforced and often forgotten by the residents. No resident was ever denied service for refusing to participate, and no data were ever collected without the residents' knowledge.

8. Magenta never clarified why some Netville homes were connected and others were not. The two most likely causes were the Consortium's limited access to resources for completing home installations and miscommunications with the housing developer in identifying homes that had been occupied.

9. Some caution should be taken in the interpretation of this data, taking into account that participants were not asked to indicate if they had ties at the specified distances both premove and postmove. Participants who responded that they did not have social ties at a given distance were coded as having the same level of contact or support premove and postmove. Participants may have experienced no change in contact as a result of not having ties at the specified distance or report change as a result of not having network members at the specified distance either premove or postmove. However, there is no indication that this limitation in the data should significantly affect the results as they are presented here.

10. Cronbach's alpha, a measure of internal consistency and reliability among scale items, shows that all scales (except one) have a satisfactory alpha above .7. The exception, the scale for change in contact with nonneighborhood network members living within 50 km, is retained because the significant correlation of .32 of the two variables comprising it validates the underlying consideration in scale construction that participants respond consistently across scale constructs.

11. Our research about neighboring in Netville is reported more fully in an article being prepared by Hampton and Wellman and in Hampton (2001b).

12. The lack of variation in the support scale for wired residents suggests that some caution should be taken in interpreting the results of the regression analysis.

13. The lack of variation in the contact scale for wired residents suggests that some caution should be taken in interpreting the results of the regression analysis.

14. Regression analysis with a dependent variable that is extremely light-tailed, as is the scale for change in support at more than 500 km, violates the assumption of equal variance. The results of the regression reported in Table 4 for ties at this distance should be interpreted with caution.

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