Grieving for a Lost Network
Collective Action in a Wired Suburb[1]

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Introduction

A combination of Internet use and home computing have increasingly moved activities once almost exclusively ascribed to the public realm into the private home. It is increasingly possible to work, shop and participate in leisure activities all from within the refuge of the private residence. Computer-mediated communication allows for greater connectivity to resources and information, but simultaneously it may be disconnecting us from members of our social networks and reducing public participation. As globally connected as the Internet is the technology necessary for participation is inherently local, primarily available at work, school and increasing from home. Will the location of new information and communication technology in the home isolate us from our local surroundings? How will computer-mediated communication effect social relations at the local level?

Netville

The ideal setting to research the effects of home-centered communication and information technology is in a neighbourhood equipped with the most advanced technology available. Netville was one of the first residential developments in the world to be equipped with a broadband local network. The neighborhood was built from the ground up with a high-speed computer network supplied and operated free of charge by the Magenta Consortium, an

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Figure 1. Chuckwagon located at the entrance to Netville.

organization of private and public companies.[2] In its appearance Netville is identical to nearly every other residential development in the suburban area that surrounds Toronto. The only visible artifact that distinguishes Netville from other neighborhoods is a chuckwagon located at its entrance which reads "Canada's First Interactive New Home Community – Welcome Pioneers" (Figure 1).[3]

Netville's local network was a dual hybrid fibre coax technology with an ATM (asynchronous transfer mode) backbone that could reliably deliver individual network access at 10 Mbps. Data transfer speeds more than 300 times faster than conventional dial-up service and 10 times faster than what is available through most commercial cable and DSL services. The Magenta Consortium provided Netville with services that included: high speed Internet access (including electronic mail and web surfing), a videophone, an online jukebox, online health services, local discussion forums, entertainment and educational applications, and twenty-four

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[2] Both "Netville" and the "Magenta Consortium" are pseudonyms adopted to protect the identity and privacy of the residents of the wired suburb.

[3] The chuck wagon was a nineteenth-century form of meals on wheels: a covered wagon used as a frontier kitchen during long journeys by travelers through the North American west.

hour seven day a week technical support.[4] In return for this free, very high-speed access to the information highway, the residents of Netville agreed to be studied by the corporate and non-profit members of the consortium.[5] Homeowners varied from beginner to expert in their degree of computer and Internet experience. Of the 109 homes that comprised Netville 64 were connected to the local network. The remaining 45 households, for various organizational reasons internal to Magenta, were never connected to the network despite assurances at the time residents purchased their homes that they would be connected.[6]

Since 1997 Barry Wellman and I have been researching the Netville project. We conducted a series of cross-sectional surveys with a sample of residents, including; those who purchased homes and intended to move into Netville; those living in Netville, but not connected to the network; and those connected to the Network. In addition, beginning in the spring of 1997, I attended as many formal and informal community events as possible and in October 1997 I made my home within Netville where I conducted an ethnography until August 1999.[7]

Netville provided a unique opportunity to observe the affects of advanced information and communication technology on people's daily interactions with family, friends and neighbors. For the first time a significant number of households equipped with the future of high-speed Internet technology were built form the ground up and concentrated in a new residential community. The goal of this research was to determine the extent to which the Internet, and related technologies, contribute to a reduction in social capital, community involvement and the ideals of a civil society.

Technology and the Ills of Modern Life

Concerns for a loss of community are not new and originate in the works of Durkheim (1893 [1964]) and Tönnies (1887 [1955]) with the transition from an agrarian to an urban industrial society. Technology, industrialization, capitalism, and related economic, social and political forces have all been blamed for what was perceived as a loss of community during this period of rapid urban and industrial growth. Later in the 20th century this fear for the creation of an anomic society, characteristic of non-involvement and social avoidance, fueled concerns over growing urbanization (see Wirth 1938; Milgram 1970). Indeed, most people know few of their neighbors

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[4] In addition to the free services, approximately 20 percent of residents purchased additional in-home computer-based technologies, such as: within-household networks and advanced home security systems.

[5] 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.

[6] Surveys indicate that access to advanced telecommunication services was a priority or a factor in purchasing a home for but a fraction of the total number of home owners. When interviewed the most important reasons given for purchasing their home were affordability and location.

[7] For a complete discussion of the methods used in the Netville project see Hampton and Wellman 1999 and Hampton 1999.

and despite the frequent exchange of services, such as lending and giving household items, few neighbors rely on each other for support (Wellman 1979; Wellman and Wortley 1999). Today critics of new telecommunication technology have revised this argument to suggest that the Internet, and other communication and information technologies, withdraw people from in-person contact and further disconnect us from our families, friends and communities.

In an information society where work, leisure and social ties are all maintained from the "smart house," people could completely reject the need for social relationships based on physical location. New communication technologies could advance the home as a center for services that encourage a shift toward greater home-centeredness and privatization. Technology could destroy social networks of friends, family and neighbors to the point that people no longer come together, at least not in any meaningful sense, out of cooperation, support or fellowship.

Robert Kraut et al. (1998), in his survey of new computer and Internet users, finds evidence to support an association between Internet use and a reduction in communication between household members, a decrease in the size of personal networks, and an increase in depression and loneliness. Similarly, Nie and Erbring (2000), in a study of Web TV users, concludes that "the more hours people use the Internet, the less time they spend with real human beings" (Markoff, 2000).

In contrast to the findings of Kraut et al. (1998) and Nie and Erbring (2000) ethnographic and survey observations of Netville suggest that a concentration of households with access to advanced high-speed Internet technology increases: the size of social networks, levels of social capital, and local community involvement.

This paper explores how computer-mediated communication (CMC) in Netville reinforced and expanded social networks, generated high levels of social capital, and reduced the cost and increased the speed of community involvement – specifically collective action. While CMC generally served to support community involvement in Netville, this paper also explores the disadvantage to openness and visibility in using computer networks as social networks in the process of collective action.

Building Neighborhood Social Capital Through Technology

The first residents moved into Netville in December 1996 and were connected to the local computer network within weeks of their arrival. At this time, with the exception of the video phone, the network provided limited opportunity for residents to interact online. Residents were given high-speed Internet access, email and a small number of CD-ROMs that could be accessed over the network, but no method of contacting local residents.[8] The network was geared toward information gathering and not interpersonal communication.

Netville's early physical environment was also less than conducive to the formation of local social ties. As in many new suburban developments the first homes to be occupied were

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[8] The video phone was rarely used with the exception of demonstrations for friends and relatives and the occasional use by local children.

not built near each other, but were widely spread throughout the development. Streets were neither paved nor lawns planted and soil conditions were such that it was common for vehicles and construction equipment to sink into unpaved driveways to the point of immobility. To walk around the neighborhood meant incurring at least a moderate dry-cleaning bill.

As residents of a new residential community, few had the knowledge necessary to access information on local services, such as a good drycleaner, a reliable babysitter, or a trustworthy repair shop. Residents expressed a need to identify play mates for young children, to find neighbors willing to lend household items and to locate those who were willing and able to provide informal computer support. The result was a series of requests made to representatives of Magenta, who were in the community installing equipment, for access to the email address of other Netville residents.

In July 1997 Magenta established NET-L, a neighborhood email list that allowed Netville residents to send a message to one email address and have it automatically distributed to every other household connection to the local network.[9] NET-L became one of the earliest opportunities for neighborhood interaction. Within the first few months the list was used by residents as a means to exchange introductions; organize informal activities, such as barbeques and parties; search for missing pets; exchange information on local services; share information related to the local town government; and help children locate potential friends, and ask for 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.

NET-L provided residents with a level of very specific cultural capital in terms of knowledge of local events, local services and the opinions and activities of other residents. The cultural capital gained through NET-L served as a bridge between Netville residents. Residents who casually met on the street, or at the corner mailbox, instantly had something in common and something to share in terms of the latest community information. Just as the topic of "the weather" can serve as a common conversational reference between near strangers, topics from NET-L filled this role in Netville. The local nature of the list helped to personalize first encounters with a sense of shared interest, common concern and sense of community. Residents could commonly recall how initial in-person introductions increased intimacy as residents equated the facial presence of an individual to their email address, or how they signed their NET-L messages. NET-L may have been particularly important in the development of local social ties for those residents without children, or household pets that tend to attract children, serving as a substitute to the traditional extension of social ties between neighborhood children to their parents.

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[9] The Magenta Consortium was initially reluctant to establish NET-L. They felt residents would be uninterested in a "low bandwidth" technology such as an email list given that they had access to a high-speed broadband network. However, after some persuasion from residents, and myself, Magenta established NET-L as at least a temporary means for residents to communicate online until a more colourful broadband application could be developed.

Neighborhood Social Networks: Recognition and Informal Socializing

One resident from each of 54 homes within Netville completed a survey designed to identify local social networks. The survey asked participants to identify from a list of up to 271 adult residents those whom they recognize and those whom they talk to on a regular basis. Thirty-four interviews were conducted with residents connected to the local network while the remaining twenty provided a comparison group of non-connected Netville homes. All Netville households were originally asked to participate in the network survey. The final response of 49.5 percent of households is explained by a number of factors, including low response rates on the web-based survey, time constraints, and interruptions in the interviewing process. A household tie was said to exist if a participant identified at least one adult resident in another Netville home. Interviewing was completed through a combination of both personal and web-based interviewing.[10]

Name recognition is a minimum definition of a weak social tie (Kochen 1989). Weak ties are a unique form of social capital capable of providing access to information and resources potentially unavailable from stronger social networks (Granovetter 1982). It implies that a person knows enough about an individual to exchange greetings and to potentially share information and resources. Stronger social ties, such as those between residents who talk with each other on a regular bases, are associated with a different form of social capital more likely to provide broader support, emotional aid and companionship (Wellman and Wortley 1990:566). A large social network of strong and weak ties is an indicator of strong neighborhood social capital.

Based on a sample of 54 Netville households there is the potential for up to 1431 social ties of varying strengths between these homes (Wasserman and Faust 1994:101). Based on the "recognize by name" tie strength there are 232 household ties within the Netville sample. Based on name recognition the network density, or proportion of household social ties present in the sample, is 0.16 (1994:101). Dividing the sample into two subgraphs, one consisting exclusively of wired households and the other of non-wired households, the densities of each subgraph are 0.31 and 0.07 respectfully (1994:102). Completing the same analysis for the stronger social tie of "talk with on a regular bases" we uncover similar results. Based on the stronger tie strength we would expect residents to identify fewer social ties and in this case it reduces the overall network density to 0.06. Dividing the sample into two subgraphs the wired subgraph has a density of 0.11 and the non-wired a density of 0.03 (Table 1).

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[10] For a detailed discussion see Hampton and Wellman (1999) and Hampton (1999). In two cases both adult residents of a household were interviewed. Their individual responses were combined to create a combined list of local household social ties. Selection of either the male or female head of the household was randomly assigned whenever possible, but was often based less on random selection than the availability of respondents to meet with interviewers, or to take the time to complete a web survey. Residents with fewer local social ties may be less active and less committed and therefore less likely to cooperate with a study of their local associations. Similarly, non-respondents may have been particularly social, with additional time constraints as a result of their participation in numerous social activities, reducing their availability for participation. There is no evidence to suggest that these factors did anything but balance each other out with non-respondents being more similar than dissimilar from participants. In order to generate a square symmetrical network, which assumes that if a participant selects another resident as a social tie they should be selected by that resident as a corresponding tie, those households that did not complete a survey were removed from this analysis.

Table 1: Netville Social Ties

Households	Ties: Recognized by Name			Ties: Talk to on a Regular Bases		
	Observed	Max	Density	Observed	Max	Density
All	232	1431	0.16	87	1431	0.06
Wired	172	561	0.31	59	561	0.11
Non-wired	13	190	0.07	5	190	0.03
Between	47	680	0.07	23	680	0.03

Compared to non-wired homes, wired homes are nearly four and a half times as intra-connected in terms of "recognition," and over three and a half times more connected in terms of "talking." Wired and non-wired households are not socially isolated from each other. In the case of both recognition and talking wired and non-wired households are as connected to each as households within the non-wired sample. Suggesting that computer-mediated communication played a strong role in building social networks between wired households, but that it did not damage the formation of social ties between wired and non-wired homes. Ethnographic evidence suggests that wired residents may have felt compelled to initiate contact with non-wired residents in order to pass on community information from NET-L, such as information on local events, barbeques or parties. Living in a wired suburb in a wired home boosts local household social networks and neighborhood social capital. In addition, there was a spillover affect to local non-wired homes that provided bridging between the resources of wired and non-wired residents.

Collective Action in Netville

A highly connected local social network, combined with access to a local computer network, enhanced the ability of wired Netville residents to organize and act collectively. The rapid flow of information within the community, facilitated by NET-L, helped residents recognize that they shared many common experiences and concerns. Unlike most residential communities when faced with an emergency, or in reaction to a perceived threat or problem, it was not necessary for Netville residents to knock on the doors of near strangers to build social contacts or find support.

Netville residents used the local computer network to act and work collectively on a number of occasions. Two of the most significant examples include their reaction to the local housing developer and perceived housing deficiencies and reaction to the Magenta Consortium's decision to end the technology trial, stop providing access to the high-speed local computer network, and to remove the technology from people's homes.

The Developer

The unconnected nature of most contemporary residential communities makes the organization of grass-roots protest at the neighborhood level particularly difficult. Despite these organizational challenges new suburban developments are often the source of small scale protest; generally in reaction to problems experienced by residents with their new homes and property. In interviews the property developer responsible for housing construction in Netville said that in all residential developments he has been involved, and in almost all that he is aware, a small number of residents dissatisfied with the quality of their homes organize collectively. In his experience, five percent of new home owners will go door-to-door in an attempt to gather support for some level of small scale collective action ranging from petitions, through letter writing campaigns, to picketing. In the experience of Netville's developer, these "rabble rousers" will generally attract no more than twenty percent of home owners. Based on these common experiences, residential developers expect some level of local protest. What was unexpected in Netville was the size and speed of residents' efforts to organize and act collectively.

The housing problems experienced by Netville residents were routine for most new residential developments: the speed at which roads were paved and grass planted, minor housing deficiencies, frozen pipes in the winter, and faulty air conditioners in the summer. Within the first nine months that homes had been occupied Netville residents had begun an organized campaign to pressure the developer into addressing their problems and concerns. Wired Netville residents used NET-L to discuss their housing problems, to organize in-person meetings, to discuss strategy aimed at pressuring the developer and to send representatives to town planning meeting.

Netville's local computer network not only altered how residents could communicate with each other, but how they could communicate with the developer. In addition to being able to fax and phone the developer's office, they were able to use email to contact him directly. Email sent to the developer often consisted of a traditional letter and list of complaints (copied to NET-L), but on at least one occasion also consisted of an organized "flooding" campaign by residents who submitted one email message for each of their potentially dozens of individual complaints.[11] Residents used email as a tool both to organize collectively and to express their hostility and impatience at the developer, while waiting for concerns to be addressed by forces often perceived to be outside of their control.

Not all of Netville's residents were interested in taking an adversarial position with the developer. This split in opinion led a small number of residents, acting independently of each other, to try and win favor with the developer by feeding him information on the activities of other residents. These insiders would forward email messages from NET-L that publicly

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[11] "Flooding" is used to describe an activity whereby multiple copies of an email message are sent to another user.

complained about the developer, or made efforts at organizing some level of protest.[12] In hopes of improving their relationship with the developer, these and other residents would also forward to him messages such as "the joke of the day." Protesting residents were unaware of communication "leaks" that sprang from their NET-L discussions. Most would have been very surprised to learn that other community members had been reporting on their online activities. At the same time as much as the developer was aware that NET-L leaked in his favor, he was surprised to find that NET-L discussions also leaked to powerful outsiders that could serve as advocates for Netville residents. On a visit to the office of the semi-governmental organization mandated to police housing quality, the developer was surprised to see copies of the same NET-L discussions he had received circulating throughout the office.

The residents' ability to organize collectively was met with mixed success. Being in a wired neighborhood allowed residents to organize extremely quickly, and the overall number of residents involved was likely greater than would be anticipated in a traditional neighborhood. The speed at which residents organized was unexpected by the developer and pressured him into addressing customer concerns with more resources and more speed than with past experiences.[13] Town officials were surprised by the success of the demands of wired residents for improved customer service. They noted that the developer had moved a customer service trailer into the neighborhood; a concession that no other development had achieved in recent memory. Residents also achieved unusual success in preventing the developer from receiving approval from the town to begin work on a second housing development; a process perceived as bureaucratic and involving little more than a rubber stamp. In making their argument to town council and planning officials residents argued that the developer had neither completed sufficient work in Netville, nor provided sufficient resources to address housing deficiencies, to warrant approval of his expansion. By December of 1998 the large majority of residents confirmed that problems experienced with their homes had been solved. As successful as residents may have been in having their concerns addressed, their success may have played a role in the Magenta Consortium's decision to end the technology trial and remove the local computer network from the community.

Grieving for a Lost Network

In early October 1998 the director of the Magenta Consortium emailed a message to NET-L announcing that the trial would be terminated and that Consortium would no longer be providing Netville residents with access to the local computer network. The decision to end the trial was based largely on the partnering telecommunication company's decision to change their focus

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[12] In followup interviews the developer claimed he discouraged residents from forwarding messages from NET-L which he perceived as a private communication between residents.

[13] The developer denies that the size of the residential protest in Netville was greater than his typical experience, despite my observation that more than 50 percent of households were involved. The developer has said that based on his experiences in Netville he would never build another wired neighborhood, but only because of his concerns over organizational problems and poor housing sales.

away from the ABM technology being tested in Netville to the now commercially available ADSL technology. Other factors that were incorporated into the Consortium's decision included the pending expiration of a government license to provide broadband Internet service free of charge within Netville and ongoing costs associated with operating the local computer network. The residents themselves may also have played an unwitting role in the trial's demise as a result of their organizational success with the developer. Resources spent dealing with housing concerns may have reduced available resources to continue building new homes in the community. There was dissatisfaction amongst key Consortium members about the lack of progress in new home construction and the corresponding lack of new residents being connected to the local computer network. In early 1997 Consortium members expected that there would be close to 400 households connected to the local network, but with the number of connected homes at less than 100 in late 1998 there was disappointment in the Consortium's inability to reach what was considered a significant mass of users.

The announcement that Magenta would no longer be providing access to the local computer network and its corresponding services was met with hostility and disappointment on the part of residents. The majority felt that Magenta had promised to operate the network free of charge for a four-year period beginning when they purchased their homes. For those residents the termination of the technology trial was two to three years premature.

A community meeting organized by Magenta to address residents' questions, attended by roughly 50 residents from 60 percent of wired homes, served as a forum for residents to express their anger and to sow the seeds for Netville's second major attempt at collective action.[14] The majority of residents felt that Magenta had served as a "white knight" making life in Netville more tolerable given the problems they had experienced with the developer. A small number of residents who were visibly more hostile felt they had been openly deceived about the duration of the trial. Their anger was fulled by an ad in the previous months issue of a local housing magazine that continued to advertise Netville as a "five year trial of unique communication technologies, at no extra charge to residents." A number of residents privately told me that they were not as much upset about the trial being cancelled as they were embarrassed by having to tell friends and relatives of the trial's end. Having purchased homes in Netville, for slightly less than the average price of a new home in the same area,[15] free access to the high-speed local network was a point of pride. Having to admit to skeptical friends and relatives that they would not have access to the local computer network for as long as expected was not something they were looking forward to.

At the end of the community meeting approximately two-thirds of those in attendance stayed behind to discuss their situation. Residents were equally split in their opinion on how to proceed. Everyone felt cheated by Magenta and expressed a similar goal of achieving some

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[14] I could identify only one Netville resident from a non-wired home in attendance at the community meeting. Either the loss of the network was of little concern for non-wired residents, despite the expectation reenforced at the time they purchased their homes that they would be connected, or non-wired residents were so significantly disconnected from wired residents that they were unaware a meeting was taking place.

[15] Based on unpublished information provided by the Canadian Mortgage and Housing Corporation, 1999.

restitution or the restoration of service. Those who were less hostile and uninterested in an open conflict with Magenta, hoped to cooperate with Magenta to find a last-minute solution that would save the local network. The second group, more openly hostile, was interested in plotting a public relations strategy that would generate public pressure to force Magenta into restoring services.

In the four weeks that followed the community meeting NET-L became the front line in the conflict between local residents and Magenta. In that month nearly 100 messages were sent to NET-L compared to 260 in the previous 16 months. The content of these messages fell into four categories:

- A generally hostile dialogue between Netville residents and representatives from Magenta.

- Informal progress reports, and exchanges between residents, on the progress of negotiations being conducted on the community's behalf with service providers who could potentially replace Magenta with a fee-based service.

- A discussion about how to keep "community" alive in Netville without the local computer network.

- Offers of support and requests for help on unrelated issues.

With the exception of the developer, representatives from Magenta had always been able to access NET-L.[16] In the past Magenta used this access as a gateway to provide periodic software updates and to announce new services. Never had a resident used NET-L to open a public dialogue with Magenta. In the weeks that followed the community meeting NET-L became a public forum for the exchange of messages between Netville residents and representatives from Magenta. As at the community meeting the response on NET-L was divided between those inclined towards open conflict and those interested in cooperation. The primary difference between these two groups was not the ultimate goal of restitution, but the extent to which residents were willing to paint Magenta as the corporate villain who had exploited their community. Residents' framing of Magenta ranged from that of a non-profit group, that had failed to communicate with residents and had broken a number of informal agreements, to a consortium of large for-profit corporations that had deliberately deceived and exploited the community.

Regardless of whether residents took cooperative or conflict approaches with Magenta, opinions on NET-L were almost always followed by a second message of support from another resident. Although not an organized strategy, this was successful in creating the appearance, for both Magenta and between residents, that there was near universal condemnation of Magenta and support for local action against the consortium. Occasionally when a NET-L message was directed at Magenta, and a representative was delayed in their response, another resident would send a taunting message to NET-L in hopes of provoking a response.

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[16] Despite the fact that the developer was formally a member of Magenta there was very little day-to-day contact between the two organizations. Representatives from Magenta with access to NET-L did not forward messages from the community to the developer.

On only one occasion did a Netville resident publicly break with the broad framing of Magenta as villain. This resident highlighted the fact that, after all, they had received free high-speed Internet service and that the computer network had its virtues in how it had brought the community together. Other residents responded to NET-L with positive reinforcement, on how wonderful it was to live in such a close-knit community, and with more negative comments about how the corporate powers behind Magenta would walk all over those who were not willing to take a stand. This was one of only two times a Netville resident had publicly disagreed with another on NET-L.[17] Still, even at this point of potential conflict residents responded to each other, at least publicly on NET-L, with what can only be described as "neighborly" responses that focused on how great it was to live in Netville, how they could all freely express their opinions, and not attacking any one individual. At no time was there any of what can be described as "flaming" activity, an openly hostile email communication that is the equivalent of online cursing

The "cooperative" side of Netville's response to Magenta included offers from residents to try and run the network as a co-op, offers from companies employing residents to take over some minor network services and various efforts to convince Magenta's major telecommunications partner to continue with the trial. With the exception of one resident, who Magenta provided with a copy of email addresses subscribed to NET-L so that the community list could be replicated once access to the local network was terminated, all cooperative attempts at trying to preserve the network failed. The primary reason for these failures was the unwillingness of the major telecommunications partner to continue their involvement with Netville by providing access to the network fibre located in the ground surrounding resident's homes.

Those residents who approached Magenta with open conflict based their strategy on three things:

• Contact with local media sources aimed at applying public pressure on Magenta and the telecommunications partner.

• Attempts at intimidation by threatening Magenta and the telecommunications partner with a lawsuit for breach of contract.

• And negotiations with a rival telecommunications provider to provide high-speed Internet service at a reduced rate.

The local print and television media were very interested in talking to residents about their experience in Netville and with the Magenta Consortium. This interest was in part a result of Magenta's success in generating wide, and generally positive media coverage, when the Netville project first began. However, in residents' pursuit for media attention it was never considered that they would not be able to control how the media framed their conflict with Magenta.

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[17] The other time involved a dispute over who would be appointed as a community representative at town planning meetings.

The first media coverage residents received was a front page story in the bi-weekly local town newspaper. To the surprise of residents the story had been broadened beyond the end of the technology trial to include residents' experiences with the housing developer. The developer was included in the article as a result of residents framing of Magenta as a corporate villain that had taken advantage of the community, but only as the latest corporate villain, reflecting back on their problems with the developer. The article included quotes from residents, such as "knock on wood that the house doesn't fall down," and "we thought we had bought our dream home, but it has become the worst nightmare we've ever had," that succeeded in portraying residents as victims, but introduced the unforseen cost of potentially damaging property values.

Residents quoted in the local paper recognized that their comments could be damaging to the neighborhood and not just Magenta. Almost as soon as the local paper hit Netville doorsteps those residents quoted in the article sent a series of apologetic messages to NET-L. The content of those messages was both penitent and aimed at deferring blame back on the media for "quoting them out of context" and using what was described as "off the cuff comments." In addition to the apologetic nature of those messages there was an attempt at preempting other residents from using NET-L to criticize their actions by being their own harshest critic . Yet any fear residents had over public ridicule or flaming was likely overestimated.

In the past disagreements on NET-L had been governed by a norm of neighborliness that prevented anyone from responding overly critically. A general knowledge that there was always the potential for flaming or open criticism, and the very norm of neighborliness that likely would have prevented such an attack, almost necessitated a preemptive "neighborly" response from those who were quoted in the article. The response from other residents was limited to a single email message from someone wishing the paper had contacted them instead. All residents were now aware that other residents felt it necessary to preempt criticism on NET-L even through no such public criticism had never occurred. The ability of those who were quoted to broadcast their repentance over NET-L may have been one of the biggest factors in containing any further action by Netville residents and limiting the success of further attempts at forcing restitution from Magenta.

Following the publication of the article in the local paper additional media sources began to contact local residents, but despite these additional contacts there was no further media coverage. Media attempts at convincing residents to speak about their experiences in Netville failed. The likely reasons for this media blackout included a fear of damaging property values, and the fear of having to face angry neighbors on NET-L. This had the positive implication for Magenta of not having to fear any further public scrutiny.

By the end of the fourth week residents had grown tired of conversations related to the end of the trial dominating NET-L and some had even sent messages expressing how they had begun to dread checking their email. Magenta had not wavered from their position, they still refused to continue the technology trial, and residents had exhausted new sources of information to use in confronting the Consortium. The result was a sharp decline in the number of postings to NET-L. When approached individually and in private everyone that I spoke with remained willing to contribute to the collective good of trying to force Magenta into providing restitution. However, most of the actions against Magenta had taken place online and residents were now

witnessing a sharp decrease in the frequency of Magenta related postings. There was new uncertainty over whether individual contributions would be wasted. Seeing other Netville residents contribute to NET-L may have been the strongest force in motivating others to contribute. The same visibility, when there were few new postings, may have contributed to the rapid decline in individual participation. If the number of postings had not declined it likely would have been embarrassing for individuals to withdrawal from the project while others had the visible courage to continue with the action.

By the end of 1998 there was no further public discussion within Netville about continuing action against Magenta. Privately almost everyone remained dissatisfied with the outcome. The rival telecommunications company, that many had hoped would offer them a deal on high-speed Internet access, offered only token discounts on installation fees.[18] During a demonstration of cable modem service held exclusively for Netville residents at a local elementary school, residents were visibly upset and concerned that the only commercially available replacement services was a considerably slower "high-speed" cable modem. Sales representatives were bewildered when they received only grumbles and complaints from residents who had just lost much faster service. Fearing long download times, and new household conflict over telephone lines, the majority of residents opted to subscribe to this service. Magenta and the telecommunications partner did concede to give residents a free dial-up modem and six months of dial-up Internet service until ADSL technology was available in the area. Most residents rejected this offer as token in comparison to the broadband local network, but ultimately ended up accepted the free modem and the added benefit of being able to continue using their existing email address, regardless of how they chose to access the Internet.

Conclusion

This paper addressed the effect of living in a new residential neighbourhood, that was equipped with a high-speed local network, on local social networks, neighbourhood social capital and community involvement. Internet use is not inherently related to a decline in the size of peoples social circles, a reduction in social capital, or the withering of civil society. Netville's neighborhood email list facilitated in-person introductions, increased social connectivity and opened new methods of communication. Netville residents used their online connectivity as a tool to mobilize and act collectively against Magenta and the housing developer. The connected nature of Netville homes, in terms of social and Internet connectivity, encouraged the organization of informal community activities, as well as the growth of local grass-roots collective action. Residents no longer had to overcome the physical and psychological barriers of knocking on the doors of near strangers in order to build local social contacts.

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[18] "High-speed" cable modem service is still considerably slower than Netville's network. Sales representatives were bewildered when they received only grumbles and complaints when pitching cable-modem service to those who had just lost a much faster service.

The experience of Netville residents demonstrates some of the many ways the Internet affects the process of collective action. The Internet reduces the cost and increases the speed of community organization. Computer-mediated communication makes communication with network members instantaneous and inexpensive in terms of both time and resources. Members have the flexibility to actively participate at a time and in a space that is individually convenient. Online forums provide a visibility to participation that can encourage individual contributions, support the appearance of group solidarity and prevent the loss of individual involvement. Yet, visibility is a double-edged sword, just as participation increases as network members witness the investment of others, individual commitment can quickly decline when network visibility creates the perception that others are no longer investing.

Social networks, social capital and community involvement are inherently interrelated. They form what could be termed a *recursive triad* where each factor serves as both the source and the result of the others. It could be argued that community involvement and not the local computer network was ultimately responsible for levels of social connectivity and neighbourhood social capital observed within Netville. Interviewing for the social network survey took place over a number of months beginning in September 1998 and at the time residents had been using the local computer network to organize informal community activities, including local parties, picnics and barbeques, for over a year. The recursive nature of the relationship between social networks, social capital, and community involvement makes it impossible to completely distinguish the relative contribution of the local computer network and offline community involvement to building local social networks. However, since all offline community activities were organized online the difference in social network connectivity between wired and non-wired households can ultimately be contributed to access to the local computer network.[19]

Netville provides a unique opportunity to look into the future and witness the affect of living in a highly wired broadband residential development. The residents of Netville were privileged in terms of their socioeconomic status and in terms of their wired connectivity. Almost no other residential community is wired in the way that Netville was. Yet, the trend of building wired neighborhoods and wired condominium developments is on the rise. In the not so distant future with the growth of wireless Internet technology, the movement of people into wired housing developments, and the wiring of existing neighborhoods for high-speed Internet access, computer-mediated communication may serve as a cure for the decline in social capital and loss of civic society that many feel we are experiencing.

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[19] Netville received much publicity. The publicity and the intrinsic sense of being involved in an a unique experiment may have made some residents susceptible to the "Hawthorne effect" where people self-consciously modifying their behavior on account of being studied. Ethnographic experiences suggests that only a small number of residents were affected in this way and that within the first few months of moving the novelty of being involved in an experiment quickly faded.

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