Netville: Urban Place and Cyberspace[1]

Keith N. Hampton
Department of Urban Studies and Planning
Massachusetts Institute of Technology

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INTRODUCTION

Since the mid-1850s, scholars have debated how technological innovation affects community (Durkheim [1893] 1964; Tönnies [1887] 1957). The debate continues as a combination of Internet use and home computing increasingly moves activities, once almost exclusively ascribed to the public realm, into the private home. It is increasingly possible to socialize, shop, work, learn and participate in leisure activities, all from within the refuge of the private residence. Computer-mediated communication (CMC) allows for greater connectivity to resources and information, but simultaneously it may disconnect people from members of their social networks and reduce public participation. What will be the fate of community and social relations as a result of the growth of computer-mediated communication?

Arguments related to the effects of new communication and information technologies on community can generally be divided into two opposing camps. Critics argue that the Internet and related technologies contribute to an incomplete lifestyle, which they see as a consequence of turning away from the full range of in-person contacts believed to be a part of our daily lives (Stoll 1995; Kraut, Lundmark, Patterson, Kiesler, Mukopadhyay and Scherlis 1998; Nie 2001). New information and communication technologies (ICTs) may advance the home as a center for services that encourage a shift toward greater home-centeredness and privatization, isolating people in their homes and reduce the opportunity, or even the need, for public participation (Putnam 2000). On the other side of the debate, technological utopians argue that the Internet has formed a whole new form of community, the "virtual community," where relationships extend online and around the world without regard to gender, race or geography (Rheingold 1993).

This research argues that CMC encourages the growth of social capital in the form of community involvement and in the expansion and strengthening of social networks, both close to home and at a distance. Previous studies of new ICTs looking only in localities or at groups have ignored the multitude of social relations that extend across boundaries and through multiple social settings. Only by recognizing that people have social ties of various strengths in multiple foci can a clear picture be formed of the effects of ICTs on social relations. Similarly, in maintaining supportive communities of social support people rely on multiple methods of communication. CMC and "face-to-face" communication are only two possible forms of social contact. The Internet should

not be privileged as a distinct social system. Online relationships are intertwined with social ties maintained through other means of social contact. Ignoring the potential for CMC to facilitate companionship and the exchange of support fails to examine the multistranded nature of social ties. Whether home-computing and Internet use contribute to a loss of community, or a dramatic increase in social involvement, the ideal setting to view the effects of home-computing and Internet use on community would be a neighborhood equipped with the most advanced technology available. Following in the tradition of research pioneered by urbanists like Herbert Gans (1967), this study provides an in-depth examination of life in a new urban form, the wired suburb.

WELCOME TO NETVILLE
In late 1996 "Netville" became one of the first residential communities in the world to be equipped with a series of new information and communication technologies (ICTs) as part of its design.[2] Netville is an example of a growing trend of neighborhoods and whole cities designed with a broadband telecommunications infrastructure that provides access to the Internet and other ICTs (for example CityPlace, Toronto, Canada; Arabianranta, Helsinki, Finland; Kenniswijk, Eindhoven, the Netherlands; and Playa Vista, California, U.S.A.).

In its appearance Netville was identical to nearly every other residential development in the suburban area surrounding Toronto. Located in one of Toronto's outer suburban communities, in an area of rapid population growth and home construction, Netville consisted of 109 newly-built, detached, closely-spaced, single-family homes. The typical Netville house had three bedrooms and a study and cost about $228,000 in 1997, 7 percent less than the average price for a new home in the same area,[3] or 13 percent less than the fourth-quarter median for the Metropolitan Toronto new-home market (Canada Mortgage and Housing Corporation 1997: 8). Netville was a model for what many envisioned to be the future in residential computer connectivity. A place where work, leisure and social ties could all be maintained from the "smart home."

Netville's local computer network reliably delivered network access at 10 Mbps, data transfer speeds hundreds of times faster than conventional dial-up Internet access, and many times faster than what is available through most high-speed commercial cable and Digital Subscriber Line (DSL) services. Netville residents had free access to services that included: high speed Internet access (including electronic mail and web surfing), a videophone, an online jukebox, online health services, local discussion forums and a series of online entertainment and educational applications. Approximately 60 percent of Netville homes participated in the high bandwidth trial and had access to the network for up to two years. The other 40 percent of households, for various organizational reasons internal to the telecommunications consortium providing the technology, were never connected to the network despite assurances at the time residents purchased their homes that they would be.[4] While it was unfortunate that not every household in Netville could be connected to the local network, the presence of an internal group of non-wired homes provided a natural comparison group for studying the effects of living in a wired neighborhood.

Shortly after the construction of the first homes I moved to Netville where I conducted an ethnography for nearly two years. I worked from home, participated in online activities, attended all possible local meetings (formal and informal), and walked the neighborhood chatting and observing.

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[2] "Netville" is a pseudonym adopted to protect the identity and privacy of the residents of the wired suburb.

[3] Based on unpublished information provided by the Canada Mortgage and Housing Corporation 1999.

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

I made every attempt to share in the life of Netville, making friends and carrying out the daily obligations of life expected of any other resident of the community. The opportunity to live and work amongst Netville residents provided an in-depth understanding of what life was like in a wired neighborhood. The qualitative perspective of the ethnography was reinforced with a cross-sectional survey, administered to a sample of wired and non-wired Netville residents, which provided a more detailed look at the effects of CMC.

FINDINGS
Distant Social Ties[5]

Participants were asked a series of 18 questions about change in support and contact with network members living at distances of (1) less than 50 kilometers (excluding neighborhood ties), (2) 50 to 500 km, and (3) greater than 500 km in comparison to one year before their move to Netville. Participants were asked to indicate on a five-point scale ranging from "much less" to "much more" how their overall levels of contact and support exchanged with friends and relatives had changed. Relative to non-wired Netville residents (those who did not have access to the local broadband network), wired residents experienced increased *contact* with distant (non-neighborhood) members of their social networks (Table 1). Although the overall increase in contact was small, there was no indication that the available technology damaged contact with distant ties. This finding is counter to the results of Kraut et al. (1998), who suggest that distant social networks decrease in size with Internet use, and the results of Nie and Erbring (2000), who suggest that levels of social contact with friends and family drop with Internet use.

Table 1. Coefficients from the regression of *change in social contact* on wired status and other independent variables at various distances (kilometers) (N=54).

Control Variables	Overall	Less than 50 km	50-500 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; [+]$p < .05$ [*]$p < .01$ [**]$p < .001$.
[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.

[5] For a detailed discussion of Netville residents distant social ties see Hampton 2001; Hampton and Wellman 2001.

Contrary to utopian predictions that CMC would be most beneficial in increasing contact with distant social ties, wired residents experienced the greatest increase in social contact with those who were 50-500 km away. They experienced a slightly smaller increase in contact with ties at an even greater distance and no change in contact with non-neighborhood ties within 50 km (but outside the immediate neighborhood of Netville). This supports the hypothesis that not only does CMC not inhibit social contact, but that it actually increases social contact with those at a distance.

Similarly, Netville residents with access to the local computer network experienced an increase in the exchange of *support* with distant (non-neighborhood) members of their social networks (Table 2). Compared to non-wired residents, those with Internet access experienced no change in the exchange of support with social ties within 50 km, and only a modest increase in support with ties living beyond 50 km. The greatest increase in support, although still a small increase, was with those ties within the 50-500 km range. This finding contrasts with the findings of Kraut et al. (1998), who found a negative, although not statistically significant relationship, between Internet use and social support. In addition, it supports the hypothesis that CMC facilitates the exchange of support with distant network members.

Table 2. Coefficients from the regression of *change in support* exchanged on wired status and other independent variables at various distances (kilometers) (N=54).

Control Variables	Overall	Less than 50 km	50-500 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; +p <.05 *p <.01 **p <.001.

[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.

Neighborhood Ties[6]
Contrary to the view that the Internet is specifically a global technology, some of the most interesting findings from Netville relate to how ICTs affects social relations at the local level. A comparison of wired and non-wired Netville residents, in terms of their neighborhood social networks, is provided in Table 3. Compared to non-wired residents, wired residents recognized three times as many of their neighbors, talked to those neighbors twice as often, visited them 50 percent more often, made four times as many local phone calls, and further boosted their local communication with neighbors through the use of email. As the following comments from two Netville residents posting messages to a neighborhood email list indicate, wired residents were very aware of the local computer network's impact on neighbourhood social capital.

> I have walked around the neighborhood a lot lately and I have noticed a few things. I have noticed neighbors talking to each other like they have been friends for a long time. I have noticed a closeness that you don't see in many communities (Netville Resident, Message to NET-L 1998).

> I would love to see us have a continuation of the closeness that many of us have with each other, even on a very superficial level. Do not lose it, we know each other on a first-name basis (Netville Resident, Message to NET-L 1998).

Regression analysis (see Hampton 2001) confirms that access to the local computer network was a significant predictor of the number of people Netville residents recognize by name, the number of neighbors they talk to on a regular bases, and their total volume of local communication. While this finding suggests that people may choose to form their stronger social ties with those outside of the neighborhood setting, it also suggests that ICTs may be particularly useful in encouraging the formation of weak local social ties. Weak ties, as a form of social capital, are particularly useful in terms of accessing information and resources that are otherwise not available from more densely knit networks of stronger ties (Granovetter 1973). Robert Putnam points to the role of social capital in

Table 3. Neighborhood social networks.[a]

	Wired	Non-Wired
Number of residents recognized by name	$25.2^{.000}$	$8.4^{.000}$
Number of residents talked to on a regular basis	$6.4^{.061}$	$3.2^{.061}$
Number of residents visited at home in the past 6-months	$4.8^{.147}$	$3.2^{.147}$
Number of phone calls to other residents in the past 1-month	$22.3^{.063}$	$5.6^{.063}$
Number of private emails to other residents in the past month	4.1^{b}	–

Note: Numbers in superscript are p-values (ANOVA).
[a] N= 36 Wired, 20 Non-Wired.
[b] ANOVA not performed, no variation from zero for non-wired.

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[6] For a detailed discussion of Netville's neighborhood social ties see Hampton 2001; Hampton and Wellman 2002.

increasing housing values and in preventing neighborhood decline (2000: 323). Youth are more successful in finding job contacts outside of their neighborhood, and avoiding social problems including, drugs, crime and teen pregnancy, in neighborhoods where they can draw on social capital (Putnam 1993; 2000). Social capital at the neighborhood level has been shown to increase neighborhood safety and to reduce crime (Sampson and Groves 1989; Sampson, Raudenbush and Earls 1997). Other studies suggest a positive relationship between social capital and health (Lynch and Kaplan 1997; Wilkinson 1996; Veenstra 2001). In general, neighborhoods with high social capital are safer, better informed, higher in social trust and better equipped to deal with local issues.

Indeed, wired Netville residents used their neighborhood networks to organizing local events and to mobilize in dealing with community issues. The local computer network was used by residents as a means to exchange introductions, organize barbecues and parties, search for missing pets, exchange information on local services, share information related to the local town government, and to help children locate potential friends or seek help with their homework. Through online introductions, often consisting of little more than a name, address and occupation, residents were able to find others at the local level who shared common interests and experiences. In reaction to a perceived threat or problem, or when faced with an emergency, the residents of most communities would need to knock on the doors of near strangers to build support for collective action. In a wired neighbourhood, CMC overcome this barrier and reduce the costs of mobilization in terms of time and coordination (for a complete discussion and examples of collective action in Netville see Hampton 2001). Rather than isolating people in their homes, CMC encourages visiting, surveillance, neighbor recognition, and the maintenance of local social ties.

CONCLUSION & DISCUSSION

When social relations are examined in terms of networks and not groups, and when the Internet is not treated as its own unique social system, we find that computer-mediated communication supports the growth of social networks, social capital and community well-being. The Netville study found Internet use to be associated with increased social capital. Access to the local computer network was associated with high levels of social contact and supportive exchange with distant social ties. At the local level ICTs encouraged public participation, community involvement, and the growth of local social networks. In a situation where there was near ubiquitous access to CMC, Internet use encouraged visiting, surveillance, neighbor recognition, collective action and the maintenance of local social ties. Contrary to the findings of Nie and Erbring (2000), but consistent with the findings of Wellman, Haase, Witte, and Hampton (2002), there was no indication that Internet use inhibited or substituted for other forms of social contact, in-person or over the phone. Contact lead to contact, CMC encouraged additional social contact through multiple means of communication: online, in-person and over the phone.

As a communication medium, CMC may ultimately be very similar to the telephone. As successful as the telephone has been in facilitating social contact with distant social ties, it has been shown to be of most frequent use with those within 5 miles (8 km) of the home (Mayer 1977; Putnam 2000: 168). CMC demonstrated a similar capacity for local connectivity within Netville. It is the dual role of CMC in facilitating the formation of social capital with network members who are at a distance and with those who are extremely local that Barry Wellman and I have termed "glocalization" (Hampton 2001). The Internet literally allows people to "think globally and act locally."

While Netville was certainly a unique situation in its widespread availability of high-speed, always-on Internet access, I suspect that the impact of this wired connectivity is already being felt by those with all types of Internet access. The impact that CMC has on distant social ties is probably most common (increased contact and support exchanged with distant social ties). However, more

local impacts, as observed in Netville, are on the horizon, as always-on, in-home Internet access, and the tools for local connectivity become increasingly widespread. The introduction of ICTs specifically designed to facilitate communication and information sharing in a residential setting could reverse the decline in social capital and loss of civic society that some have observed in the United States and potentially beyond (see Hampton 2002).

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